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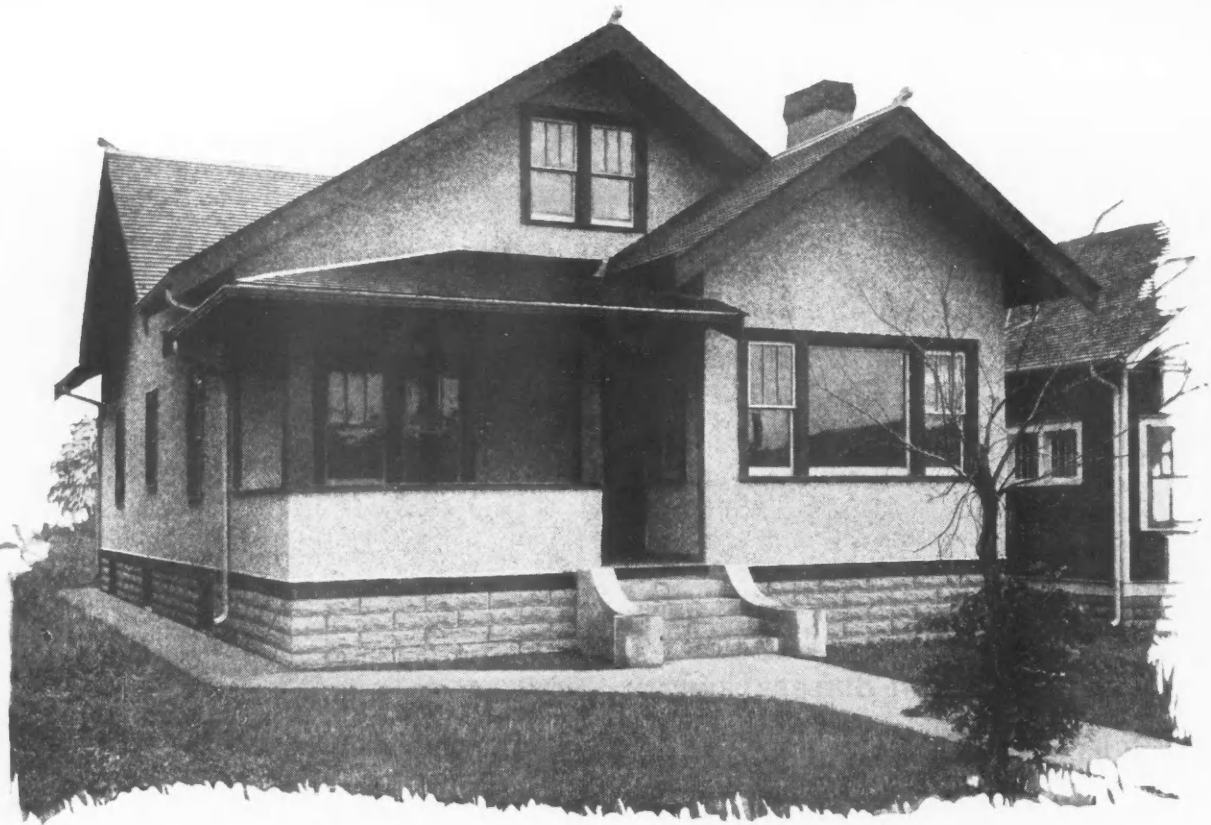
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# Keep Up Your Profits During the Winter Months

Building contractors throughout the country are doing a profitable business with Kragstone Stucco.

The beautiful appearance of Kragstone and its long wearing qualities insure repeat orders.

There is much business to be obtained

**KRAGSTONE**  
(AMERICAN MAGNESIA PRODUCTS CO. CHICAGO)  
**STUCCO**

in the overcoating of old houses. This can be carried on through the Winter, as Kragstone can be applied in cold

weather as well as in warm.

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# KRAGSTONE

*The* STUCCO BEAUTIFUL

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

# Short Talks by the Editor

## Some Thoughts for the Christmas Season

TIME in its flight has brought us once more to the threshold of the holiday season. Unconsciously our thoughts soften as we are reminded of the approach of Christmas tide, the time of good fellowship and peace on earth. More important than ever before is this Christmas because it marks the long step forward towards the long cherished deals of nations, universal peace.

The disarmament conference is now in session and the results promise to exceed our fondest hopes. The great nations of the earth are determined to limit the mad extravagance of military expenditures, to curtail this wastage of money and men, and to relieve the almost unbearable burden of taxation which has weighed down the peoples of the world for centuries. Millions that have been thrown into the cauldron of Mars may be saved for the improvement and betterment of the human race, for better living conditions, better buildings, and the development of real ideals. What a noble purpose!

Let us hope during this Christmastime that the work of this momentous conference will not go to naught or be rendered invalid by the revival of greed and selfishness which has gripped the world so many years. A new spirit has been born. Shall we allow it to perish?



## Significant Sentiment

WRITES a subscriber from Ontario, Canada: "I have just received the October copy of the AMERICAN BUILDER and was attracted by several of the advertisements. Some of these manufacturers will have the pleasure of furnishing us with material and equipment for the homes we intend to build soon."

Now these few lines are not only satisfying to us but they are quite significant. They show that our readers are sufficiently interested to take the time to write and tell us what appeals to them in the AMERICAN BUILDER, and they also show that our readers represent real buying power not merely curiosity. The readers of the AMERICAN BUILDER are serious minded, industrious men engaged in important work. They do not skim thru the pages of the magazine when it reaches them each month, but read it from cover to cover. They have confidence in the advertising which appears in its pages because they have learned from experience that the AMERICAN BUILDER stands only for the best in the building field. We receive many letters of the same type every day and we enjoy them, not because they tickle our vanity, but they prove to us that we are pursuing the right policy.

## New York Solves Building Problem

RECENT figures issued by the building commissioner of Greater New York show a tremendous increase in the number of building permits issued in that city. This has been caused by the tax exemption of new buildings for a period of five years, which in the terms of actual cost reduces the expense of building about 10 per cent. Thousands of poor families who have been prevented from building homes of their own because of high cost have taken advantage of this new law and as a result many small homes have been built and thousands more are under way.

The lawmakers of the largest city in the land, not only had the foresight but the courage to put into effect this drastic measure and are now rewarded by the wonderful success of the act. It has revived building and has solved the city's greatest problem—housing.

This lesson is a good one for other cities which are in the throes of a housing shortage, whose citizens are groaning under exorbitant rents but cannot build because of excessive costs.



## Help the Postoffice Department

POSTMASTER ARTHUR C. LUEDER, of Chicago, recently announced that the Post Office Department and the express and railway companies have joined in a nation-wide effort to stimulate greater interest in the good packing of parcel post, express, and freight packages. November was selected as the "Perfect Package Month" during which an active campaign was conducted to induce all mailers and shippers to give their attention to the manner in which their goods are packed, kind of containers used, and the writing or marking addresses plainly and completely. This is of great public interest, because in the end the public must pay the bills for lost or damaged shipments. Therefore, the public should be deeply interested in the campaign which will tend to reduce losses and improve the service.

Christmas will soon be here, and it is especially desirable that care should be exercised in the preparation of packages at this time, because now the occasional mailer or shipper will be sending packages. Articles easily broken should be carefully wrapped in corrugated or shock-absorbing paper. The department stores use this kind of paper in delivering breakable articles, and it would be an excellent practice for housewives to save this paper for use when they are sending out their own packages.



WITH September and October building reports showing an unprecedented increase over previous months and over the same months in previous years, the building profession has every reason to look forward with confidence to the largest building year in history. It is a good time to prepare.

# Bungalow



Some Typical Homes (see plan on 70)



Looking Down the Promenade of a Beautiful Bungalow Court.

ONE of the most interesting developments in building ideas in many years is that of the bungalow court. As we know, the bungalow came originally from the coast and it is only natural to presume that the bungalow court idea

COUL



Smaller Condensed Type Court on Narrow Site (Plot Plan on page 70).

# Courts



One Side of a Beautiful Court of Bungalows — a Fairyland of Homes.

came from there also. They have a way of their own out there in building work and this idea expresses their ingenuity in effective fashion.

Economy in space has been dinned into builders, land owners and tenants until they have become space-saving mad. It is a button here to take care of the disappearing bed, a switch here,



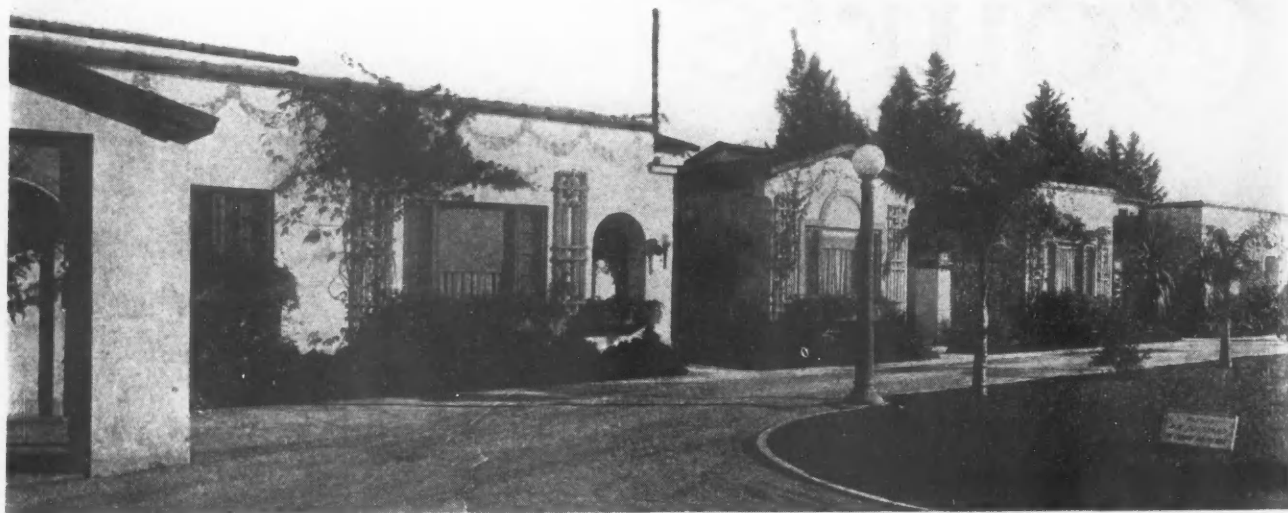
Close-up of Few Homes in Court.

to release a concealed stove, and so on *ad* bewilderment.

The bungalow court in the final analysis is one of the offspring of this thrift idea in landscape and material. For the idea in a few words is to get as many houses on as few lots as possible and still maintain outward beauty and interior comfort. In other words, suppose you have three lots of 30 feet each with a depth of about 175 feet. Instead of building three homes on these three lots all facing the street, the court arrangement calls for eight and nine on the same plot of land but facing a central walk or court, as shown in the plat plans of courts.



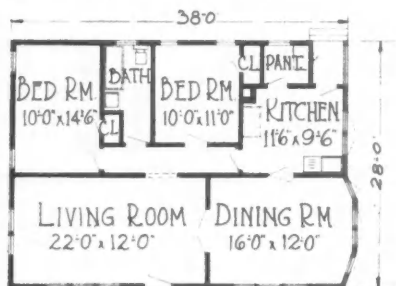
A Little City of Homes in Itself.



This Bungalow Court Idea Was Originated in the Far West Which Was Also the Birthplace of the Bungalow. Many of These Courts Help to Make that Section of the County the Mecca of Homes.

Several types are shown on these pages.

This bungalow court is a sort of chummy community with neighbors enjoying a common front lawn and



FIRST FLOOR

Typical Floor Plan of One of Court Homes Shown on Page 68.

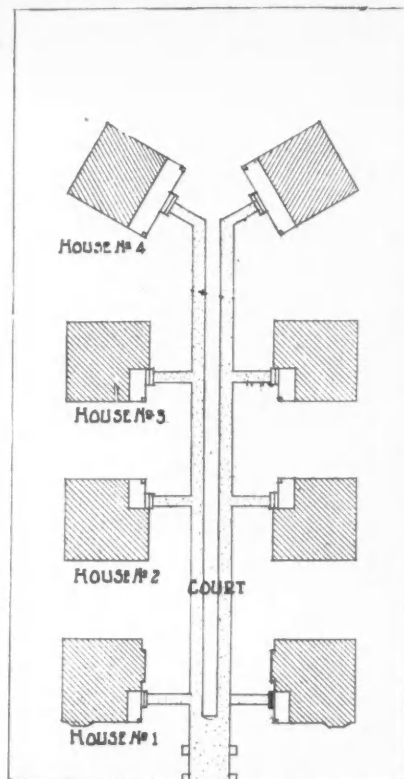
for the owners. Of course, the houses are not limited to the bungalow idea as one picture indicates. In addition to getting the maximum results from a piece of

the children a soviet playground. Two rows of charming little bungalows face each other, with a single house completing the court at the rear. Or this rear space

can be used for a row of garages

land which is, of course, the most important item, this court idea promotes better neighborly feeling and civic pride. The owners form a small co-operative society and take a keen interest in their little kingdom.

The houses in a plan like this vary in size, according to the size of the court,



PLOT PLAN

Typical Plot Plan of Bungalow Court.

but, as a rule, are small, four and five rooms. In many cases the court covers quite a bit of ground with plenty of ground in between the rows of homes for small park. Concrete walks down the center of this provide an attractive promenade.

In conjunction with the illustrations of various types of bungalow courts is shown a typical floor plan, indicating the approximate layout, size and arrangement of the houses. There is much to be said in favor of this housing arrangement.



A Court of Slightly Different Arrangement. Spanish Mission Type Predominates. There Are Six Houses on Each Side of the Court.

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Editor



The AMERICAN BUILDER is proving the most valuable and usable sales help in the hands of contractors and builders. It helps them sell the Building Idea to their clients and customers.

The AMERICAN BUILDER is the "Third Party" in thousands of home-planning conferences each month. When enterprising builders get together with their prospective new building owners, the AMERICAN BUILDER IS THERE; and the good modern ideas contained in both Editorial and Advertising pages are incorporated in the building plans.

## Concreting in Cold Weather

KEY TO ALL-YEAR-ROUND BUILDING DISCOVERED ONLY FEW YEARS AGO

By A. J. R. Curtis

**T**HERE is a fable about some men who, while carrying logs down hill, accidentally dropped one which rolled to the bottom. Perceiving that it was better to roll them down than to carry them down, they carried the logs back up the hill and rolled them down.

A few years ago some construction work was urgently needed in the winter and someone brave enough to attempt concreting in freezing weather discovered that it could be cheaply and easily done, and that with the concrete completed, other portions of the work could usually proceed with but slight difficulty. Of course, winter work is not as easy nor quite as cheap as summer work and there has been no tendency on the part of builders to parallel the foregoing fable by tearing down their summer-constructed work in order to build it up again during the winter.

Men who have given concentrated study to the prime need of the building industry—a stabilized business extending over all twelve months—agree that the key to the situation and the one step upon which it all depends is to get the concreting done practically regardless of weather. For with the concrete portion attended to almost any job can be rushed thru with nothing worse to contend with than the usual handicaps suffered during rainy weather.

It is a mistake for anyone longer to cherish the notion that the building season is necessarily only eight months long. (Mighty few business enterprises

could exist if run only eight months of the year.) The old impression that cold weather concreting is, for some reason or other, beyond the reach of the average contractor, is a fallacy and should be laid aside.



Fig. 1. Section of an Old Steam Boiler Employed for Heating Sand, Gravel and Mixing Water. This Arrangement Might Have Been Improved by Running a Coil of One Inch Pipe Thru the Improvised Fire Box, to Heat the Water.

### Simple Precautionary Measures

Start concrete work at once. Possibly it can be completed before freezing weather or between freezes. Several weeks of favorable weather usually follow the first cold spells. If the concrete is being placed under conditions where it is moderate during the day and only goes below freezing for a short period

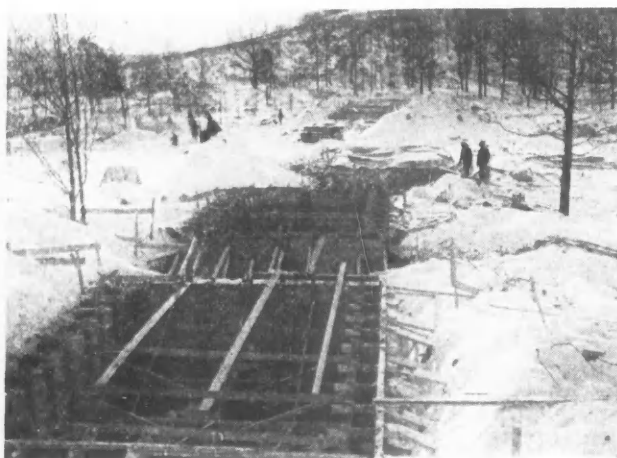


Fig. 2. Foundations for a Group of Frame Dwellings, Constructed in Zero Weather. The Excavations in Such Cases Must Be Thawed Out if Necessary and Kept Free from Frost.



Fig. 3. A Number of Winter-Constructed Dwellings, With the Concreting Apparatus in the Foreground. By Placing the Concrete Portions During Cold Weather Conditions, It Was Possible to Complete These Houses Before Spring, Furnishing an Immediate Outlet for Lumber, Glass, Plumbing Goods and Other Building Materials and Work for the Building Trades.

Fig. 4.

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Fig. 4. The Newly Deposited Concrete in This Building Is Being Protected by Running Live Steam Under a Canvas which Encloses the Work. Steam Is Supplied by a Steam Boiler on the Job.

each night, handle the concrete in the usual way, but cover the work carefully with tarpaulins, building paper, straw or any other suitable protective covering.

Temperatures continuously around the freezing point require the use of hot water and under these conditions it is wise to heat the aggregates at least moderately, to make sure that they contain no frost or particles of ice. The hotter the water the better, within the range of economy, and the same applies to the aggregates, for the object is always to deposit the concrete at as high a temperature as possible.

As the weather gets colder more attention should be paid to heating the materials and to the protective coverings. Foundations and other work largely surrounded by earth are easily protected by means of building paper, straw or canvas.

Cold weather work extending above ground may be covered in a similar manner, also surrounding and enclosing exposed portions of the forms with the covering. Extra care must be taken to protect projecting portions such as caps, ornaments, ledges, sills and corners. Canvas and other covering must be carefully lapped and tears and rips closed, for small chance openings of this kind may produce frosted spots on the work.

In severe weather running continuously below freezing, it is always advisable to enclose the job so far as

possible. Moderate heat supplied by salamanders (coke stoves) or other means is usually found a most economical method of protection. The temperature only need be kept a few degrees above freezing to prevent actual injury, but of course hardening will take place much more rapidly if the enclosure is kept warmer. Similarly, precast pieces such as block and posts may be made during the winter in any room warm enough for the comfort of workmen.

An old steam boiler provides the best source of hot water but on small jobs kettles over open fires or a coil of pipe running thru a short section of old smoke stack answer satisfactorily. The smoke stack is laid down horizontally and some kind of a small

(Continued to page 95.)



Fig. 5. Factory Building of the Madko Concrete Products Co., Madison, Wis., a 12-Months-a-Year Concrete Concern. The Concrete Products Plant which Operates the Year 'round Should Be Heated Just as Any Other Kind of a Factory Is Heated in Cold Weather.

## The Rooms in the House

THIRD ARTICLE OF SERIES ON DESIGN, TRIM AND DECORATION OF VARIOUS ROOMS IN THE NEW HOME

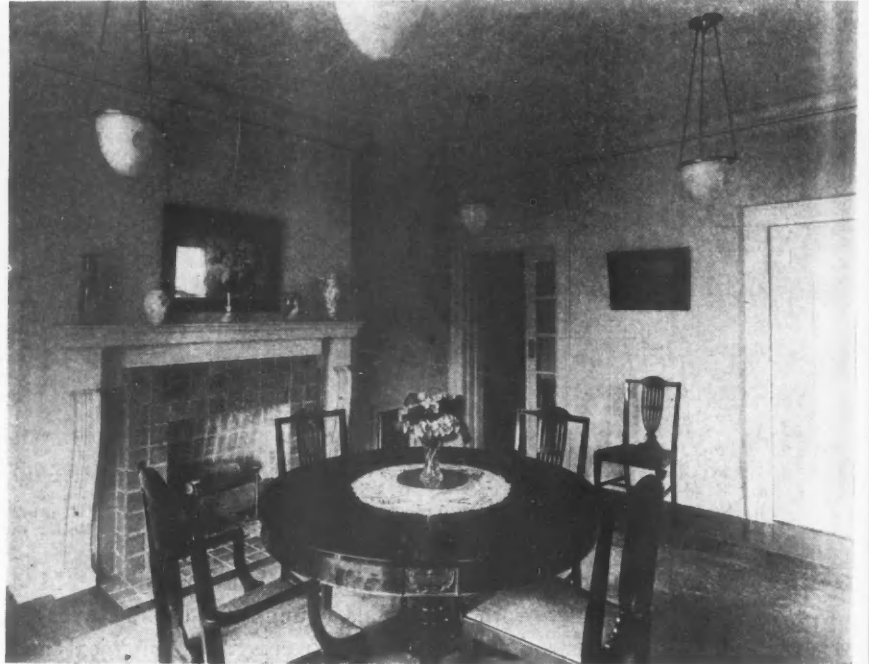
### 2—The Dining Room

"THIS not clean linen only that makes the feast," but the room in which it is served. Battles too numerous to count have been waged among builders and architects over the ultimate fate of the dining room in the house plan, but, as yet, it survives and promises to do for some time to come. True, it has disappeared in the modern condensed apartment and apartment hotel, but in the average home it is too firmly entrenched in the habits of the people to be deliverately overlooked. The breakfast nook has a place, but it is not yet in a position to replace the dining room and for that reason the latter still appears in floor plans.

There are certain characteristics about a dining room that are responsible for its strong position in the household. It is the center of close family associations and is the one room in which the entire family is together. After the meal they invariably separate and scatter to their various interests, but during the dinner hour the dining room is "sanctum sanctorum" of the family destiny.

In discussing dining rooms in general, the first consideration is its position with relation to other rooms,

especially the kitchen. This arrangement is of vital importance to the housewife, for the meals that are served must be carried from kitchen to dining room. Unless the rooms are conveniently near, there will be

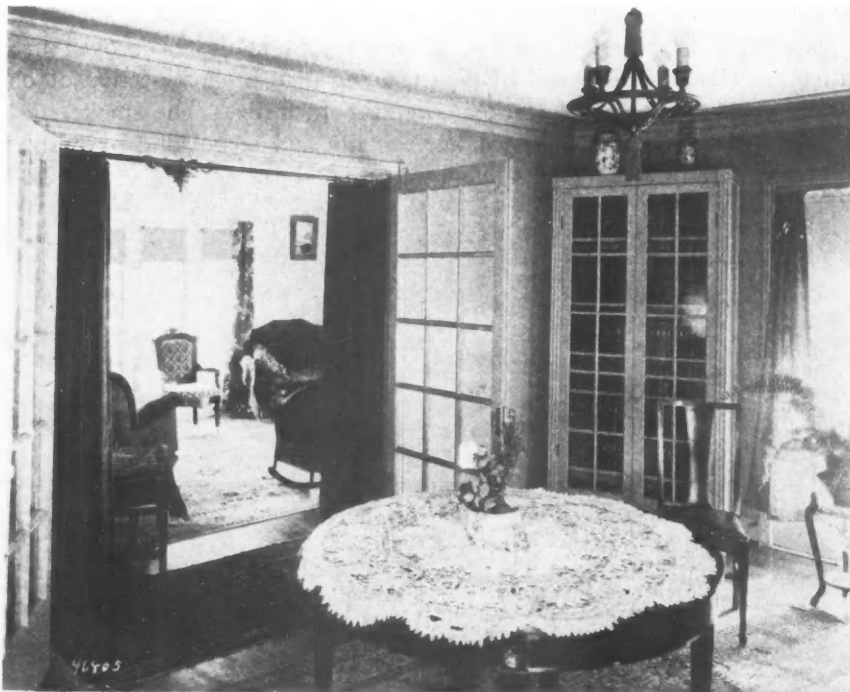


If Large Enough, a Fireplace Can Be Built in the Dining Room as Shown Here. In This Case It Is a Gas Log. Note the Vanishing Door Between This Room and the Hall.

a waste of steps and a tax on energy. For that reason the dining room should be connected with the kitchen either by swinging door, passage thru a pantry or by some other special arrangement such as a combination buffet thru which food and dishes can be passed from one room to the other.

In size the dining room is average, smaller than the large living room and larger than the kitchen. It should be well lighted by some windows, a bay window preferably, so that it will be a center of brightness and cheer. Happiness is one of the best assistants of the digestive system and it is not reasonable to expect that a room which is depressing in appearance will be conducive to the complete and successful assimilation of a meal. Bright, harmonious and tuneful colors are quite essential.

To builders the important work in a dining room is the permanent or built-in furniture and trim, and if it is connected with the living room, the inter-room opening. In



The Charm and Cheerfulness Afforded by Glass Doors Between Rooms are Shown Very Clearly Here. Inter-Room Openings Should Get Careful Attention from Builders.

a small dining room the built-in china closet, sideboard or buffet are good because they do not take up much floor space and keep their place as a part of the wall.

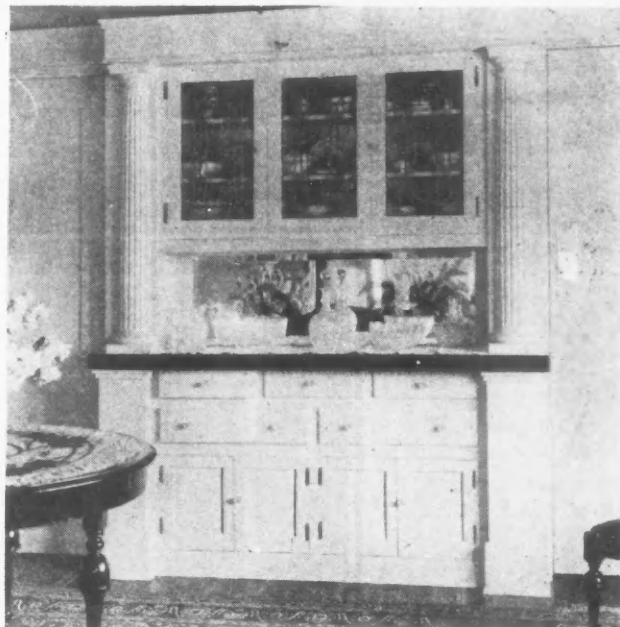
There is room for great variety in design in the dining room. The opening between the dining room and living room can be a colonnade with side book-cases or it can be gracefully arched as in one of the illustrations with cases built in the partition walls. French doors between the dining room and sun parlor or other rooms are very artistic and a real improvement.

It is also feasible, if the dining room is large enough, to have an extra fireplace with attractive mantel. Wall paneling is used very often in dining rooms and a window seat under the bay window is quite appropriate. In some dining rooms in smaller homes an attractive pair of French doors or a single mirrored door may well conceal a wall bed which can be used in case an extra guest has to remain over night. The interior trim is an important part of the decorative background and very often determines whether or not the dining room is restful.

While it is not the usual thing, very often a fireplace is built in the dining room. One of the illustrations shows how this can be done artistically. To hold a fireplace the dining room must first be sufficiently large.

A small alcove off the dining room is handy for the telephone with bench and a few shelves and drawers for keeping social references and stationery. This little alcove can be enclosed by narrow French doors.

The problem of lighting the dining room is as important as that of the living room and for that reason will be treated in a separate article to follow. Our



An Excellent Suggestion for Built-in Sideboard. Well-placed, Attractive Looking Built-in Furniture Lends Much to the Charm of the Dining Room.

electrical equipment adviser will discuss in detail the type of electrical fixtures to be used, the reasons for their preference and the method of installing the proper number of receptacles and outlets in the proper places. Hardwood floors are undoubtedly preferred in both living room and dining room because of their readiness to take on a bright wax finish which adds much to the beauty of the room.

Wallpaper carefully selected will make the room a pretty one, altho unfinished plaster is often tinted and decorated by a simple design.

## Lighting the Dining Room

By Grace T. Hadley

Society for Electrical Development, Inc.

THE house that looks friendly and home-like owes something to the skill of the architect who planned it and something to the ability of the builder who gave it form, while the rooms within the house owe all of their charm and artistry to the woman who plans the furnishing and gives the lighting effects more than a passing thought.

Within the house are the rooms that cater to the three essential sides of family life, the physical, the mental and the social. Specifically the kitchen and dining-room cater to the first, the library to the second and the living-room or drawing-room to the third essential or the social side of the family life.

Next to the living-room the dining-room should be the pleasantest place in the home for there is the daily family gathering about the dining table for physical sustenance, but in a healthy well-ordered home, there is more than "meat," there is merriment, especially if there are children, there is laughter and much lively conversation. Particularly is this the case if the family

is separated thru the day and the joyful gathering takes place each evening around the dinner table.

### Raison D'Être of the Dining-Room

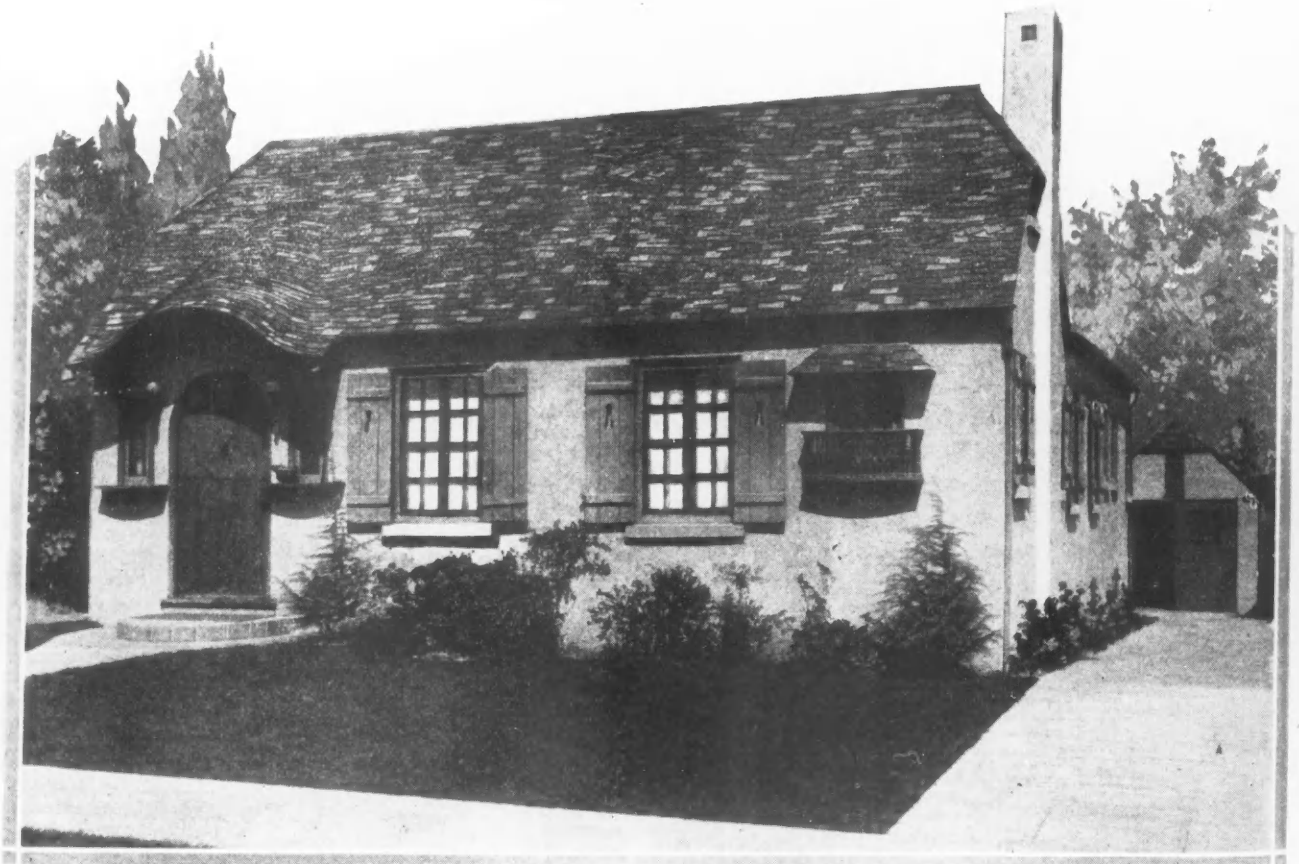
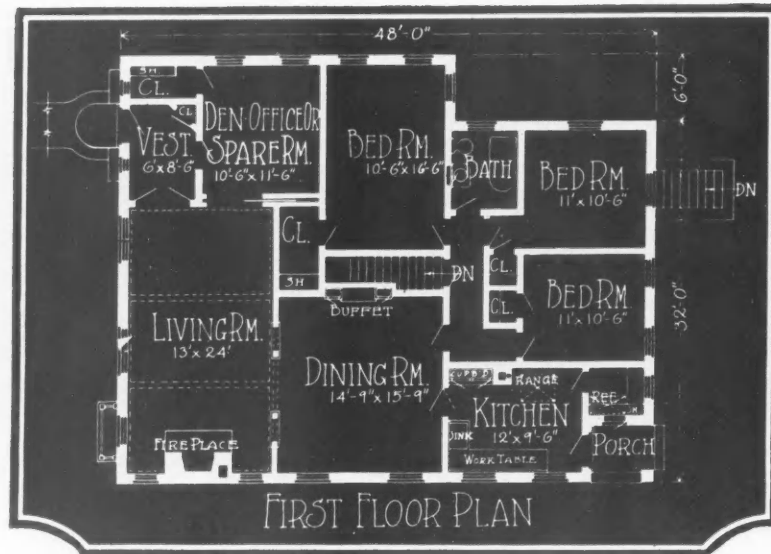
The dining table is the chief object of interest—the raison d'être of the room, so to speak, therefore the question of lighting the dining-room should begin first of all with the lighting of the table. Here is the main thought to keep in mind—all or most of the light from a center ceiling fixture should be directed toward the table. This central fixture used to be a dome and in many dining rooms the dome still reigns supreme over the table, much too heavy and inartistic in appearance. Too often unshaded lamps or clear bulbs are used within the dome so that glaring light rays strike the eyes of those seated about the table. This is a serious fault of many of the old domes which should be remedied by stretching sheer yellow silk around a hoop and fitting it within the rim of the dome.

In order to avoid the glare that is much in evidence

(Continued to page 79.)

PRACTICAL & ARTISTIC

# BLUE RIBBON HOMES

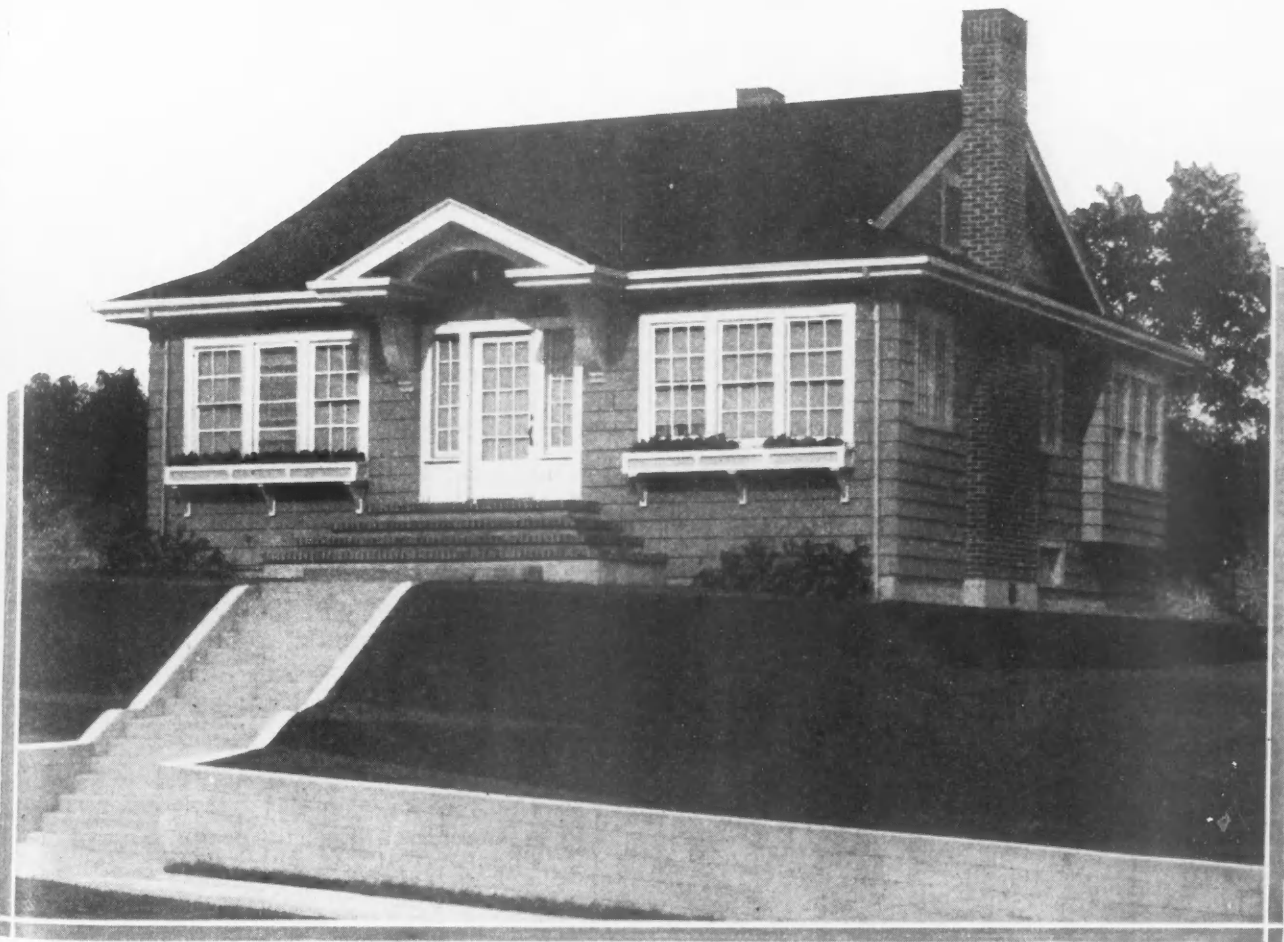
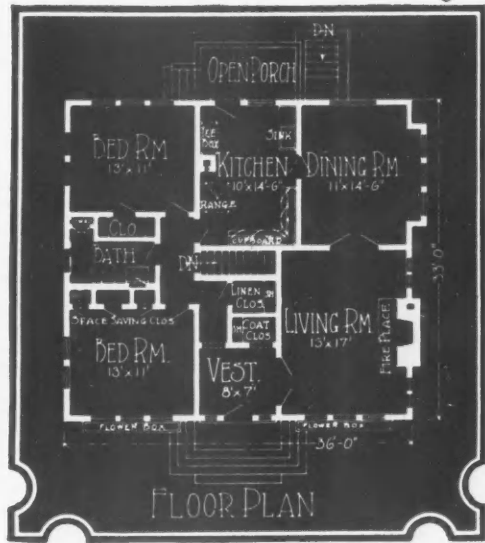


**ODD, STRIKING, BUT COZY BUNGALOW.** There is a touch of the rustic, a glimpse of the hospitable Spanish mission in this small but distinctive home. Much of the unusual may be attributed to the variegated color roof of shingles and the curved arch above the front door. The door itself is massive with old fashioned knocker, and the windows have heavy shutters. To add to the romantic setting the architect has placed a small balcony with rail at one end of the front elevation. The interior arrangement is well arranged with provision near the front vestibule for a doctor's office or spareroom. At one side of this room is the spacious living room, 13 by 24 with fireplace in the side-wall. It opens into a dining room of good size. There are three bedrooms grouped together at one end of the house. The kitchen is small, completely equipped. Size of house 32 by 48 feet.

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**BLUE RIBBON HOMES**

PRACTICAL & ARTISTIC



**PICTURESQUE SMALL HOME OF PLEASING DESIGN.** In this picture the terrace adds considerable attraction to the general appearance of the home, altho the design itself is very charming. Shingles have been used as siding with prominent white trim, brick steps and large brick flue. The small paned windows are remindful of the colonial hospitality as is the entrance with its gabled hood. Flower boxes under the front windows improve the appearance. Inside are five excellent rooms, living room, dining room, two bedrooms, and kitchen. The arrangement is particularly well handled, living room, dining room and kitchen being located in convenient order with bedrooms and bath together. Space saving closets in the bedrooms have permitted the builder to make these rooms larger, likewise space saving cabinets in the kitchen have eliminated a pantry. The foundation is concrete. Size 36 by 33 feet.

## Law for the Builder

DISCOVERY OF DEFECT IN SOIL AFTER WORK HAS BEEN COMMENCED AS GROUND FOR ABANDONMENT OF CONTRACT BY CONTRACTOR

By Leslie Childs

THE question of the right of a contractor to abandon his contract because of a defect discovered in the soil after the contract has been entered upon has been the source of considerable litigation. And, generally speaking, the outcome of the suits of this kind has turned on the wording of the contract entered into. For this reason the statement of a hard and fast rule that would apply in all situations is hardly practicable.

However, generally speaking, in the absence of fraud or deceit upon the part of the owner in respect to the nature of the soil, the contractor will not be justified in abandoning his contract because the soil proves of a different quality to what he expected.

One phase of the application of this rule is illustrated in an interesting manner in the case of Ford & Denning vs. Shepard Company, 36 R. I. 497. The facts involved, material to this discussion, were as follows:

Ford & Denning were general contractors and en-



The Contractors Were Making Excavations Around the Piers when They Struck Quicksand.

tered into an agreement with the Shepard Company to furnish certain materials and made certain alterations in the boiler room of the basement of the latter's store. The contract price for this work was \$10,200, and the contractors entered upon the work.

### Quicksand is Encountered

The contractors had been at work about twelve days and were making some excavations around the piers which sustained the weight of the building for the purpose of replacing them with deeper foundations, when they came upon a bed of quicksand. The handling of this quicksand proved, it seems, an unexpected difficulty and continued to rise through the opening made as fast as it was removed. When the contractors discovered this situation they wrote the architect in charge of the work in substance as follows:

"We find that in going to the required depth as called for in our contract that the soil at that depth is what is known as quicksand, and it is considered by us as unsafe upon which to rest pier footings, wall footings and boiler settings. Unless we receive orders from you to the contrary we will proceed with the

work but will not be responsible for any settlements, etc., that may subsequently occur."

This letter led to a conference between the owners and the contractors, as a result of which the owners wrote the contractors, in part, as follows:

"The Shepard Company is willing and agrees to pay you for all work and material which you are not to furnish under your contract and which you may furnish under direction of the architect necessary for the satisfactory completion of the work you have undertaken on condition that you will immediately proceed with the work as directed by the architect."

Thereafter, it appears, the contractors went into the situation carefully and offered to extend the work, in a certain manner, so as to secure a proper foundation for \$6,000 extra.

### Contractors Abandon Contract

At this point the parties drew up another contract which indicated in detail the labor and material which was thought to be necessary to deal with the quicksand. The contractors declined to enter into this last contract on the grounds, among other things, that there would be grave risk in attempting the work set forth in the additional specifications. They thereafter abandoned the contract and brought suit for the value of the work performed up to this time.

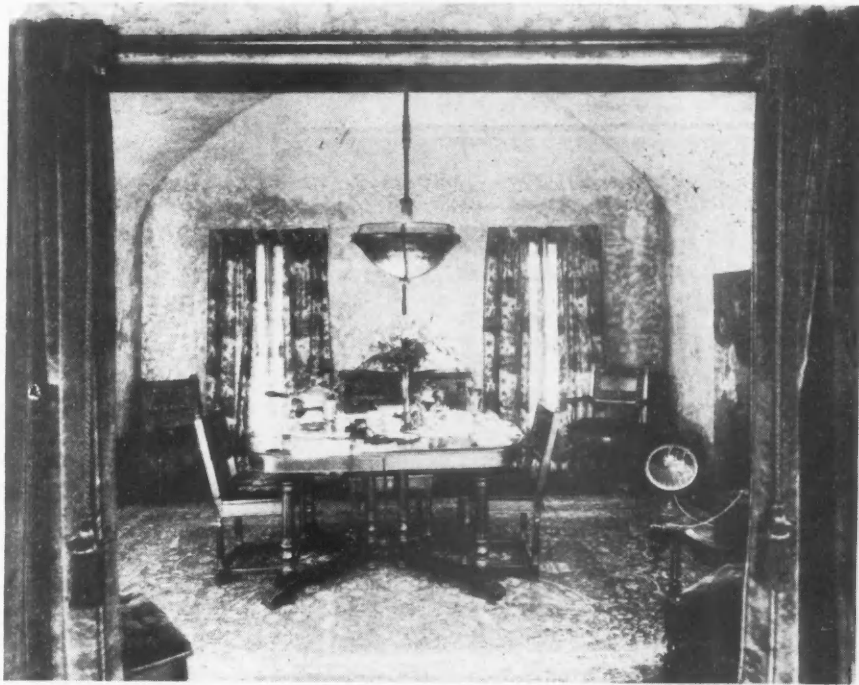
Upon the trial of the case the contractors relied, among other things, on a claim that the owners had knowledge of the quicksand and intentionally omitted reference thereto in the plans and specifications for the purpose of deceiving them. The case was tried before a jury on this theory and resulted in a verdict in favor of the contractors for \$5,466.72.

The defendant, Shepard Company, excepted, and the case was appealed to the Supreme Court of Rhode Island, where in approving the construction given the contract by the trial court, and in stating the general rule it was, in part, said:

"In the trial of the case, the superior court ruled in construing the contract that it was incumbent upon the plaintiffs (contractors) to take care of the quicksand whatever might be the expense to them of so doing. \* \* \* We think that such ruling was correct. It is well settled that the performance of a contract of this sort is not excused by the fact that there was a defect in the soil which rendered necessary a greater amount of work than was contemplated by the contractor at the time he executed his contract. \* \* \*"

The Supreme Court then directed its attention to an examination of the evidence to ascertain whether or not there was evidence that would justify the jury

(Continued to page 105.)



Another Example of Dining Room Illumination that Works Out Very Satisfactorily. Every Contractor Should Know the Value of Proper Lighting so as to Make the Interior of His New Buildings More Effective.

### Lighting the Dining Room

(Continued from page 75.)

wherever light rays from clear lamp bulbs strike the eye or are in the line of vision, a better center fixture has been devised. A translucent bowl filters the light from high wattage lamps so that an agreeable radiance reaches the table. Another center fixture has candle lamps set upright within a silken shade. Another fixture is of the corona type from which a flood of light descends upon the table. Proper light upon the table is desirable but it should be light without glare. Secondary lighting effects are secured by the use of wall brackets containing two electric lamps of the 25-watt type with frosted bulbs and protected by small shields of silk or parchment.

#### Provide for Convenience Outlets

All modern electrical plans for the dining-room include at least one floor outlet under the table for the convenient use of electrical appliances such as the toaster, percolator, grill or the chafing-dish. In addition to this floor outlet, four other convenience outlets are located in the baseboard and serve a fan or a vacuum cleaner, perhaps a tea wagon. Two other outlets on each side of the buffet serve a couple of candle lamps that provide additional color notes in the general decorative scheme.

#### The Maidless Meal

Where there is little or no help to be obtained for the average home, a self-serving dining room becomes an economic necessity. The electrical appliances fill a real need in such cases. With a couple of good table appliances properly and conveniently connected and a tea wagon at the left, a hostess may be practically independent of a maid. She may even entertain a guest or two.

The usefulness of electrical table appliances can be increased by the installation of outlets on the table itself, thus doing away with the inconvenience resulting from connecting the appliances to overhead fixtures. Moreover the modern fixtures do not lend themselves to such connections any more. They confine their duties to the lighting of the table and the room, as they should.

Frequently the floor outlet is entirely lost to use because it is often covered with one large floor rug. If this rug is domestic the seam may be slit and the cord from center outlet brought up thru it. Better still, two harmonizing rugs can be laid down and the cord brought up between the rugs, run along beneath the table to a plate with outlets fastened just below the edge of the

table, and within easy reach of the hand of the hostess. If three appliances are to be operated at the main table in the preparation of a meal, a No. 12 wire should be installed in the floor outlet to take care of the load, a round grill using 600 watts, percolator 500 watts, and toaster taking 600 watts, a total of 1,700 watts.

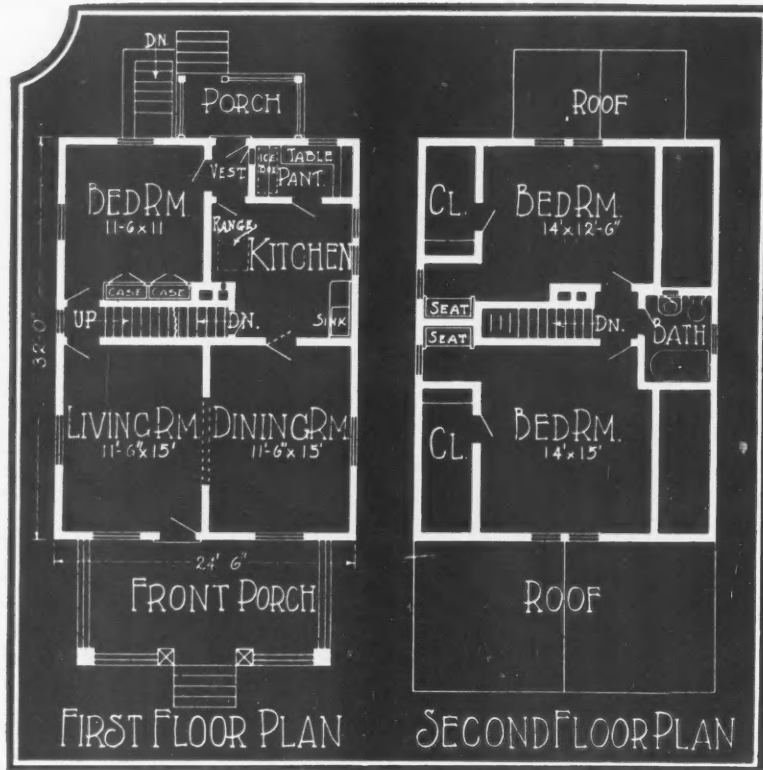
When preparing for the maidless meal, the dining-room table is set early in the evening, giving a charming, festive atmosphere to the dining-room.



Candle Lamp Type of Fixtures Over the Dining Room Table Are Very Beautiful and Appropriate. The Lighting in This Room Calls for One Large Brilliant Fixture Over the Table.

**PRACTICAL & ARTISTIC**

**BLUE RIBBON HOMES**

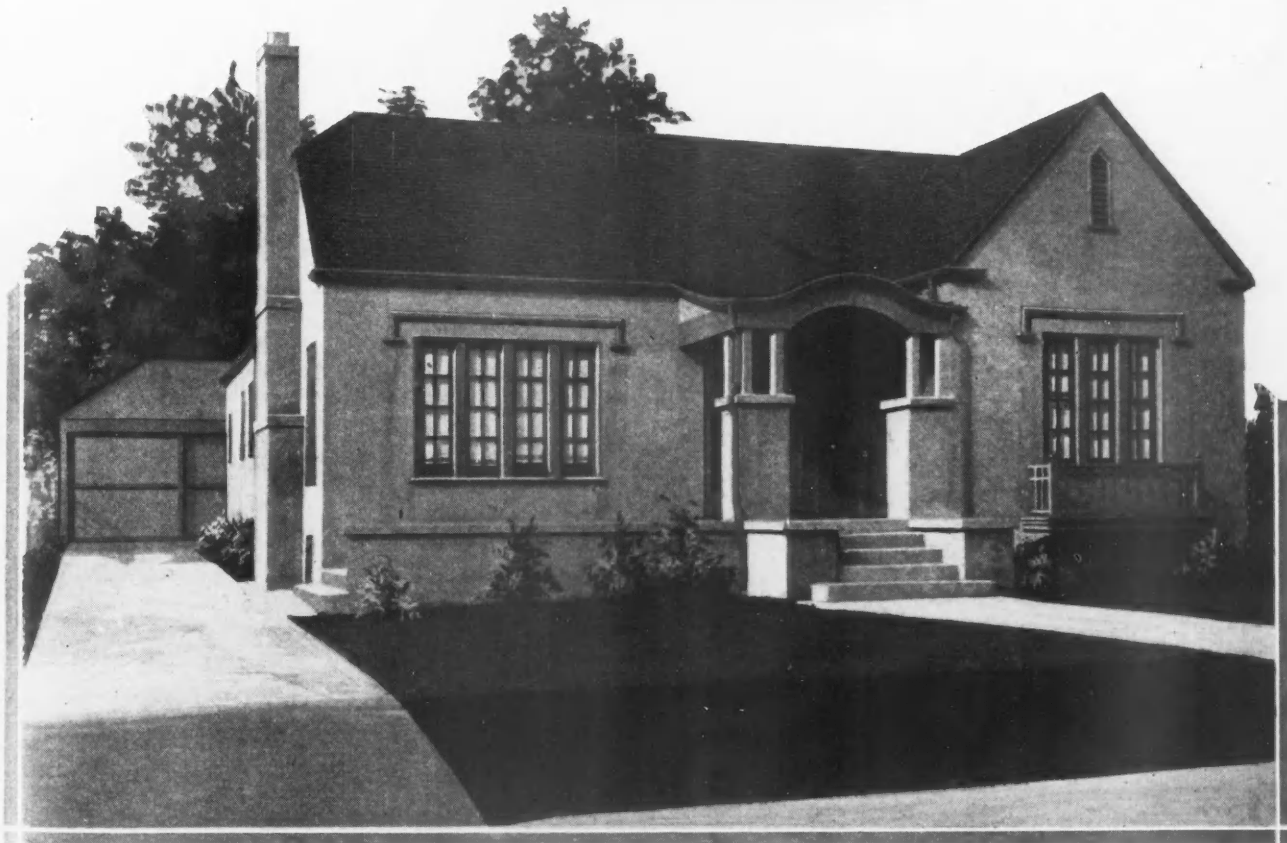
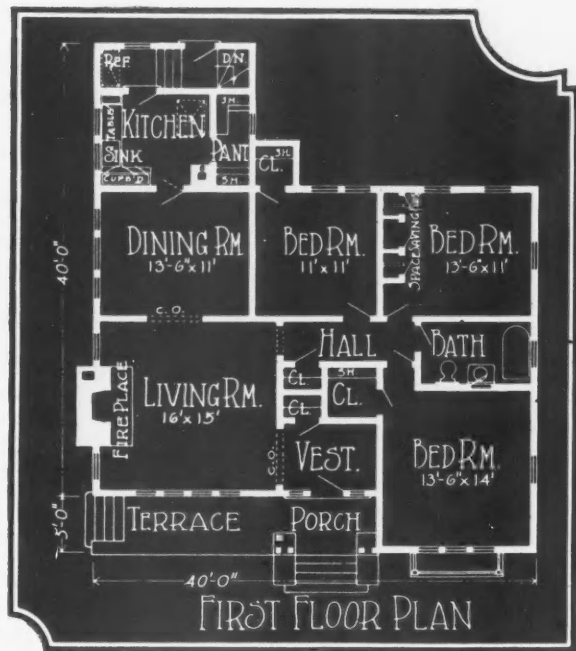


**C**ONSERVATIVE, WELL-ARRANGED, LARGE HOME DESIGN. There is nothing fancy about this well-built house, the emphasis being laid on comfort and convenience rather than uniqueness of design. It is the popular two-story house of frame with broad open front porch, foundation of concrete block and gable roof broken by side dormers for the upper bedrooms. There is no doubt about the economy of this rectangular type. On the first floor are four rooms, three living rooms and one bedroom. Of these living room and dining room are located next to each other in the front of the house with kitchen to the rear of the dining room and bedroom to the rear of the living room joined by a short hall which also leads to the stairway to the upper floor. Two large bedrooms are located on the second floor with plenty of closet space under the eaves. This type of six room house will fill the wants of many families of moderate means. It is 24 feet 6 inches by 32 feet.



# BLUE RIBBON HOMES

PRACTICAL  
&  
ARTISTIC



**"ALL THE ROOMS ON ONE FLOOR."** This is the feature about bungalows that has caused them to be popular with many women folks. Builders find that the housewife is influencing modern day architecture to a great extent because of their insistence for homes that will lessen their burdens. This house is designed to do this and altho containing six good sized rooms, it is very well arranged. Space-saving closets have been used in the bedrooms and built-in furniture wherever possible. The exterior is white stucco. Extending across part of the house is a terrace, covered partly by roof over the front entrance. Long single casement windows in living room and front bedroom are quite artistic and fit in well with the general scheme. All of the rooms have plenty of light and are well proportioned. The house proper is 40 feet wide and 40 feet long, including the rear kitchen wing. Back of the rear kitchen wing is a two-car garage.



# “A Home for A’ That”

## Two Pages of Suggestions for Those Who *Must Have A Home* However Small and Modest

*Here is a very timely chance to do some good. No doubt some of our readers know of little homes like this built in an emergency and successfully lived in. Please write and tell us about them, and send a photo. It will help others.—The Editor.*

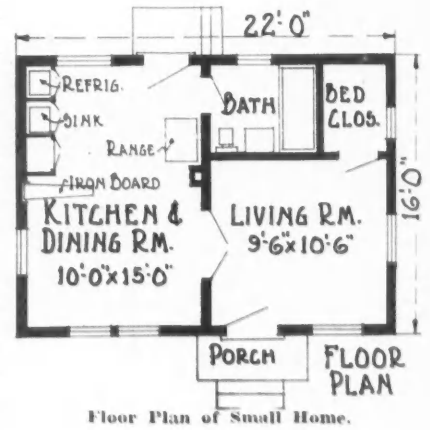
**W**HEN Bobbie Burns wrote the immortal words which have been slightly changed to fit the heading above he was expressing sentiments which are evidently sound. In his estimation a man, be he as poor as Job, in rags and poverty, would be a “man for a’ that” as long as he had character, honesty, and courage.

Real homes in many ways possess qualities which make a human being desirable. They possess character, and honesty, and despite outward trimming and decoration, their value is determined by the actual service they render. That is why a small home is very often more valuable to its owner than the large or pretentious one.

In the second of our series of small homes for families who cannot afford to build a better one, we show a diminutive house that is very attractive. It is tiny, but a few simple touches of an inexpensive nature on the exterior have helped to make it a charming shelter

and one that the owner need not be ashamed of despite its size.

It is built of plain board siding with low gable roof covered by composition roofing. A small stoop leads the way to the front door of stock design. On each side of the door extending from the ground to the roof and at each end of the house



are some simple lattice design for picturesque vines. The exposed rafter effect under the roof and the small



**Charming Little Home Which Will Solve Many Families' Present Housing Problem. It is Built of Inexpensive Materials, Contains Three Rooms Which Serve the Purpose of Four and is 22 by 16 Feet.**

extension over the front door are enhancing touches.

A double window and a large single window in the front and several on the sides and rear make this home bright and cheerful on the inside.

Of course, in a house of this size, space saving is the essential problem of the builder. It

is his task to make this as near complete as a larger home in much less space. For instance, this house is only 22 by 16 feet, the size of a large room in other larger houses. But this small space can be very efficiently divided as the floor plan shows. In main, there are two rooms, altho each of these rooms take the place of more. There is a living room on the right side of the house 9 feet 6 inches by 10 feet 6 inches, which gets double value thru the use of a wall bed in one corner. In short, it serves the purpose of a bedroom by night and living room by day. The wall bed is concealed in a small dressing closet during the day. This room serves as a place for clothes.

The other side of the house has been partitioned off into a large room which is a combination dining room and kitchen, the dining room taking up the front half and the kitchen the rear. Between the dining room and kitchen are glass doors. There is also a bathroom in the rear.

In short, this little home has four rooms and bath which in an apartment building would call for a very high rent, perhaps, far beyond the means of many working men. If they want to enjoy comparative security and peace of mind at sacrifice of false pride, they can do so by having a small home such as is shown here built on a small lot for a very small amount.

Built-in features have helped immensely in making this small home modern from the standpoint of conveniences. In the kitchen there is a built-in ironing board, sink, refrigerator, and a sewing cabinet of the type illustrated can be built in the living or dining room. There are many ways of saving space which some of the readers of the *AMERICAN BUILDER* have used and which will be shown from time to time in this department.

One of the many ways in which a small house can be made to serve a variety of needs and provide many comforts which would otherwise be lacking, is shown in the illustrations herewith. In this case the built-in idea has been used to provide a sewing cabinet



Built-in Sewing Cabinet for Small Home. This Handy Device Will Save Considerable Space.

table and closet where linen and other clothes may be kept.

This cabinet is built in the wall, the lower part consisting of one large drawer and two smaller ones not very deep because of the thickness of the wall. Above these drawers is a solid board panel with dividing strips which, upon closer inspection, are found to be hinged near the top. This top panel can be swung out from the wall and when this takes place, the hinged dividing strips drop down and serve as table legs, as shown in the picture in which the table is pulled out for work. The large panel makes an ideal work table on which the housewife can sew or iron clothes. In the space between the studs, shelves have been built where clothes can be kept.



Sewing Cabinet Opened for Use. Like the Concealed Bed This Table Comes Out of the Wall Revealing a Work Table and Handy Shelves. It Takes Up Very Little Space.

This cupboard, if we shall call it such, takes up very little room and is ideal for the small type of home that is shown on the opposite page.

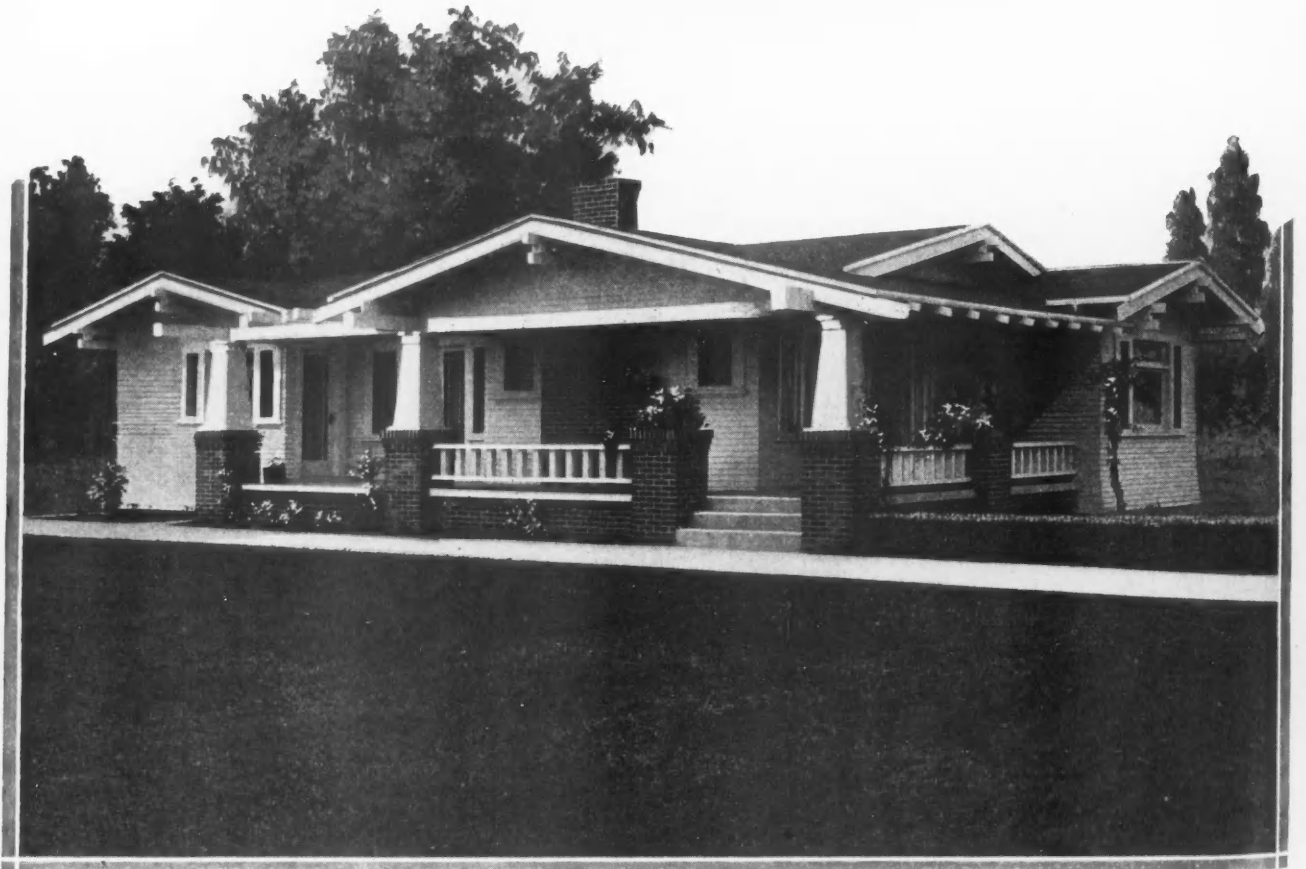
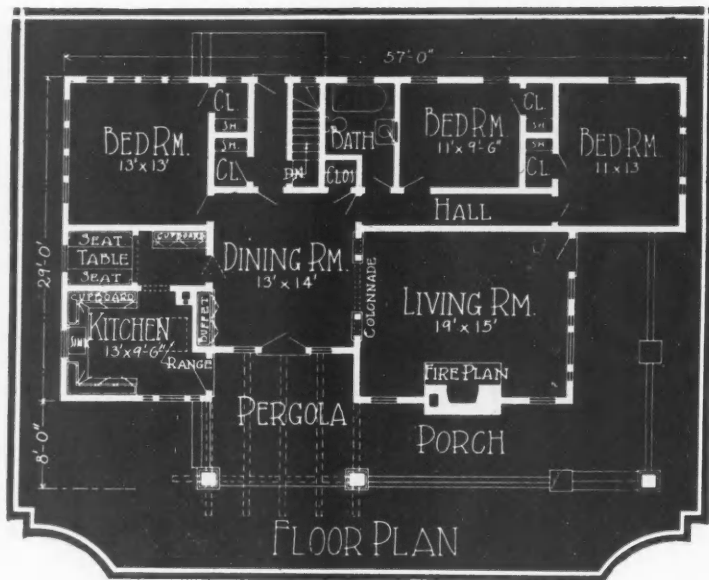


### Cinders as Aggregate

**C**INDERS are used to some extent as a substitute for crushed stone or gravel. They are lighter and more porous than stone and less strong, but where lightness is more important than strength or where a poor conductor of heat or sound is required, they may be used. Successive floors of tall buildings are often laid with cinder concrete. Roofs are also constructed with it. Cinder concrete may be cut more easily than concrete made of stone; nails may be driven into it. The cinder used for concrete work should not contain much, if any, fine ashes. Wood ashes should not be used at all. The cinders from power plants are better than ashes from household furnaces because the intense heat of the former fuses most of the ash into hard material, leaving little or no fine matter. Where the cinders have been drenched with water as soon as drawn from the furnace, they are still better, for the reason that the fine material is washed out. Cinders are easily crushed, and it is better practice not to ram concrete in which they are used.

# BLUE RIBBON HOMES

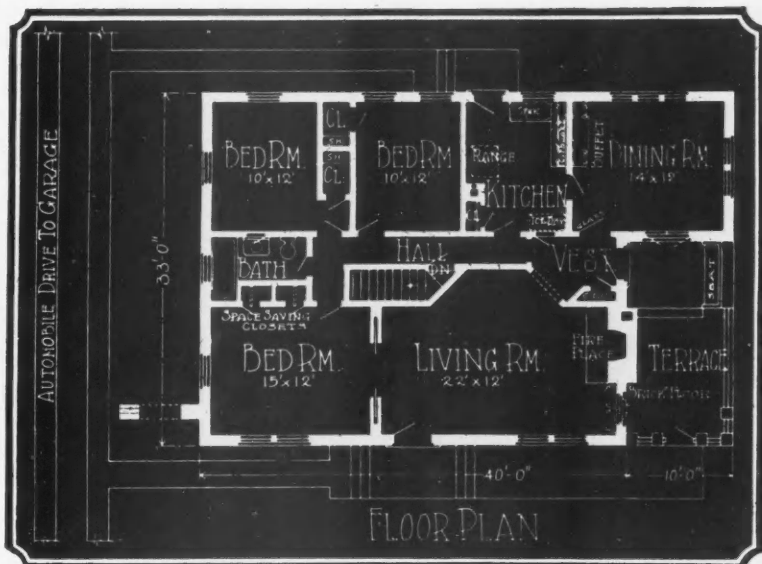
PRACTICAL & ARTISTIC



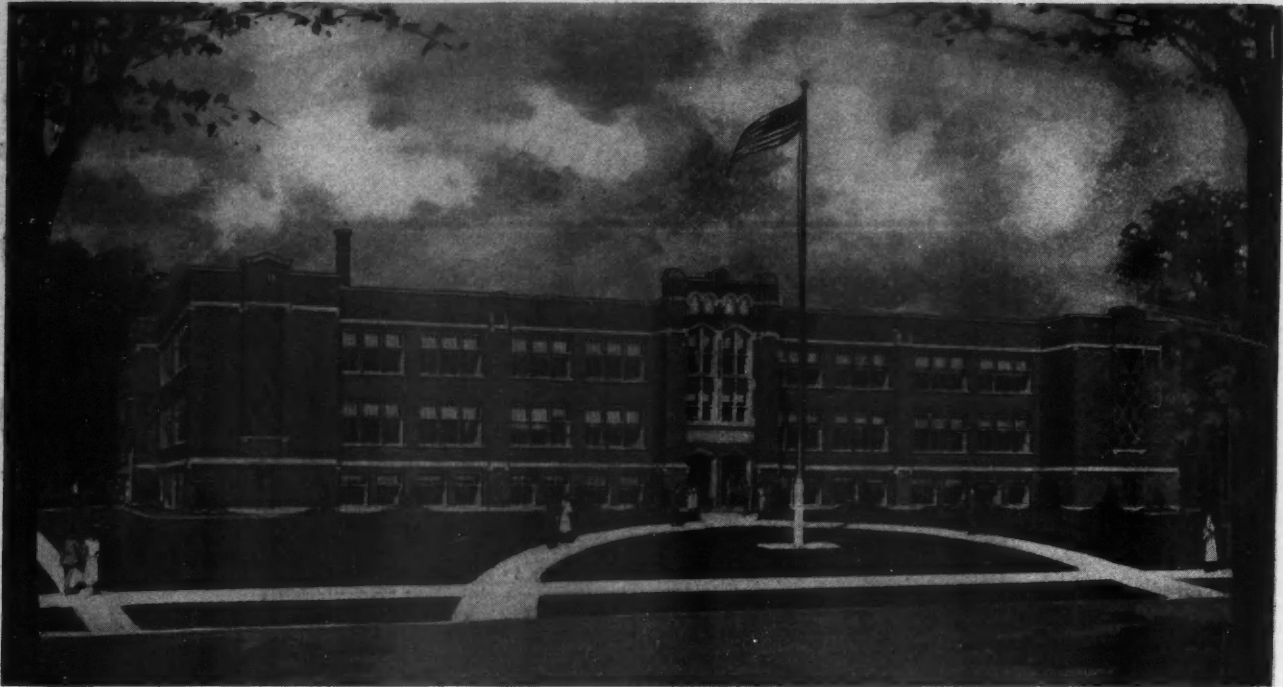
**LOW, RAMBLING, AND COMFORTABLE—AN ATTRACTIVE HOME.** This house embodies qualities which will make it popular with prospective home-builders. The general impression is one of coziness without any indication of skimpiness in space. A large comfortable porch extends part way around the front and side of the building and is set off by solid brick column supports, white railing, and wide white columns. The construction is frame on a brick foundation. The floor plan arrangement calls for six rooms, which, because of the ample window space on all sides, are very bright and cheerful. Living room, dining room and kitchen have been placed together and the three bedrooms are grouped on the opposite side of the house. A small permanent breakfast nook is also provided. The general design of the home makes it ideal for a family with children. Size over all, 37 by 57 feet.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**BRICK LENDS ITS CHARM TO THIS HOME.** Here is a very delightful six-room bungalow home of brick that will find an instant response in many hearts. The bond is quite striking and effective and many of the exterior touches are excellent and add much to the attractive appearance of the home. In marked contrast to the brick background stands out the white trim of doors, windows and eaves. At one end is a small terrace with brick posts, wood fence and gate, and extending from the other end of the house is a small brick arch for climbing vines. There are several entrances, two from the side terrace and one in front. One of them opens into the odd-shaped living room, another into a small vestibule which soon converges into a hall running thru the house, and the third into the dining room to the rear of the terrace. There are six rooms of which three are bedrooms. Space-saving closets in one of the bedrooms add to its size. This house is 40 by 33 feet.



New School Building at Sterling, Ill., Which Cost \$170,000 and Contains Many Novel Features. It Was Designed by G. W. Ashby, Well-known School Architect, Chicago.

## Many Building Features in New School House

STERLING, ILL., BUILDING CONSIDERED ONE OF BEST IN STATE—COST \$170,000

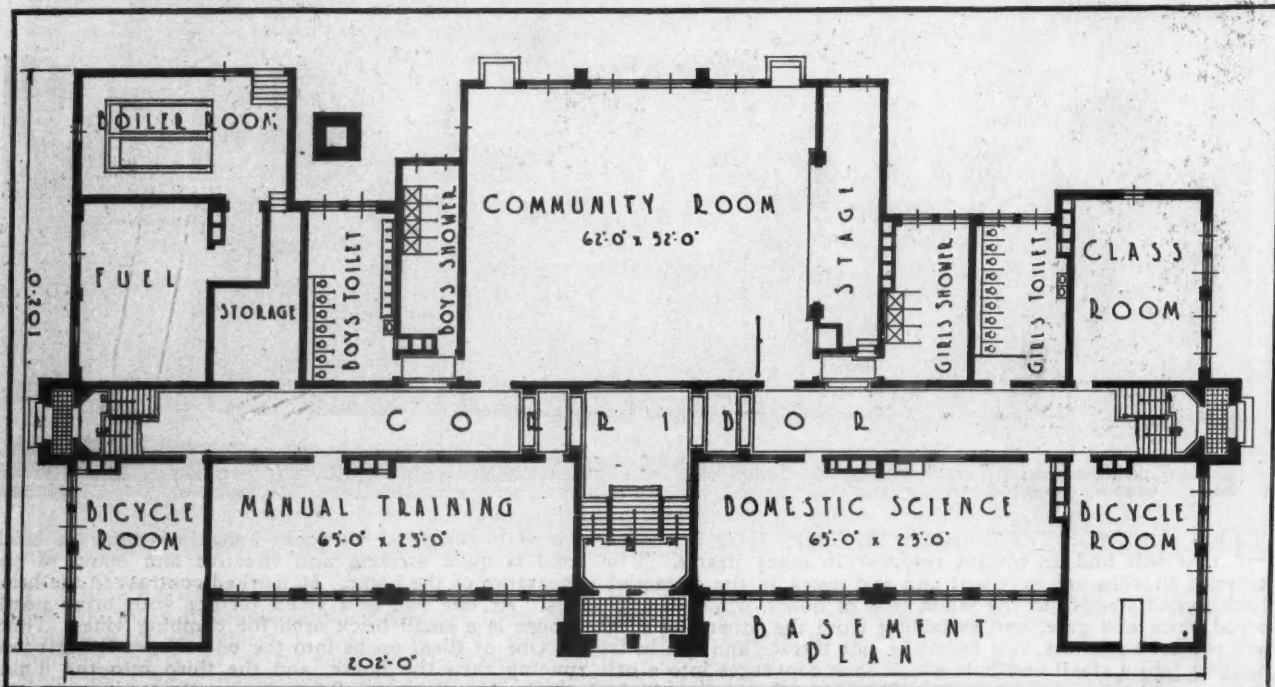
“THE best eight-room school in the state” is the way the State Fire Marshal of Illinois described the splendid schoolhouse shown above. It was designed by G. W. Ashby, the well-known school architect of Chicago and cost \$170,000.

The exterior is an attractive texture face brick with stone trim. The building faces the south.

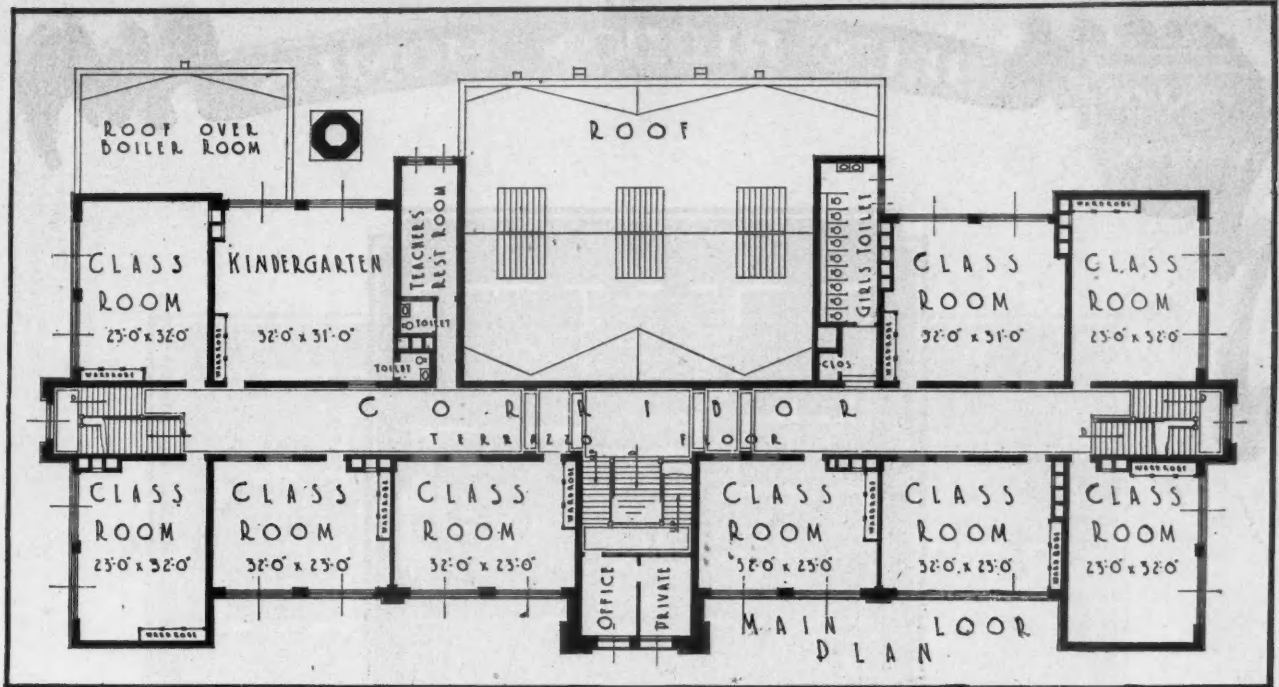
Many novel features have been incorporated into this schoolhouse. For instance, all floors in the corridors and stairs are terrazzo finish, giving a hard smooth

finish of pleasing color.

The building is heated by a so-called direct-indirect system. In this arrangement fresh air is drawn in below the windows thru the coils of the radiators along the walls of the schoolrooms, heated, and passed out into the room. In short, the room is being filled with warm fresh air continuously. To take care of the foul air, which accumulates very fast where there are many children, a foul air vent has been placed in each room as indicated in the floor plans. In these vents are



Basement Plan of Sterling School. Note Community Room.



First Floor Plan of School Building—Nine Classrooms and Kindergarten.

located aspirators which facilitate the drawing off of this bad air. One of the important parts of this heating and ventilation system is the 85-foot high stack adjoining the boiler room.

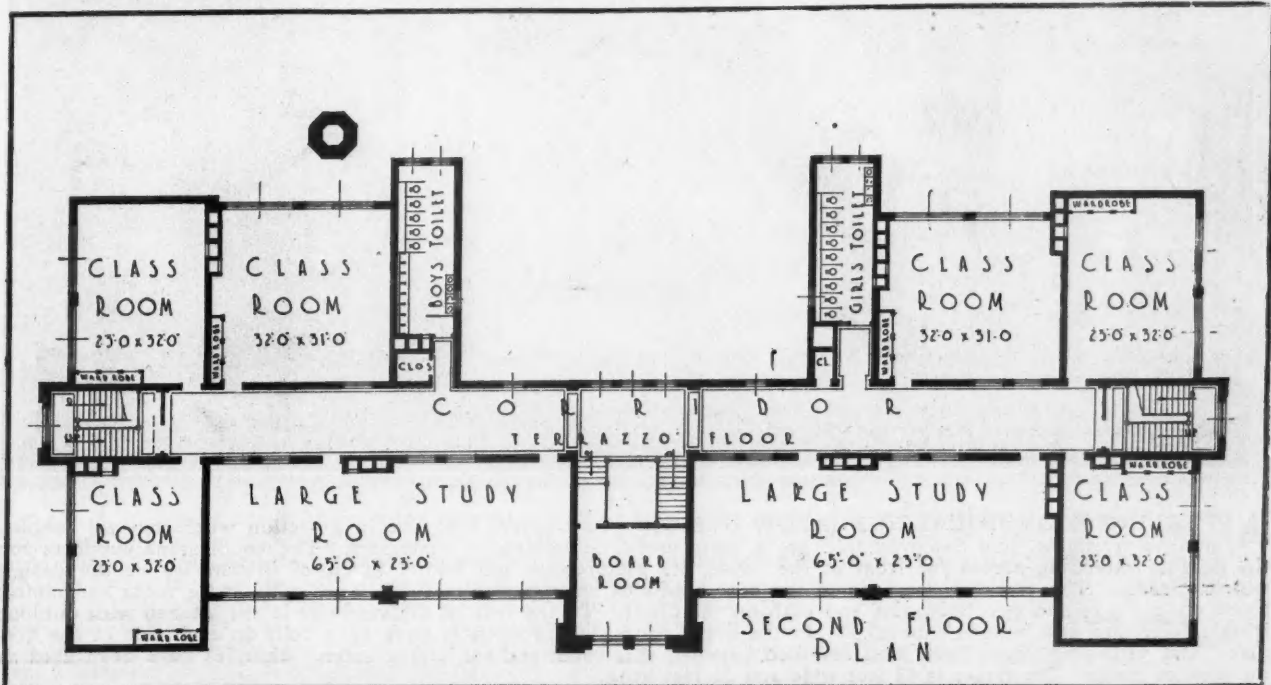
In keeping with recognized practice in the school-house construction the windows are placed on only side of each room so that the light comes in over the left shoulder of the pupils. On the inside walls are the blackboards and space-saving wardrobes.

In the basement there is an addition to manual training and domestic science rooms a large community room where the people of the neighborhood can gather for meetings, lectures, etc. To prevent them from entering other rooms in the basement and getting on the upper floors gates have been placed above the stairs

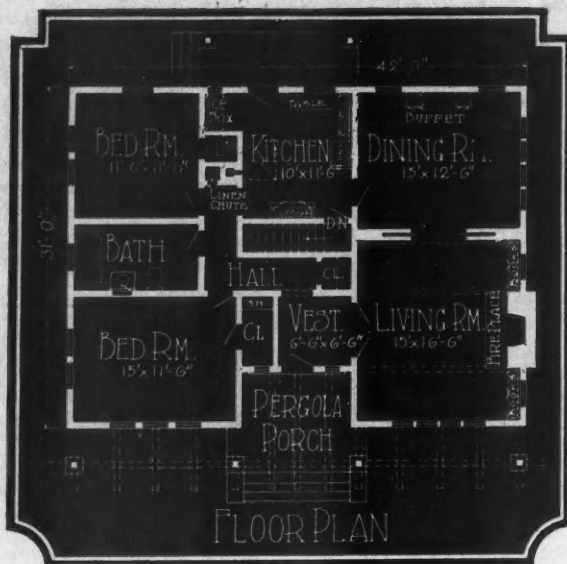
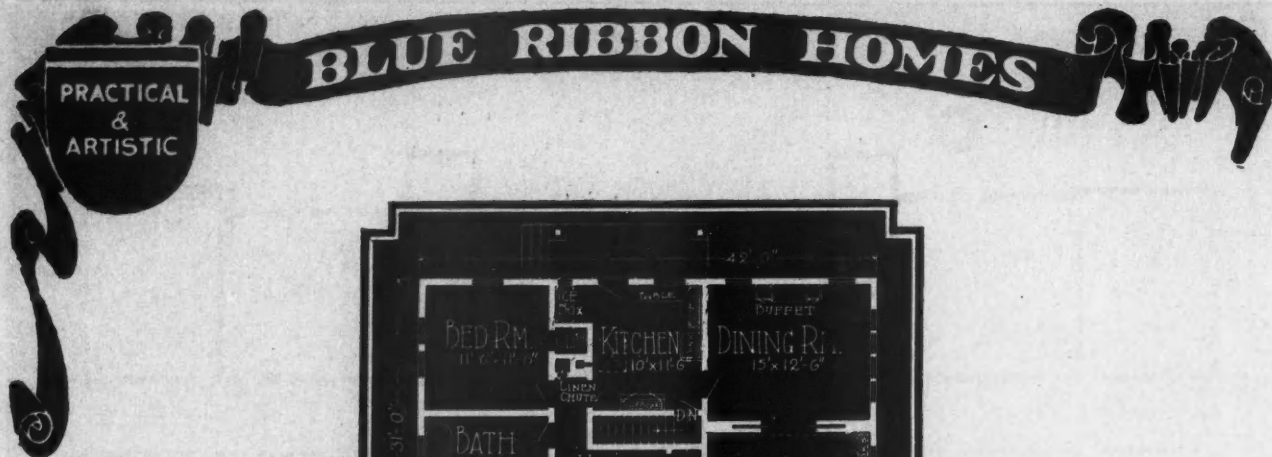
leading to the basement and in the corridors running thru the basement. These gates can be lowered when a community meeting is being held and the people shut off from the main building. During the day, they are raised out of the way.

The first floor is divided up into nine class rooms and kindergarten, while the second floor has six class rooms and two large study rooms, 65 by 25 feet. On the first floor is the principal's office and just above is the board room. Long corridors extend the full length of the building on all three floors.

The class rooms are unusually bright and comfortable because of excellent window facilities and 12-foot ceilings. The building is 202 feet wide and 102 feet long.



Second Floor Plan of School—This Floor Has Study Rooms as Well as Class Rooms.

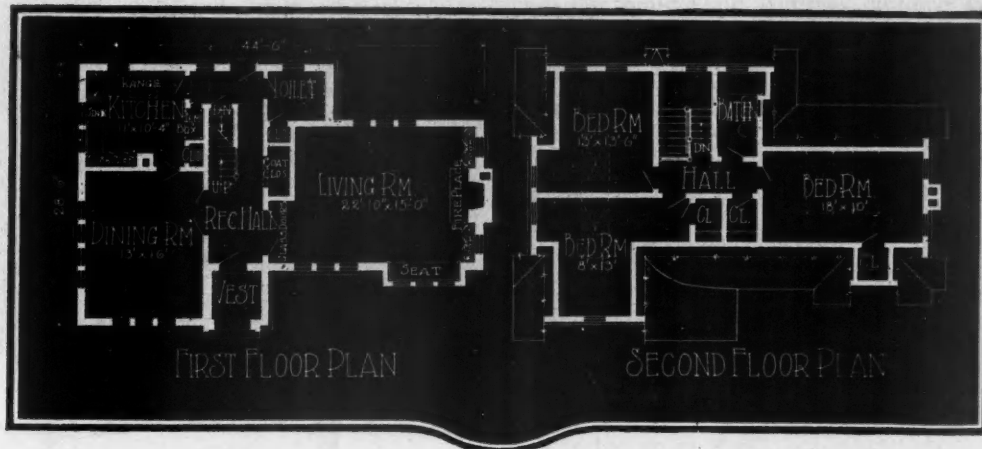


**A** PPEALING ECONOMICAL BUNGALOW DESIGN. To builders who live in a section where natural cobblestone is available, this design should prove quite useful in talking to customers. The cobblestone supports for the pergola extending across the front of the house, are picturesque and add a touch of informality to the design which attracts. The entrance set back in the center affords an opportunity for balance with living room and dining room on one side and two bedrooms and bath on the other. To the rear of the vestibule is the kitchen with outdoor icing refrigerator and built-in cupboards. In the living room, wall bookcases have been built on each side of the fire-place, and vanishing doors have been installed between this room and the dining room. Shingles have been used as an exterior finish. The house is 42 feet wide and 31 feet long.



# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**CHARMING HOME OF THE ENGLISH MANOR TYPE.** This house represents a very attractive adaptation of the hospitable English half timber type to a small home. The exterior is most picturesque with the lower part brick and the upper section stucco artistically divided into sections by brown stained timbers. The high steep gable roof is another distinguishing feature. Casement windows predominate in this design. The rooms are laid out in broad comfortable fashion with three on each floor. There is a large living room, arranged to give the utmost comfort, with large fireplace, flanking wall bookcases and window seat. It is 22 feet 10 inches by 15 feet. It is separated from the vestibule by glass doors. The dining room and kitchen are on the opposite side of the hall, and are both ultra modern in every respect. On the second floor are three good-sized bedrooms, unusually well lighted. The house is 44 feet 6 inches wide and 28 feet 6 inches long.

## Gaining the Housewife's Favor

HOW THE CONTRACTOR CAN LAY HIS PLANS TO SELL THE WOMAN OF THE HOUSE ON THE NEW HOME

By Hap. E. Ness

"WHAT!" ejaculated the old style builder. "Do you suppose that I am worrying what Jones' wife thinks about it? Jones is the man I am talking to—he has to pay the bills."

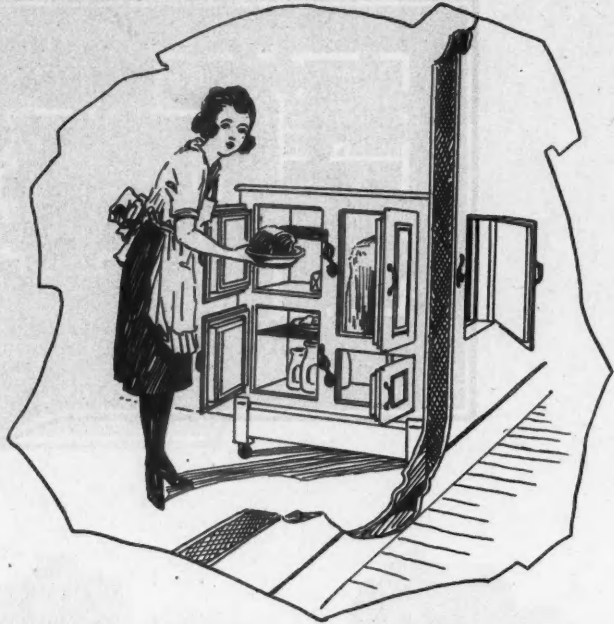
"Just as you want it," agreed the modern builder with a smile, "but I'll bet you a new spring suit that Mrs. J. will have plenty to say about the new home before it is built. You don't want to forget that the Mrs. is going to spend a whole lot more time in the house than Mr. J. and she will see to it that certain things are arranged to her liking. She has been looking around for some time just to get new ideas, been talking to her friends who have new homes and she is primed for you to start laying your plans. We builders have to change our tune and meet the wishes of the women-folk and the sooner we get into their line of thinking the better it will be for our business. I've done a little investigating along these lines and have boosted my business considerably. At first I was surprised at the number of questions women asked me, but now I am ready for them."

Just what are they interested in? That is what the builder should know.

When we presume to make our houses walls of glass to get a maximum amount of sunshine and ventilation, we also incur the responsibility of keeping that vast amount of glass clean. And as the mistress of the house this duty falls upon the shoulders of the housewife. Coming with regularity in all kinds of weather this task is not what can be considered pleasant. It

involves a certain amount of risk when windows are washed on the outside.

Therefore it would be reasonable to expect that every housewife who has not the means to hire serv-



One of the Most Popular Innovations in Building Construction During the Last Few Years is the Outdoor Icing Refrigerator. It Saves the Housewife Considerable Labor.

ants or special help to take care of this work will be vitally interested in a window arrangement that simplifies this work and relieves it of all element of danger.

In the illustration shown in this article is the interior of a sun parlor fitted with this type of window. This window, when installed, resembles, in outward and inside appearance, an ordinary double hung window. Integral with the frame of this window, however, is an airtight metal overhead box into which both sash and screens can be raised entirely from sight. In short, it provides an easy storage for screens during the cold weather eliminating the dirt and work attached to this otherwise seasonal task, and affords a 100 per cent opening for ventilation. Moreover, as shown, it allows the housewife to wash the windows from the inside without sitting outside in cold weather. With the approach of fly season the screens can be drawn down into position from the box above.

Housewives have also for a long



Sun Parlor Equipped with New Handy Window Which Has Special Appeal to Housewife. Both Sash Can Be Raised Out of the Way Into an Opening Above. This Device Enables the Housewife to Wash Both Sash from the Inside Without Risk. Screens Are Also Included and Can Be Pulled Down in Warm Weather.

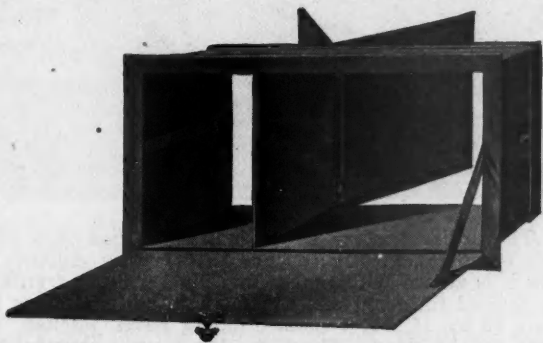


Homebuilding is Centered Largely About the Woman of the Home. She is Entitled to Certain Comforts Because She Lives in the House Most of the Time. This View Shows a Modern Boudoir with Day Bed and Dressing Table.



time uncomplainingly accepted the delivery system as it existed, but now that there is opportunity for her to escape some of the inconveniences of this essential routine of household she is determined to have it. With the increased efficiency in marketing and distribution has come a highly developed delivery system—women order supplies over the phone and have them delivered. Very often under the old system they would have to remain home if expecting some merchandise. Or had to expose themselves and household to a certain risk by admitting strange men who sometimes use the excuse of goods to deliver as a means of access. New homes do not have to tolerate this condition if they are built right. Little extra expense will take care of a package receiver thru the kitchen wall from the porch. Here the delivery man can deposit his bundle from the porch, close the outside door, and when the housewife returns, she can take the goods from the inside thru another door.

Moreover, the delivery of ice invariably means mess left by the ice man in the kitchen from dripping ice and muddy feet. The outdoor icing door on a refrigerator



Simple Package Receiver Which is Built in the Wall Facing the Porch or Hall. Parcels Are Placed in this Receptacle from the Outside.

permits the iceman to put the ice into the box from the porch, not entering the house at all. The additional costs of these small conveniences is slight compared with the benefits derived from them.

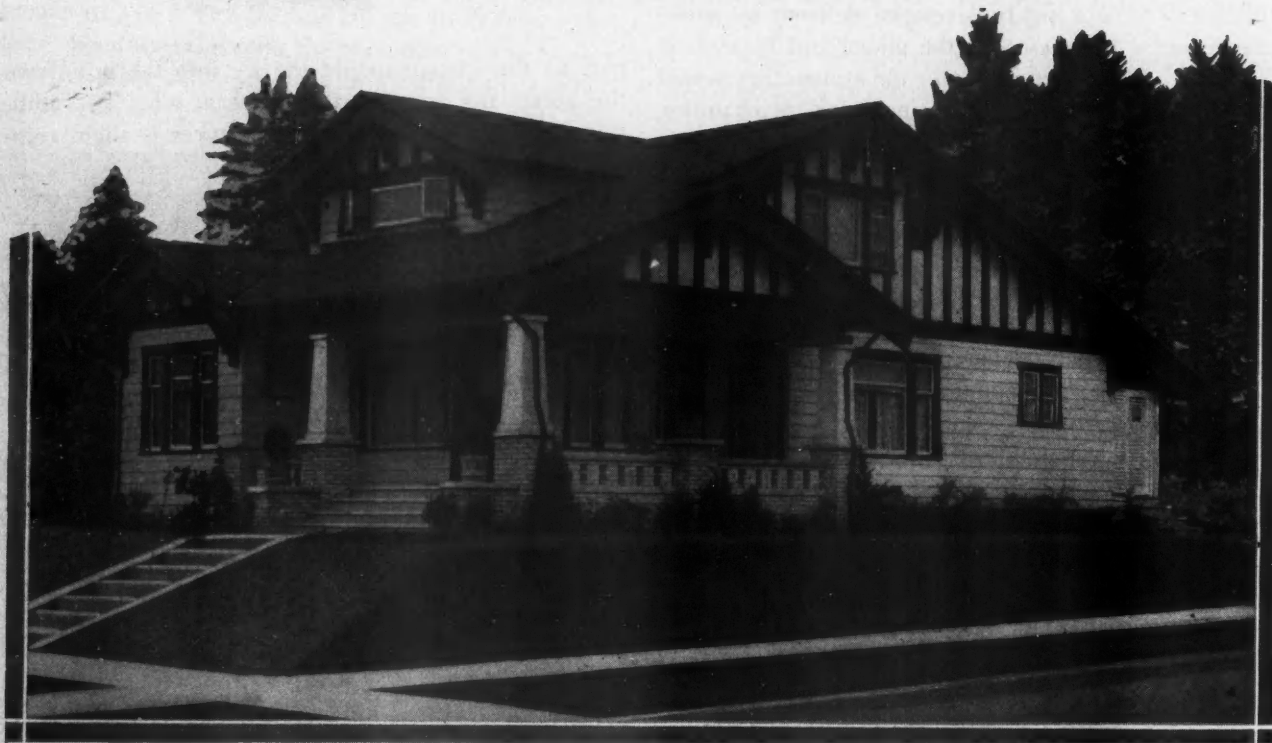
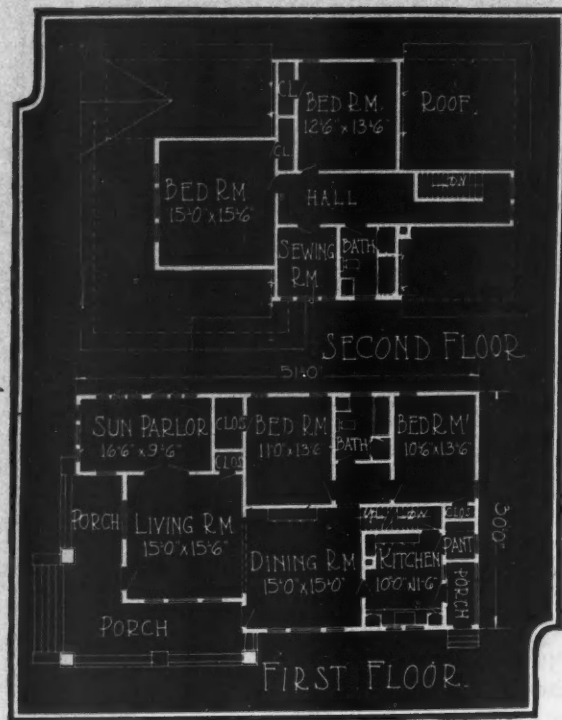
There are many more practical labor-saving devices of this built-in type on the market. They should be installed when the house is built because later on they will cause extra expense. For that reason every builder who prides himself upon his initiative and progressive attitude should keep abreast of the times by taking note of these new developments in home and apartment building.



Another Window Arrangement Which Lightens the Burdens of the Housewife. Permanent Screens at Top and Bottom Can Be Lowered or Raised Like Shades.

PRACTICAL & ARTISTIC

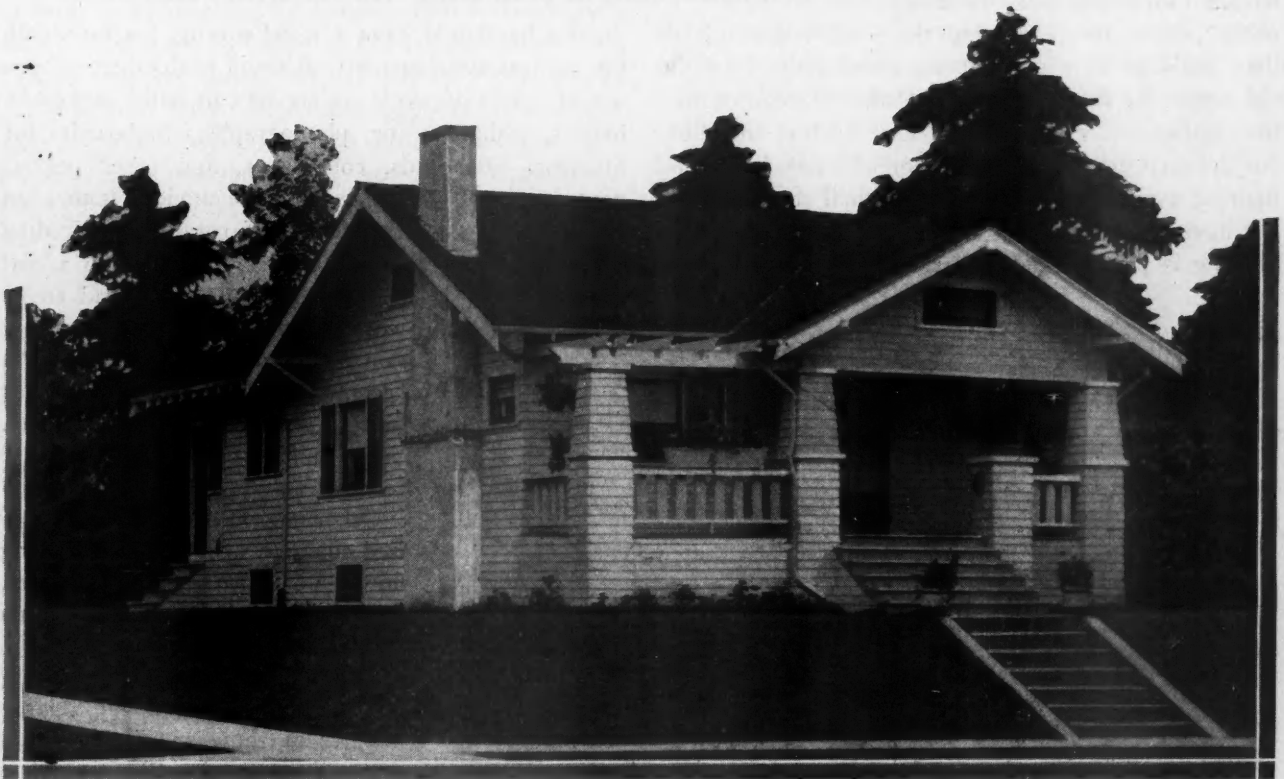
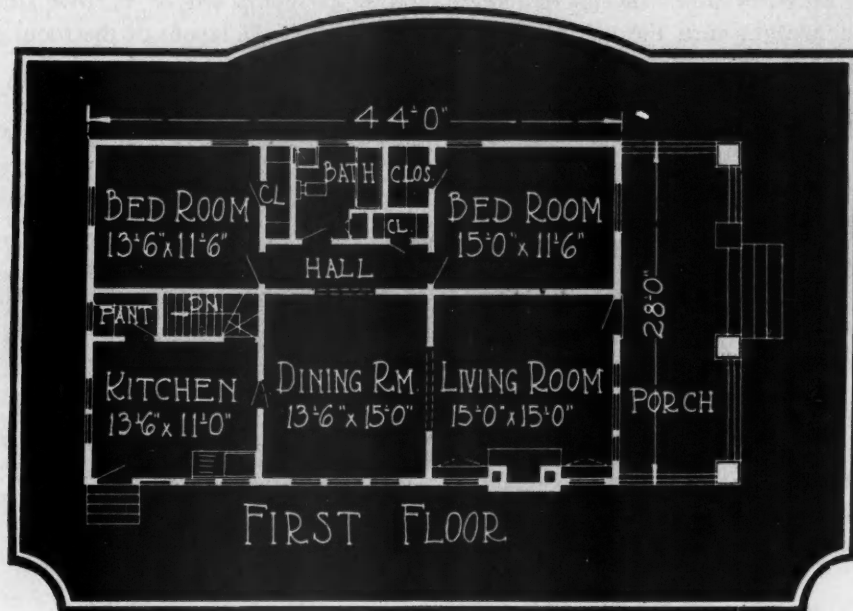
# BLUE RIBBON HOMES



**AN UNUSUAL HANDLING OF A FAMILIAR DESIGN.** The ordinary story and a half house has been lifted up to the distinctive in this attractive design by the addition of some exterior touches that greatly enhance its appearance. The first story is frame and above this to the gables it is stucco with timber divisions, making a striking effect. A large porch is built in the corner extending part way around the front and side. There are six rooms and a large sun parlor in the floor plan. These include the living room, 15 by 15 feet 6 inches, dining room, kitchen, two bedrooms and bath on the first floor and two larger ones on the second floor. There is also a very cheerful and bright sewing room on the second floor. The foundation is brick as are the supports for the porch columns. The house is 30 by 51 feet.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



**SMALL FRAME COTTAGE DESIGN.** This charming little home possesses considerable merit which will be readily recognized by the discriminating home builder. It is built from a popular sized plan, five rooms, which is adequate for the average family. The construction is strong frame on a concrete foundation. Extending across the front of the house is an open porch part covered by a small gable roof and part pergola, both supported by stout frame columns. The front door opens into a comfortable living room with fireplace which can be gas or log as conditions permit. On each side of this hearth are built-in bookcases. To the rear of this room is the dining room, 13 feet 6 inches by 15 feet. Two bedrooms have been placed on the other side of the house with bathroom between and the kitchen in rear of the dining room completes the plan. Size 28 by 44 feet.

## Winter Work That Pays

SEVERAL SUGGESTIONS ON WHAT THE BUILDER AND CARPENTER CAN DO DURING THE SLACK SEASON TO BOLSTER UP HIS INCOME

**I**N most communities this fall and winter, because of the urgent demand for homes, there will not be the appreciable slack in building operations that has been noticeable in years past. Major building operations will continue right thru the cold weather. But in many cases there will of course be a seasonal slacking up of work and it is here that the builder and carpenter have to take up sidelines to keep the dollars rolling in.

In recent numbers of the AMERICAN BUILDER the importance of remodeling work in old homes has been emphasized and explained in detail, especially in reference to wallboard work, weather-strip installation, and furnace equipment. All of these offer an excellent field for work during the slack period. There are several more activities of a similar nature that may prove profitable to many builders who are on the lookout for extra profits.

For instance, it is quite important this year—in fact, more so than it has been for a long time—because so many people are revamping their old homes rather than building new ones at increased costs. In the old homes the floors may be in a state of deterioration that makes repair imperative. One method suggested for the carpenter is the installation of a new hardwood flooring over the old one. The original covering does not have to be torn up. In many localities parquet flooring is popular and, because it is hardwood, very

durable. This flooring is made in attractive designs or can be laid plain with borders. For this repair work the 5/16-inch thickness is used. Parquet flooring is composed of narrow strips of hardwood length to suit the layout of the room glued to a canvas backing in sheets twenty-four inches wide. Sheets of this width are the easiest to handle and lay.

Another profitable line of endeavor for the carpenter and contractor in the winter months is making special articles in his shop. In order to be able to



Some Samples of Garden Furniture and Other Concrete Ornaments Which Can Be Made by Builders During the Winter Months. This Material Has a Ready Market.

do this he should have a woodworking machine with the various attachments which will enable him to turn out all kinds of work. Here he can build bookcases, buffets, cabinets for phonographs, cupboards for kitchens, sideboards, colonnades, and other permanent furniture that is used in the modern home, not to mention accessories for the farm such as feeding racks, etc. Many carpenters have worked up a real business making lattice and trellis work during the winter for spring sale. This means of decoration has become quite popular with home owners and has a ready market. Some builders specialize in artistic fences.

Other men have taken up specialized concrete work, such as making flower pots, urns, garden benches, fountains, gate posts. In their little shop they have installed some molds for this purpose and during the cold months turn out a large number of these specialties which they sell at a good profit. Complete directions and instructions for this work are furnished by the cement companies and the manufacturers of the molds.

There is still another field—the floor surfacing business. Old floors

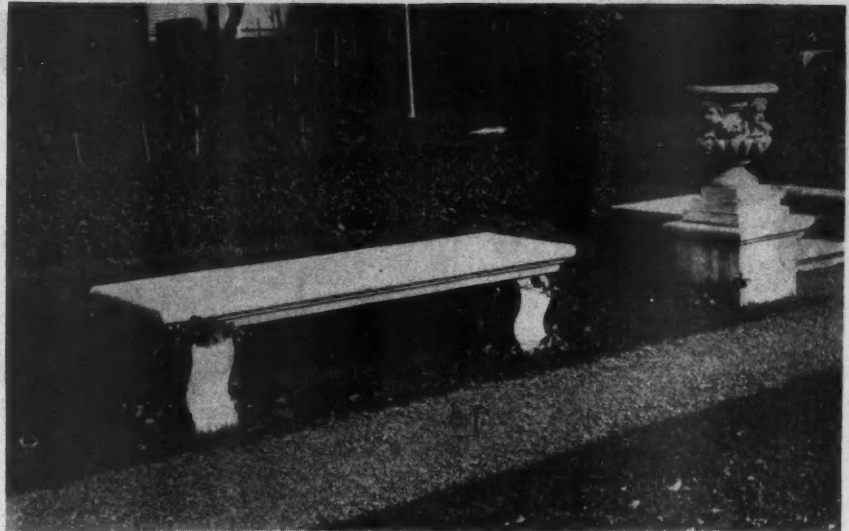


Work in the Shop During the Dull Winter Months Will Substantially Help the Income. A Power Saw or Woodworker Is Essential in Making Various Types of Cabinet Work and Other Furniture.

in homes and office buildings need resurfacing to give them a polished finish. Some contractors have worked up a large business doing this sort of work. They have invested in an electric floor surfacing machine and find themselves unable to keep up with the demand for their services. Dance floors, bowling alleys, other public amusement and office buildings must be redecorated and refitted each year. The floors are invariably kept in good conditions by resurfacing.

There are many contractors who are not only doing their own resurfacing work but have established themselves in the floor surfacing business and are doing the work for other contractors. There has never been such a demand for well finished floors. Floors that were considered suitable a few years ago would not be approved by an architect today. This detail of construction receives special consideration from the architect and builder because it is so vital in determining the charm and attractiveness of the interior of the home which they have planned and built.

Prepare to make this winter a busy season if there is little building going on in your town. Have your material on hand and your shop equipped to turn out miscellaneous products that will sell readily at a good profit. Show your friends and neighbors where they can do some remodeling on their home that will improve its appearance and lessen its depreciation. There are many ways of keeping the dollars rolling



Artistic Concrete Bench and Urn for Garden Made by Carpenter During the Winter. He Has Worked Up a Very Profitable Business in This Field. Inexpensive Molds Can Be Bought and Skill in Workmanship Is Easily Acquired.

during the winter time and it is up to the builder to capitalize them.



### Rothschild's Rules of Business

SHORTLY after the death of Baron Rothschild, in 1836, while his executors were going thru his desk for papers relating to his vast business interests, they came across the simple rules that guided him in attaining success.

These rules apply to business today just as well as they did one hundred years ago, and we can all benefit from observing them. They are as follows:

- Carefully examine every detail of your business.
- Be prompt in everything.
- Take time to consider, but decide positively.
- Dare to go forward.
- Bear trouble patiently.
- Be brave in the struggle of life.
- Maintain your integrity as a sacred thing.
- Never tell business lies.
- Make no useless acquaintances.
- Never appear something more than you are.
- Pay your debts promptly.
- Employ your time well.
- Do not reckon upon chance.
- Never be discouraged.
- Be polite to everybody.



### Concreting in Cold Weather

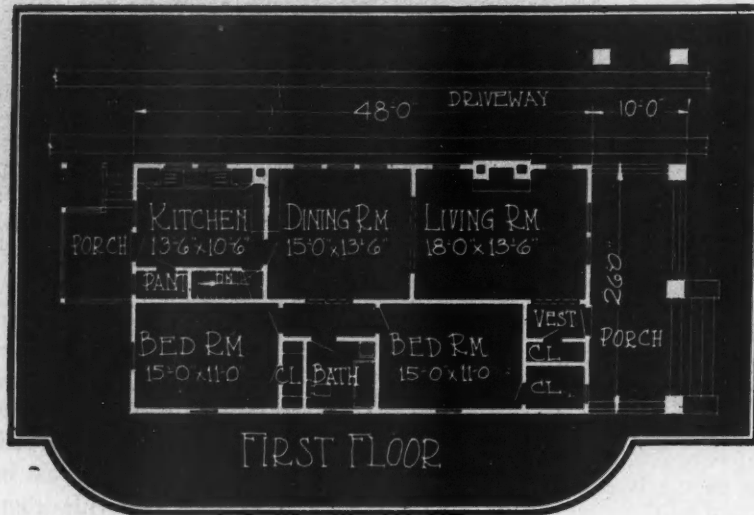
(Continued from page 73.)

chimney constructed at one end. This same apparatus may be used conveniently to heat the sand pebbles and stone, raking the piles frequently to insure even heating throughout the mass.

Protection against freezing should always be continued at least two or three days after placing and in extreme weather five or six days. Before removing the forms or subjecting to heavy loads, test the concrete to make sure that the apparent hardness is real and not due merely to a frozen condition. The simplest method of testing is by pouring on hot water.



Many Public Buildings, Dance Halls, etc., Must Have Floors in Tip-top Shape. This Calls for a Re-surfacing Job Each Year. Some Contractors Have Worked Up a Big Business Doing this Work Alone with the Aid of a Power Machine.

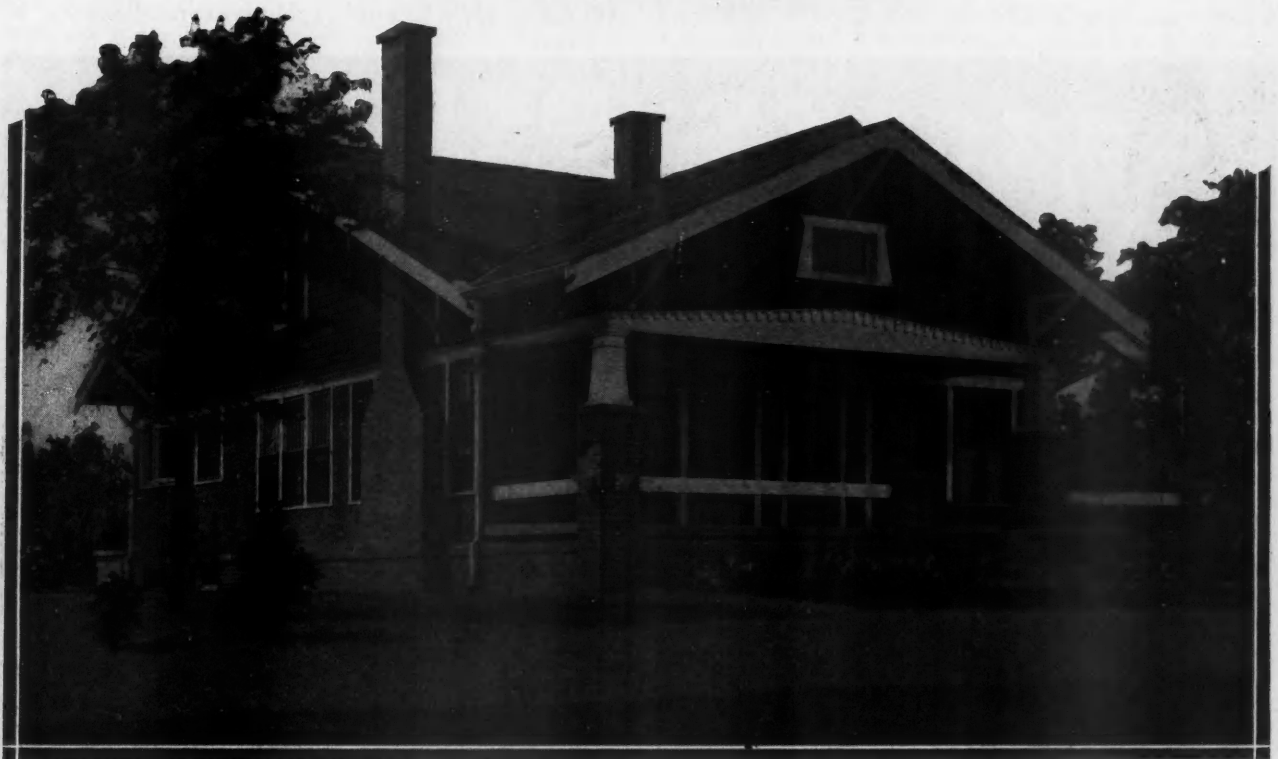
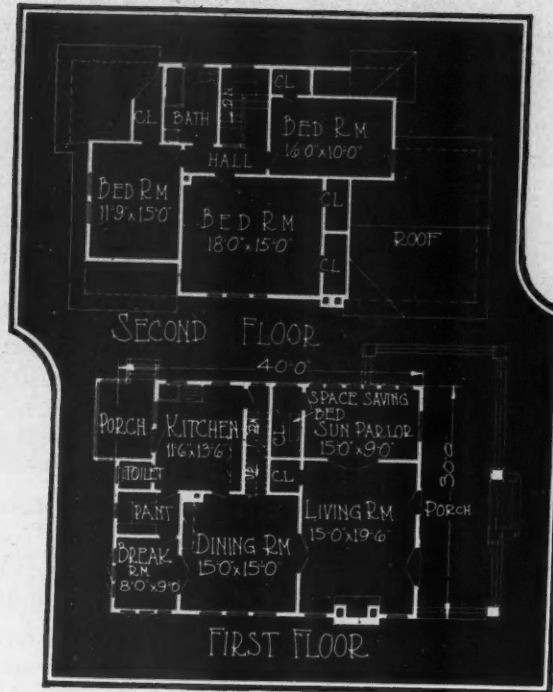


**SMALL DISTINCTIVE HOME DESIGN OF ATTRACTIVE LINES.** The striking feature of this home at first glance is the pergola extending out over the side driveway, but this is not expensive and different from the regular arrangement. The house itself is a delightfully complete small home substantially built of frame with wide front porch partly covered, and high attic. The living quarters are all on one floor, a fact appreciated by many women. There are six very comfortable rooms. The front door opens into a small vestibule which opens into a good-sized living room, 18 by 13 feet 6 inches. The two bedrooms are located at the left of the house connected by a hall which opens into the dining room. Completing the floor plan is the kitchen, not very large, but efficient. At the rear of the two-track driveway is a small frame garage. The house is 26 by 48 feet.



# BLUE RIBBON HOMES

PRACTICAL  
&  
ARTISTIC



**A** ATTRACTIVE STORY-AND-A-HALF HOUSE OF SIMPLE DESIGN. For the average family who want room for their children and freedom from the monthly rent, this home has several features which will recommend it. First, its design is quite simple and consequently economical, yet it is pleasing and attractive. There is a broad front porch and terrace extending across the front and part way round the side. Brick has been used for the foundation and porch supports with stucco on the first floor and shingles above to the roof cornice. Seven rooms are provided for in the floor plan, three bedrooms on the upper floor with an emergency bedroom on the first floor made possible by the installation of a space-saving bed in the sun parlor. There is also a small breakfast room off the dining room. The sun parlor faces the terrace on two sides. The house is 30 by 40 feet.

## Building Display Windows That Count

STORY OF TWO BUILDERS IN TWO TOWNS WHO CO-OPERATED WITH MERCHANTS IN MAKING THEIR DISPLAY WINDOWS THE MOST ATTRACTIVE AND BEST PULLERS IN TOWN

**I**N SOME buyers' offices there is a permanent sign on display, "No goods bought today." Old salesmen know the trick but one day a young lad, new at the game, ran into a sign of this kind. He read it and turned away. A week later he returned only to see the same greeting. He left again. But upon returning the third time and seeing the sign, he stopped, reflected for a moment, and then boldly entered the office.

"Can't you read English?" growled the buyer looking up.

"Yes," replied the smiling young man.

"Well, what does it say on that sign?"

"Well, sir," replied the salesman deliberately, "if this firm has not bought any goods since they put up that sign they would not have any to sell, but"—he added quickly—"I am not here to sell you any goods. I am here to show you how to make money."

The shot scored. The lure of that last remark was too strong to resist.

That is one thing people want to be shown—how to make money. That is what the merchant on Main Street in your town wants to be shown. And let us tell you how you can show him. And in telling you we are going to tell how two contractors in two different cities turned the trick.

The builder's problem is to show the merchant how to increase his profits and also to get a little profit himself in so doing. The solution is simple. Install an attractive modern store front that will pull sales.

In Elmira, N. Y., the Hudson Shoe Company is the leading shoe store of the city. We did not wonder nor will you when you look at the picture of the store front shown here. If it is the leading store there is one big reason—attractive display. There is something about a store front of this type that will draw the man on the street, even the casual passer-by across the way. A good store front is a real lure for getting business and if you don't believe it read what the Hudson Shoe Company has to say after experience:

"Our business has increased wonderfully since installing this store front design and we feel that any merchant can reap the same benefit as we have by such an installation."

It is more likely that the Hudson Shoe Company did not have to be convinced that this was a good way to increase their profits. But there are hundreds of small merchants in every town that are not quite so progressive and must be shown. That is the task of the builder. John Cunningham, builder in Elmira, has something to be proud of, in this work, and no doubt will get business because of the recommendation of the



This Beautiful Window Display Is One of the Best Sales Producers of the Hudson Shoe Co., Elmira, N. Y. It Is Made Possible by the New Store Front Installed by a Practical Builder Who Increases His Income by This Work.



The Passerby Finds It Difficult to Resist the Powerful Appeal of This Show Window. Another Contractor Completed This Remodeling Job at South Bend, Ind. Chas. E. Miller Is His Name.

Hudson Shoe Company. He has found that he can increase his income by installing new store fronts on old stores.

Then from South Bend, Ind., comes this letter:

"The advertising value of our store front is far greater than that obtained from any advertising we could do in the local papers." WARD & LEWIS.

Ward & Lewis are in the millinery and women's furnishing business and, naturally, their display window is one of the big features in helping sales. They have found that the new store front is accomplishing great results.

Charles E. Miller, contractor, installed this store front. And we don't doubt but that he is getting just as much beneficial advertising from it as they are. It is something of which he can be proud and point to in going after more business of this type.

These are only two of dozens of actual examples of builders making money by remodeling store fronts for merchants in their towns. It can be done, they say, and there is a splendid opportunity for other builders who have not tried this work to get some of the profits that are there to be taken.

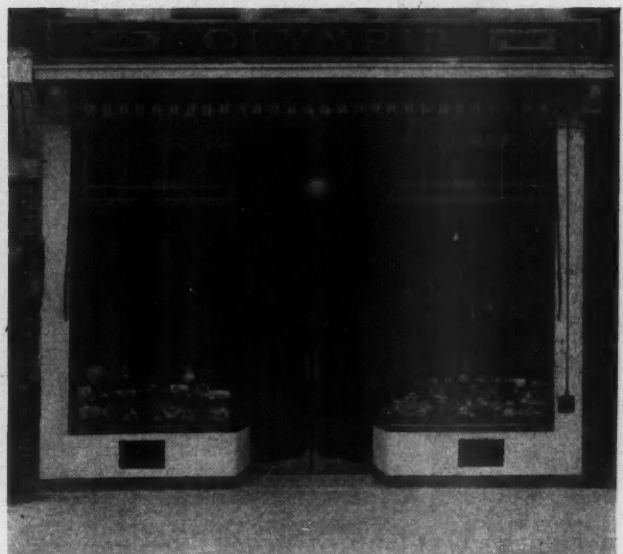
Another case of remodeling is shown very graphically in the two pictures below. These pictures show how the store appears before and after the work was completed. As soon as the Christmas rush is over many merchants will be in the market for a new store front. It is then time for the builder to submit his figures.



**N**OW that the farmers have a bloc, the railroads a block, why not give more attention to the building BLOCK, be it brick, wood, stone or concrete!



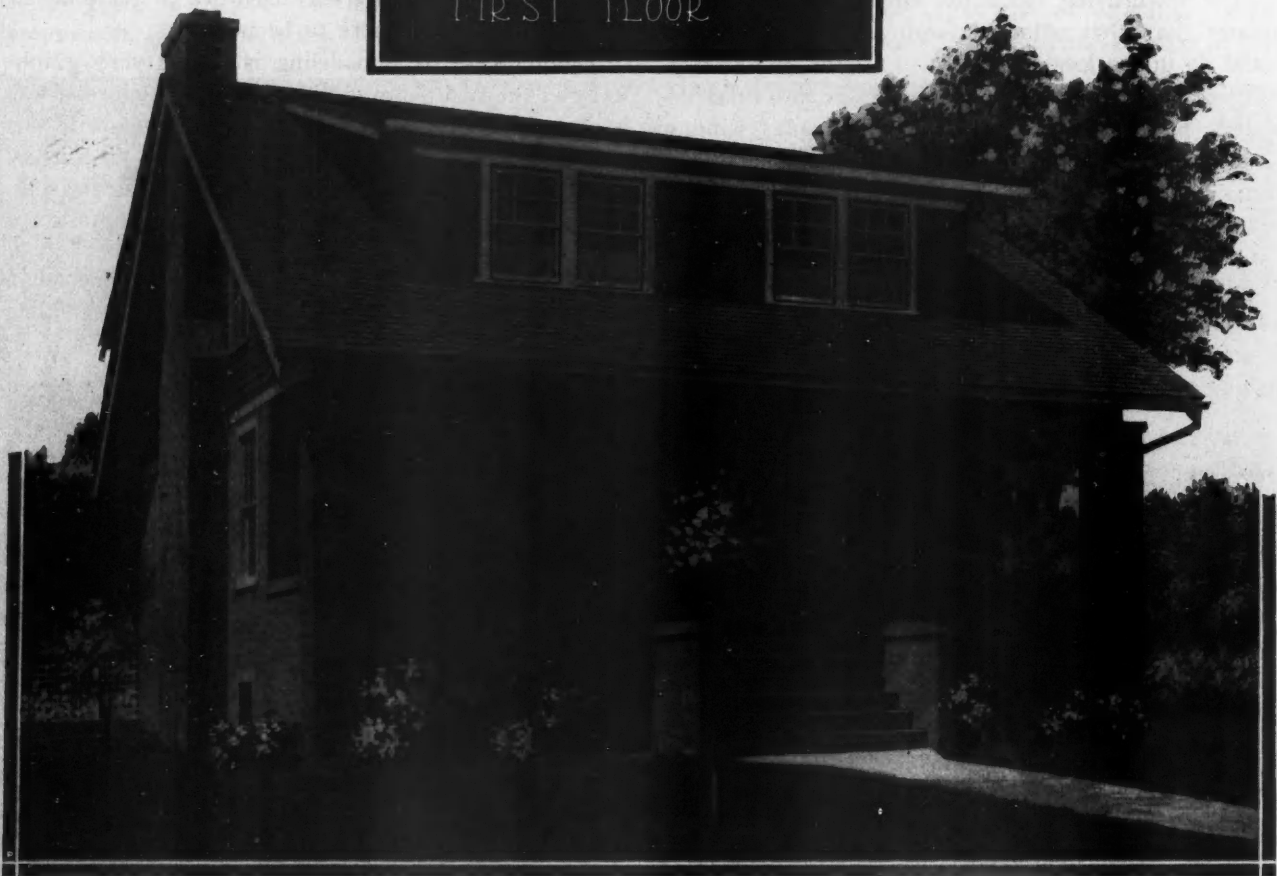
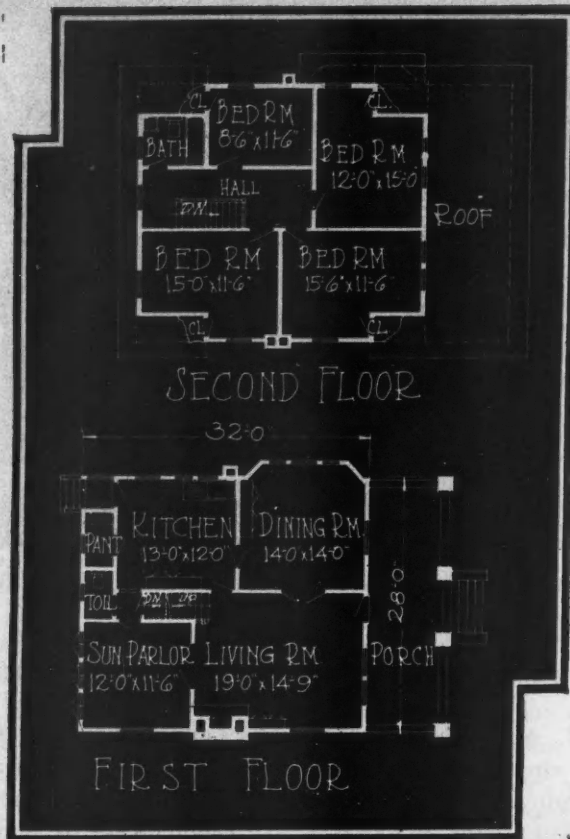
Before the Olympia Candy Shop Was Dressed Up. New Clothes Are as Necessary to Stores as They Are to Human Beings. If You Don't Believe It Compare This Store With—



This Attractive Candy Shop Owned by the Olympia Candy Works Co., London, Ont. It Is the Same Building With a New Exterior. You'd Be Surprised.

**BLUE RIBBON HOMES**

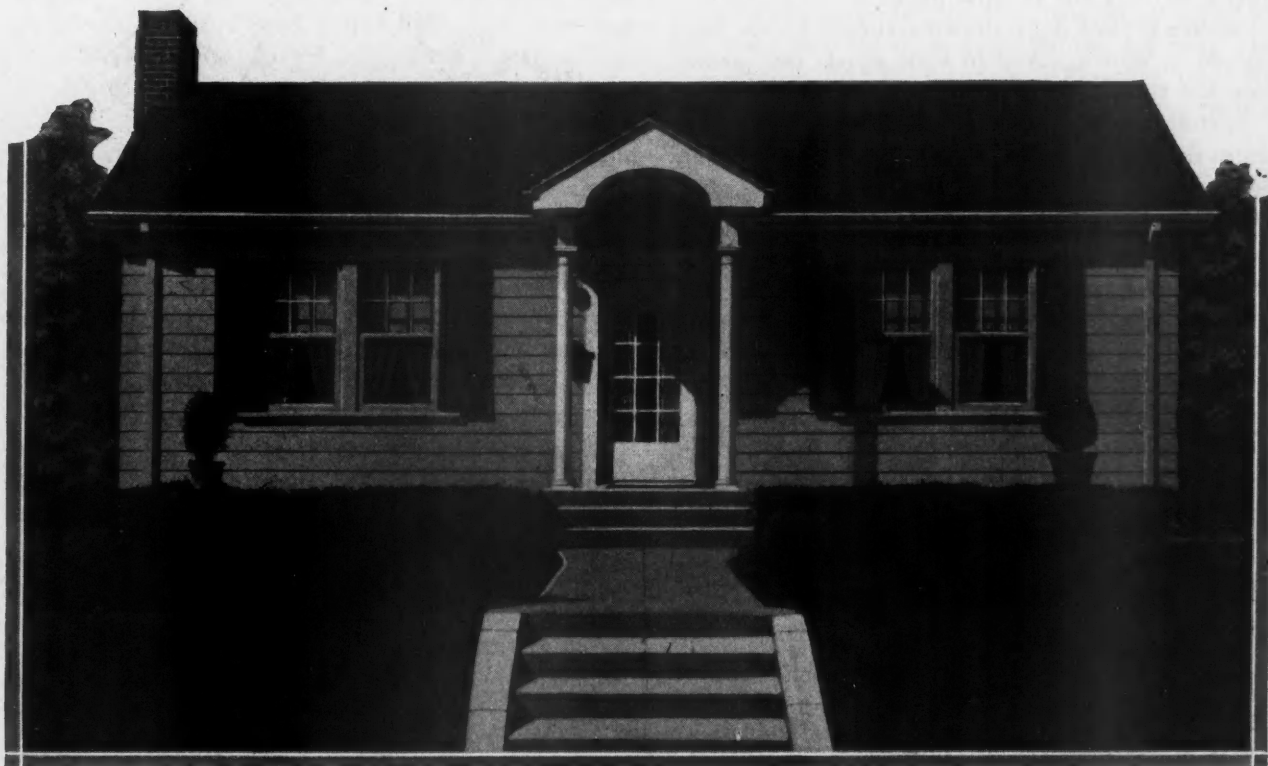
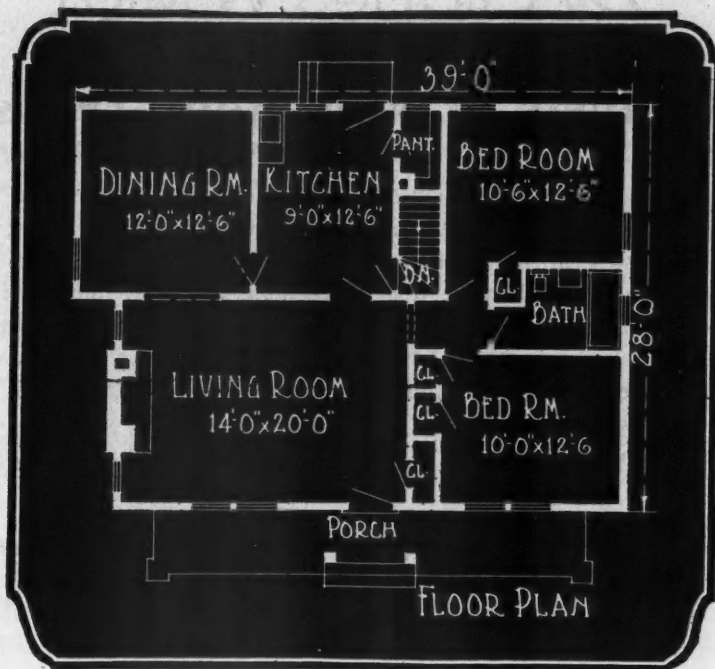
PRACTICAL  
&  
ARTISTIC



**M**ODEST WELL-BUILT HOME. Free from any expensive trimming, this home is a good example of an economical home that will fit the pocketbook of a family of average means. It has an exterior of stucco and shingles, the shingles being used under the gables. It is a story and a half with three rooms and sun parlor on the first floor, and four bedrooms on the upper floor. A broad open porch extends across the front of the house. It is 32 feet wide and 28 feet long.

# BLUE RIBBON HOMES

PRACTICAL  
&  
ARTISTIC



**COLONIAL BUNGALOW OF CHARMING DESIGN.** All of the delightful features and qualities of the Colonial homes have been embodied in this small house. It has the same characteristic broad white siding, quaint hospitable entrance with hood supported by thin white columns, small paned windows and blinds. This is a one story Colonial home. Its simplicity of design makes it doubly appealing. The interior has been divided into five small but comfortable rooms consisting of a living room 14 by 20 feet with old fashioned fireplace, dining room adjoining, 12 by 12 feet 6 inches, kitchen also adjoining, and two very well arranged bedrooms. These bedrooms have been located at one end of the house off a short hall which opens into the living room. To save space the usual hall or vestibule has been left out, the front door opening directly into the living room. The broad double windows afford plenty of light. Size, 28 by 39 feet.

# DESIGN OF SAFE CONSTRUCTION

By Charles W Leigh

Associate Professor of Mechanics, Armour Institute of Technology

## Analysis of Fink Roof Truss

ARTICLE 24 OF AN EXTENSIVE SERIES ON STRENGTH OF MATERIALS

IN all roof trusses that have been analyzed in this series of articles, no difficulties have been encountered in finding the stresses in the members because we never found a case in which more than two unknowns were to be found at any joint. However, there is a type of steel truss in common use, with spans of from 40 to 80 feet, where one joint is found at which there are three unknowns. The solution of this problem requires the introduction of an extra line called an auxiliary line.

Fig. 1 shows a fink truss. We will assume that the full joint loads are 1,200 pounds. The methods for determining these loads have been sufficiently discussed in previous articles and need not be repeated here. The left end of the truss is assumed fixed, and the right end on rollers. This assumption has no effect on dead or snow loads, but must be considered in figuring stresses due to wind loads.

The straight line A J is drawn vertically for the force diagram as shown. A B to scale equals 600 pounds. Since the truss is symmetrically loaded the reactions at the ends are equal, and each is one-half of J A. This locates the point K at the center of the line. We now begin with the extreme left joint.

Go from K to A, A to B, draw a line thru B parallel to b l to meet a line thru K parallel to l k. This locates point L and shows b l in compression and l k in tension. Now take the second joint in the top chord. Go from L to B, B to C, thru C draw a line parallel to c m to meet a line thru L parallel to l m. This locates M. Next take the second joint on the lower chord. Beginning at K and going around the joint clockwise, we locate joint N.

When we attempt to analyze either the third joint of the top or bottom chords we find three unknowns. Now imagine the members p o and p q removed from

the structure and a member V Y put into the truss. The structure will be rigid, because we have two triangular frames L V Y and Y V S. The line Y V is called the auxiliary line and is drawn dotted to show that it is not a part of the truss. The introduction of Y V does not affect the stresses in the other members of the truss.

In order that the reader may not be confused, Fig. 2 is drawn showing one side of the roof truss without

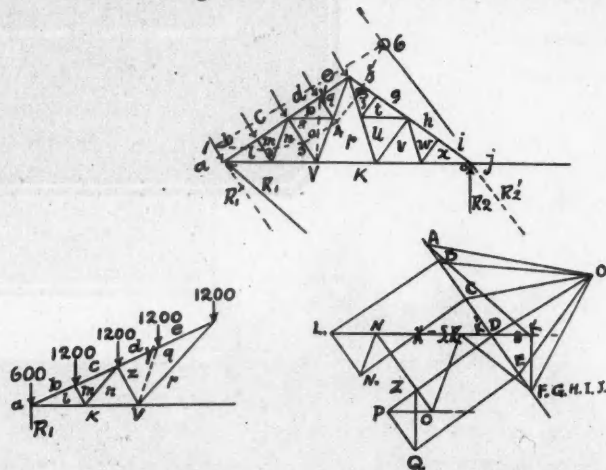


Fig. 2. Showing One-Half of the Fink Truss with the Auxiliary Line YV.

Fig. 3. Stress Diagram for a Fink Truss with Wind on the Left.

o p and p q, but with the auxiliary line. We now go to the third joint of the top chord beginning with N. Go from N to M, M to C, C to D. From D draw a line parallel to d z to meet a line thru N parallel to z n. This determines the point Z of Fig. 2.

Now consider the fourth joint of the top chord. Begin at Z and draw Z D, D to E. From E draw a line parallel to e q to meet a line from Z parallel to z q. This locates the point I. Since the point I is located we may now refer back to joint four of the top chord in Fig. 1. Beginning at D go to E, from E to I. From I draw a line parallel to p q to meet a line from D parallel to d p. This locates P and gives the stresses in p d, and p q. The remaining stresses may now be found by completing the stress diagrams as shown. The direction of these stresses may now be found and the magnitude scaled and tabulated.

If the snow load is not included in the 1,200-pound joint loads, the stresses caused by snow may easily be found from the stress diagram of Fig. 1. For example, if the snow causes a full joint load of 600

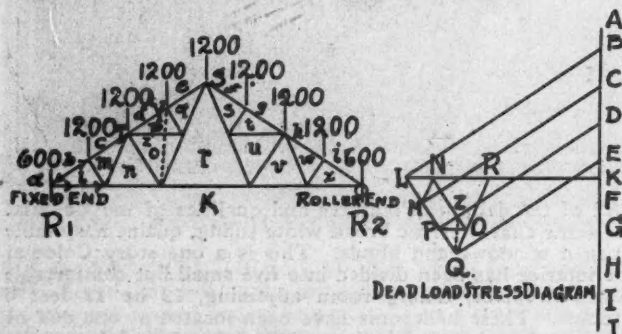


Fig. 1. Compound Fink Truss and Dead Load Stress Diagram.

pounds, then the stresses will be just one-half of those for Fig. 1.

If the snow joint loads were 900 pounds then the stresses would be three-quarters of the dead load stresses.

When the wind load is considered, two cases arise, namely, wind on the left side of the truss and then on the right.

Fig. 3 shows the truss with the wind blowing against the left side. No definite amounts are assumed. The length of the vectors at the joints could be used for any pressure per square foot.

As in previous articles, the assumption is first made that the reactions are equal and parallel to the loads. The force polygon A-J is drawn and the points joined to O. Next the funicular polygon 1, 2, 3, 4, 5, 6 is drawn in dotted lines. The direction 1-6 drawn from O determines K'. Thru K' draw a horizontal line to meet a vertical thru F. This locates K. Then F K is  $R_2$  and K A is  $R_1$ . This agrees with the assumption that the roller is under the right end and the reaction  $R_2$  entirely vertical.

We now begin at the left-hand joint locating L. Next the second joint on the top chord locating point M. Then the second joint on the lower chord locating N. We are unable to proceed from this point because of three unknowns at every joint. Then, as in Fig. 1, we assume that o p and p q are removed and an auxiliary line Y V drawn dotted. We are now able to proceed with the third joint of the top chord. Go from N to M, M to C, C to D. Then from D draw a line parallel to d z to meet a line from N parallel to n z. This locates point Z. Now begin with joint four of the top chord. Go from Z to D, D to E. Then from E draw a parallel to e q to meet a line from Z parallel to Z q. This locates point I.

The auxiliary line may now be removed and o p and p q replaced. From the fourth joint of the top chord we go from D to E, E to I. Then a parallel to p q is

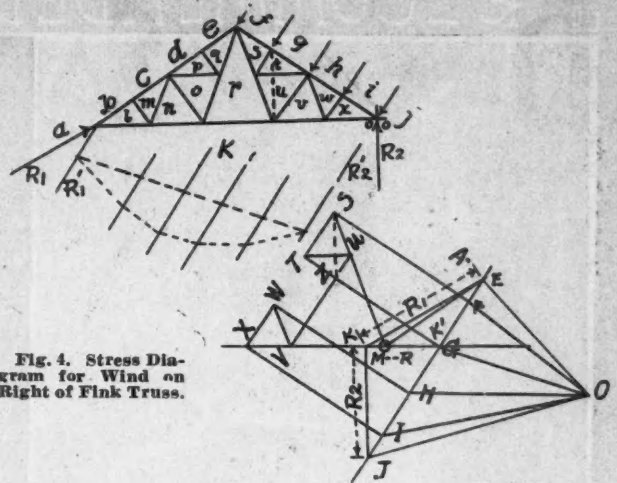


Fig. 4. Stress Diagram for Wind on Right of Fink Truss.

drawn from I to meet a parallel to d p from D. This locates point P. We now finish with the third joint of the upper chord locating O, then with the third joint of the lower chord for R and so on until all the remaining points are located. It is found that points R, S, T, U—X coincide, indicating zero stress in r s, s t, t u, u v, v w, w x. The reader may now trace out the stress diagram for tension and compression members, scale the lines and find the numerical values of the stresses. These results should be tabulated and the total stress in the members be found by combining dead, snow, and wind left diagrams.

The truss with wind on the right is shown in Fig. 4, with the drawings for the determination of reactions and stresses. No discussion will be given for this case, hoping that by this time the reader is able to trace every step, tabulate the stress values and combine with the wind and snow stresses.

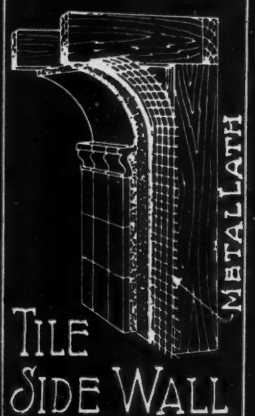
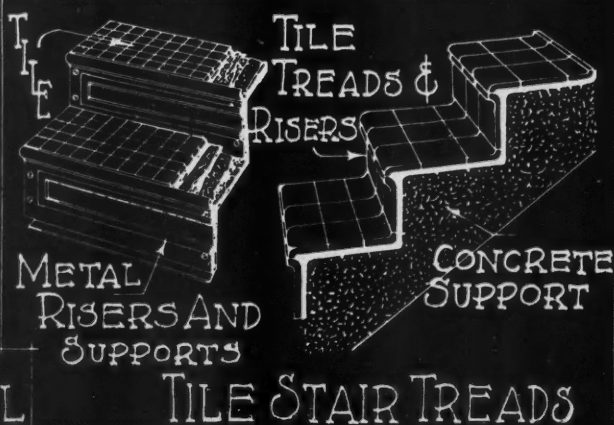
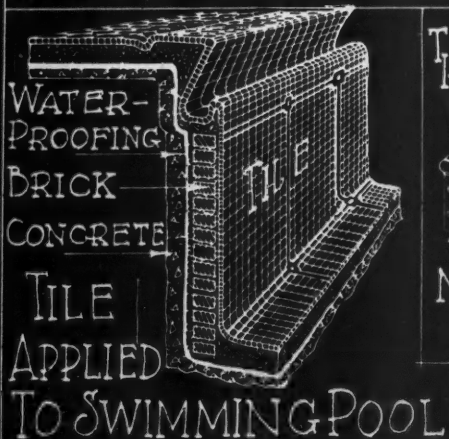
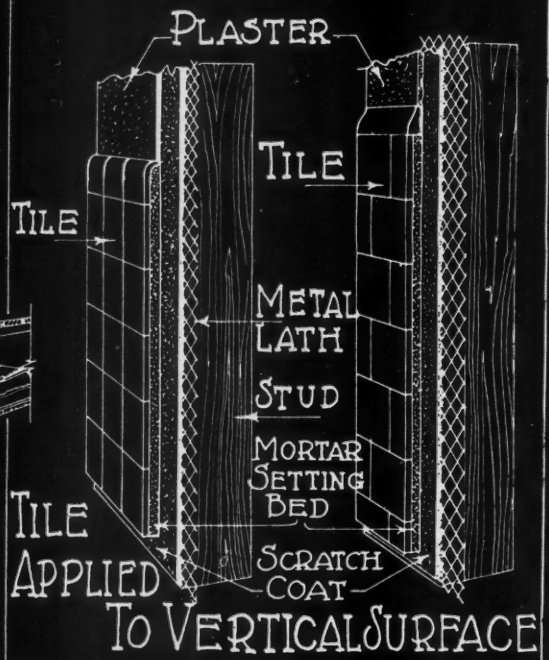
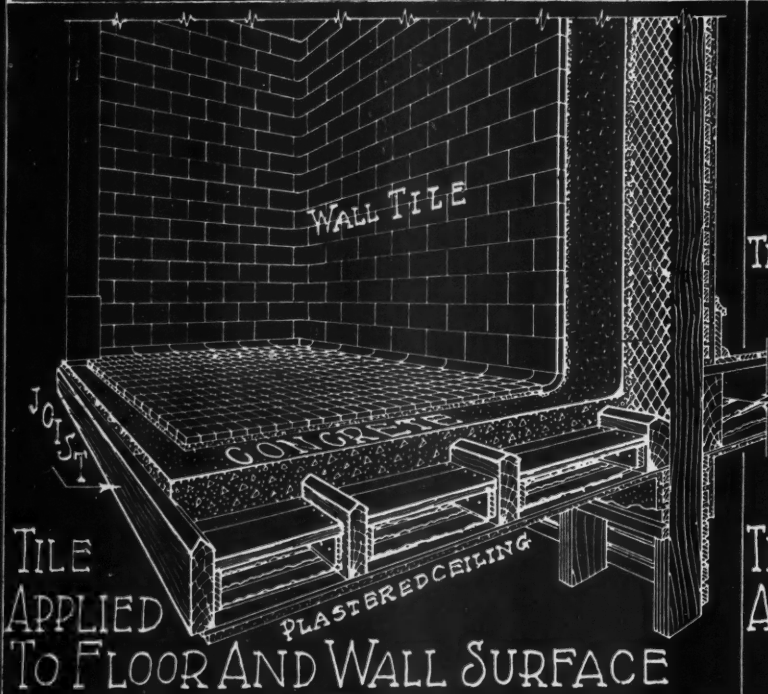
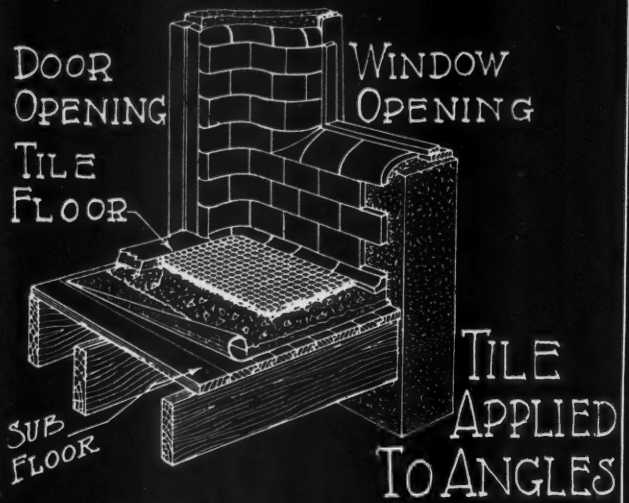


IT is only recently that architects and builders have begun to appreciate the value of sunshine in the home and factory, altho Old Sol has been working overtime from the beginning. We learn more each day.



Small Homes, But Every One of Them Providing Some Family a Means of Independence, security, and Freedom from Unexpected and Unfair Rent Increases. They Are Attractive But Not Expensive. Better a Small Home Than None at All.

# RECOMMENDED CONSTRUCTION



# TILES AND TILEWORK



## Law for the Builder

(Continued from page 78.)

in finding that the owners had intentionally omitted reference from the plans and specifications to the quicksands for the purpose of deceiving the contractors. In this connection it was, among other things, said:

"We do not think that a knowledge of the quicksand on the part of the defendants (owners) disconnected from any attempt or intention on its part to conceal it from the plaintiffs (contractors) or to prevent or deter them from an examination of the premises, would be a sufficient justification for the breaking of the contract by the plaintiffs. \* \* \*"

The court next reviewed the evidence in this connection, and, it seems, that about all that was shown was that it was generally known that there was quicksand in that locality. The plans and specifications, it appears, indicated that difficulties of this kind might be encountered by the methods that were set out to handle them. It was also noted that the contractors, before signing the contract, had made an examination of the premises and there was no evidence to show that the owners had in any way prevented this exam-

ination or intentionally concealed anything. In conclusion the court said:

"A careful examination of the transcript does not reveal any evidence which would justify a finding that there was any intentional concealment or deception on the part of the defendant as to the matter of the quicksand. The mere knowledge of the defendant as to the quicksand would not be sufficient to justify a breaking of the contract by the plaintiffs unless there was evidence of some plan or intention on its part to deceive. The defendant must have known that the plaintiffs had examined the premises, and it might naturally and fairly conclude that they, as experienced contractors, had acquainted themselves with the character of the soil thru the well known means of obtaining such information. \* \* \*"

The Supreme Court thereupon sustained the exceptions taken by the defendant. Holding, in effect, as outlined in the opinion, that on the evidence of record the contractors had failed to prove fraud on the part of the owners. And that there was no justification shown for their abandonment of the contract that would entitle them to a judgment against the owners for the work done at the time of abandonment.

## Tiles and Tilework

HOW TILES ARE MADE AND USED IN CONSTRUCTION — SEE BLUEPRINTS ON OPPOSITE PAGE

**A**LL "regular" sizes of modern tiles are based upon a geometrical retrogression from a six-inch square, inherited from medieval potters and still in use. Tiles are divided into squares ranging in size from 6 by 6 down to  $\frac{1}{2}$  by  $\frac{1}{2}$  inches, diagonal halves 6 by 6 to  $\frac{3}{4}$  by  $\frac{3}{4}$  inches. Other shapes in common use are those derived from the octagon, hexagon and other geometrical figures. In making tiles, manufacturers distinguish between those pressed by means of machinery from the dry material or "dust" from those made from materials in plastic state. Such tiles as Faience are made by the plastic process, vitreous and the "bodies" of glazed tiles from the dust-pressed type.

In the plastic process the clay is mixed with water and run thru pugging machines until of a uniform consistency. They are then pressed into moulds or dies and after drying are put into kilns and "fired." The plastic nature of the material causes the shape to vary and is responsible for the pleasing irregularities in this type of tile.

The dust-pressed tiles are made of finely pulverized materials mixed with water, passed into filter presses, dried, pulverized and pressed into shape in metal dies. They are then "fired."

Unglazed tiles are produced in one firing. The colors are produced either by selection of clays or by the addition of various oxides such as cobalt, etc. Glazed tiles are fired in a kiln at a temperature of over 2,000 degrees F. This produces the "body" which is then

coated with glazing liquid, made from pulverized flint, feldspar clay and a flux, and is placed in a gloss kiln where it is subjected to slightly lower temperature which produces the glaze.

According to their intended uses tiles are often referred to as floor tiles, wall tiles, etc.

On the opposite page are detail drawings showing how tiles are set in various types of construction. The treatment of angles, coves, and bases, is shown. The average allowance for setting space is governed by the thickness of the tile, in the case of white wainscot and vitrified floor treatment it being  $1\frac{1}{2}$  inches from foundation to face of tile and in ceramic mosaic floors  $1\frac{1}{4}$  inches. In the former case allowing  $\frac{1}{2}$  inch for scratch coat,  $\frac{1}{2}$  inch for setting material and  $\frac{1}{2}$  inch for tile, in the latter  $\frac{1}{4}$  inch for tile thickness.

Note carefully in the drawing on the opposite page the correct method of rabbeting the wood door jamb to receive the tile trim, which will prevent the appearance of an unsightly joint between the wood jamb and tile trim due to shrinkage. The jamb is also made to receive the metal lath which is nailed securely to the jamb and prevents it from warping or pulling away from the tile trim. The tile work is set on stud partition construction using corrugated sheet metal lath, asphaltum coated, as a backing for the portland cement scratch coat and setting material.

Because of the increasing popularity of tile bathrooms it is important that builders should know something about its application.

## Something Charming in Stucco Over Tile

SIMPLE DESIGN OF SUBSTANTIAL HOME WITH WELL ARRANGED FLOOR PLAN.

**P**LAIN and substantial, without "gingerbread" of any kind, is this house—a home that will, as the years go by, hold its own and require but few repairs.

The plain stucco walls, unbroken hipped roof with broad overhanging eaves, the recessed entrance with balcony above; all are in keeping with the design. The house sits close to the ground giving the exterior a snug substantial appearance and one of pleasing proportions. The walk leads thru a smooth lawn directly to the front entrance and leaves no doubt in a visitor's mind as to where he is to go when he calls.

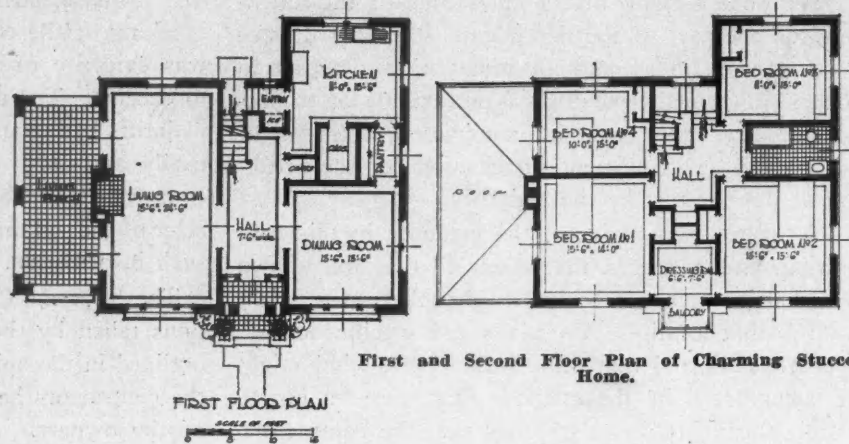
The first floor plan shows a center hall with stairs in the rear, a large living room that has an open fireplace, a dining room, kitchen, pantry and numerous closets. A generous living porch opens from the living room thru glazed doors on either side of the fireplace. A rear entrance under the stairs serves both the kitchen and the cellar.

Four bed rooms and a bath are found on the second floor, also a small dressing room between the two front bed rooms. This dressing room opens on the small balcony over the front entrance. Each bed room has good sized closet. The linen closet opens from the hall.

Stairs lead from the second floor hall to the attic. A dormer on the rear and windows in each end of the house give good light and ventilation in the attic so that rooms can be finished off here if desired.

A cellar is provided under the entire house, with laundry, heating plant, coal storage and such.

Terra cotta block, stuccoed on outside and plastered on inside make up the walls. No furring is used but the walls are coated with a dampproof compound under the stucco to prevent any moisture penetrating the walls.

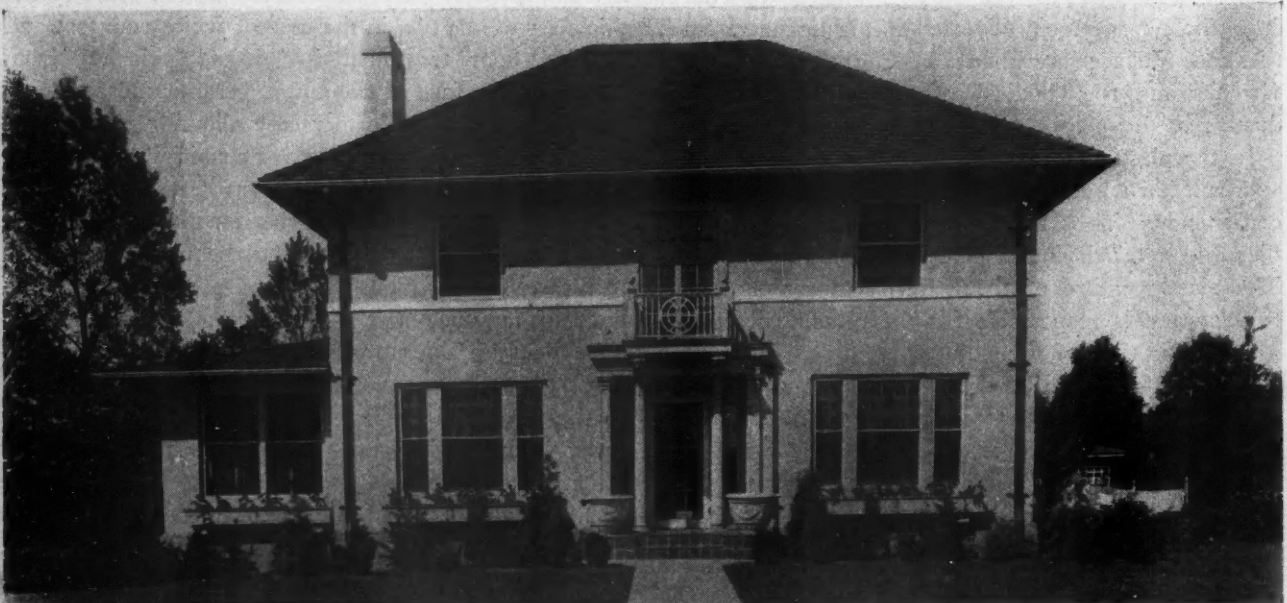


This house was designed by R. C. Hunter & Bro., architects, New York.

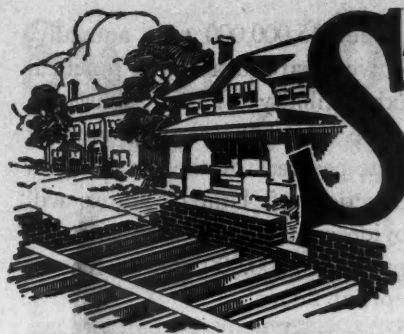
### Running Comment

**A**CCORDING to reliable reports, it is going to be an open winter. This should be good news to builders who are just beginning to feel the revival in business after a long pause. Put away your fishing rods—there won't be time to fish thru the ice because too many people want homes for the spring.

In the old days the average carpenter and builder had to figure out schemes to make a little money during the cold months. Now that we are no longer buffaloes by the winter's bluff, they can go on working a full day for a full day's pay.



Modest Substantial Home of Stucco, Seven Comfortable Rooms, and Large Living Porch. The Walls Are Terra Cotta Block Coated with Stucco. It Is 45 by 30 Feet.



# STEEL LUMBER Construction

## How Steel Lumber Is Made

PHENOMENAL GROWTH OF INFANT INDUSTRY AND SIGNIFICANCE OF FUTURE OUTPUT TO BUILDING INDUSTRY

By Gilbert Canterbury

*EDITOR'S NOTE—This is the twelfth article of a series on the use of steel lumber in modern construction. Readers are invited to ask questions pertaining to this subject. Answers to all inquiries of general interest will appear each month in this department. Write in your problems now.*

**D**URING the last few years the manufacture of steel lumber joists and studs has advanced to a point where such quantity production has been achieved as must certainly have a strong influence before long on the general building industry.

The first of these light structural steel building members were produced back in 1907 and in that year the first building framed entirely with pressed steel was erected at Tuxedo Park, N. Y. The steel lumber sections were then produced from sheet steel on "brakes" such as are commonly used in tin or sheet metal shops. The product was then distinctly a specialty.

The present-day manufacturing is on a mill basis in the same sense that heavy rolled steel I-beams are produced on a mill basis. One mill company producing steel lumber sections in the middle west has a rated capacity of between 5,000 and 8,000 tons per month. In this concern the manufacturing process



Electric Crane Handling Steel Joist Sections at Mill.



Warehouse Stock of Steel Lumber Joists Ready for Quick Shipment.

begins with pig iron and is carried thru to finished steel joists and studs by the one organization. The pig iron is refined to steel in open hearth furnaces, cast into ingots and the ingots rolled into steel "slabs." The slabs are re-heated and rolled into what is commercially known as hot rolled strip steel. These strips ranging in thickness from .027 to .102 of an inch and being 130 feet long and ranging in width from 7 inches to 17 inches, are coiled after hot rolling and later the coils, when cold, are fed into forming mills where each strip is formed or "pressed" into a channel shape. I-joists are produced by placing channels back to back and passing them thru automatic electric spot



Universal Mill Where Slabs Are First Rolled in Production of Steel Lumber.

welders. High speed friction saws cut the long sections into lengths suitable for shipment and mill painting is accomplished by immersion of the sections in paint vats.

Usually the sections are shipped to structural steel fabricating companies and building material dealers in lengths from 40 feet to 60 feet. Before going to contractors, however, the sections are always sawed into exact lengths for the job in which they are to be used.

The ultimate source of raw material for steel lumber building sections then is the production capacity of American steel mills. This capacity now amounts

to about 45,000,000 tons annually. To give a bare idea of the practical inexhaustibility of this source it may be said that less than one-half of one per cent of the annual steel production of United States will provide enough light steel joists to support 100,000,000 square feet of fireproof floors.

With steel lumber sections used as structural or supporting frame and metal lath attached to the steel structural sections as a base for cement or plaster, practically any kind of building can be constructed. Wood sub-flooring and wood floor surface may be nailed to steel joists just the same as to wood joists.

Practically every type of building, from small residences to skyscrapers, has been invaded by these steel floor supports. During the

summer and fall of 1921 the United States building industry has been building floors with steel joists at the rate of approximately 2,000,000 square feet of floor space per month.



#### Formula for Strength of Rope

FOR three-strand regular manila rope from  $\frac{1}{2}$  to  $4\frac{1}{2}$  inches in diameter, the following computation will give the breaking load of the rope:

The average breaking load in pounds equals 5,000 multiplied by the diameter of the rope in inches, multiplied by the diameter of the rope increased by one.

This will give, of course, the average maximum weight that the rope will hold, but the working load or the load that a contractor or safe-hauler may apply with proper safety and precaution would be considerably less than the load given by the formula.

Other data on rope are contained in Technologic Paper of the Bureau of Standards, No. 198, by A. H. Stang and L. R. Strickenberg, which has just been issued.



LAST month the unknown soldier was buried at Arlington. He represented at once, sacrifice and hope, sacrifice for humanity during the recent war and hope for eternal peace in the future. Deep in the heart of millions is the devout wish that he did not "die in vain."



Rolling Mill Where Hot Steel Strip Is Produced.

# SMALL JOBS FOR RURAL BUILDERS

## Concrete Barn Floors Easily Built in Winter

**N**OW that winter is drawing close one of the best means of getting some income during the slack season is building new concrete floors in dairy barns.

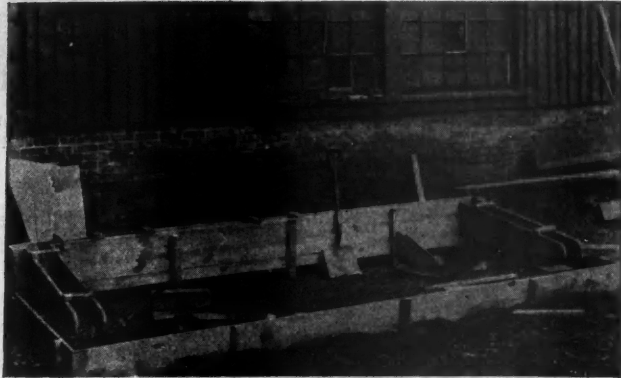


Fig. 1. On a Properly Prepared and Level Ground, Forms for the Concrete Manger Curb and Stall Platform Are Erected.

No building should be used for stabling cows which is not provided with an easily cleaned impervious floor. Concrete is the ideal material for this purpose and is widely used.

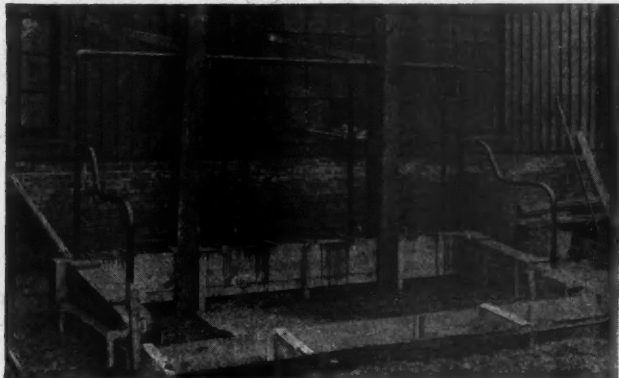


Fig. 3. Forms for Manger Curb Are Now Filled with Concrete—Well Spaded to Obtain Greater Density. A 1:2:3 Mixture Is Best.

This floor can be built during the winter just as well as in the summer and this work affords the rural contractor a good opportunity to keep on working during an otherwise slack season.



Fig. 5. Concrete for the Stall Platform Is Placed Next, Using a 1:2:3 Mixture, Finished With a Wood Float to Produce an Even, Non-Slippery Surface.

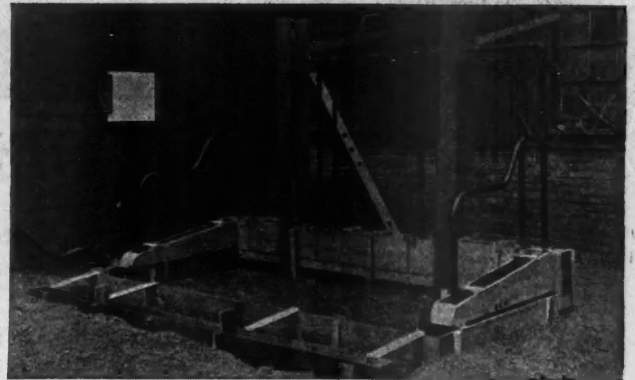


Fig. 2. With the Forms Firmly in Place the Stanchion Supports Are Put in Position Carefully Plumbed and Braced.

weather concreting as explained in the article in another section of this number is to see that the concrete does not freeze until it has hardened beyond any possibility of injury by frost. The time required for concrete to



Fig. 4. Manger Curb Forms Are Removed and Concrete Placed for the Floor of the Litter Alley. The Gutter Between Litter Alley and Stall Platform Is Placed Later.

gain this strength varies, the warmer the concrete is kept, the shorter the period. If the temperature can be kept above 60 degrees the concrete will have hardened enough at the end of 48 hours to be immune from injury



Fig. 6. Concrete Is Then Placed for the Manger. A 1:2:3 Mixture Is Recommended.



Fig. 7. Manger Templates Are Furnished by Manufacturers of Barn Equipment, and Should Be Removed Before the Concrete Has Hardened. Manger Is Finished With a Metal Trowel so as to Produce a Smooth Surface for the Cows to Eat From.

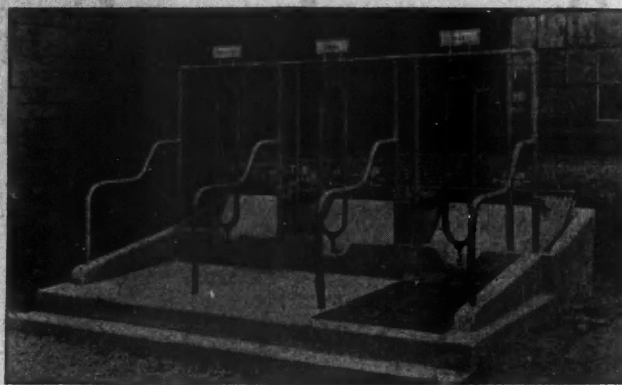


Fig. 8. The Section of Dairy Barn Floor Is Completed by the Installation of Stanchions, Manger Dividers and Individual Drinking Cups. This Type of Construction Insures the Production of Milk Under Sanitary Conditions.

by freezing. If the average is kept around 45 degrees, the temperature at no time going below 32 degrees, four or five days will be sufficient.

Whenever there is a likelihood of freezing, it is necessary to take extra precautions. For instance, if the temperature is around 40 to 45 degrees during the day it is more than likely to go down to or below freezing at night. If the building itself does not afford sufficient protection the interior may be kept warm by coke burners or other smokeless heaters.

When a concrete floor is being laid in an old barn it is advisable to lay it in sections so that some part of the building can be kept in use. Hardening of concrete is hastened by heating, so it is good practice to heat sand, water, and gravel when doing this work during cold weather. This can be done in many ways, most of which are familiar to all builders. Sand and pebbles are usually heated by baking them over a section of metal pipe in which a fire is kindled. Water can be heated in an old boiler.

The various steps in the job of building a barn floor are shown in the accompanying interesting series of photographs.

### More Lumber for the Farmer

THE farmer must have lumber with which to provide more storage space for his grain if he is to take advantage of the ability which the billion dollar government credit provided by Congress will give him to borrow money on grain held in storage. The billion dollar credit will soon be available to the farmers of the country thru the channels of the War Finance Corporation.

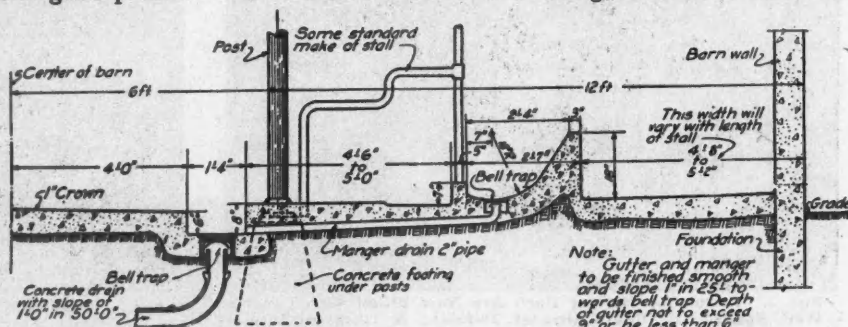
It will permit the farmer and stock-raiser to borrow money on grain stored on his own farm to be used for feeding purposes as well as to hold a larger proportion of his crops for better prices, thus minimizing the usual dumping on the market at harvest time.

According to the Bureau of Census in 1920, there

were 6,447,998 farms in the country. The value of the buildings thereon was between six and seven billion dollars.

The average consumption of lumber on the farms of the United States is about 15 billion feet a year, based on the statement of the Forest Service Report of June 1, 1920 (Report on Senate Resolution 311), which estimated, from reports of county agents thruout the country, that the average annual utilization of lumber per farm unit was 2,000 feet.

For the past three or four years new building on farms has been below normal, reports secured by the Forest Service showing that in only 10 out of every 100 counties was new building normal or in excess



Cross Section of Barn Floor Showing Gutters, Mangers, and Stall Partitions.

of normal.

There are therefore two reasons for the belief that there will soon be a heavy demand for lumber on farms:

(a) Farm building in the recent past has been below normal.

(b) Storage space, above normal demands, will be required to hold grain held for more advantageous time of shipping, as permitted by the new plan for financing the marketing of farm products.

AMERICAN lumber has always been popular in Spain. It is predicted that following the present after-war depression the country will experience extensive construction and building. War prosperity has raised the standard of living in Spain and there is demand for improved transportation facilities.

# CORRESPONDENCE

Questions answered—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

## Look Over Our Blue Ribbon Homes

To the Editor:

Follansbee, W. Va.

Many wage-earners who have very little money are building homes along the Ohio river valley. They cannot afford a large expensive house and do not want one. They want a small 6-room house with bath, and many even want to do away with hall and fireplace.

They want a small compact house with very little upkeep; something like you showed in your March, 1921, number, page 134.

We would be glad to see more houses like this one and have details of them.

W. H. LAWTHERS.



## Real Suggestion For Remodeling House

To the Editor:

Racine, Wis.

I have noticed in the October issue of AMERICAN BUILDER a desire for suggestions by J. J. Mangan on how to modernize his five-room house at High Point, N. C. I am sending him a sketch thru your department showing how I think the floor plan and front elevation might be worked out. An extensive explanation is not necessary, as the plan is sufficient. However, I would state that a white finished magnesite stucco on the sides, together with a greenish asphalt shingle over the old wood shingles would give quite a satisfactory color effect. Then by changing the front doors and windows, and some of the side windows, doors and the porch columns, the house will appear quite modern. The fireplace in the new dining room is

partitioned off, while a bathroom is planned for, which, if no sewer connection is available, may be made into a pantry, thus eliminating the kitchen cabinet. Provision is also made for a cellar by some excavating and under-pinning present walls and extending same down to required depth for cellar. However,



Front Elevation of House Showing Stucco Exterior, Front Porch and Windows.

the foundation wall extension to the required depth and the under-pinning should be done before the cellar is excavated. A 4-inch cement floor, consisting of a 3-inch concrete base and a 1-inch cement finish can be laid.

HARRY E. MERENESS, Designer.



## Cistern Offers Reader Problem

To the Editor:

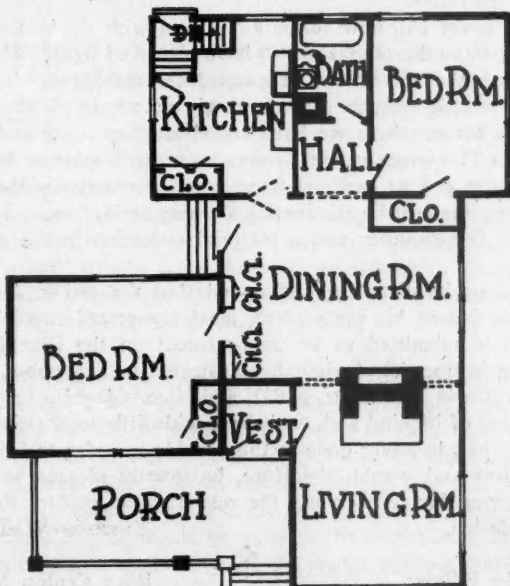
Niverville, N. Y.

Here is a problem which we would like to have some information on.

We recently completed a box shape concrete cistern with a reinforced concrete top. Thru an error of the workmen the reinforcement was misplaced. We have no doubt that the top will hold as it stands at present, but we would like to know how much more it would have held if the reinforcement was placed in the proper place. Following is a description of the work:

The top measured 14 ft. by 7 ft. by 8 in. thick. The concrete was proportioned 3½ parts bank gravel to 1 part cement, well mixed to a wet soggy mixture. To begin with we placed a layer of tar paper over board form. On this we laid 2 in. of concrete, then we placed ½-in. mesh chicken wire on concrete. Over the chicken wire we placed ¾-in. Have-meyer reinforcement bars the length way on 6-in. centers. Then we laid 3 in. more of concrete over the rods. On this second layer of concrete was placed another set of rods (¾ in.) the cross way on 6-in. centers. Over the second set of rods a third layer of concrete was placed, completing the top to 8 in. in thickness. The error was in placing the second set of bars too high. Would it have been proper to place both sets of rods together about 2½ in. from the bottom?

T. KEMPF & SONS.



FLOOR PLAN

Floor Plan of Remodeled House Suggested by H. E. Mereness To Help J. J. Mangan.

## Mr. Weber Started Something—

### We Get Some Support and Some Criticism

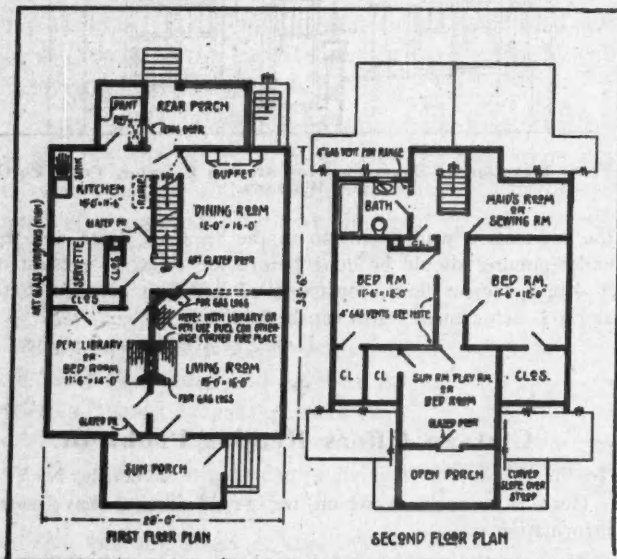
TO THE EDITOR

TUCKAHOE, N. Y.

The writer was very much interested in Mr. Weber's criticism of your Blue Ribbon house design, sufficiently so to induce me to remodel the lay out, a blue print of which is enclosed.

We believe his objection to callers entering the living room is a point well taken, as it is a disagreeable feature with over 90 percent of the small low priced houses being built today. Everybody from the book agent to your mother-in-law "horns" right into your private sanctuary, mud and all. Practically every house so constructed has some sort of a porch, and by inclosing this and making of it a sun porch or parlor, you have the very desirable opportunity to "stall off" undesirable visitors.

The proposition of answering the bell does not apply to the conditions governing a house of this type, the Mrs. usually acts as maid and she is in the living room about 75 percent of the time, and in this design the distance from the kitchen is not appreciably longer via the present route. Now—suppose the owner "sports" a maid—she is equipped with bobbed hair, a fluff de ruffles bodice, short tight skirts, high-



Suggested Floor Plan for House Which Is Being Discussed Pro and Con. This Was Submitted by the Waddell Engineering Co.

heeled pumps, an amazingly striking display of well-shaped transparent silk hosiery, a beautifully pink-tinted complexion and carrying with her a sweet smile and an air of lavender or old rose, certainly Mr. Weber would never object to a beautiful apparition of this kind tripping thru the dining and living rooms or, in fact, all the rooms, and especially when the place was filled with company; neither would the maid object because they particularly like to be very much in evidence and show how they can eclipse the Madam in style and beauty.

The total width of your design is 39 feet 6 inches, which we believe to be too wide, because the great majority of low priced houses are built on not more than fifty foot lots, this would leave but 10 feet 6 inches for driveway and clearance; therefore, we believe the cost of excavation, foundation and structure of the sun parlor should be put into the building proper. We do not like a front approach to the porch of this style building, we prefer the stoop placed at the side because it gives the house a broader appearance, is necessarily very

much less elaborate and costly. A straight unbroken front to the porch gives a very much better appearance from the inside, more like a room or sun parlor, and when the porch is full of company, a new arrival does not have to "bust" right into the midst of everybody with the accompanying apologies, breaking up of conversations and general upheaval and especially if an undesirable "blows" in you can "freeze it out" very much quicker and easier via the side entrance.

Now, pardon me if I jolly you a bit. You know criticism like competition is the spice of life, and I don't consider a house of this size needs two toilets any more than a cat needs two tails; neither do I consider the sun parlor would make a good "breakfast room for the less important meals," as it is entirely too far from the kitchen for this purpose—the "stack of wheats," the biscuits, soup, etc., would have all the "pep" chilled out of them before they completed this aerial flight. Moreover the maid would never stand for such leg exercise. She would immediately call a "walkout" and go on strike. Again when the writer started to lay out this design he found you to be off in your mathematics—taking a longitudinal plane thru the living and dining rooms, both of which are 16 feet 0 inches long and allowing 6 inches for each of the three walls on this plane of intersection, we have 33 feet 6 inches instead of 38 feet 6 inches. Unfortunately the writer started the lay out from the kitchen side and had progressed quite considerable before he found there was five feet of building with no place to put it.

The front room on the left when being used either as library, den or bedroom does not need to be 16 feet 0 inches long and by shortening up on this and omitting the superfluous toilet we have room for our very desirable Servette. The word "SERVETTE," we believe, to be original with us, and if this is not so we would like very much to know it.

We are assuming that gas, either natural or manufactured, is available, and where this is the case with houses of this type we believe fire places should be built for gas logs only and gas vents substituted for the expensive chimneys. The open "wood" fire place in low priced houses is a farce, the owner can't afford to burn logs and the place is used only as a receptacle for tobacco ashes, cigar and cigarette butts, quite often as a cuspidor and occasionally as a place to burn old love letters. A gas kitchen is intended and the laundry is to be in the cellar.

The lower hall now forms a "T" and with the kitchen and dining room doors glazed will have plenty of light. We have changed the upper hall arrangement, making a desirable room of the storage space and giving access to the front of the house, where we have added another room and open porch. This gives an eight-room house, with a larger kitchen, a servette and an enclosed front porch at practically the same or even less cost by eliminating the sun parlor, one toilet, one double flue chimney and a material reduction in the cost of stoop.

It must be distinctly understood that the writer does not submit this as his ideas of an ideal low-priced small house; but it is submitted as an improvement on the Blue Ribbon design in question (originally illustrated in September, p. 96, and again in November, p. 83), and is considered a very good building of its kind and, we believe with little to criticize. The writer has, however gone to this trouble in order to bring out criticism and would, therefore, be greatly pleased to know what you, Mr. Weber and the rest of your readers think of this design.

EMERSON WADDELL.



To the Editor:

Riley Center, Mich.

Will you kindly advise where I can get equipment and information for making sections for bee hives such as the little square frames that the honey is removed in?

EARLE C. JONES.



**Takes Issue With Critics**

To the Editor: Freeport, Maine.

I noticed in the September issue of the *AMERICAN BUILDER* a question asked by A. R. Finke, of Arkansas, on how to fasten a pump and pump jack in a cement floor. The way I do (and I work quite a lot around engines in the winter) is to drill holes where the bolts are needed, about three times larger than the bolts and from 1 foot to 18 in. in depth. Use bolts with large heads, place them exactly in center of hole and pour in a mixture of one-half cement and one-half screened gravel or coarse sand mixed thin enough so it will fill the hole readily. When this is hard either gas engine or pumps can be fastened securely down.

I have been reading the correspondence department in the November issue and notice two letters, one from Chicago and one from Cambridge, Mass., criticising the Blue Ribbon Houses. One complains of the manner in which the bungalow on page 96, September *AMERICAN BUILDER*, is laid out, and the other complains because an estimate of cost of building isn't added. I do quite a bit of work myself, also do some drafting and I have looked over the plan of the house in question quite closely. We all know that what suits one doesn't suit another as a rule, and, no doubt, this plan could be changed somewhat. But I call it a cozy and well-planned house. I would change the porch to a vestibule, also would plan to have the chimney in the rear so that the kitchen range would come nearer the pantry, as this would shorten the distance that the housewife would have to travel in doing her cooking. I would also have the main chimney in the opposite side of the living room so a hall could be made to run from the stairway to the vestibule.

In regard to costs of buildings, it would be almost impossible for anyone to come very close, as the price of lumber and the cost of other stock and wages are different in different localities. One might add the cost if built in Chicago, but those figures would be way off from the cost in the state of Maine. I think it pretty poor judgment to ask any editor to give a cost when the magazine is mailed from the Atlantic to the Pacific. I have found that in a great many cases those that do the kicking are just the ones that couldn't bear to have their work inspected for fear of being severely criticised themselves. I consider the Blue Ribbon Houses as a whole a mighty wise lot and homes that many would be proud to own.

J. B. SYDELMAN.

**Helpful Suggestions, Not Blanket Condemnation, Is His Motto**

To the Editor: Los Angeles, Calif.

Referring to the inquiry of Cecil Prosser in your November issue, I can state from experience that damp will not show thru plaster applied direct to the interior of a hollow wall, as damp, heat or cold travels very slowly, if at all, across a dead air space; and even if there were circulation there, there would, to my mind, be little likelihood of dampness. I have had wide experience in this class of construction and have never been troubled with dampness on a wall of that nature.

Commenting on the criticism of Alfred P. Weber and your reply thereto, I wish to state first that Mr. Weber's criticism is not only unkind but unjust, as none of us have yet reached the perfect stage, and as it is only by our mistakes that we learn. I have spent a great many years building real homes and my criticism of Blue Ribbon House, Page 96, September *AMERICAN BUILDER*, would be more in the nature of a suggestion which would be to eliminate the pantry and put that space into the kitchen and use it for cupboards. You know, we of this city of small homes, have buried the pantry and forgotten where the grave is, as we found that on an average our wives, mothers, and sweethearts travel 22 miles a day from pantry to sink, sink to range, and range to pantry, and so we

bundled our pantry off the map, or to be correct, off the plans. We endeavor to so arrange our kitchens as to give the maximum of efficiency with the minimum of work.

Another suggestion I would make is an in-a-door bed in the closet in the library, thereby making a bed room of it at night with no visible evidence of the bed during the day. The arrangement of the closets can be made to conform to this. But if we all make as good an arrangement at all times as this one under discussion we will get by all O. K.

L. M. LIPSETT,  
Designer and Builder.

**Believes in Boosting**

To the Editor:

Elliott, Ia.

I have been a reader of the *AMERICAN BUILDER* for several years and have gained much from it. I have accomplished things that I would not have undertaken had it not been asked if it could be done by some brother in the paper. I take my hat off to this magazine for it certainly covers the complete building field. I have learned much by just going over the advertisements. The correspondence department has always been of interest, although I have never taken any part in it.

In reading the November issue I am led to make a few remarks, first from the remarks of Alfred P. Weber, architect. He has severely criticized a floor plan and I don't think he has good grounds for objections. I think it a very good plan for a moderate modern house. Of course, if we wanted everything just so we would have some time in getting it that way. In planning a house we generally have to sacrifice one thing to get another. First to have a house for a home we have to take many things into consideration—taste and convenience. We often have to stand a little inconvenience to have things sanitary and so on.

I don't know about Mr. Weber but I have had to work to plans of architects that were not half as good as this one. I say let us have plans and plans—yes, all kinds of plans—and we will have an assortment that will suit anyone. If I was going to criticize all the plans that I do not like for my personal use there would not be any use for many to be made. We can pick up most any plan and find fault with it. I say, let us all boost. The only thing I would criticize would be cramped quarters and a house so designed that it would not be healthy. Let us have what Mr. Weber has for a well arranged house and see if we all like it. I say if every one had as good a house as this one to live in we all would be O. K.

A. S. BENSHOOF, Elliott Construction Co.

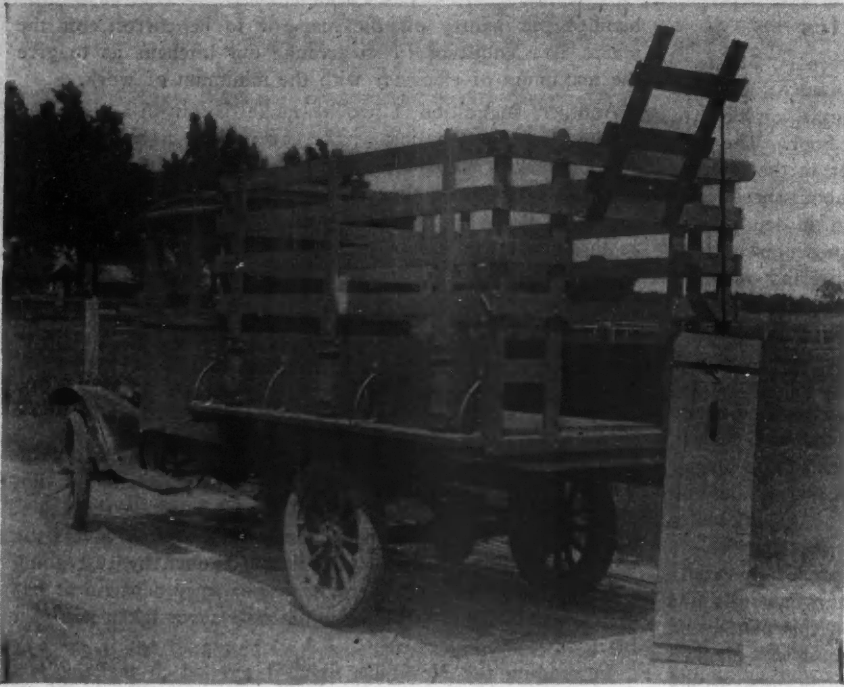
**In Which We Gain Support**

To the Editor:

Jamestown, N. Y.

Anent Bro. Weber's criticism of House Plan 96 in the September issue. Is it not just possible the color of the "Ribbon" by which these splendid designs are called has got on his nerves or possibly he has got "nerves." Personally, I have never yet seen published my ideal home plans, and in all my forty years experience I have never put up a job that I would not have made decided changes for my own use. Considering present-day conditions of the "bungalow family," I think that Plan No. 96 is indeed a well arranged plan and well suited to the needs of the above named family. But I am particularly well pleased with the plan on page 73 of the November issue of the *AMERICAN BUILDER* and if the cost is within reach I intend to build it here in this city for my summer residence and in Atascadero, Calif., for my winter residence. I have got many splendid ideas out of the *AMERICAN BUILDER* and as long as I am in the building business it will be found on my office desk.

A. F. KELLY.



I. L. Sears Did Not Lose Out When Motor Trucks Replaced Wagons. He Keeps Busy Making Special Bodies for Farm Trucks. Here Is the Type He Builds.

### Paint Spot Caused by Fungi

To the Editor:

Peekskill, N. Y.

I notice in your October issue a letter by J. S. Bell, in which he tells of a spot on a ceiling in an old house. In my experience as a painter, I have had the same trouble. Several years ago I read in a scientific publication that it is caused by a fungus growth, and comes and goes with the weather. About the only thing I know of would be to use a reliable fungicide and apply it to the beams, joists and laths that may be affected.

Jos. Vogt.



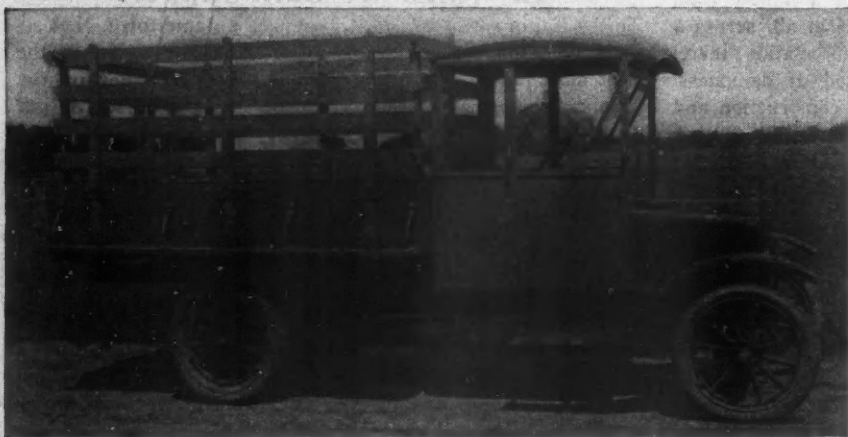
### Meeting the Needs of the Changing Age

To the Editor:

Waverly, Ill.

I am inclosing two photographs of a bed, stock rack and cab for a Ford truck, which were designed and built in our farm workshop.

We have made several of the beds for the neighbors, the main advantage in the bed design being that it has an absolutely smooth floor with a flush steel edge at the rear. Anyone who has ever tried to scoop grain from a bed with the bottom cluttered up with open joints, strips of metal and a big bar



Another Ford Truck Equipped With Stock Crate for Hauling Hogs. This Is a Good Side Line for Rural Carpenters, as Brother Sears Points Out.

across the rear, will know how to appreciate a perfectly smooth scooping surface.

The stock rack has a special small gate in the rear for easy loading of hogs. It also has a set of sideboards 12 inches high, not shown in the pictures.

The pictures might be of interest to some of the "old hands" who are leaving the wagon bed building and moving over on the truck bed building side.

I. L. SEARS.



### Use of Stucco on Lath

To the Editor: New Canton, Ill.

I note A. J. Ebert's inquiry in the November AMERICAN BUILDER and take pleasure in submitting the following: The writer remodeled a large two-story house last year, which was a very old structure, part of it being a hundred or more years old, of heavy timber (oak at that), construction, sheathed on the outside with oak sheathing, and white pine beveled siding. Wood lath was nailed diagonally to the siding with 5d wax or cement coated nails and magnesite stucco applied to the lath. Both cypress and yellow pine lath were used on this job, as cypress lath was pretty hard to find at the time. However, the writer would advise the use of cypress lath wherever possible. This job, altho done when materials and labor were at the very peak, was satisfactory in every respect.

The writer has used magnesite stucco on practically every kind of material and can recommend its use at all times.

*Some do's and don'ts—*

Always flash over all doors and windows, as well as water-tables, carrying flashing under the lath and turned up an inch or more, to prevent water from getting behind the stucco.

Always mix materials exactly as manufacturers direct.

Don't ever apply stucco when it is raining or snowing or apply second coat to first after it has become hardened and is still wet. Cold weather has no injurious effect on magnesite stucco.

Mr. Ebert's method of furring and lathing will get him the results he has a right to expect. Trusting this will be a help, I am,

RAYMOND MINTON.



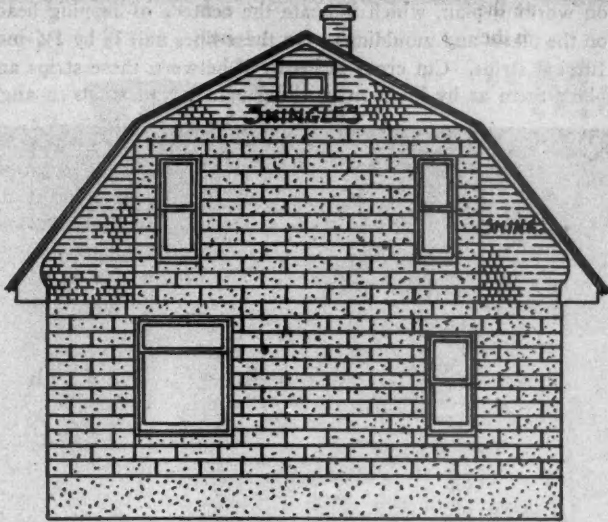
### Builds House in Unusual Way

To the Editor:

Kane, Wyo.

If I had a camera I would send you a picture of my house, as it is quite unique. There isn't anything like it around here and I doubt that there is another house just like it anywhere. It's not a large house, only 24 by 30, without a porch, as I didn't have money enough for the porch, but I will add one later. It is built out of gypsum block which are pure white. They probably would not last in a country where it rains, as they absorb moisture like a sponge. But they can be painted. Nails can be driven into them just like wood.

This country is full of gypsum and all one had to do is to go and get some and burn it. It is then ground in a mill and is ready for the molds. Measure



House Built of Gypsum Block by J. W. Conrad, Kline, Wyo. It Is 24 by 30 Feet.

out just enough ground gypsum for a block, pour enough water on it to make a thin batter and pour it in the mould. By the time a straight edge is run over the mould the block is set and ready to be removed.

One feature of my house is the gable. It is built Colonial in style with a gambrel roof, the blocks going up in the shape of a square up to the upper rafters. The triangle formed by the top of the wall and the upper rafters is shingled and stained brown. The triangle formed by the end of the wall and the lower rafters is shingled like the upper. I have had many compliments on the house even from men that take large contracts and draw up plans and specifications.

J. W. CONRAD.

P. S.—We saw the blocks into the length required with a saw, generally a one-man cross cut.

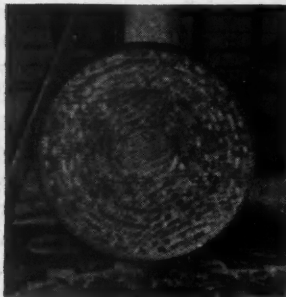


Fig. 1. Table Top Containing 703 Different Kinds of Wood. It Is 30 Inches in Diameter.

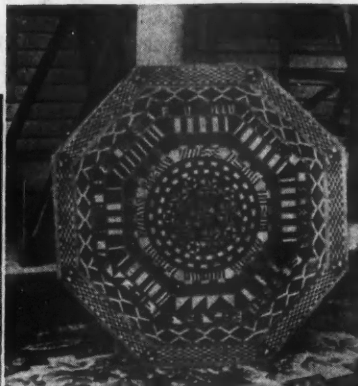


Fig. 2. Octagonal-shaped Inlaid Table Top Containing 3,200 Pieces of Wood.

**Some Unique Inlay Work**

To the Editor: Hillsboro, O.

I am sending you some pictures of inlaid table tops I have made recently.

This table top shown in Fig. 1 was inlaid by Thomas Brown for B. M. Boyd of Santa Monica, Calif., and contains 703 different kinds of wood. This top is 30 inches in diameter; it was inlaid and put on a face plate and turned in a lathe. Notice the pie crust turned on the edge to keep the cards from falling off of the table. We call it a pie crust table.

The table shown in Fig. 2 is 36 inches across, octagon shaped, and contains 3,200 pieces of wood, 18 kinds.

Fig. 3 is a library table; top size 28x42 inches.

The other pictures show some small pedestal stand tops. The woods were collected by Thomas Brown and B. M. Boyd.

About 150 were collected in Highland County, Ohio; 150 in Manatee County, Florida; 100 in San Bernardino County, California; 50 in the two counties of King & Queen and Charles City, Virginia; 50 in Tom Green and Schleicher Counties, Texas; and the remainder in other parts of the United States of America, Japanese Empire, Philippine Islands, Island of Porto Rico, Republic of

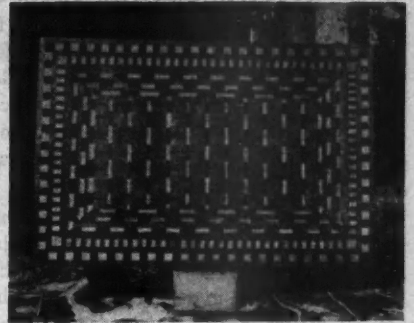


Fig. 3. Library Table Top, 28 by 42 Inches.

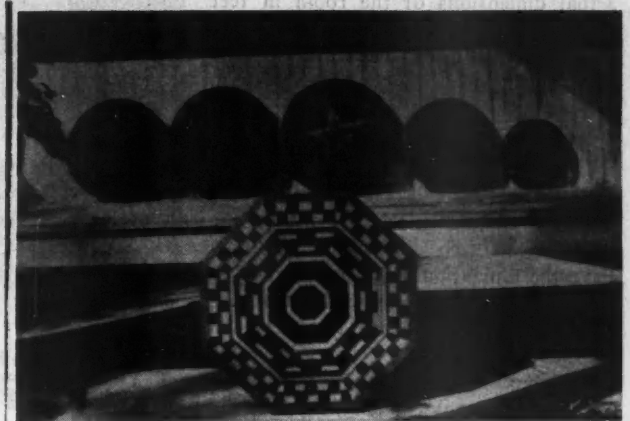


Fig. 4. Inlay Table Top and Small Pedestal Tops. These Beautiful Products Were Made by Thos. Brown.

Cuba, the Republics of South America and the different countries of Europe.

THOMAS BROWN.



**Minnesota Builder Explains Roof Cuts**

To the Editor: Springfield, Minn.

Answering the inquiry of the Secretary of the Pensacola, Florida, Builders' Exchange in the correspondence department of the AMERICAN BUILDER, September, 1921, I suggest the following:

To get the plumb cut of jack rafters for one-quarter pitch, use 12 and 6 inches, cut on the 6-inch mark. To get the side cut of jacks use 9 by 10 inches, cut on the 10-inch mark.

To get the plumb cut of jack rafters for one-third pitch, use 12 by 8 inches, cut on the 8-inch mark. To get the side cut for this use 10 by 12 inches, cut on the 12-inch mark.

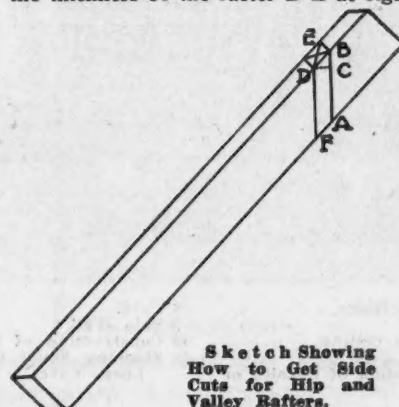
To get the side cuts for hips and valley rafters and jack rafters proceed as shown in sketch:

Mark plumb cut A-B square across from B to E. Set off the thickness of the rafter B-E at right angle to line A-B to the edge from C

to D. From D mark to E, mark another plumb line from D to F. Cut line E-D-F.

The line D-E is the bevel to fit against hip or valley. D-F is the plumb cut.

This rule will apply to any pitch of roof, hips and valley rafters as well as jack rafter.



Sketch Showing How to Get Side Cuts for Hip and Valley Rafters.

JOS. KREITINGER.

**Artistic Ceiling Effects in Metal**

IT is surprising how many of the fancy wall and ceiling effects in stores, offices, theaters, hotel lobbies, etc., executed in Italian and French Renaissance, Gothic, Colonial, Greek, Roman, Rococo, etc., with all appearance of artistic plaster work are made of metal. There is a big field for this material for contractors and carpenters.

The advantage of this type of ceiling lies in its incombustibility and light weight which reduces the stress on the truss. It is used extensively in establishments where heavy goods are handled with much jarring which would ordinarily loosen a plaster wall.

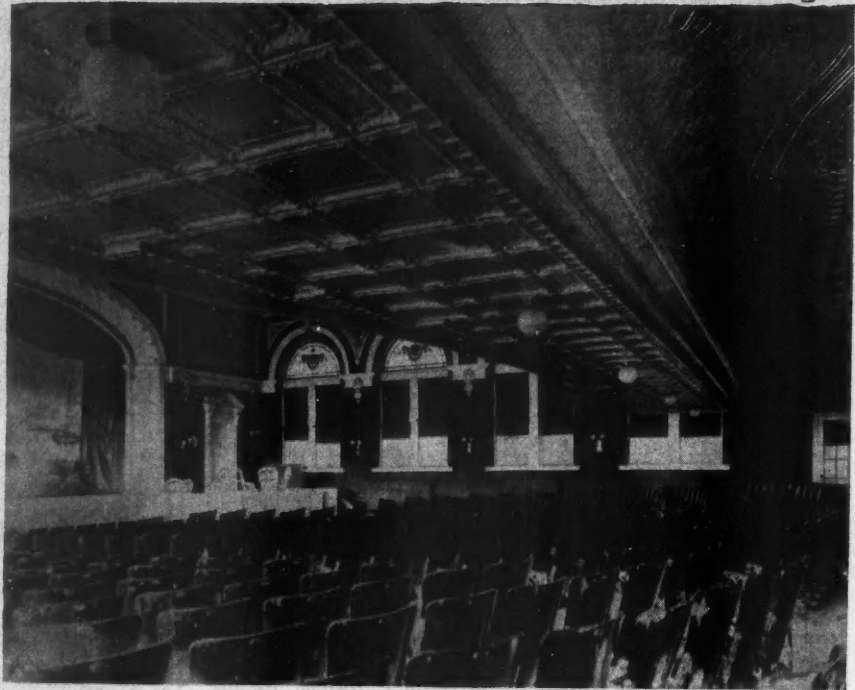
In order to get the measurements of a room for metal ceiling first take the actual dimensions of the room in feet and inches, then add to each dimension twice the depth of the cornice to be used. Add to this 4 inches for variation. For example, take a room the measurements of which are 15 feet by 39 feet.

If your cornice extends down on the wall 12 inches, add 24 inches to each dimension and then add 4 inches for variation to each dimension. We now have the dimensions 17 feet 4 inches by 41 feet 4 inches, multiplied, gives the actual number of square feet of metal in the entire cornice, ceiling, etc. Do not deduct for openings in the ceiling such as stairways, skylights and elevator openings unless they exceed 100 square feet each.

The deeper the cornice, the greater the cost of material. The selection of the depth is governed by the height of the ceiling.

The amount of material determined, the next step is the application. In laying off ceiling the work is started at the center line, and worked each way to the walls. Chalk lines are struck the length of the room at distances shown by lines

on working plan, which indicate the centers of lapping beads on the plates and mouldings. On these lines nail 3/8 by 1 1/4-inch furring strips. Cut cross strips to fit between these strips and place them as by lines on working plan. Nail strips in angle



Interior of Moving Picture Theater, Showing Artistic Effect Wrought in Metal Ceiling. More Economical Than Plaster, It Shows Up as Beautiful.

of ceiling and wall at a distance from wall equal to projection of the cornice to receive the cornice brackets. Strips should be brought to a level by driving wedges between the strips and old ceilings or joists, or the ceiling will present an uneven appearance when finished.

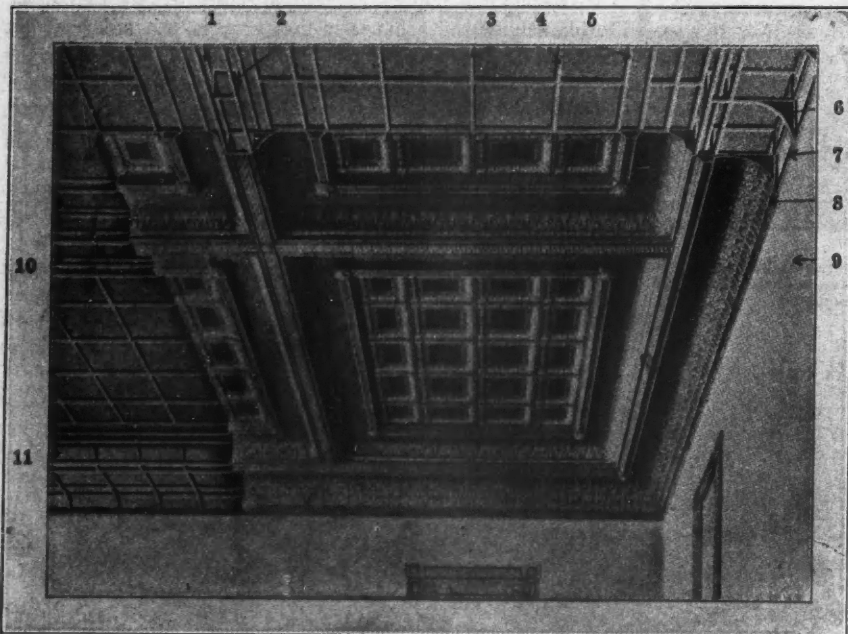
The field should be applied first, then the cornice, mould, and last the filler. The filler is always sent one or two inches wider than the dimensions of the room call for, to provide for any unevenness in the walls. Place the bead on the filler so as to cover the flange on the cornice and slip the other side of the filler under the bead on the mould, then nail the mould tight. Use a sharp punch for making holes where there are more than two thicknesses of metal. Close or swedge with a small dull tool any joints which may not have lapped tightly.



**Ransome Company Builds New Plant**

THE Ransome Concrete Machinery Company, Dunellen, N. J., will build an addition to their present plant which will increase their manufacturing space 54 per cent.

The new building will cover a ground area of 53 by 320 feet. The machine shop and erecting floors will be equipped with the most modern machinery, including portable air and electric equipment to facilitate production in the plant. Ground was broken Oct. 6.



- 1 Construction of False Beam.
- 2 Brace Form.
- 3-4-5 Furring Strips for Ceiling.
- 6 Cornice Bracket.
- 7 Furring Strips at Bottom of Cornice or Cove.

- 8 Cove.
- 9 Side Wall.
- 10 Construction of False Beam.
- 11 Showing Small Cornice at the Top of Large Cove.



## “Made to Walk on”

You know Johnson's Floor Wax. It is used all over the civilized world. We want you to know and use our Floor Varnish, too. It is of the same high quality as our Floor Wax. To prove this statement we are offering you a pint can absolutely free — all charges prepaid.

Johnson's Floor Varnish dries dust-free in 2 hrs. and hard over night.

It imparts a beautiful, high lustre — has good body — will give long wear — is absolutely waterproof — and will stand all reasonable tests.

# JOHNSON'S FLOOR VARNISH

Johnson's Floor Varnish is just the thing for hard and soft wood floors — oil cloth and linoleum. Also for furniture, woodwork and trim of all kinds.

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

### FREE TO CONTRACTORS

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

**S. C. JOHNSON & SON, Dept. AB12, Racine, Wis.**

*“The Wood Finishing Authorities”*

Canadian Factory — Brantford

**S. C. JOHNSON & SON,  
Dept. AB12, Racine, Wis.**

Please send me free, all charges prepaid, one pint of JOHNSON'S FLOOR VARNISH. I will test it and report results to you.

Name .....

Address .....

City and State .....

I buy Varnish from .....  
(Enclose your business card)

## Cozy Six-room House Design

WELL-BUILT HOME OF BRICK HAS EXCELLENTLY PROPORTIONED INTERIOR WITH MODERN CONVENIENCES AT SMALL COST.

ONE of the big problems of the builder is to combine cost with pleasing appearance. If he can do this in building the small man's home his reputation is assured. However in striving for this charm he should not sacrifice strength and permanency. That this need not be done is definitely demonstrated by the plain but attractive brick house design shown in the accompanying illustration.

This house is far from pretentious, but has the requirements of a family home of moderate means and a well-designed exterior and interior. It is brick in construction, the foundation walls being of a different color. Across most of the front of the house is an open, roomy porch with brick rails and posts supporting the roof.

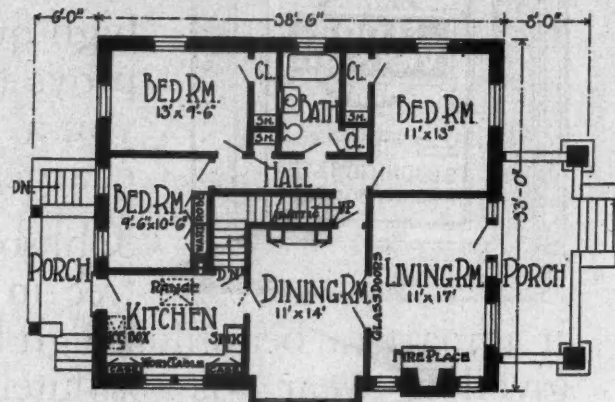
The inside arrangement is one that should be studied with interest by builders, especially those in smaller towns where such a house will be popular. There is a large living room, 11 by 17 feet, with open fireplace and side windows. Some people may question the advisability of entering the living room direct from the porch, but in a house like this, space must be conserved to cut costs and a vestibule would only add to the expense.

French doors of glass open from the living room into the dining room which is 11 by 14 feet, and lighted by a triple bay window. It in turn opens into the small kitchen which will delight most housewives because of its compact arrangement and complete

equipment.

On the other side of the house are the bedrooms, three in number, and bath. These bedrooms are connected by a common hall which is entered from the dining room. Each bedroom has two windows and ample closet space.

There is a high and roomy attic above, which can



FLOOR PLAN

Floor Plan of Modest Six-Room Brick House Shown Below

be used for storage purposes or converted into extra sleeping rooms at small cost if needed.

The house is 33 feet wide and 38 feet 6 inches long, not including the front porch which is 6 feet deep and the back porch which is the same. A side driveway affords entrance to a garage in the rear.



Simple Brick House Design That Will Be Inexpensive to Build and Quite Cozy for the Average Size Family. It Has Six Rooms and a High Attic and Is 33 Feet Wide and 38 Feet 6 Inches Long.

# Are You Building Like This?



"This job helps me get more business"

"SEE that building?" said Pat, pointing with pride at just about as fine a piece of brick construction as you ever saw. "That's one of my first jobs. How old do you think it is? 30 years! And b'gorra, it looks just as good as the day I built it!"

"Now I'll tell you something," he added, "this one job has brought me dozens of others. When it comes to a 'showdown' about the kind of brickwork I do, I just point out this job and it speaks for itself. It will always stand as a monument to the character of my work. That's why I like to build of brick, you can go back to it any old time and it looks good.

"And say," continued Pat, "I've got a wonderful argument today for using brick construction: *its low cost*—no more expensive than frame now. Sounds funny? Not at all. Just lay the brick on edge according to the Ideal Brick Hollow Wall form of construction. This is the latest thing in brickwork—I've tried it out and *know*. Today, you can build a fine brick home at the cost of frame."

For 25 cents any brick mason can get a copy of "Brick, How to Build and Estimate," 72 pages. It describes this Ideal Wall construction thoroughly and is packed full of other valuable information on estimating and handling brickwork. It will save you hours of valuable time.

The Common Brick Industry of America  
1306 SCHOFIELD BUILDING  
Cleveland, Ohio



## How Many Brick Does That House Need?

How long should it take to lay them? How much cement, lime and sand are required? How long should it take to mix them? Today brick masons are quickly answering these questions by referring to compact, authoritative tables in "Brick, How to Build and Estimate".

This practical manual on brickwork shows how to take off quantities quickly and accurately—how to figure costs so that you're sure your right on your estimates.

"Brick, How to Build and Estimate" has complete estimating tables so that you can read off the number of brick, amount of material for mortar of any mixture, hours of bricklayers' and laborers' time, for any thickness and area of wall up to 10,000 square feet laid in any bond.

This third edition is revised and enlarged and full of new material. It fully describes and illustrates the Ideal Brick Hollow Wall. You can secure this practical helper for only 25 cents, postpaid.

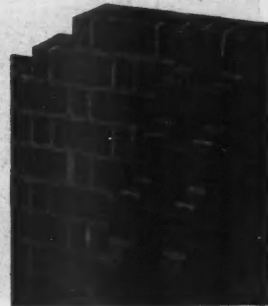


### A Book That Helps Get Business

When sending for "Brick, How to Build and Estimate" it is a good plan to ask also for "Brick for the Average Man's Home".

Numerous builders have told us that this book has helped them close contracts. They show the book to prospective builders and interest them in one of the 35 attractive small house designs—bungalows, 1½-stories, 2-stories, 2-families, cottages, garages. For each of these complete working drawings are available at a nominal price. The price of the book is only \$1.00 postpaid—a small sum for such a business getter.

The best plan is to send \$1.25 and get both books. Address, the Common Brick Manufacturers Association, 1306 Schofield Building, Cleveland, O.



The Ideal Brick Hollow Wall has all the advantages of solid brick wall construction and, in addition, is much lower in cost.

# OUT ON THE JOB



## What Builders Are Finding Good

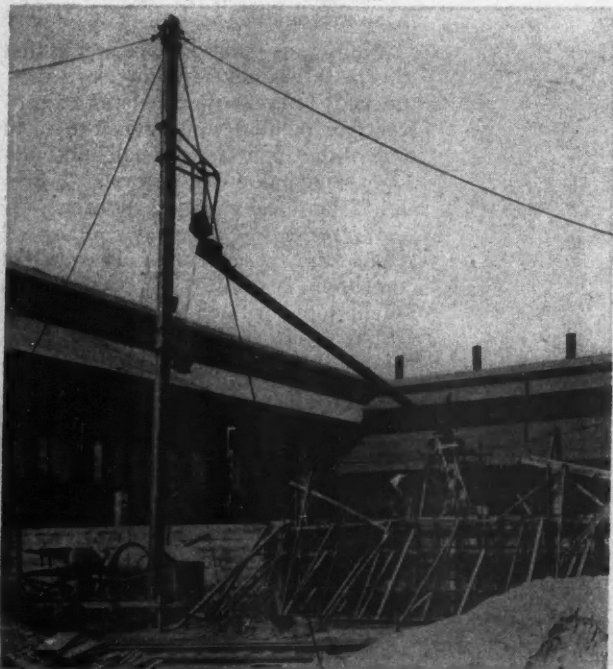
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### Combination Concrete Hoist and Material Elevator for Small Jobs

**T**HE contractor who has the most efficient equipment will be the one who can underbid his competitors and make a profit. That type of contractor will be interested in a construction device that is designed to perform two important tasks on the job and materially reduce labor charges.

This device is a combination mast hoist and material elevator for use on concrete work where the yardage is not sufficient to warrant the erection of a tower. It can be quickly erected, dismantled, and moved from one position to another. The bucket which is operated on the hoist is designed to carry the output of a one-half bag or one bag mixer and has a capacity of 8 cubic feet water measure. The material elevator has a capacity of 1,000 pounds and can be used wherever a single platform elevator of that capacity can be employed.

The mast is framed on the job, guide angles, and top sheaves bolted into place, hoist line reeved, and then elevated



Handy Combination Mast Hoist and Material Elevator for Use in Concreting Work on Small Jobs. It Is Erected and Dismantled Quickly and Easily Moved from Job to Job.

into position by means of a light gin pole and hoisting engine. The foot of the mast is set in a light depression so that the mixer may dump directly into the hoist bucket. The head frame is next placed on the angle guides, as is the hoist bucket or material elevator, as the case may be, and after the hoist line has been fastened to the bucket the head frame is raised to position by elevating the bucket proper. Such chutes as may be desired are swung into place and the plant is ready for operation. The time required for erection is about three hours. When the material elevator is used alone on the job there is no need for the head frame.

When loaded the bucket is hoisted and automatically dumped by a lever striking the head frame and the concrete flows out of the bucket by gravity. When the hoist line is slackened the bucket gate closes by its own weight. The material elevator is lifted to the unloading point and held there by the engine until unloaded. The platform is 36 by 48 inches and can be covered with flooring to hold a wheelbarrow or concrete buggy.

To determine the height of mast required, the maximum elevation at which the concrete is to be poured should be figured and to this added 12 feet for head room. If chutes are used there will be an additional increase in the height of the mast by an amount equal to one-third of the distance through which the concrete is to be chuted. Masts as high as 60 feet can be held satisfactorily with one set of supports at the top. This equipment on the job is shown in the illustration.



### Gas Cooking and Lighting Machine Offers Big Possibilities

**P**EOPLE living in the country would like city conveniences, but as a rule they cost too much. Those not having city gas, or those forced to pay exorbitant prices for it, would welcome private gas plants, but the trouble has been that after the installation the cost of manufacturing has been prohibitive. There has been for many years on the market a gas machine for lighting, cooking, and heating which overcomes this objection. One thousand feet of gas manufactured by this apparatus costs only 60 cents. It is found that an average family, using a 25-light machine for illuminating, cooking and heating, will not spend more than \$18 per year for this purpose.

Many people who have electricity in their homes use this gas machine for cooking only.

The most important factor, as important as cost to users of private plants, is safety, one of its chief factors being that all the manufacturing and mixing of gas is done underground, 30 feet from the house, so that there is no gas made inside the house. Even when there is a fire in the house, the gas machine is found intact. It is for this reason insurance rates are not raised, and no special inspection for insurance is required when this gas machine is installed.

It is a gasoline gas machine. With the gasoline generator, the gasoline is kept in a tank buried a short distance from the house, filling is done only once a season, and no cleaning is required. Generator may be filled to the top without hindrance or loss. With the machine, gasoline liquid never enters the building and the mixture of gasoline vapor and air is also made outside. Three gallons of gasoline will produce 1,000 feet of gas.

Carpenters and builders have been instrumental in installing these machines in many farm homes.



**N**UMBER of shingles required for square (100 feet to the square).

Laid 4½ inches to weather.....	800
Laid 5 inches to weather.....	720
Laid 5½ inches to weather.....	655
Laid 6 inches to weather.....	600



“  
Is it  
Asbestos?  
”

*That's a question you'll often  
be asked about roofing*

*-the proof*

*Direct the flame of  
a blow-torch against  
the surface of a roof-  
ing, and you can  
quickly prove wheth-  
er or not it is Asbes-  
tos.*



**T**HE splendid service given by Johns-Manville Asbestos Roofing, both in protection from the weather and from fire is bringing profitable results to builders and roofers all over the country.

Millions of building owners are being constantly reminded through Johns-Manville's nation-wide advertising that Asbestos Roofing is not only weather-proof but fire-safe. Moreover they are influenced in favor of Asbestos Roofing through the efforts of fire prevention authorities to reduce the enormous fire loss due to inflammable roofs.

*Here's where you profit*

Your customers are surely going to be affected, if they are not already, by all this agitation for fire-safe roofing. They are going to demand that their buildings be protected with roofing that will not catch fire from wind-blown sparks and embers. They are going to demand Asbestos Roofing because it combines weather-proof durability with positive fire-safety.

You can meet this demand by doing your jobs with Johns-Manville Asbestos Roofing—at a very good profit, for Asbestos Roofing is easily and quickly laid and is sold at a price that makes it cost less per year than other roofing.

Like all live-wire builders and roofers you are interested in doing such good jobs that they will bring in new business for you. Ask the nearest Johns-Manville branch to tell you more about the advantages of Asbestos Roofing from the viewpoint of your own pocketbook.

*Johns-Manville Asbestos Roofings*

*Johns-Manville Asbestos Shingles for homes, schools, etc., Asbestos Built-Up Roofing for flat roofs, Asbestos Roofing in Roll form, Corrugated Asbestos Roofing—all fire-safe and economical.*

*Johns-Manville Asbestos Roofings are given highest ratings by the Underwriters' Laboratories, Inc.*

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Temperature Cements,  
Asbestos Roofings,  
Packings, Brake  
Linings, Fire  
Prevention  
Products

**JOHNS-MANVILLE  
Asbestos Roofing**



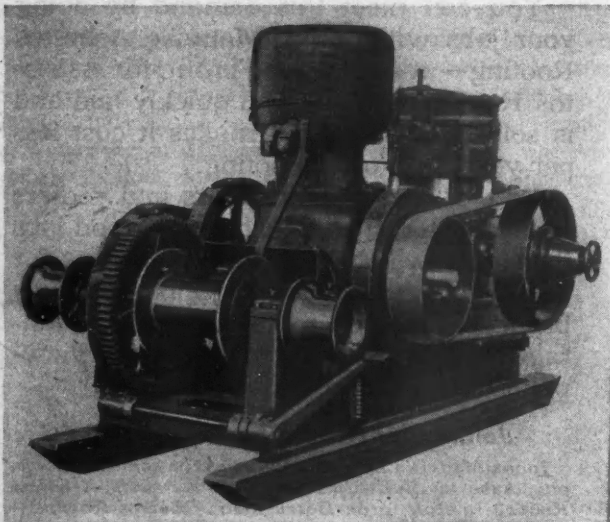
**EDITOR'S NOTE:** The American Builder does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or seller of any article we describe. This information is, however, kept on file and will be mailed to anyone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

### Hoist and Air Compressor Combined

COMBINING the functions of the hoist and air compressor is the purpose of the new machine shown in the illustration. It is intended especially for bridge and elevated tank erection or other steel construction work. It can also be used for trench work, the hoist being used to lower and place pipe and the compressor for caulking or light drilling.

Both hoist and compressor are equipped with friction clutches so that either can be operated independent of the other.

The hoist is equipped with a drum for handling structural steel members. This drum holds 700 feet of  $\frac{1}{2}$  inch cable. The drum shaft also has a niggerhead mounted on each end



**New Combination Hoist and Air Compressor.** The Hoist Drum Holds 700 Feet of  $\frac{1}{2}$ -Inch Cable. The Compressor Has a Displacement of 60 Cu. Ft. a Minute.

for handling scaffolding, erecting derrick, etc. The compressor has displacement of 60 cubic feet a minute, which is enough for one riveting hammer, caulking, light drilling and reaming. It is also provided with a circulation pump and a tank for cooling water.

In combining two fields this machine offers opportunity to the builder for economy on the job.



### Wedge Prevents Hammer Handles from Flying Out

ONE of the unsolved problems in hammer construction has been the wedging of the handle to the head to prevent the latter from flying out. This objection has been overcome by the invention of a wedge which consists of three

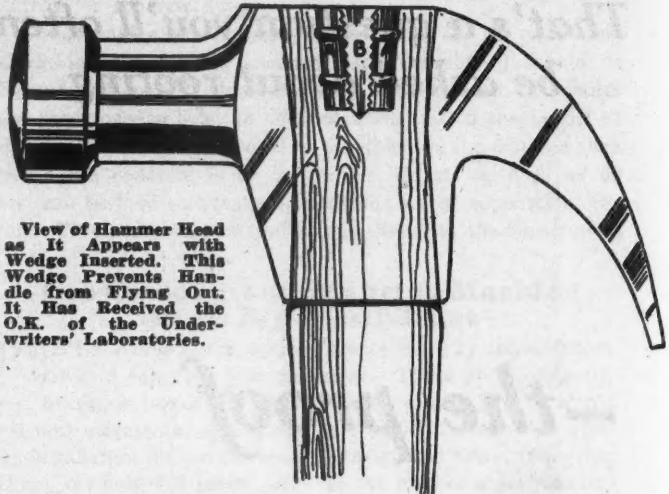


**Fig. 1. New Hammer Wedge** Consisting of Two Pins and Wedge.



**Fig. 2. Complete Wedge** Inserted in Hammer Handle.

parts, two pins and wedge, as shown in Fig. 1. In assembling a hole is drilled into the end of the handle. This hole has a smaller diameter at the bottom (see Fig. 2) than at the top. The two pins are inserted into the hole and the wedge driven in between them. The wedge, being tapered, spreads the pins at the bottom of the hole as well as their full length. This binds the wood firmly against the entire sides of the eye of the hammer.



**View of Hammer Head** as It Appears with Wedge Inserted. This Wedge Prevents Handle from Flying Out. It Has Received the O.K. of the Underwriters' Laboratories.

The teeth of the wedge lock into the teeth of the pins and cannot become disengaged. If the handle shows any tendency to become loose by setting the wedge a notch or two deeper a tight handle is secured.



### Nails at Seven Cents Each

IT is not often that the cost of nails to be used on a contract requires special consideration, or that the cost of driving them has to be estimated. This was the case, however, on a contract recently completed by the Aberthaw Construction Company, Boston, for a paper mill in Maine, where part of the wood work came in contact with pulp containing acid and had to be fastened with 60-penny copper nails. These cost 50 cents per pound, or about seven cents each, which figures about fifteen times the cost of ordinary iron wire nails.

The cost of driving these nails was several times the cost of driving iron nails. The timber had to be bored about one-half the length of the nail and even then, although extreme care was used in driving, many of the nails buckled. The high cost prohibited drawing and throwing away bent nails, so the partly driven bent nails had to be straightened in place and the driving completed.

The work required several hundred pounds of these copper nails, which constituted an appreciable item in the total cost of the job.



OCTOBER building permits broke all records for that month since records have been kept. Only another sign that building is no longer confined to a few months of the year.

**DONLEY  
DEVICES**  
*Modernize the Home*



## A Home, Not a Prison

**M**ANY a woman spends dreary hours in a home that might as well be a jail — waiting for the uncertain coming of the delivery man. Her plans for the day call her elsewhere, but it wouldn't be safe to trust the meat, the groceries, or perhaps the milk on the doorstep where the delivery man might leave it.

Donley Package Receivers give the housewife freedom to come and go, regardless of what the delivery man may do. When he comes, he deposits his packages in the little steel safe, built into the wall. No one then can open it except from the inside.

Donley Devices appeal to the women who are to occupy the new homes. They help the dealer, the contractor and the investment builder to build up business, because they give the new home the final and convincing touch of modernity.

### USE ALL THE DONLEY DEVICES

**Donley Package Receivers**, built in the wall, take the milk, meat and groceries and hold them until removed from within.

**Donley Fireplace Dampers** insure clean, warm fires with minimum fuel.

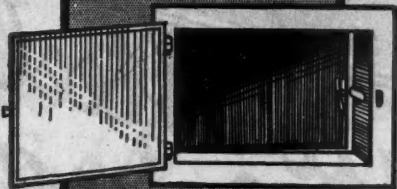
**Donley Ash-Dumps** keep the dust and odors of the ash-pit out of the living room.

**Donley Coal Chutes** protect the building from flying chunks of coal. Thief proof. Easily operated.

**Donley Meter Boxes**, in the basement wall, keep the meter reader outside.

**Donley Garbage Receivers** end garbage can nuisances.

*Write for Donley Catalog*



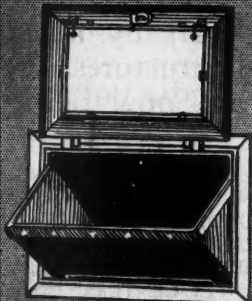
Package Receiver



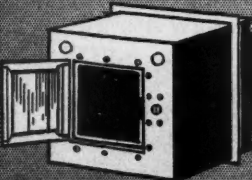
Fireplace Damper



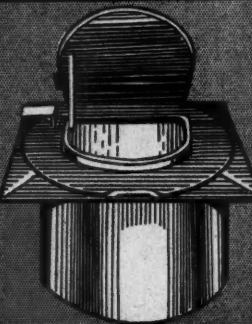
Ash Dumps



Coal Chute



Meter Box



Garbage Receiver

*The* **DONLEY BROTHERS Co.**  
BUILDING SPECIALTIES  7400 ETNA RD  
CLEVELAND

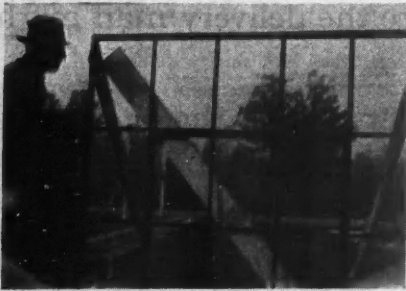
## Steel Windo Wall Department

### What One Builder Found Out About the Cost of Fenestra Steel Windows

Mr. Rinney Clann built a concrete block garage two doors from his home just out of Royal Oak, Michigan.

About the time the footings were in, Mr. Clann went to his lumber dealer, and secured a price of \$7.00 each on nine wooden windows, each window having a wood frame and two check rail sash glazed with 24" x 28" glass. Mr. Clann placed the order at \$63.00, and asked that the windows be ready in two days. He didn't intend to use any weights, cord or hardware and neither inside or outside trim.

One day later, a representative of the Detroit Steel Products Company, who make Fenestra Steel Windows, happened by Mr. Clann's place and, seeing the preparations for building, stopped and asked him why he didn't use steel windows.



"They cost too much," was Mr. Clann's reply.

"I think I can prove to you that they cost less than wood," said the Fenestra man and, after a little figuring, he quoted a price of \$5.10 a unit, unglazed, the price being f.o.b. the nearest Fenestra Warehouse twelve miles away. These windows provided a little more light, and a great deal more ventilation than the wooden windows. Figuring in glass and putty, the price on nine windows came to a little less than \$60.00.

Mr. Clann called up the lumber dealer, found the wood sash could not be ready for several days and, therefore, cancelled the order.

Next morning, he drove his truck to the Fenestra Warehouse and bought steel windows—BUT he didn't buy nine little windows the same size as the wood windows he had figured on. Instead he bought seven good big steel units, which gave him nearly three times as much light as he could have secured with nine wood windows. He loaded them right on his truck, and they were on the job in half an hour.

When he came to figure comparative costs, this is the way they looked:

Wood Sash	Fenestra
9 windows provided	7 windows provided
89 sq. ft. light	234 sq. ft. light
44 sq. ft. ventilation	80 sq. ft. ventilation
Cost, \$63.00 or	Cost (glazed) \$99.00 or
\$0.71 per sq. ft. light	\$0.42 per sq. ft. light.

"Now that the windows are in, I can see what a wonderful advantage they are," said Mr. Clann recently. "I wouldn't use wood sash in another garage for anything, even though they cost more than wooden windows. A good many people don't stop to figure that the average Fenestra window gives several times as much light and ventilation as the average wood window, and they expect the price on the big steel windows to be the same as though they were as small as wood windows. It is something that every builder ought to take into consideration."



For Schools

*Fenestra Steel  
Are Now Being  
at*

CONTRACTORS and builders can now secure Fenestra Steel WindoWalls through the building supply dealer right in their own home town.

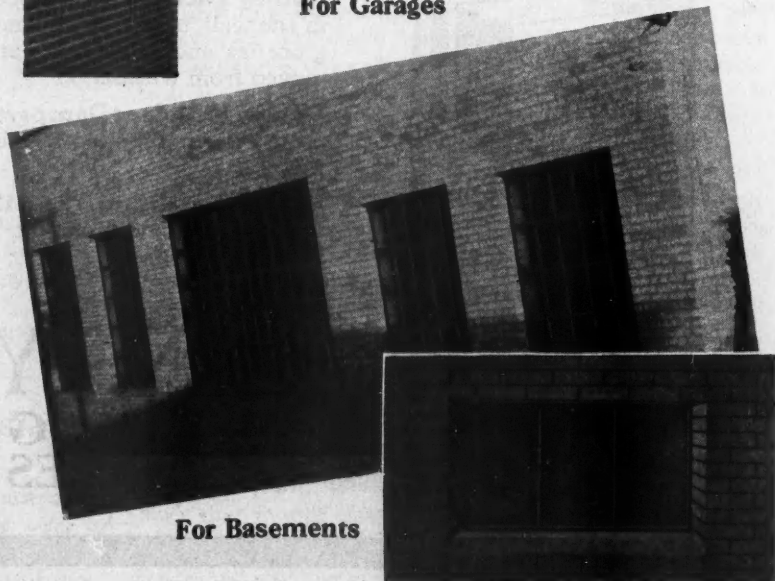
—And at a less cost than they would pay for sticking, warping, inflammable wood sash and frames.

Preferred for years by builders of large industrial structures, Fenestra WindoWalls are now being used widely in:

- |                   |             |                |
|-------------------|-------------|----------------|
| GARAGES           | CREAMERIES  | PACKING PLANTS |
| SCHOOLS           | CANNERIES   | ICE PLANTS     |
| WAREHOUSES        | LAUNDRIES   | HOG HOUSES     |
| STORES            | MILK DEPOTS | CHICKEN HOUSES |
| ELEVATORS         | BASEMENTS   | DAIRIES        |
| COMMUNITY CENTERS |             |                |



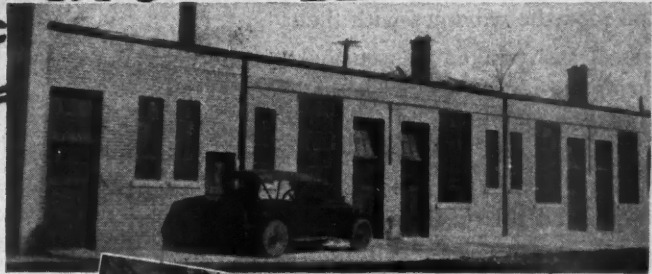
For Garages



For Basements

*Window Walls Sold Through Dealers Less Cost Than Wood.*

For Stores



For Creameries



**A**ND they are wonderfully easy to handle. They are shipped complete with hardware, and already painted. You can set them right in the wall—no extra frames, no fitting, no hanging. After they are installed glaze them from the inside.

If your building supply dealer doesn't have them he can get them for you almost overnight from the assortment of 34 types and sizes carried by our 24 warehouses.

For Storage Warehouses



**Fenestra**  
Steel Window Walls

For particulars write  
**Detroit Steel Products Company**  
 2210 East Grand Boulevard Detroit

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

## Growing Use of Steel Sash in Small Buildings

EFFECTIVE DISTRIBUTION THRU DEALERS WILL PLACE IT IN HANDS OF CONTRACTORS LIKE OTHER BUILDING MATERIALS

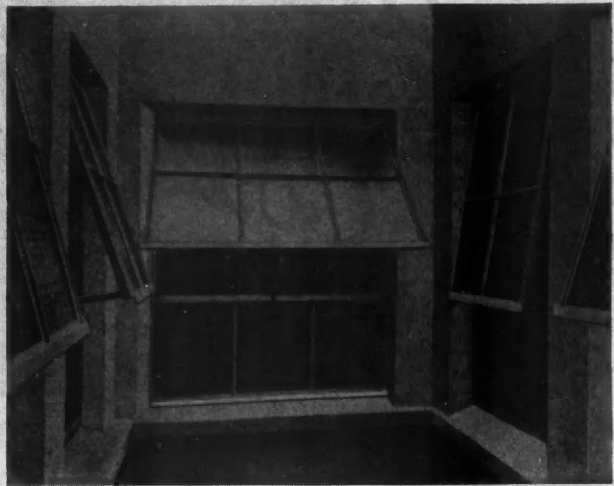
By A. T. Hugg

ONE day last September, a farmer and his son drove their small truck to the door of a steel sash manufacturer in Detroit, Mich. They wanted five of "those big, iron wintows." They paid cash, and took the windows with them.

The steel sash maker was curious. It struck him that, during the fourteen years he had been in business, it had not been the habit of farmers to drive up and buy steel sash as tho they were purchasing cement or chopped feed. So he inquired how the windows were to be used—and this is the story behind the order.

D. C. Mouch has been a well-to-do farmer in Michigan for years. He and his son, Charles, have taken a profit out of their one hundred and twenty acres. Their home has the modern conveniences. They have a touring car and a sedan, in addition to their truck.

But two years ago Charles, like so many other young



Light Court In Apartment Building With Windows of Steel Sash.



Small Brick Garage Equipped with Steel Sash and Ventilators. This Type of Sash Is Being Used in Many Buildings of This Type.

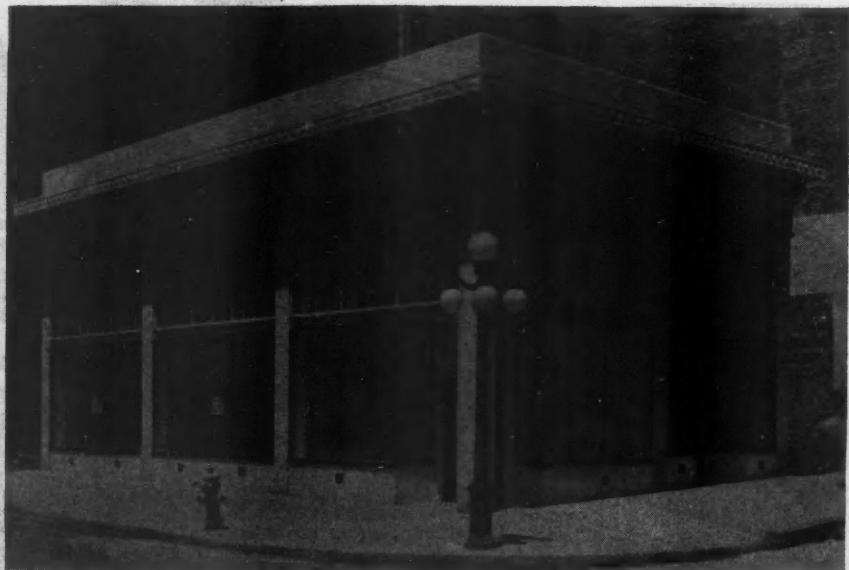
men, decided he wanted a taste of city life, so he came to Detroit and got a job in one of the automobile factories. He made good and liked it, but when the business slump came and he went back to help his father on the farm, he couldn't get the love for mechanics out of his head.

"About this time, we got a chance to buy a piece of ground over on the highway," explained Charles (this is a concrete road leading straight out of Detroit), "so I suggested that we put up a small garage. I had been fixing up all our neighbors' cars in my spare time, and it looked like the business around here, plus the gasoline and parts and tire sales from transients, might make it

worth while. Father was agreeable, so we sketched up a rough plan.

"Then I remembered that the automobile plant where I had worked had steel windows, and they sure were great. Father had the usual wooden windows in mind, but when I showed him how much more light and ventilation the steel windows gave us, he agreed that we'd better have them, so we bought them."

The Mouch garage stands practically alone on the highway, its big, steel windows showing up for half a mile in either direction. Passing



Randolph Store, San Francisco, Calif. The Upper Transom in This Building Is Equipped with Steel Sash Which Is Now Installed in Many Small Buildings.



# General Motors Trucks

## The *Economy of Quality*

Truck buyers seeking lower cost transportation realize that there can be no substitute for quality. As soon as they discover the sterling qualities they *demand* and *get* in GMC Trucks they determine that there is no substitute for GMC.

This accounts for the fact that the more true economy is *sought*, the more GMC Trucks are *sold*, which is just as significant as it is true. They are made in all capacities from  $\frac{3}{4}$  to 5 ton. GMC Trucks have the stuff in them which results in their ability not only to do more work, more satisfactorily but to *keep on doing it*. They represent economy in its most desirable form—the *economy of quality* and more—

The recent reduction of \$500 makes the Model K-16 one ton truck at its price of \$1495 one of the most attractive purchases in the field today.

—and the GMC Truck today is a better truck than it ever was—built of truck units strictly for truck duty—including in its regular equipment electric lights, starter and cord tires.

In addition it has all those exclusive GMC features such as removable Cylinder Walls, removable Valve Lifter assemblies, Dual Cooling and many more.

Take advantage of this popular truck at its popular price and share in the benefits all GMC owners enjoy. See your dealer today.

**GENERAL MOTORS TRUCK COMPANY**

*Division of General Motors Corporation*

PONTIAC, MICHIGAN

(S 63)



Small Private Garage Equipped with Pivoted Steel Sash Windows. Heretofore This Construction Has Been Confined to Factory Buildings.

motorists often comment on its up-to-date appearance and the advantage of the windows, which are "just like they use in all the big factories nowadays." But the most unexpected comments come from the other farmers in the Mouch neighborhood, and residents of the small towns not far away. These people have shown an intense interest in the steel windows and, when told that their cost compares favorably with other materials, they have almost invariably suggested some other building recently completed or in process of construction, or projected where "they would be just the thing."

"A couple of my neighbors are building garages," said one man, "I'll bet they could use those windows. Where do you get them?"

"I wonder if they wouldn't be good for Perkins," said another. "He's planning that dance hall over at the cross-roads, you know."

"What's Johnson using in that block of stores he's building?" inquired another, and still another said: "Why, I know half a dozen men who ought to use those windows."



Gas Filling Station Which Has a Daylight Interior Afforded by Steel Sash Walls. Many School Houses Are Equipped with This Type of Window.

If Mr. Mouch, and his neighbors, are typical of hundreds of other similar communities, as it seems reasonable to suppose, then there are thousands of people in the United States who are building garages and stores and creameries and schools, and no end of little buildings, and who would welcome the use of steel sash at a favorable price comparable with wood. And if, as the steel sash manufacturers now declare, their prices are as low as good wood sash and frames, then there appears to be a tremendous untouched market in which this product, which has long been recognized by the large industrial institutions, can be used to excellent advantage.

Up to the present time, steel sash has been sold chiefly thru company representatives, located in the larger cities—men who work exclusively on a commission basis. They call on the architects, the large engineering concerns, the big contractors. They are equipped to talk intelligently on almost any structural problem.

One steel sash manufacturer has over one hundred of these men in the field, and backs them up with over a score of warehouses from which standard types of sash can be shipped within a few hours.

But these men do not cover the small buyer. Their commissions do not warrant them in covering the smaller towns nor the outlying buyers, such as Mr. Mouch and his neighbors represent. And many buyers of this type—in fact, the majority of them—are not located near enough so that they can go to the manufacturer, or one of his present representatives.

The builder must be able to secure steel windows thru someone not far from his own home. One of the local mediums for this distribution is the local lumber dealer who handles most of the material the small builder needs.

When this step in the problem of distribution has been worked out, steel sash will cease to be the "specialty" it has been heretofore, and will become a "commodity" that anybody can buy "over the counter," so to speak, and take home in his truck or tied to his touring car as he would take small lots of any other building material.

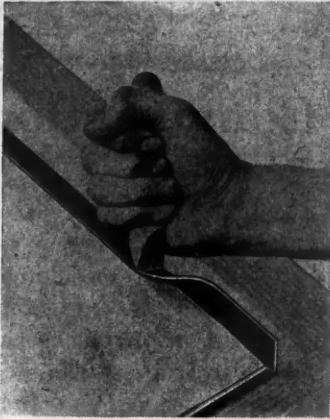
Many building contractors who have been under the impression that steel sash is only used for large factories and shops will be surprised to learn that this style of sash is used extensively in small buildings, schoolhouses, garages, stores, etc.



**Puttyleless**  
 Patented Oct. 13, 1908

**"The Modern Window"**

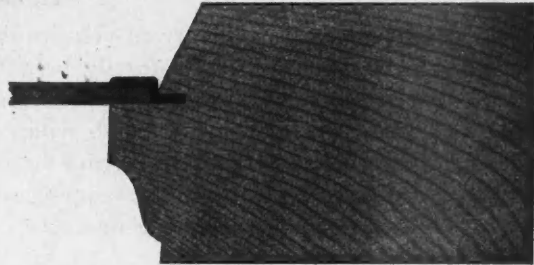
**"The Modern Window"**



*This engraving shows Puttyleless window being glazed. The lead is turned down on glass with a blunt tool, but in reglazing this can be done with an ordinary clothes pin. The lead can be used over and over again.*

This window is of regular construction except that lead strips are used for glazing instead of putty. Exposure to elements does not affect lead. Puttyleless glazing insures a window to be watertight, airtight, non-rattle, durable, economical and of good architectural lines. Prevents glass cracking because lead pressure is even. Every dealer knows the putty troubles. Puttyleless glazing eliminates them.

Are widely used. Large and small buildings, dwellings, farm buildings, bungalows, Federal Buildings, light-houses, apartments, churches, club houses, factories, foundries, crusher plants, steel mills, railway terminals, schools, hospitals, insurance and other office buildings and large hotels are already equipped with the Puttyleless window.



*This illustration shows section of Puttyleless window sash. GUARANTEE—We have perfected the manufacture of this window and, consider it as manufactured by us the best on the market and back it by our unqualified guarantee.*

**Puttyleless Storm Sash**

Eliminates all troubles due to cracking and falling out of putty while sash are stored during summer. Puttyleless glazing is ideal for storm sash.

**FREE SAMPLE**  
 Model of Puttyleless Window will be sent free of charge upon request

We are prepared to furnish



DOORS—Solid Pine, Spruce, Yellow Pine or any other softwood in any style.

DOORS—Veneered Birch, Oak, Gum or any other hardwood in any style.

WINDOWS AND SASH—

Glazed, Unglazed and "knock-down," either regular construction or "Puttyleless."



*Woodwork of any kind*

NEW CATALOGUE

Write for 1921 Edition of Our General Millwork Catalogue

NEW CATALOGUE

**Gould Manufacturing Co.**

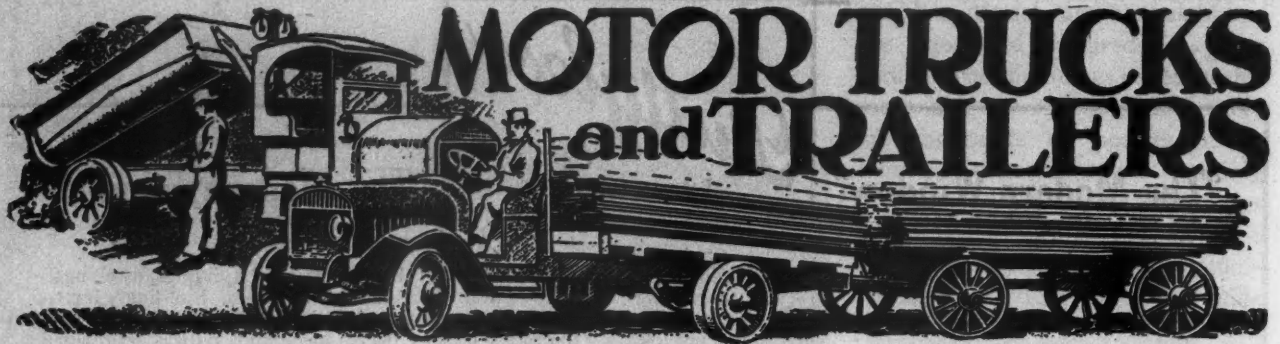
402 Indiana Street

Oshkosh, Wis.

Founded 1867

Plant Covers 5 3/4 Acres

WAREHOUSES IN CHICAGO AND DETROIT  
 ADDRESS ALL COMMUNICATIONS TO OSHKOSH



## Motor Trucks in Modern Road Construction

HAVE BEEN IMPORTANT FACTOR IN DEVELOPMENT OF HARD-SURFACED, 365-DAY ROADS — SOME FIGURES ON WORK

**T**HE development of motor driven vehicles during the past few years has naturally been followed by an ever increasing demand for hard surfaced or 365-day roads. This demand, while engaging conspicuous notice particularly during the past two or three years, has been steadily developing since 1909, as is evident from the following figures on the construction of concrete roads.

Prior to 1909 there were only 34,000 square yards of concrete surfaced roads in the United States, and, if based on a roadway of 18 feet wide, would give 3.22 miles. During the period between 1909 to and including 1919, contracts were let for the construction of concrete roads in the following amounts:

1909— 32,626 sq. yds.	1915—12,050,909 sq. yds.
1910— 151,148 sq. yds.	1916—15,906,801 sq. yds.
1911— 291,077 sq. yds.	1917—15,333,087 sq. yds.
1912— 1,869,486 sq. yds.	1918—12,990,519 sq. yds.
1913— 3,339,185 sq. yds.	1919—41,335,342 sq. yds.
1914—10,608,421 sq. yds.	

At the close of 1919 a total area of 113,942,662 square yards had been laid. Converting this latter

figures into terms of mileage, we find at the end of 1919 the equivalent of an 18 foot concrete roadway 11,750 miles in length—an almost incomprehensible increase from the 3.22 miles which existed in 1909.

The rapid development of motor trucks has been one of the chief factors in making possible the steady growth in our concrete highway system. In former years there were a few contractors engaged in road building but the methods employed were laborious and slow. The development of the modern motor truck has made it possible to carry on road construction in a much more efficient manner and with far greater speed than was thought possible in the past.

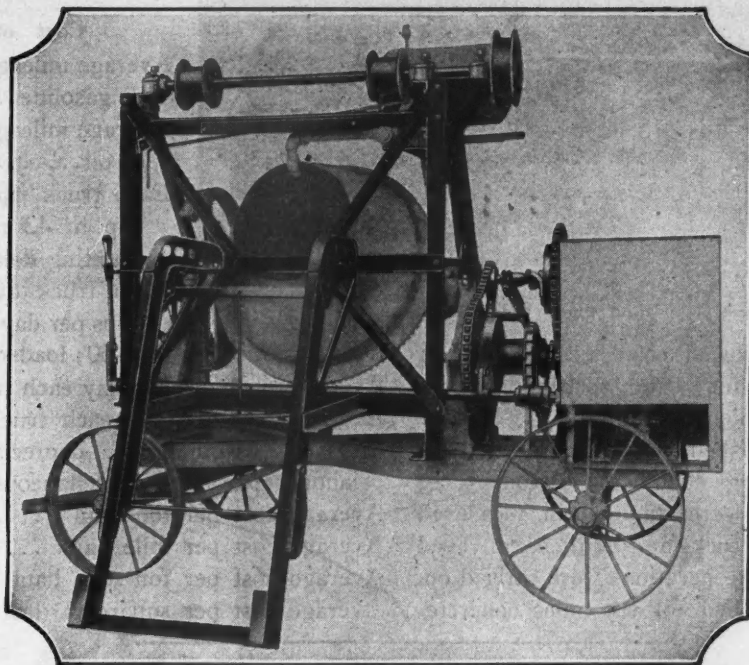
The most interesting illustration of the efficiency of motor trucks in connection with concrete road building is found in the contract awarded the Bickle Contracting Co., of Kansas City, Mo., for constructing a six-mile concrete road immediately outside of Wichita, Kan. On this job the Bickle Contracting Co. used six 3½-ton dump trucks, one of which is illustrated. Using these six trucks helped considerably to reduce the cost and quantity of labor and material used. The



Six 3½-Ton Republic Trucks Like the One Shown Here Were Instrumental in Speeding Up the Work on a Six-Mile Concrete Paving Job Near Wichita, Kans.

# The SUPERIOR POWER CHARGER of a **WANDER** MIXER

*Note Its Sturdy Simplicity*



*Heavy angle framing  
built into the under-  
structure*

*Oversize shaft and  
bearings*

*Folding legs—stiff  
when in position, re-  
lieving all strain to  
the superstructure,  
skids and axle bear-  
ings. Folds as illus-  
trated for moving*

*Liberal use of batter  
bracing, cross mem-  
bers and heavy gus-  
set plate*

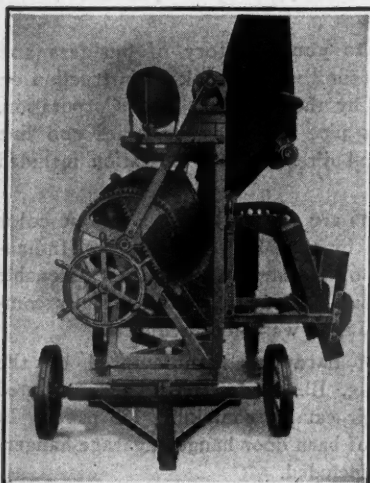
*Efficient and accessi-  
ble hoist and clutch  
assembly*

*Track design—easily  
extended to any  
depth you wish a  
stock pile*

Showing loader—bucket removed.

## GROUND CHARGING

is possible only with a power loader. Any mixer that must be loaded from a platform is NOT a low charging one. Some platforms may be lower than others but the mixer that can be charged AT THE GROUND LEVEL is one with a LOADER.



Showing legs  
folded and bucket  
raised for mov-  
ing.

The **WANDER** track loader saves time because the travel is so short, and because, requiring much less power, can be run faster with the same engine than other types. This gives MORE BATCHES PER HOUR allowing same time for mixing.

Ask for Catalog M-33.



Mixer raised—  
track extended to  
charge mixer on  
same level with  
material piles.



## CONSTRUCTION MACHINERY COMPANY

Formerly Waterloo Cement Machinery Corporation

103 VINTON STREET

WATERLOO, IOWA



The Quapaw Supply Co., Use a Fleet of Fast Heavy "GMC" Trucks to Move Their Material and They Find Them Very Efficient.

construction method followed consisted of using a central unloading plant where sand, rock and cement were received by rail, unloaded into storage bins or piles by means of a clamshell bucket and discharged into automatic measuring chambers. From these chambers the materials were dumped in measured quantities into the dump trucks and by them conveyed to the stretch where actual operations were carried on.

The Bickle contract called for six miles concrete-

base road, brick top, 18 feet wide. The concrete base at center was 7 inches thick, 5 inches thick at the sides, with curb built intergral. The total contract cost was approximately \$50,000 per mile. The total truck investment involved was \$27,720, representing six 3½-ton trucks with dump bodies and hydraulic hoists.

#### Cost of Operation

Average mileage per gallon of gasoline.....	3.75
Average mileage per gallon of oil.....	75
Each truck made a round trip in 42 minutes, not counting delays.	

Each truck averaged five trips per day.

Average miles per day, 60; loaded one way..	30
Average total tons per day each truck.....	23.5
Average cost per day each truck, including driver, gasoline, oil, depreciation, tires, labor, repairs and miscellaneous.....	\$21.95
Average cost per ton haul .....	1.04
Average cost per mile haul .....	.366
Average cost per ton mile haul .....	.0815
Average cost per square yard of road.....	.219

### Catalogs, Books and Bulletins Received

**Truscon Steel Sash** is very completely described and illustrated in the new sash catalog just issued by the Truscon Steel Co., Detroit, Mich. It takes up in detail sidewall sash for factory and industrial purposes, ventilators, counterbalanced sash for school buildings, etc., continuous sash and mechanical operators, standard and special partitions and channel and tubular doors. Special booklets and folders on sash for small buildings can be obtained upon application.

"**Cosgrove's Hollow Tile Construction**" and "**Hicks' Builders' Guide**" are the titles of two new building books from the press of the U. P. C. Co., New York City. The former is a practical explanation of building with hollow tile, cost \$2.50; the latter deals with all types of building and contains short cut tables. Price \$3.00.

**Zinc spouting** is discussed in a leaflet issued by the New Jersey Zinc Co., New York. The advantages of zinc for use as leaders, gutters, valleys, flashing, shingles and rifle roll are set forth, with illustrations and charts.

**Bishopric Stucco and Plaster Base Sheathing and Insulating base** is outlined in detail in the latest edition of the Bishopric Mfg. Co., Cincinnati, O., catalog. In this book is included many attractive pictures of homes built of this material, specifications for its use, and testimonials of architects and builders who have used it with success.

"**How to Make 1922 the Greatest Paint and Varnish Year**" is the title of a special pamphlet issued by the Save the Surface Campaign, Philadelphia, Pa., as the first step of a campaign to double the industry by 1926. It suggests a program for individual companies, executives, sales departments and advertising departments.

"**Early American Doorways**" is the subject of the latest architectural monograph of the White Pine Series. This number deals with porches, and contains some beautiful prints

of old colonial entrances, with notes by Aymar Embury II. This series of booklets is being distributed by the White Pine Bureau, St. Paul, Minn.

"**Furnishing Equipment and Supplies for Public Service**" is Catalog E-24, issued by Albert Pick & Co., Chicago. A smaller pamphlet on "Sidelines for Greater Profits," is enclosed with this catalog. The new catalog contains everything in the way of furnishing and equipment for a public establishment, with prices.

"**Don't let it happen to you,**" a story of business and pleasure with a moral, opens the new book of instruction on pipe threading published by the Williams Tool Corporation, Erie, Pa. The Williams pipe threading machines and line of dies are illustrated and directions for operation included in this booklet.

**The Seville Apartments** are the subject of a unique color cover booklet distributed by the Meiere Realty Co., Indianapolis, Ind. This is one of the largest and most fashionable apartment buildings in that city and was only recently completed. George and MacLucas were the architects.

The complete line of hardware manufactured by the Frantz Mfg. Co., Sterling, Ill., is described and illustrated in the latest issue of their catalog containing 128 pages. In this book the Frantz line of barn door hangers, garage hangers and sets, bolts, etc., are included.

"**Miscellaneous Uses of Slate**" is the subject of Chapter II of a series on Structural Slate prepared by the Structural Service Bureau, Philadelphia, Pa. This chapter deals with tannery table tops, slate tanks, vats, candy table tops, aquaria, moisture cabinets, laboratory table tops, billiard tables, lithograph stones, greenhouse benches, soda fountains and water filter equipment. Other chapters in this series can be obtained upon application to the bureau.



# Carey

## SHINGLES

The Shingle That Never Curls

**Y**OU make a permanently satisfied customer—more than that—you make a booster every time you apply Carey Shingles. *That is because Carey Shingles never curl.*

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Carey shingle prices are not higher than the average, but Carey shingles ARE better. If you are from Missouri, send us your name. We'll appreciate the opportunity to SHOW you.

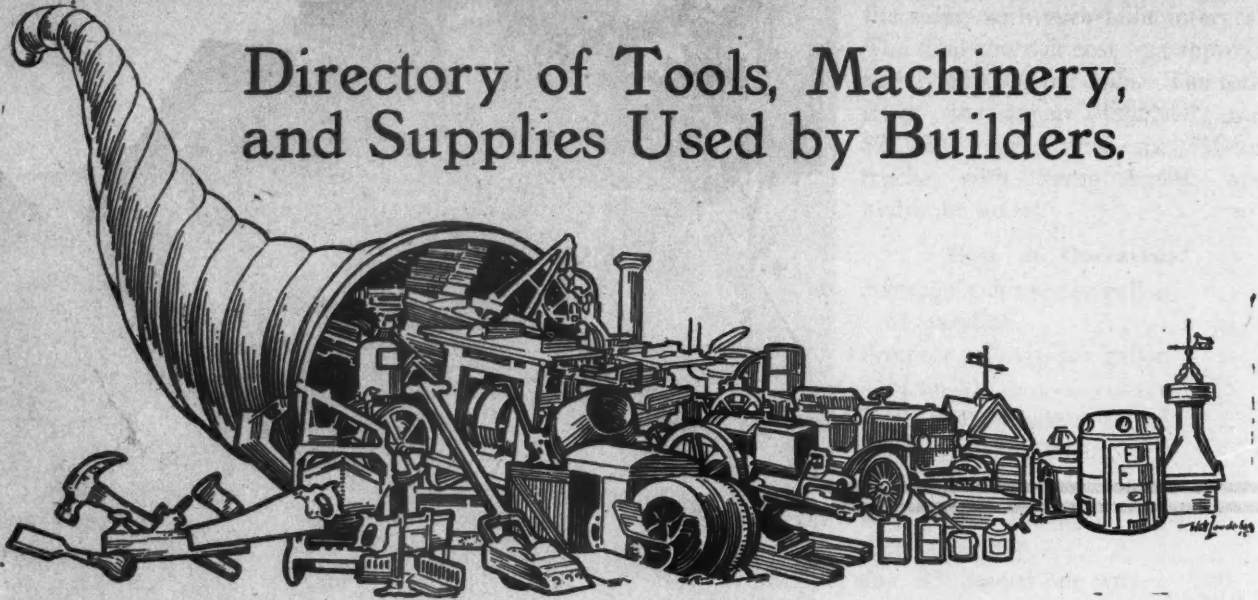
### THE PHILIP CAREY COMPANY

510-530 Wayne Avenue

Lockland, Cincinnati, U. S. A.

# World-Wide Buyers Guide

## Directory of Tools, Machinery, and Supplies Used by Builders.



**T**HE Publishers of the AMERICAN BUILDER present this Directory with the hope that it will prove really useful to its readers. While it is as complete as our limited space has permitted, no doubt some first-rate concerns and some important products have been overlooked; nevertheless, it does cover the principal offerings of the most substantial and enterprising of the manufacturing concerns catering to the building field. We can vouch for the responsibility of every one of the concerns whose goods are listed in this Directory, and we recommend them to our readers. Builders, dealers in building materials, architects, contractors and carpenters in writing to any of these concerns can feel that they will receive most prompt and courteous attention and that their business will be appreciated.

### Valuable Information—Keep It Handy for Reference

This directory contains valuable information boiled down into a few words, and will save time and effort for busy builders and dealers. The various tools, machines, or building materials are arranged alphabetically; the trade name given whenever possible, and the name and address of the manufacturer or general sales agent.

This Directory makes it easy to compare the range of offerings in any particular line you are interested in. Do not hesitate to write for catalogs and circular matter pertaining to any goods new to you, or in which you are especially interested.

### Our Information Department at Your Service

If you fail to find in this Directory any item or line of goods in which you are interested, write the AMERICAN BUILDER, and we will immediately send you the information and put you in touch with the best concerns who are in a position to furnish what you need. We are glad to serve you in every way we can.

**Editors and Publishers,  
American Builder, 1827 Prairie Avenue  
Chicago, Ill.**

**ACCELERATOR—CEMENT**  
Anti-Hydro Waterproofing Co., 89 Cortlandt St., New York, N. Y. ("Anti-Hydro," "Accello").

**ACOUSTICS—ARCHITECTURAL**  
H. W. Johns-Manville Co., 41st and Madison, New York, N. Y. (Correction of architectural acoustics).

**ADJUSTERS—CASEMENT WINDOW**  
Erwin & Co., 3784 Cottage Grove Ave., Chicago, Ill. ("Tabor").

Mallory Mfg. Co., Flemington, N. J.  
T. B. Rayl Co., Detroit, Mich.  
Sager Lock Co., North Chicago, Ill.

**ADDS—CARPENTERS**  
Mack & Co., Rochester, N. Y. ("D. B. Barton").

T. B. Rayl Co., Detroit, Mich.  
L. A. Sayre Co., 8 Oliver St., Newark, N. J.  
L. & I. J. White Co., Buffalo, N. Y.

**ANCHORS—BUILDING**  
Anchor Concrete Machinery Co., Rock Rapids, Ia.  
Ankya Mfg. Co., 149 Berkley St., Wayne Junc., Philadelphia, Pa. ("Ankya").

Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**ANCHORS—JOIST**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Donley Bros. Co., Cleveland, O. ("Donley").  
International Steel & Iron Co., Evansville, Ind.

Lane Bros. Co., Poughkeepsie, N. Y.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**ANCHORS—SCREW (EXPANSIVE)**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.

**ANCHORS—WALL**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.

Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Rawplug Co., 463 Eighth Ave., New York, N. Y. ("Rawplugs").

**ANGLES—IRON AND STEEL**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Bogert-Carlough Co., 240 Straight St., Paterson, N. J.  
W. E. Caldwell Co., Louisville, Ky.  
Youngstown Pressed Steel Co., Warren, O. ("Sharon").

**ARBORS—SAW**  
American Sawmill Machinery Co., Hackettstown, N. J. ("American").  
E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Henry Disston & Sons, Philadelphia, Pa.  
Hercules Corp., Evansville, Ind. ("Hercules").  
Oliver Machinery Co., Grand Rapids, Mich.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Sidney Machine Tool Co., Sidney, O.  
Whisler Mfg. Co., Gibson, Ia.

**ARCHES—DRIVEWAY**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Iowa Gate Co., Cedar Rapids, Ia. ("Clay").  
Fred J. Meyers Mfg. Co., Hamilton, O.

**ATTACHMENTS—POLISHING**  
Electric Floor Surfacing Machine Co., 40 S. Clinton St., Chicago, Ill. (Electric rubbing and polishing attachment for wainscoting and cove base.)

**AUGERS—BORING MACHINE**  
Witte Engine Works, Oakland Bldg., Kansas City, Mo.

**AUGERS—HOLLOW**  
James Swan Co., Seymour, Conn.

**AUTOMOBILES—PASSENGER**  
Hercules Corp., Evansville, Ind. ("McCurdy").

Winther Motor Truck Co., Kenosha, Wis.

**AWLS—BRAD AND SCRATCH**

Buck Bros., Millbury, Mass.

Stanley Works, New Britain, Conn.

James Swan Co., Seymour, Conn.

**AWNINGS—CORRUGATED STEEL**

Edwards Mfg. Co., Cincinnati, O.

Eller Mfg. Co., Canton, O.

International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis.

Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Willis Mfg. Co., Galesburg, Ill.

**AWNINGS—COTTON, DUCK, ETC.**

Wm. L. Barrell Co., 8 Thomas St., New York, N. Y.

John Boyle Co., 112 Duane St., New York, N. Y.

**AXES—BROAD**

Mack & Co., Rochester, N. Y. ("D. R. Barton").

L. & I. J. White Co., Buffalo, N. Y.

**AXES—HAND**

Gray Iron Foundry Co., Reading, Pa.

Griffith Tool Works, 518 Commerce St., Philadelphia, Pa.

Mack & Co., Rochester, N. Y. ("D. R. Barton").

L. A. Sayre Co., 8 Oliver St., Newark, N. J.

L. & I. J. White Co., Buffalo, N. Y.

**BACKFILERS**

American Cement Machine Co., Keokuk, Ia. ("Boss").

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

Construction Machinery Co., Waterloo, Ia.

Judy Mfg. Co., Centerville, Ia. ("Speeder").

Oshkosh Mfg. Co., Oshkosh, Wis.

**BAGS—TOOL**

Abram Cement Tool Co., 5618 Grand River Ave., Detroit, Mich. ("Abram").

John Boyle & Co., 112 Duane St., New York, N. Y.

**BALANCES—SASH**

W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

Caldwell Mfg. Co., Rochester, N. Y.

Pullman Mfg. Co., Rochester, N. Y. ("Pullman Unit").

**BALLS—FULLER**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**BALUSTERS**

Gould Mfg. Co., Oshkosh, Wis.

Pacific Lumber Co. of Illinois, Chicago, Ill.

**BANDSAW MACHINERY**

American Sawmill Machinery Co., Hacketts-town, N. J. ("American").

Crescent Machine Co., Leetonia, O.

Oliver Machinery Co., Grand Rapids, Mich.

Oshkosh Mfg. Co., Oshkosh, Wis.

Parks Ball Bearing Machine Co., Cincinnati, Ohio.

Sidney Machine Tool Co., Sidney, O.

Silver Mfg. Co., Salem, O.

**BASE—INSULATING**

Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").

**BASE—SANITARY**

Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

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

**BASEBOARDS—SLATE**

Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.

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

Slatington Slate Co., Slatington, Pa. (Clear black and natural).

**BASES—COLUMN**

Donley Bros. Co., Cleveland, O. ("Donley" for porch).

International Steel & Iron Co., Evansville, Ind.

Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).

**BASES—PORCH**

S. Cheney & Son, Manlius, N. Y.

Gray Iron Foundry Co., Reading, Pa.

**BASES—POST**

Gray Iron Foundry Co., Reading, Pa.

International Steel & Iron Co., Evansville, Ind.

Majestic Co., Huntington, Ind.

Morgan Co., Oshkosh, Wis.

Pacific Lumber Co. of Illinois, Chicago, Ill.

**BATHS—BUILT-IN**

Kohler Co., Kohler, Wis. ("Colonna").

**BATHS—FOOT**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis. ("Imperator").

**BATHS—SHOWER**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis. (Nickel-plated brass).

**BATHS—SITZ**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis. ("Viceroy").

**BATTENS—METAL**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. ("Ceco").

Metallic Batten Co., Owensville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis. ("Milcor").

Servicised Products Co., First Nat. Bank Bldg., Chicago. ("Servicised").

Shrauger & Johnson, Atlantic, Ia.

Willis Mfg. Co., Galesburg, Ill.

**BEADS—CORNER (METAL)**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. ("Ceco").

Edwards Mfg. Co., Cincinnati, O.

International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis. ("Superior").

Sykes Metal Lath & Roofing Co., Niles, O.

Willis Mfg. Co., Galesburg, Ill.

Youngstown Pressed Steel Co., Warren, O. ("Parker", "Youngstown").

**BEAMS—STEEL**

Bogert & Carlough Co., 240 Straight St., Paterson, N. J.

Central Steel Co., Massillon, O. ("National").

International Steel & Iron Co., Evansville, Ind.

Trusco Steel Co., Detroit, Mich.

**BEDS—DOOR**

Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill. ("Murphy In-a-Dor").

**BEDS—DISAPPEARING**

Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**BEDS—SPACE-SAVING**

Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill. ("Murphy In-a-Dor").

Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**BELLS—DOOR**

Sargent & Co., New Haven, Conn.

**BENCHES—MANUAL TRAINING**

Oliver Machinery Co., Grand Rapids, Mich.

Parks Ball Bearing Machine Co., Cincinnati, Ohio.

Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").

**BENCHES—SAW**

American Sawmill Machinery Co., Hacketts-town, N. J. ("American").

W. F. & Jno. Barnes Co., Rockford, Ill.

Hercules Corp., Evansville, Ind. ("Hercules").

Oliver Machinery Co., Grand Rapids, Mich.

Parks Ball Bearing Machine Co., Cincinnati, Ohio.

Sidney Machine Tool Co., Sidney, O.

Silver Mfg. Co., Salem, O.

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

**BENDERS—BAR**

American Cement Machine Co., Keokuk, Ia.

Gray Iron Foundry Co., Reading, Pa.

Koehring Co., Milwaukee, Wis. ("Koehring").

T. L. Smith Co., Milwaukee, Wis.

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

**BEVELS**

Henry Disston & Sons, Philadelphia, Pa.

Southington Hardware Co., Southington, Conn.

Stanley Works, New Britain, Conn.

L. S. Starrett Co., Athol, Mass.

**BINS—GRAIN**

Burrell Mfg. & Supply House, Kankakee, Ill.

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).

**BINS—STORAGE**

Atlas Engineering Co., Milwaukee, Wis.

Frank S. Betz Co., Hammond, Ind. ("Betzco").

Burrell Mfg. & Supply House, Kankakee, Ill.

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).

**BITS—AUGER**

Progressive Mfg. Co., Torrington, Conn. ("Forstner").

Sidney Machine Tool Co., Sidney, O.

Stanley Works, New Britain, Conn.

James Swan Co., Seymour, Conn.

**BITS—SCREWDRIVER**

Buck Bros., Millbury, Mass.

Syracuse Twist Drill Co., Syracuse, N. Y.

Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.

**BLACKBOARDS**

Beaver Board Companies, Buffalo, N. Y. ("Beaver").

Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.

Natural Slate Blackboard Co., Pen Argyl, Pa.

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

Structural Slate Co., Pen Argyl, Pa.

**BLADES—FLOOR SCRAPER**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").

Fox Supply Co., Brooklyn, Wis.

L. S. Starrett Co., Athol, Mass.

**BLINDS—VENETIAN**

Swedish Venetian Blind Co., 1265 Broadway, New York.

**BLOCK MACHINES—CONCRETE**

American Cement Machine Co., Keokuk, Ia.

American Router & Mfg. Co., 288 Fourth Ave., Pittsburgh, Pa.

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor", "Hobbs").

Burrell Mfg. & Supply House, Kankakee, Ill. ("X-L-All").

Concrete Equipment Co., Holland, Mich. ("Utility").

Construction Machinery Co., Waterloo, Ia.

Contractors Equipment Co., Keokuk, Ia. ("Automatic", "Everybody's").

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Ferguson Systone Co., U. S. National Bank Bldg., Denver, Col.

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

Helm Brick Machine Co., Cadillac, Mich. ("Helm").

Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

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

Stewart Mfg. Co., Waterloo, Ia.

Willsea Works, Rochester, N. Y. ("Hercules").

**BLOCKS—CHAIN**

J. G. Speidel, Reading, Pa.

**BLOCKS—CORNICE**

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor").

**BLOCKS—CRESTING**

Milwaukee Corrugating Co., Milwaukee, Wis.

**BLOCKS—HOLLOW BUILDING (CLAY)**

National Fireproofing Co., Pittsburgh, Pa.

**BLOCKS—HOLLOW BUILDING (CONCRETE)**

Anchor Concrete Machinery Co., Rock Rapids, Ia.

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Ferguson Systone Co., U. S. National Bank Bldg., Denver, Col.

**BLOCKS—SILO**

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor").

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Ferguson Systone Co., U. S. National Bank Bldg., Denver, Col.

**BLOCKS AND TACKLE**

Lane Bros. Co., Poughkeepsie, N. Y.

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

**BLOCKS—WIRE ROPE**

Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**BLUE PRINT MACHINES**

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

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

New York Blue Print Paper Co., 102 Reade St., New York, N. Y.

Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.

Spaulding-Moss Co., 42 Franklin St., Boston, Mass.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa. ("Sterling").

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**BOARDS—BACKING**

Roberds Mfg. Co., Marion, Ind. (For mirror backs, drawer bottoms, etc.)

**BOARDS—DRAIN**

Kohler Co., Kohler, Wis.

**BOARDS—DRAWING**

A. S. Aloe Co., 518 Olive St., St. Louis, Mo.

International Correspondence Schools, Scranton, Pa.

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

New York Blue Print Paper Co., 102 Reade St., New York, N. Y.

Peerless Blue Print Co., 345 Fifth Ave., New York, N. Y.

Spaulding-Moss Co., 42 Franklin St., Boston, Mass.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa. ("Sterling").

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**BOARDS—SHEATHING**

Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").

Cornell Wood Products Co., 190 N. State St., Chicago, Ill.

U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Adamant").

- BOARDS—STUCCO**  
Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").
- BODIES—MOTOR TRUCK**  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill. (Steel dump).  
Hercules Corp., Evansville, Ind. ("Hercules").  
Winther Motor Truck Co., Kenosha, Wis.
- BOILERS—STEAM (INDUSTRIAL)**  
P. M. Lattner Mfg. Co., Cedar Rapids, Ia.
- BOILERS—HEATING PLANT**  
Andrews Heating Co., 2529 University Ave., S. E., Minneapolis, Minn. ("Andrews").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
P. M. Lattner Mfg. Co., Cedar Rapids, Ia. (Lattner automatic).
- BOLTS—ANCHOR**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").  
International Steel & Iron Co., Evansville, Ind.
- BOLTS—DOOR AND WINDOW**  
T. B. Rayl Co., Detroit, Mich.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.
- BOLTS—EXPANDED METAL LATH**  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").
- BOLTS—EXPANSION**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").  
Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
International Steel & Iron Co., Evansville, Ind.  
Rawplug Co., 463 Eighth Ave., New York, N. Y. ("Rawplugs").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U. S. E.").
- BOLTS AND NUTS**  
International Steel & Iron Co., Evansville, Ind.  
Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").
- BOLTS—TOGGLE**  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").  
International Steel & Iron Co., Evansville, Ind.  
Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").  
Rawplug Co., 463 Eighth Ave., New York, N. Y. ("Rawplugs").  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U. S. E.").
- BOLTS—WALLBOARD**  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").
- BOND—CONCRETE**  
Living-Stone Co., Baltimore, Md. ("Living-Stone").
- BOOKS—BUILDING**  
A. S. Aloe Co., St. Louis, Mo.  
American Technical Society, 58th and Drexel, Chicago, Ill.  
Common Brick Mfrs. Assn., 1300 Schofield Bldg., Cleveland, O. ("Brick for Average Man's Home," "Brick, How to Build and Estimate").  
B. L. Jenks, Marshall Bldg., Cleveland, O. ("Perry's Lumber Reckoner").  
Kenfel & Esser Co., Hoboken, N. J.  
Radford Architectural Co., 1827 Prairie Ave., Chicago, Ill. ("Cyclopedia of Construction," 12 volumes; "Estimating," "Architectural Details," "Details of Construction," "How to Read Plans," "Homes for Everyone," "Home Plan Suggestions," "Home Builder," "Bungalows for Any Climate," etc.).  
E. W. Stillwell & Co., Los Angeles, Cal. (Books of house plans).
- BOOTHES—MOVING PICTURE**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
H. W. Johns-Manville Co., 41st and Madison New York, N. Y. (Asbestos, portable and permanent).  
Milwaukee Corrugating Co., 36th and Burnham, Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.
- BOREES—STUMP**  
Witte Engine Works, Oakland Bldg., Kansas City, Mo.
- BOREES—VERTICAL**  
Crescent Machine Co., Leetonia, O. ("Crescent").  
Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Sidney Machine Tool Co., Sidney, O.
- BORING MACHINES**  
American Sew Mill Machinery Co., Hackettstown, N. J. ("American").  
Crescent Machine Co., Leetonia, O. ("Crescent").  
Oliver Machinery Co., Grand Rapids, Mich.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").  
Sidney Machine Tool Co., Sidney, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
James Swan Co., Seymour, Conn.  
Witte Engine Works, Oakland Bldg., Kansas City, Mo.
- BOTTOMS—RADIATOR**  
Art Stone Co., Waynesboro, Pa. (Art marble).  
Structural Slate Co., Pen Argyl, Pa. (Slate).
- BOWLS—CLOSET**  
Kohler Co., Kohler, Wis.
- BOXES—METER**  
Donley Bros. Co., Cleveland, O. ("Donley's" electric meter box).  
Union Metal Mfg. Co., Canton, O. (Pressed steel).
- BOXES—MITER**  
E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Rockford Miter Box Co., Rockford, Ill. (for wood and metal).  
Stanley Works, New Britain, Conn.
- BRACES—BIT**  
E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Stanley Works, New Britain, Conn.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.
- BRACES—CORNER**  
Iowa Gate Co., Cedar Falls, Ia. ("Clay" for fences).  
Stanley Works, New Britain, Conn.
- BRACES—PUSH**  
North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee").
- BRACKETS—ORNAMENTAL**  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" steel).
- BRACKETS—RAIL OR TRACK**  
Allith-Prouty Co., Danville, Ill. (round and trolley).  
Frants Mfg. Co., Sterling, Ill.  
International Steel & Iron Co., Evansville, Ind.  
Wagner Mfg. Co., Cedar Falls, Ia.
- BRACKETS—ROOFING**  
Ajax Bracket & Outlet Co., Cleveland Heights, O. ("Ajax" folding, metal).  
Elite Mfg. Co., Ashland, O. ("Reliable").  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Steel Scaffolding Co., Evansville, Ind.  
Wagner Mfg. Co., Cedar Falls, Ia.
- BRACKETS—SCAFFOLD**  
Elite Mfg. Co., Ashland, O. ("Reliable").  
Metal Forms Corp., Milwaukee, Wis.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Steel Scaffolding Co., Evansville, Ind.  
Wagner Mfg. Co., Cedar Falls, Ia.
- BRACKETS—SHELF**  
Detroit Show Case Co., 1654 Fort St., W., Detroit, Mich.  
Knappe & Vogt Mfg. Co., Grand Rapids, Mich.  
Stanley Works, New Britain, Conn.
- BRACKETS—SHINGLING**  
Steel Scaffolding Co., Evansville, Ind.  
Wagner Mfg. Co., Cedar Falls, Ia.
- BRACKETS—WALL**  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).
- BRICK—COMMON**  
Common Brick Mfrs. Assn., 1300 Schofield Bldg., Cleveland, O. (Free information service).
- BRICK—ENAMELED**  
American Face Brick Assn., Chamber of Commerce Bldg., Chicago, Ill.
- BRICK—FIRE**  
National Fireproofing Co., Pittsburgh, Pa.
- BRICK—FACE**  
American Face Brick Assn., Chamber of Commerce Bldg., Chicago, Ill.
- BRICK CLEANING MACHINES**  
Fuller Brick Cleaner Co., New Bedford, Mass.
- BRICK MACHINES—CEMENT**  
Anchor Concrete Machinery Co., Rock Rapids, Ia.  
Concrete Equipment Co., Holland, Mich. ("Utility").  
Construction Machinery Co., Waterloo, Ia.  
Helm Brick Machine Co., Cadillac, Mich. ("Helm").  
Ideal Concrete Machinery Co., 1308 Monmouth Ave., Cincinnati, O. ("Ideal").  
Standard Scale & Supply Co., 1631 Liberty St., Pittsburgh, Pa.
- BRUSHES—AIR**  
DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
Pasche Air Brush Co., 1230 Washington St., Chicago, Ill.  
Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.
- BRUSHES—POLISHING**  
S. C. Johnson & Son, Racine, Wis. (Weighted for polishing floors).
- BUCKETS—CLAMSHELL**  
Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.
- BUCKETS—CONCRETE HOIST**  
American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- BUCKETS—DREDGING**  
Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.
- BUCKETS—EXCAVATING**  
Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.
- BUCKETS—HOISTING AND DUMPING**  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- BUILDINGS—PORTABLE**  
Edwards Mfg. Co., Cincinnati, O.
- BURNERS—GARBAGE**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- BUILDINGS—STEEL**  
Federal Bridge & Structural Co., Waukesha, Wis.
- BURNERS—RUBBISH**  
Donley Bros. Co., Cleveland, O. ("Donley").
- BURNISHERS**  
Buck Bros., Millbury, Mass.  
Henry Disston & Sons, Philadelphia, Pa.
- BUTTS—DOOR**  
Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill. ("Chicago").  
Frants Mfg. Co., Sterling, Ill.  
National Mfg. Co., Sterling, Ill.  
Richard-Wilcox Mfg. Co., Aurora, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- CABINETS—BATHROOM**  
Frank S. Betz Co., Hammond, Ind. ("Betz-co").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill. ("Hess" white enameled).  
Gould Mfg. Co., Oshkosh, Wis.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Morgan Co., Oshkosh, Wis.
- CABINETS—FILING**  
Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.
- CABINETS—KITCHEN**  
Frank S. Betz Co., Hammond, Ind. ("Betz-co").  
Bisk Corp., Brockton, Mass.  
Electric Kitchenet Co., Fort Wayne, Ind. ("Kozy-Kitch").
- CABINETS—STORAGE**  
Frank S. Betz Co., Hammond, Ind. ("Betz-co").  
Gould Mfg. Co., Oshkosh, Wis.
- CABLES—AERIAL TRAMWAY**  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.
- CABLES—COPPER**  
Jos. Barnett Co., Cedar Rapids, Ia.  
Burkett Lightning Rod Co., Fremont, O.  
W. C. Shinn Mfg. Co., Lytton Bldg., Chicago, Ill.  
Shrauger & Johnson, Atlantic, Ia.  
Geo. E. Thompson Lightning Rod Co., Owatonna, Minn. ("World's Best").
- CABLES—ELEVATOR**  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.
- CABLES—HOISTING**  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.
- CABLES—MINING**  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.
- CABLES—STEEL**  
Shrauger & Johnson, Atlantic, Ia.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.



# WINTER PROFITS

## INSTALLING

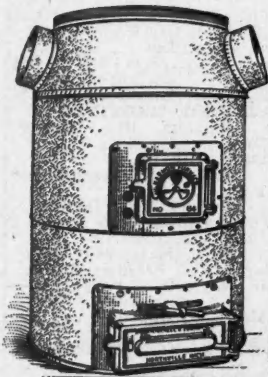
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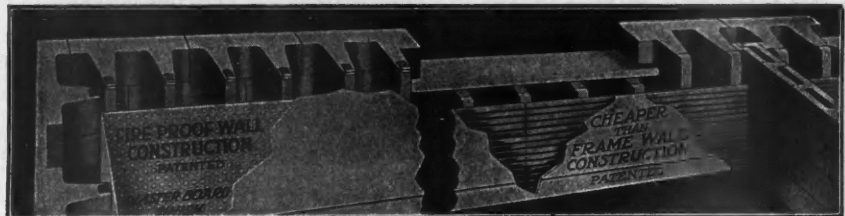
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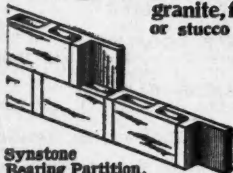


This 8" WALL used exclusively in rebuilding Halifax. Also Minnesota Steel Co's Model City.

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*Costs Less Than Any Other Practical Wall Construction*

Wet process, making real Concrete walls, impervious to heat, cold and moisture, fireproof and everlasting. Hollow Concrete Walls, stronger than brick, faced with beautiful natural material—crushed granite, feldspar, marble or sandstone, with all the sparkle and life of natural stone. Brick or stucco facings if desired. A wet, soggy mixture, 1 cement, 2½ sand and small gravel, 4 parts or 1" stone or gravel, producing stone withstanding 3000 lbs. pressure per sq. inch and 1700 degrees heat for one hour without injury. Complete machinery making all walls and all shapes and sizes of blocks required for them, by simply hooking on another core. Every block perfect with true edges. Unskilled labor, one, two or three men, capacity 50 blocks or 100 sq. feet per hour.



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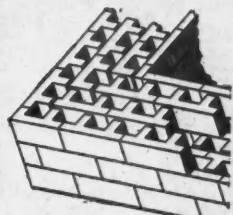
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Synstone Wide Wall, 19 to 60 inches



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- CABLES—SWITCHING**  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.
- CALIPERS**  
Eugene Distgen Co., 166 W. Monroe St., Chicago, Ill.  
L. S. Starrett Co., Athol, Mass.
- CANVAES**  
John Boyle & Co., 112 Duane St., New York, N. Y.  
Servicised Products Co., First National Bank Bldg., Chicago, Ill. ("Servicised").
- CAPITALS—CARVED WOOD**  
Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.
- Morgan Co., Oshkosh, Wis.**
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Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.
- Morgan Co., Oshkosh, Wis.**
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International Steel & Iron Co., Evansville, Ind. (Cast or steel).  
Milwaukee Corrugating Co., Milwaukee, Wis.  
F. C. Sheldon Slate Co., Granville, N. Y.  
Sterling Foundry Co., Sterling, Ill. ("Best")
- CAPS—POST**  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers, Mfg. Co., Hamilton, O.  
Morgan Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.  
Union Metal Mfg. Co., Canton, O. (Pressed steel).
- CAPSTANS—HOUSE MOVING**  
LaPlant-Choate Mfg. Co., Cedar Rapids Ia. ("Invincible").
- CARRIERS CLAMP**  
Black Bros. Co., Mendota, Ill. (Hand operated).
- CARRIERS—CLOTHING**  
Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich. (Extension).  
Knape & Vogt Mfg. Co., Grand Rapids, Mich. (Extension).
- CARRIERS—FEED**  
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Mast, Foss & Co., Springfield, O. ("Buckeye").  
J. E. Porter Co., Ottawa, Ill. ("Porter") geared hoist).
- CARRIERS HAY**  
J. E. Porter Co., Ottawa, Ill. ("Porter").
- CARRIERS—LITTER**  
Iowa Gate Co., Cedar Rapids, Ia. ("Clay").  
Mast, Foss & Co., Springfield, O. ("Buckeye").  
J. E. Porter Co., Ottawa, Ill. ("Porter" geared and chain hoist).
- CARS—ELEVATOR**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- CARS—INDUSTRIAL**  
Archer Iron Works, 2436 W. 34th Pl., Chicago, Ill.  
Helm Brick Machine Co., Cadillac Mich.  
Insley Mfg. Co., Indianapolis, Ind.  
Judy Mfg. Co., Centerville, Ia. ("Giant").  
Lansing Co., Lansing, Mich.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia.
- CARTS—CONCRETE**  
Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich. ("Bullfrog").  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
Anchor Concrete Machinery Co., Rock Rapids, Ia.  
Archer Iron Works, 2436 W. 34th Pl., Chicago, Ill.  
Gray Iron Foundry Co., Reading, Pa. ("Keystone").  
Insley Mfg. Co., Indianapolis, Ind.  
Judy Mfg. Co., Centerville, Ia. ("Akron").  
Lansing Co., Lansing, Mich.  
Ransome Concrete Machinery Co., Dunellen, N. J.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Sterling Wheelbarrow Co., Milwaukee, Wis.
- CARTS—DUMP**  
American Cement Machine Co., Keokuk, Ia.  
Lansing Co., Lansing, Mich.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- CARTS—HAND**  
Gray Iron Foundry Co., Reading, Pa.  
Lansing Co., Lansing, Mich.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- CASINGS—WINDOW (SHEET METAL)**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Shrauger & Johnson, Atlantic, Ia.
- CASINGS—WINDOW (WOOD)**  
International Steel & Iron Co., Evansville, Ind.  
Gould Mfg. Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.  
Morgan Co., Oshkosh, Wis.
- CASTINGS TO ORDER**  
Allith-Prouty Co., Danville, Ill. (Malleable iron).  
W. E. Caldwell Co., Louisville, Ky.  
Oliver Machinery Co., Grand Rapids, Mich.  
J. G. Speidel, Reading, Pa. (Gray iron).  
Stewart Mfg. Co., Waterloo, Ia.  
Willsea Works, Rochester, N. Y.
- CATCHES—DOOR AND WINDOW**  
Richards-Wilcox Co., Aurora, Ill. ("R-W").  
Sager Lock Co., North Chicago, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.
- CEILING—METAL**  
American Sheet & Tin Plate Co., Pittsburgh, Pa.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
W. C. Hopson Co., Grand Rapids, Mich.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Invisible Joint").  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Willis Mfg. Co., Galesburg, Ill.
- CEILING—SUSPENDED**  
International Steel & Iron Co., Evansville, Ind.  
Youngtown Pressed Steel Co., Warren, O. (Channels).
- CEILING—WOOD**  
Morgan Co., Oshkosh, Wis.
- CEMENT—ASBESTOS**  
Campbell Heating Co., Des Moines, Ia.
- CEMENT ASPHALT**  
Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Trinidad Lake").  
Richardson Co., Melrose Park, Ill. ("Flex-a-tile" fibrated).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- CEMENT—KEENE'S**  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. (Ivory).
- CEMENT—PORTLAND**  
Alpha Portland Cement Co., Easton, Pa. ("Alpha").  
Atlas Portland Cement Co., 25 Broadway, New York, N. Y. ("Atlas").  
Lehigh Portland Cement Co., Allentown, Pa.  
Sandusky Cement Co., Cleveland, O.
- CEMENT—PORTLAND (WHITE)**  
Atlas Portland Cement Co., 25 Broadway, New York, N. Y.  
Sandusky Cement Co., Cleveland, O.
- CEMENT—ROOFING**  
Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco" putty).  
Philip Carey Co., Lockland, Cincinnati, O.  
H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y. ("Johns-Manville" asbestos putty. "Regal" anti-leak stick).  
Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
Eugene E. Nice, 268 S. 2nd St., Philadelphia, Pa. ("Nice").  
Richardson Co., Melrose Park, Ill. ("Flex-a-tile" hard asphalt cement).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- CHAIN—HOISTING**  
J. G. Speidel, Reading, Pa. (Hand-welded)
- CHAINS—SASH**  
Richards-Wilcox Mfg. Co., Aurora, Ill.
- CHAINS—TRANSOM**  
Sargent & Co., New Haven, Conn.
- CHANNELS—STEEL**  
Bogert & Carlough Co., 240 Straight St., Paterson, N. J.  
Central Steel Co., Massillon, O. ("National").  
Concrete Engineering Co., Omaha, Nat. Bank Bldg., Omaha, Neb. ("Ceco" cold-rolled).  
Milwaukee Corrugating Co., Milwaukee, Wis.  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Nemco").  
Sykes Metal Lath & Roofing Co., Niles, O.  
Truscon Steel Co., Detroit, Mich.  
Youngtown Pressed Steel Co., Warren, O. (Cold-formed).
- CHECKS—DOOR**  
Caldwell Mfg. Co., Rochester, N. Y.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Sargent & Co., New Haven, Conn.
- CHESTS—ICE**  
Herrick Refrigerator Co., Waterloo, Ia.
- CHESTS—TOOL**  
Abram Cement Machine Co., 3818 Grand River Ave., Detroit, Mich. ("Abram").  
Federal Metal Weatherstrip Co., 1238 Fullerton Ave., Chicago, Ill. (Bags).  
Wedell & Boers, 28 W. Jefferson Ave., Detroit, Mich.
- CHISELS—CARPENTERS**  
Buck Bros., Millbury, Mass.  
Henry Diston & Sons, Philadelphia, Pa.  
Mack & Co., Rochester, N. Y. ("D. R. Barton").  
Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.  
L. & I. J. White Co., Buffalo, N. Y.
- CHISELS—FLOOR**  
Buck Bros., Millbury, Mass.
- CHISELS—HOLLOW MORTISING**  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.
- CHUTES—COAL**  
Atlas Engineering Co., Milwaukee, Wis.  
Donley Bros. Co., Cleveland, O. ("Donley").  
International Steel & Iron Co., Evansville, Ind.  
Kewanee Mfg. Co., Kewanee, Ill. ("Kewanee").  
Lansing Co., Lansing, Mich.  
Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").  
Majestic Co., Huntington, Ind.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Sterling Foundry Co., Sterling, Ill. ("Best").  
Wagner Mfg. Co., Cedar Falls, Ia.  
Willis Mfg. Co., Galesburg, Ill.
- CHUTES—CONCRETE**  
Archer Iron Works, 2436 W. 34th Pl., Chicago, Ill.  
Atlas Engineering Co., Milwaukee, Wis.  
Insley Mfg. Co., Indianapolis, Ind.  
T. L. Smith Co., Milwaukee, Wis.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.
- CHUTES—FOUNDATION WALL**  
Donley Bros. Co., Cleveland, O. ("Donley").  
International Steel & Iron Co., Evansville, Ind.  
Kewanee Mfg. Co., Kewanee, Ill. ("Kewanee").  
Majestic Co., Huntington, Ind.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Sykes Metal Lath & Roofing Co., Niles, O.
- CLAMP CARRYING MACHINES**  
Black Bros. Co., Mendota, Ill. (Power-driven, folding sections).
- CLAMPS—BRICK**  
Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
Donley Bros. Co., Cleveland, O. ("Donley").
- CLAMPS—CARPENTERS**  
Black Bros. Co., Mendota, Ill.  
L. S. Starrett Co., Athol, Mass.  
Stover Mfg. & Engine Co., Freeport, Ill.  
James L. Taylor Mfg. Co., Poughkeepsie N. Y.
- CLAMPS—CHAIN**  
Black Bros. Co., Mendota, Ill.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—COLUMN**  
Black Bros. Co., Mendota, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Sterling Wheelbarrow Co., Milwaukee, Wis.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—CONCRETE CONSTRUCTION**  
Insley Mfg. Co., Indianapolis, Ind.  
Sterling Wheelbarrow Co., Milwaukee, Wis.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—DOOR**  
Black Bros. Co., Mendota, Ill.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—FORM**  
Insley Mfg. Co., Indianapolis, Ind.  
Sterling Wheelbarrow Co., Milwaukee, Wis.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—FURNITURE MAKING**  
Black Bros. Co., Mendota, Ill.  
Rockford Miter Box Co., Rockford, Ill.  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CLAMPS—MEASURING**  
L. S. Starrett & Co., Athol, Mass.
- CLAMPS—MITER**  
Black Bros. Co., Mendota, Ill.
- CLAMPS—FILING**  
Black Bros. Co., Mendota, Ill.
- CLAMPS ROOFING**  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- CLAMPS—SAW**  
Crescent Machine Co., Leetonia, O. ("Crescent").  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Stover Mfg. & Engine Co., Freeport, Ill.
- CLAY—FIRE**  
National Fireproofing Co., Pittsburgh, Pa.
- CLEANERS—CEMENT BAG**  
Willsea Works, Rochester, N. Y. ("Century").
- CLEANERS—CLOSET**  
Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- CLEANERS—WINDSHIELD**  
Security Mfg. Co., 42 Eleventh St., Toledo, O.
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That Last a Lifetime**



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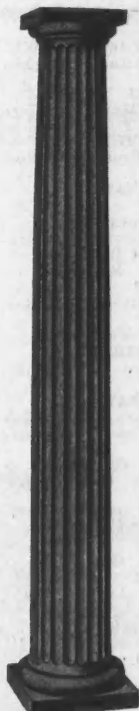
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Union Metal Columns are made of enduring, copper bearing steel in all designs and sizes from 8" to 36" diameters and from 5' to 32' high.

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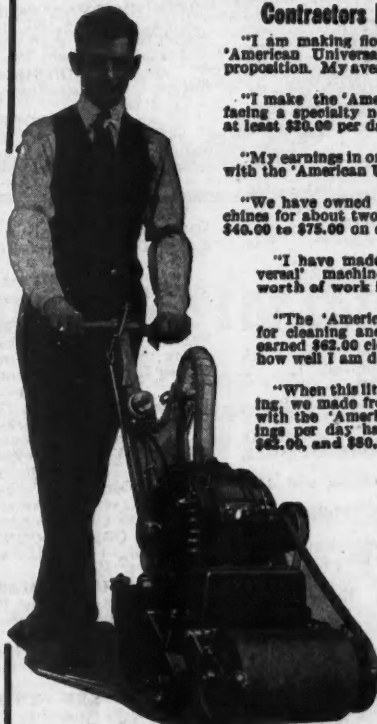
"The 'American Universal' is a dandy machine for cleaning and polishing dance floors. I have earned \$62.00 clear profit in a day so you can see how well I am doing."  
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Originators of Floor Surfacing Machines

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The American Floor Surfacing Machine Company  
515 So. St. Clair St., Toledo, Ohio, U. S. A.

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Street.....  
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 Truscon Steel Co., Detroit, Mich.

**CLOCKS**

American Clock Co., 1643 Buffner St., Philadelphia, Pa. (Blueprints, finishing materials, works and instructions to build Grandfather's clocks).

**CLOSETS—CHEMICAL**

Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y. ("Perfection")  
 Robison Household Mfg. Co., Factories Bldg., Toledo, O.  
 Stewart Mfg. Co., Waterloo, Ia. ("Superior")

Superior Churn & Mfg. Co., Northville, Mich.  
 Waterman-Waterbury Co., 1121 N. E. Jackson St., Minneapolis, Minn.

**CLOSETS—WATER**

Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**CLOTH—EMERY**

Wausau Abrasives Co., Wausau, Wis.

**CLOTH—TRACING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 International Correspondence Schools, Scranton, Pa.

Keuffel & Esser Co., Hoboken, N. J.  
 National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

Wadsworth, Howland & Co., Boston, Mass.  
 Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.  
 F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**CLOTH—WIRE**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
 Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 T. B. Rayl Co., Detroit, Mich.

**CLUTCHES—FRICTION**

W. E. Caldwell Co., Louisville, Ky.  
 O. K. Clutch & Machinery Co., Columbia, Pa. ("O. K.")

Standard Scale & Supply Co., Pittsburgh, Pa.  
 Atlas Engineering Co., Milwaukee, Wis. ("Atlas")

International Steel & Iron Co., Evansville, Ind.  
 Judy Mfg. Co., Centerville, Ia. ("Giant")

Standard Scale & Supply Co., Pittsburgh, Pa.  
 Metal Forms Corp., Milwaukee, Wis. ("Metaforms")

**COATINGS—CEMENT (COLORS)**

Samuel Cabot, Inc., 141 Milk St., Boston, Mass.  
 Eugene E. Nice, 268 E. 2d St., Philadelphia, Pa. ("O. M. T.")  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**COATINGS—ROOF**

Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")  
 Philip Carey Co., Lockland, Cincinnati, O. (Black asphalt paint, magnesium coating, fibre coating)

H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y.  
 Eugene E. Nice, 268 E. 2d St., Philadelphia, Pa. ("Nice")

Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**COLONNADES**

Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

Gould Mfg. Co., Oshkosh, Wis.

**COLUMNS—METAL**

Bogert-Carlough Co., 240 Straight St., Paterson, N. J. (Steel)  
 Edwards Mfg. Co., Cincinnati, O.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay")  
 Metal Forms Corp., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

Truscon Steel Co., Detroit, Mich.  
 Union Metal Mfg. Co., Canton, O. (Ornamental pressed steel)

**COLUMNS—WOOD**

Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

Gould Mfg. Co., Oshkosh, Wis.

Pacific Lumber Co. of Illinois, Chicago, Ill.

**COMPOUNDS—ANTI-FREEZE**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Accello")  
 ("Anti-Hydro" for cement)

**COMPRESSORS—AIR**

American Floor Surfacing Machine Co., Toledo, O.  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.")  
 DeVilbiss Mfg. Co., 3676 Detroit Ave., Toledo, O. ("DeVilbiss" Spray Painting System)

Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco")  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.

Paanche Air Brush Co., 1230 Washington St., Chicago, Ill.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

T. L. Smith Co., Milwaukee, Wis.  
 F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**CONDUITS—UNDERGROUND**

National Fireproofing Co., Pittsburgh, Pa.

**CONSERVATORIES**

Orange Screen Co., Maplewood, N. J. ("Orsco")

**CONSTRUCTORS—FIREPROOF**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
 International Steel & Iron Co., Evansville, Ind.

National Fireproofing Co., Pittsburgh, Pa.

**CONVEYING MACHINERY**

Atlas Engineering Co., 3009 Lisbon Ave., Milwaukee, Wis. ("Atlas")  
 Chain Belt Co., Milwaukee, Wis.  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn")

International Steel & Iron Co., Evansville, Ind.  
 Richards-Wilcox Mfg. Co., Aurora, Ill. (Overhead)

T. L. Smith Co., Milwaukee, Wis.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**CONVEYORS—BELT**

Atlas Engineering Co., 3009 Lisbon Ave., Milwaukee, Wis. ("Atlas")  
 Burrell Mfg. & Supply House, Kankakee, Ill.

International Steel & Iron Co., Evansville, Ind.

**CONVEYORS—CLAMP**

Atlas Engineering Co., 3009 Lisbon Ave., Milwaukee, Wis. ("Atlas")  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

**CONVEYORS—PORTABLE**

Atlas Engineering Co., 3009 Lisbon Ave., Milwaukee, Wis. ("Atlas")  
 Austin Machine Corp., Railway Exchange Bldg., Chicago, Ill.

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

**COPPINGS—WALL**

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile)

**COPPER**

C. G. Hussey & Co., Pittsburgh, Pa. (Copper in sheets, plates and rolls; corrugated copper, conductor pipe, copper nails and rivets, copper eaves trough, etc.)  
 International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**CORD—AWNING**

Silver Lake Co., Newtonville, Mass. ("Silver Lake")

**CORD—DUMBBWAITE**

Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson")  
 Silver Lake Co., Newtonville, Mass.

**CORD—SASH**

Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson Spot Cord")  
 Silver Lake Co., Newtonville, Mass.

**CORD—SHADE**

Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson")  
 Silver Lake Co., Newtonville, Mass.

**CORES—CONTRACTIBLE**

Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine")

**CORNERIES—METAL**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. ("Ceco" economy wire)

Edwards Manufacturing Co., Cincinnati, O.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

**CORNERS—BUILDING (METAL)**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. ("Ceco")  
 Edwards Mfg. Co., Cincinnati, O.

Milwaukee Corrugating Co., Milwaukee, Wis.  
 Shrauger & Johnson, Atlantic, Ia.  
 Willis Mfg. Co., Galesburg, Ill.

**CORNICES—SHEET METAL**

Burrell Mfg. & Supply House, Kankakee, Ill.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.

International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

National Sheet Metal Roofing Co., 339 Grand St., Jersey City, N. J.  
 Shrauger & Johnson, Atlantic, Ia.  
 Willis Mfg. Co., Galesburg, Ill.

**COUNTERSINKS**

Buck Bros., Millbury, Mass.  
 L. S. Starrett Co., Athol, Mass.  
 James Swan Co., Seymour, Conn.  
 Syracuse Twist Drill Co., Syracuse, N. Y.

**COVERINGS—BOILER AND PIPE**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**COVERINGS—COLUMN AND GIRDER**

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile)

**COVERINGS—FLOOR**

Bird & Son, Inc., East Walpole, Mass. ("Neponset")

**COVERINGS—PORCH**

Wm. L. Barrell Co., 8 Thomas St., New York, N. Y. (Canvas)  
 Pacific Lumber Co. of Illinois, Chicago, Ill.

**COVERINGS—WATERPROOF**

Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**COVERS—CISTERN**

Donley Bros., Co. Cleveland, O. ("Donley")  
 International Steel & Iron Co., Evansville, Ind.

Leavitt Mfg. Co., Urbana, Ill. ("Safety")  
 Majestic Co., Huntington, Ind.  
 Sterling Foundry Co., Sterling, Ill. ("Best")

Wagner Mfg. Co., Cedar Falls, Ia.  
 Leavitt Mfg. Co., Urbana, Ill. ("Leavitt")  
 Leavitt Mfg. Co., Urbana, Ill. ("Leavitt")

**COVERS—MANHOLE**

Donley Bros. Co., Cleveland, O. ("Donley" covers and rings)  
 International Steel & Iron Co., Evansville, Ind.

Leavitt Mfg. Co., Urbana, Ill. ("Leavitt")  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Sterling Foundry Co., Sterling, Ill.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**COVERS—RADIATOR**

Frank S. Bets Co., Hammond, Ind. ("De Luxe")

**CRANES—ELECTRIC**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.  
 International Steel & Iron Co., Evansville, Ind.

**CRANES—GASOLINE**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.  
 Koehring Co., Milwaukee, Wis. ("Koehring" heavy duty)

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

**CRANES—HANDPOWER**

Highwood Dumbwaiter Co., Leonia, N. J.  
 International Steel & Iron Co., Evansville, Ind.

Richards-Wilcox Mfg. Co., Aurora, Ill. ("Over-Way")  
 J. G. Speldel, Reading, Pa.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**CRANES—STEAM**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**CRAYONS—LUMBER**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
 Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

**CRUSHERS AND PULVERIZERS**

W. E. Caldwell Co., Louisville, Ky.  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal")

T. L. Smith Co., Milwaukee, Wis.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**CURTAINS—ASBESTOS**

H. W. Johns-Manville Co., 41st and Madison, New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**CUTTERS—ASBESTOS SHINGLE**

Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**CUTTERS—BAR**

Koehring Co., Milwaukee, Wis. ("Koehring")  
 Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome")

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

**DAMPERS—FIREPLACE**

Donley Bros. Co., Cleveland, O. ("Donley")  
 Hornet Mantel Co., 1112 Market St., St. Louis, Mo.

International Steel & Iron Co., Evansville, Ind.  
 Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

Majestic Co., Huntington, Ind.  
 Stover Mfg. & Engine Co., Freeport, Ill.  
 Willis Mfg. Co., Galesburg, Ill.

**DAMPPOOFING**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro")  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco" "Positive" "Ideal")

H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y. ("J.M.")  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

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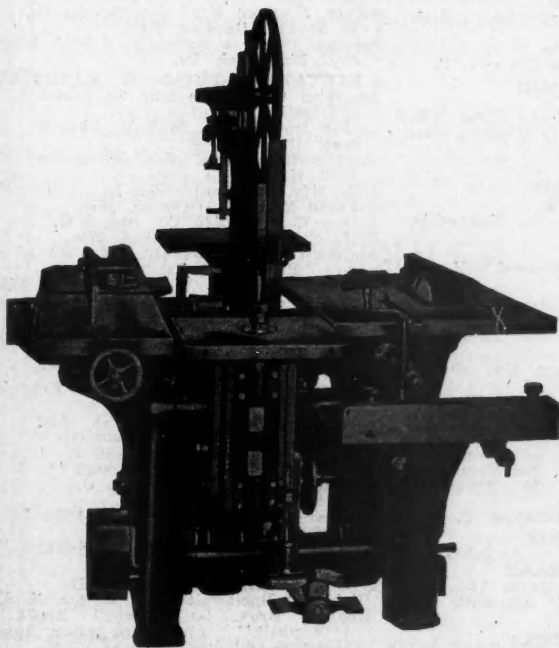
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**DEADENERS—SOUND**  
Samuel Cabot, Inc., 141 Milk St., Boston, Mass. ("Cabot's Quilt").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
U. S. Mineral Wool Co., 280 Madison Ave., New York, N. Y.

**DECORATIONS—GARDEN AND LAWN**  
Union Metal Mfg. Co., Canton, O. (Pressed steel).

**DERRIKS—CIRCLE-SWING**  
Inasley Mfg. Co., Indianapolis, Ind.  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—ELECTRIC MOTOR**  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—GASOLINE HOIST**  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—HANDPOWER**  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.

**DERRIKS—LUMBERYARD**  
Inasley Mfg. Co., Indianapolis, Ind.  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—STIFFLEG**  
Inasley Mfg. Co., Indianapolis, Ind.  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—TRIPOD**  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRIKS—TRUCK**  
Sasgen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DIALS—SUN**  
A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

**DISH WASHING MACHINES**  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco").

**DISKS—GRINDING**  
Wausau Abrasives Co., Wausau, Wis.

**DIVIDERS**  
L. S. Starrett Co., Athol, Mass.

**DOORS—BRONZE**  
International Steel & Iron Co., Evansville, Ind.

**DOORS—CELLAR (METAL)**  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—CLEANOUT**  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.

**DOORS—COPPER COVERED**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—DUMP**  
Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").

**DOORS—ELEVATOR**  
Moeschl-Edwards Corrugating Co., Cincinnati, O.

**DOORS—FIRE**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—FIREPROOF (HOLLOW METAL)**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—FIREPROOF (METAL COVERED)**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—GRAIN ELEVATOR**  
Shrauger & Johnson, Atlantic, Ia.

**DOORS—HARDWOOD AND VENEERED**  
California Redwood Assn., San Francisco, Cal.  
Gould Mfg. Co., Oshkosh, Wis.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—HOGHOUSE**  
Shrauger & Johnson, Atlantic, Ia.

**DOORS—IRON AND STEEL**  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").  
Bogert-Carlough Co., 240 Straight St., Paterson, N. J. (Tubular steel).  
Detroit Steel Products Co., 2250 E. Grand Boul., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—KALAMAIN**  
International Steel & Iron Co., Evansville, Ind.

**DOORS—SCREEN**  
Orange Screen Co., Maplewood, N. J. ("Orasco").  
Gould Mfg. Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.

**DOORS—SIDEWALK**  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").  
Bogert & Carlough Co., 240 Straight St., Paterson, N. J.

**DOORS—SOFTWOOD**  
Gould Mfg. Co., Oshkosh, Wis.  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" Weed quality all-white pine panel doors).  
Morgan Co., Oshkosh, Wis.

**DOORS—STORM**  
Gould Mfg. Co., Oshkosh, Wis.  
International Steel & Iron Co., Evansville, Ind. (Revolving).  
Morgan Co., Oshkosh, Wis.  
Orange Screen Co., Maplewood, N. J. ("Orasco").

**DOORS—TINCLAD**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**DOORS—WIRE**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Central Wire & Iron Works, Des Moines, Ia.  
International Steel & Iron Co., Evansville, Ind.

**DRAINS—FLOOR**  
Donley Bros. Co., Cleveland, O. ("Donley").

**DRAINERS—CELLAR**  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Perfection" automatic and unautomatic).

**DRIERS—CLOTHES**  
Iowa Gate Co., Cedar Falls, Ia. ("Clay").

**DRILLS—BENCH**  
North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee").

**DRILLS—BREAST AND HAND**  
North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee" automatic push).  
Rawlplug Co., 468 Eighth Ave., New York, N. Y. ("Rawlplug").  
Stanley Works, New Britain, Conn.

**DRILLS—CHAIN**  
North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee").

**DRILLS—STONE**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y.

**DRILLS—TWIST**  
Sidney Machine Tool Co., Sidney, O.  
James Swan Co., Seymour, Conn.  
Syracuse Twist Drill Co., Syracuse, N. Y.

**DUCK—COTTON**  
John Boyle & Co., 112 Duane St., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**DUMBWAITERS**  
Highwood Dumbwaiter Co., Leonia, N. J.  
International Steel & Iron Co., Evansville, Ind.

**DUMBWAITERS**  
Kimball Bros. Co., Council Bluffs, Ia. ("Kimball").  
Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick" hospital residence, restaurant).  
Sidney Elevator Mfg. Co., Sidney, O.  
J. G. Speidel, Reading, Pa.  
Storm Mfg. Co., 40 Vesey St., Newark, N. J.  
York Automatic Dumbwaiter Works, York, Pa.

**DUMPS—ASH**  
Donley Bros. Co., Cleveland, O. ("Donley").  
Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
International Steel & Iron Co., Evansville, Ind.

**DUMPS—ASH**  
Majestic Co., Huntington, Ind.  
Sterling Foundry Co., Sterling, Ill. ("Best").  
Willis Mfg. Co., Galesburg, Ill.

**EDGES—DOUBLE**  
American Sawmill Machinery Co., Hacketts-town, N. J. ("American").  
E. O. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Henry Diston & Sons, Philadelphia, Pa.  
Sidney Machine Tool Co., Sidney, O.

**EDGES—GANGSAW**  
American Sawmill Machinery Co., Hacketts-town, N. J. ("American").  
E. O. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Henry Diston & Sons, Philadelphia, Pa.  
Sidney Machine Tool Co., Sidney, O.

**EDGES—STRAIGHT**  
International Correspondence Schools, Scranton, Pa.  
Oliver Machinery Co., Grand Rapids, Mich.  
J. Sand & Sons, Detroit, Mich. ("Sands").

**ELEVATING MACHINERY**  
Chain Belt Co., Milwaukee, Wis.  
Kimball Bros. Co., Council Bluffs, Ia. ("Kimball").  
Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick").  
Sidney Elevator Mfg. Co., Sidney, O.  
J. G. Speidel, Reading, Pa.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**ELEVATORS—BUILDING MATERIAL**  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E").  
Judy Mfg. Co., Centerville, Ia. ("Giant").  
Oshkosh Mfg. Co., Oshkosh, Wis.  
Sidney Elevator Mfg. Co., Sidney, O.  
T. L. Smith Co., Milwaukee, Wis.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**ELEVATORS—GRAIN (BUILT-IN)**  
Shrauger & Johnson, Atlantic, Ia.

**ELEVATORS—FREIGHT**  
Highwood Dumbwaiter Co., Leonia, N. J.  
International Steel & Iron Co., Evansville, Ind.

**ELEVATORS—FREIGHT**  
Kimball Bros. Co., Council Bluffs, Ia. ("Kimball" Also automobile).  
Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick").  
Sidney Elevator Co., Sidney, O.  
J. G. Speidel, Reading, Pa.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**ELEVATORS—PORTABLE**  
Sidney Elevator Mfg. Co., Sidney, O.  
Standard Scale & Supply Co., Pittsburgh, Pa.



The Fort Steuben Hotel, Steubenville, Ohio: Frederic Webber, Philadelphia, Architect; J. D. Johnson Co., Inc., Philadelphia, Jobbers; Modern Plumbing & Heating Co., Philadelphia, Plumbers

# KOHLER

And FORT STEUBEN HOTEL

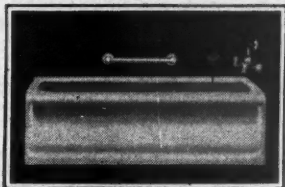
Even the smaller cities are learning that a fine hotel is a civic asset and worthy of the best in architecture and equipment. Witness, for instance, the Fort Steuben Hotel, Steubenville, Ohio. Here, as in so many other modern hotels, large and small, Kohler Enameled Plumbing Ware—snow-white, glistening, easily cleaned—was selected for its famous qualities of beauty, durability and utility. This public favor extends also into homes, clubs, apartments and institutions throughout the land.

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## KOHLER of KOHLER

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Shipping Point, Sheboygan, Wis.

BRANCHES IN PRINCIPAL CITIES

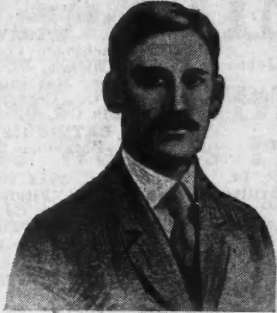


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## Six Million Dollars Worth of Buildings in One Year

The true story of George A. Griebel, the country boy who helped put Cleveland on the map



GEORGE A. GRIEBEL  
Member of the firm of The Griebel Co., who erected more than \$6,000,000 worth of buildings in Cleveland in 1920

MARION, OHIO, will go down in history as the home of President Harding.

Yet it has still another call to fame. For it was there that George A. Griebel got his first real job. He was employed as a stone-mason in the building of St. John's Cathedral, at the more or less magnificent salary of \$15 a week.

That was some years ago, when \$15 meant a whole lot more than it does today. Some fellows were satisfied with that salary—but not Griebel. He felt that he had it in him to do big things.

Fortunately, he was not long in discovering that what he needed most was special training. So he started to study in his spare time with the International Correspondence Schools.

Other men laughed at him and said he was wasting his time. But they didn't laugh long. For it was soon apparent that Griebel was going up.

He cashed his first check on the Bank of Special Training in 1903, when he went

to Cleveland and started to work for the George A. Rutherford Company, one of Cleveland's largest contractors, as General Building Superintendent at a salary of \$150 a month.

After working for the Rutherford Company for a year, Mr. Griebel left to take charge of the construction work on the Mining and Physics buildings being constructed by the Case School of Applied Science. These buildings were completed early in November, 1904.

Three weeks later, Griebel opened his own office.

Working over drawings and plans of every description all day and generally half the night, Griebel constructed a number of large buildings, including: The Euclid Doane Apartments, the Pennsylvania Hotel, The Lumber Dealers' Club, and the A. E. Russ manufacturing plant.

About this time, Mr. Rutherford, of the George A. Rutherford Company, again sought Mr. Griebel's service—this time at a salary of \$9,000 a year.

The next year Mr. Griebel designed some of the largest buildings that were erected in Cleveland, including the 1900 Euclid Building, the Alhambra Theatre, Penn Square Building, and the Equity Building, one of the finest office buildings in the city.

The old business called Griebel again and in 1915 he returned to business for himself. He designed and supervised the construction of a score or more buildings and residences in Cleveland. Four of the most important buildings he had to do with were: The Standard Parts Building, the Goodman Piano Company Building, the Sloan Building, and the Fisher Gilder Storage Building in Youngstown, Ohio.

And Mr. Griebel says that he might still be a stone-mason if he hadn't studied with the I. C. S.

HOW about you? Are you always going to work for a small salary? Are you going to waste your natural ability all your life? Or are you going to get ahead in a big way? It all depends on what you do with your spare time.

Opportunity knocks—this time in the form of that familiar I. C. S. coupon. It may seem like a little thing, but it has been the means of bringing better jobs and bigger salaries to thousands of men.

Mark and mail it today, and without cost or obligation learn what the I. C. S. can do for you.

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 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick." Also automobile and invalid elevators).  
 Sidney Elevator Mfg. Co., Sidney O. ("Sidney")  
 J. G. Speidel, Reading, Pa.  
 Storm Mfg. Co., 40 Vesey St., Newark, N. J. (Hand and electric).

**ENAMELS—ARCHITECTURAL**  
 S. C. Johnson & Son, Racine, Wis. ("Johnson")  
 Eugene E. Nice, 261 S. 2d St., Philadelphia, Pa. ("Nice")  
 Patton Paint Co., Milwaukee, Wis.  
 Wadsworth, Howland & Co., Boston, Mass.

**ENCLOSURES—ELEVATOR**  
 Central Wire & Iron Works, Des Moines, Ia.  
 International Steel & Iron Co., Evansville, Ind.  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball")  
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 Orange Screen Co., Maplewood, N. J. ("Orasco")

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 Hercules Corp., Evansville, Ind. ("Hercules")  
 Ideal Engine Co., Lansing, Mich.  
 Judy Mfg. Co., Centerville, Ia.  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.  
 O. K. Clutch & Machinery Co., Columbia, Pa.  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 Ottawa Mfg. Co., Ottawa, Kan.  
 T. L. Smith Co., Milwaukee, Wis.  
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 Stewart Mfg. Co., Waterloo, Ia. ("Stewart")  
 Stover Mfg. & Engine Co., Freeport, Ill.  
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 Fuller & Johnson Mfg. Co., Madison, Wis.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Hercules Corp., Evansville, Ind. ("Hercules")  
 Judy Mfg. Co., Centerville, Ia.  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.  
 O. K. Clutch & Machinery Co., Columbia, Pa.  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 Ottawa Mfg. Co., Ottawa, Kan.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
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**EQUIPMENT—AIR PAINTING**  
 DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Paint Spraying System")  
 Paasche Air Brush Co., 1230 Jackson Boul., Chicago, Ill.  
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 James Mfg. Co., Fort Atkinson, Wis.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay")  
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 J. E. Porter Co., Ottawa, Ill. ("Porter")  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W")  
 Shrauger & Johnson, Atlantic, Ia.  
 Wagner Mfg. Co., Cedar Falls, Ia.

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 Iowa Gate Co., Cedar Falls, Ia. ("Clay")

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 Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ercot" dishwashers).

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 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

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**EQUIPMENT—SCHOOL**  
 Ankyra Mfg. Co., 149 Berkley St., Philadelphia, Pa. ("Ankyra")  
 Frank S. Bets Co., Hammond, Ind. (Physical examination and first-aid outfits).  
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 Hero Furnace Co., Sycamore, Ill. (Heating).  
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 Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.  
 Construction Machinery Co., Waterloo, Ia.  
 Judy Mfg. Co., Centerville, Ia. ("Speeder")  
 T. L. Smith Co., Milwaukee, Wis.

**EXTINGUISHERS—FIRE**  
 Frank S. Bets Co., Hammond, Ind. ("Pyrene")  
 Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Firefoam" and "Ercot")  
 Foamite Firefoam Co., 200 Fifth Ave., New York, N. Y. ("Foamite")

**FACING CONCRETE**  
 Art Stone Co., Waynesboro, Pa.

**FANS—VENTILATING**  
 Paasche Air Brush Co., 1230 Washington Blvd., Chicago, Ill.

**FASTENERS—BLIND**  
 Mallory Mfg. Co., Flemington, N. J.

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 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.  
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**FELTS—ASPHALT**  
 Bird & Son, Inc., East Walpole, Mass.  
 Ruberoid Co., 95 Madison Ave., New York, N. Y.

**FELTS—DEADENING**  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")  
 H. W. Johns-Manville Co., Madison and 41st, New York, N. Y. ("Johns-Manville" wool deadening felt, "Keystone" hair insulator, "Weathertite" building paper, hair felt).  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**FELT—INSULATING**  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")  
 H. W. Johns-Manville Co., Madison and 41st, New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**FELTS—SATURATED ASPHALT**  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")

**FELTS—STRINGED**  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")

**FENCE POST MACHINES—CEMENT**  
 American Cement Machine Co., Keokuk, Ia.

**FENCES—IRON AND STEEL**  
 Badger Wire & Iron Works, Milwaukee, Wis.  
 International Steel & Iron Co., Evansville, Ind.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay")  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**FENCES—LATTICE**  
 Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.  
 Pacific Lumber Co. of Illinois, Chicago, Ill.

**FENCES—WOVEN WIRE**  
 Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay")

**FILES AND RASPS**  
 E. C. Atkins & Co., Indianapolis, Ind. ("Atkins")  
 Henry Disston & Sons, Philadelphia, Pa.

**FILLETS—JOINT**  
 Compo-Board Co., Minneapolis, Minn. (For filling joints between panels of "Compo-Board" and over nailheads; also for filling imperfections in wood, plaster, etc.)

**FILLETS—PAINT**  
 Wausau Abrasives Co., Wausau, Wis.

**FILLETS—TRENCH**  
 Oshkosh Mfg. Co., Oshkosh, Wis.

**FILLETS—WOOD**  
 S. C. Johnson & Son, Racine, Wis. ("Johnson's Paste Wood Filler")  
 E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
 Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice," "Yellow Shield")

**FILLETS—STAIR RAIL**  
 Gould Mfg. Co., Oshkosh, Wis.

**FILTERS**  
 Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ercot")

**FINISH—FLOOR**  
 Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro")  
 E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
 Wadsworth, Howland & Co., Boston, Mass.

**FINISH—WALL**  
 S. C. Johnson & Son, Racine, Wis. ("Johnson's Permacote")  
 Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Neokote" flat wall).  
 Patton Paint Co., Milwaukee, Wis.

**FIRE ESCAPES**  
 Badger Wire & Iron Works, Milwaukee, Wis.  
 International Steel & Iron Co., Evansville, Ind.

**FIREPLACES**  
 General Gas Light Co., Kalamazoo, Mich.  
 Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
 Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**FIREPROOFING—CONTRACTORS FOR**  
 Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
 International Steel & Iron Co., Evansville, Ind.  
 National Fireproofing Co., Pittsburgh, Pa.  
 Price Fire & Water Proofing Co., Poughkeepsie, N. Y.  
 U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.

**FIREPROOFING—HOLLOW TILE**  
 National Fireproofing Co., Pittsburgh, Pa. (Dense and porous).

**FITTINGS—WIRE ROPE**  
 Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**FIXTURES—BANK**  
 LaGrange Fixture Corp., LaGrange, Ind.

**FIXTURES—BATH**  
 Kohler Co., Kohler, Wis. (Nickel-plated brass).

**FIXTURES—ELEVATOR**  
 Highwood Dumbwaiter Co., Leonia, N. J.  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("Ideal," "R-W")  
 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick")  
 J. G. Speidel, Reading, Pa.  
 Storm Mfg. Co., 40 Vesey St., Newark, N. J.

**FIXTURES—GARDEN**  
 Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).

**FIXTURES—LIGHTING**  
 Union Metal Mfg. Co., Canton, O. ("Union Metal" steel).

**FIXTURES—PLUMBING**  
 Andrews Heating Co., Minneapolis, Minn.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**FIXTURES—STABLE**  
 Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
 International Steel & Iron Co., Evansville, Ind.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay")  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**FIXTURES—STORE**  
 Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.  
 International Steel & Iron Co., Evansville, Ind.  
 LaGrange Fixture Corp., LaGrange, Ind.  
 F. E. Myers & Bro. Co., Ashland, O.

**FIXTURES—WARDROBE**  
 Knappe & Vogt Mfg. Co., Grand Rapids, Mich. ("Garment Care System")  
 Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Eatway")

**FLOORING—CANVAS**  
 Wm. L. Barrell Co., 8 Thomas St., New York, N. Y.  
 John Boyle & Co., 112 Duane St., New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**FLOORING—COMPOSITION**  
 American Magnesia Products Co., 5730 Roosevelt Road, Chicago, Ill. ("Velvetile")  
 Art Stone Co., Waynesboro, Pa.  
 Jas. C. Barry Co., 95 North St., Rochester, N. Y. ("Everlaston")  
 Phillip Carey Co., Lockland, Cincinnati, O.  
 H. W. Johns-Manville Co., Madison and 41st, New York, N. Y.  
 National Kellastone Co., 155 E. Superior St., Chicago, Ill. ("Kellastone")  
 Roebond Co., Van Wert, O. ("Roebond")  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")



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**FLOORING—FACTORY**

Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco" mastic).  
Oak Flooring Mfrs. Assn., Chicago, Ill.

**FLOORING—FIREPROOF**

Jas. O. Barry Co., 95 North St., Rochester, N. Y. ("Everlastbestos").  
Central Steel Co., Massillon, O.  
Johns-Manville Co., Madison and 41st, New York, N. Y. ("J.M").  
National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).  
National Pressed Steel Co., Massillon, O.  
U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Pyrobar," "Pyrofill").

**FLOORING—HARDWOOD**

Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" forked leaf oak flooring).  
E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
Morgan Co., Oshkosh, Wis.  
Oak Flooring Mfrs. Assn., Chicago, Ill.

**FLOORING—HOLLOW TILE**

National Fireproofing Co., Pittsburgh, Pa.

**FLOORING—PARQUETRY**

E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
Oak Flooring Mfrs. Assn., Chicago, Ill.  
Wood Mosaic Co., New Albany, Ind. ("Wood Mosaic").

**FLOORING—SANITARY**

Art Stone Co., Waynesboro, Pa.  
Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco" mastic).  
Jas. O. Barry Co., 95 North St., Rochester, N. Y. ("Everlastbestos").  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
Structural Slate Co., Pen Argyl, Pa.

**FLOORING—SUB-FLOOR**

Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").

**FLOORING—WOOD**

Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" yellow pine).  
E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
Morgan Co., Oshkosh, Wis.  
Oak Flooring Mfrs. Assn., Chicago, Ill.

**FLOORING—WOOD BLOCK**

Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" crossties).  
Pacific Lumber Co. of Illinois, Chicago, Ill.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**FORMS—RAY**

J. E. Porter Co., Ottawa, Ill. (Harpoon and grapple).

**FORMS—COLUMN**

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. (round, for forming reinforced concrete columns).

**FORMS—CONCRETE CONSTRUCTION**

Concrete Engineering Co., Omaha, Neb.  
W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Metal Forms Corp., Milwaukee, Wis.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**FORMS—CURB AND SIDEWALK**

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**FORMS—SEWER MANHOLE**

Metal Forms Corp., Milwaukee, Wis. ("Met-forms").

**FORMS—WALL**

Ferguson Synstone Co., U. S. Nat. Bank Bldg., Denver, Col. ("Synstone" single wall; "Synstone" concrete brick-veneer header bond wall; "Synstone" concrete double bond wall, header bond; "Synstone" concrete multiple air-space wall; "Synstone" partition double-header bond wall).

Metal Forms Corp., Milwaukee, Wis. ("Met-forms").  
Universal Cement Mold Co., North Milwaukee, Wis.

**FOUNTAINS—BUBBLING**

Frank S. Bets Co., Hammond, Ind.  
Hardin-Lavin Co., 4523 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Kohler Co., Kohler, Wis.  
Shrauger & Johnson, Atlantic, Ia.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" steel).  
Waterman-Waterbury Co., Minneapolis, Minn.

**FRAMES—BARN**

Andersen Lumber Co., South Stillwater, Minn.

**FRAMES—BUILDING**

Andersen Lumber Co., South Stillwater, Minn.  
Central Steel Co., Massillon, O.  
Gould Mfg. Co., Oshkosh, Wis.

**FRAMES—CELLAR SASH**

Andersen Lumber Co., South Stillwater, Minn.  
Bogert & Carlough Co., 240 Straight St., Paterson, N. J.  
Gould Mfg. Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.  
Shrauger & Johnson, Atlantic, Ia.  
Willis Mfg. Co., Galesburg, Ill. (Metal).

**FRAMES—DOOR**

Andersen Lumber Co., South Stillwater, Minn. ("K. D.").  
Morgan Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.

**FRAMES—SASH**

Andersen Lumber Co., South Stillwater, Minn.

**FRAMES—WINDOW**

Andersen Lumber Co., South Stillwater, Minn.

**FRONTS—STORE**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill. ("Brasco").  
J. W. Coulson & Co., Columbus, O. ("Coulson").  
Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich. ("Desco").  
International Steel & Iron Co., Evansville, Ind.  
Kawneer Mfg. Co., Niles, Mich. ("Kawneer").  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Zouri Drawn Metals Co., Chicago Heights, Ill. ("Zouri" safety key-set copper store fronts and "International").

**FURNISHINGS—APARTMENT HOTEL**

Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**FURNISHINGS—FIREPLACE**

Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
T. B. Rayl Co., Detroit, Mich.  
Stover Mfg. & Engine Co., Freeport, Ill.

**FURNISHINGS—HOSPITAL**

Frank S. Bets Co., Hammond, Ind. ("Betsco").  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**FURNISHINGS—HOTEL**

Frank S. Bets Co., Hammond, Ind. ("Betsco").  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**FURNITURE—GARDEN**

Fred J. Meyers Mfg. Co., Hamilton, O.

**FURRING—WALL**

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).

**GARAGES—PRIVATE AND PUBLIC**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("ABC").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Trusecon Steel Co., Detroit, Mich.

**GATES—BIN**

Archer Iron Works, 2488 W. 84th Pl., Chicago, Ill.

Inaley Mfg. Co., Indianapolis, Ind.

**GATES—DRIVE-IN**

Badger Wire & Iron Works, Milwaukee, Wis.  
Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—ELEVATOR**

Highwood Dumbwaiter Co., Leonia, N. J.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
J. G. Speidel, Reading, Pa.

**GATES—FOLDING**

Badger Wire & Iron Works, Milwaukee, Wis.  
Central Wire & Iron Works, Des Moines, Ia.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—IRON**

Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.

Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—WALK**

Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.

Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
Fred J. Meyers Mfg. Co., Hamilton, O.

**GAUGES—AUGER BIT**

James Swan Co., Seymour, Conn.  
Syracuse Twist Drill Co., Syracuse, N. Y.

**GAUGES—BUTT**

Henry Disston & Sons Co., Philadelphia, Pa.  
Stanley Works, New Britain, Conn.

**GAUGES—HATCHET**

L. A. Sayre Co., 334 Mulberry St., Newark, N. J.

**GAUGES—MORTISE**

Henry Disston & Sons, Philadelphia, Pa.

**GAUGES—SAW**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").

Henry Disston & Sons, Philadelphia, Pa.  
Sidney Machine Tool Co., Sidney, O.

**GAUGES—SCRATCH**

L. S. Starrett Co., Athol, Mass.

**GAUGES—SHINGLING**

L. A. Sayre Co., 334 Mulberry St., Newark, N. J.

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**GAUGES—STAIR**

L. S. Starrett Co., Athol, Mass.

**GLASS—ART**

American 3 Way-Luxfer Prism Co., Cicero, Ill.

Gould Mfg. Co., Oshkosh, Wis.  
International Steel & Iron Co., Evansville, Ind.

Morgan Co., Oshkosh, Wis.

**GLASS—LEADED**

American 3 Way-Luxfer Prism Co., Cicero, Ill.

Gould Mfg. Co., Oshkosh, Wis.  
International Steel & Iron Co., Evansville, Ind.

Morgan Co., Oshkosh, Wis.

**GLASS—PLATE**

J. W. Coulson & Co., Columbus, O.

International Steel & Iron Co., Evansville, Ind.

Morgan Co., Oshkosh, Wis.

**GLASS—SHEET PRISM**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer" plain and wired).

**GLASS—SIDEWALK**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("Lazalite").

**GLASS—WIRE**

J. W. Coulson & Co., Columbus, O.

International Steel & Iron Co., Evansville, Ind.

Morgan Co., Oshkosh, Wis.

Shrauger & Johnson, Atlantic, Ia.

Willis Mfg. Co., Galesburg, Ill.

**GLASSES—LEVEL**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.

Geier & Blumh, Troy, N. Y. ("G. & B").  
Keuffel & Esser Co., Hoboken, N. J.

J. Sand & Son, 4841 Rivard St., Detroit, Mich.

Stanley Works, New Britain, Conn.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

David White Co., Milwaukee, Wis. ("White's Improved").

**GAUGES—WOOD**

Buck Bros., Millbury, Mass.

Mack & Co., Rochester, N. Y. ("D. R. Barton").

James Swan Co., Seymour, Conn.

**GRADERS—SUB**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**GRAINS—GARNET**

Wausau Abrasives Co., Wausau, Wis.

**GRANITE—ARTIFICIAL**

Art Stone Co., Waynesboro, Pa.

**GRANULES—SLATE**

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

**GRATES—FIREPLACE**

Hornet Mantel Co., 1112 Market St., St. Louis, Mo.

Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

Stover Mfg. & Engine Co., Freeport, Ill.

**GRATINGS—IRON**

Badger Wire & Iron Works, Milwaukee, Wis.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

Sterling Foundry Co., Sterling, Ill. (Foundation).

**GRATINGS—STEEL**

American 3 Way-Luxfer Prism Co., Cicero, Ill.

Badger Wire & Iron Works, Milwaukee, Wis.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GRATINGS—WIRE**

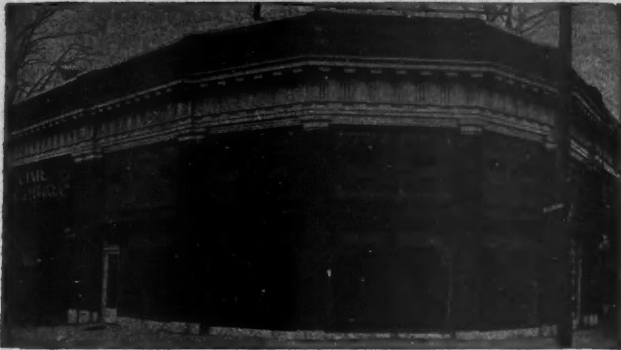
Badger Wire & Iron Works, Milwaukee, Wis.

Central Wire & Iron Works, Des Moines, Ia.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GRILLES—STEEL AND WIRE**

International Steel & Iron Co., Evansville, Ind.



## Sell Daylight

**T**HE store that is illuminated entirely by daylight does a better business — pays a better rental. When you build or remodel a store front, show the owner how it will pay him to have you fit the transom lights with panels of

### 3 WAY-LUXFER PRISMS

They are the only known scientific method of projecting daylight into dark interiors. Eliminate need of artificial light in daytime. Can be set as easily as a pane of glass.

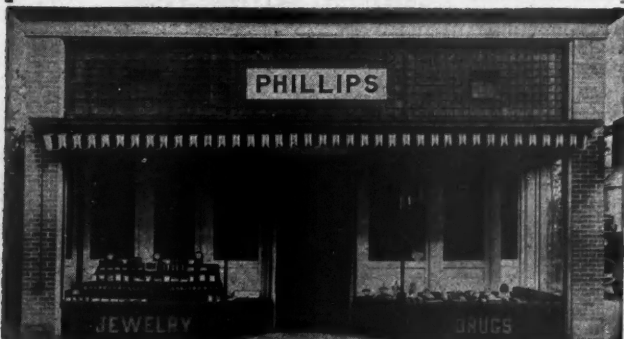
Made up with colored glass signs where desired. Fitted with self-locking ventilators.

*Write for Details and Prices*

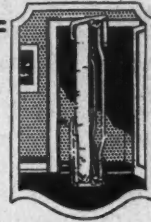
#### AMERICAN 3 WAY-LUXFER PRISM COMPANY

1307 S. 55th Court  
139 Spring Street

CICERO, ILLINOIS  
NEW YORK CITY



## The MURPHY IN-A-DOR BED



**T**HE MURPHY IN-A-DOR BED is a sanitary — comfortable all metal — a "regular" bed (full size or twin) pivoted to the jamb and threshold of a standard closet door. The simple mechanism enables it to swing through the doorway — and to be lowered into place with utmost ease. This bed is perfectly balanced — it cannot close accidentally. The bed clothing is kept in place in any position.

### Consult Our Service Department

We have a complete technical service department which is co-operating with architects and builders. We will help you with your floor plan scheme. No charge or obligation whatever. We will be glad to furnish you with specifications and detailed information. (Write for illustrated and descriptive folder on the Murphy Ironing Board and Cabinet.)

*Send today for descriptive literature*

### The MURPHY DOOR BED CO.

22 West Monroe Street, Chicago  
469 Fifth Avenue, New York  
1534 Blake Street, Denver  
912 Kresge Bldg., Detroit, Mich.  
205 O'Connor St., Ottawa, Can.  
Crocker Bldg., San Francisco  
Chemical Bldg., St. Louis  
709 Second Avenue, Seattle, Wash.  
1140-1142 Hanna Bldg., Cleveland  
1021-23 Grand Ave., Kansas City  
220 North St. Paul St., Dallas, Texas  
204 Peach Tree Arcade, Atlanta, Ga.



*There is only  
one "In-A-Dor"  
Bed—  
"It's A Murphy"*

*There is only  
one "In-A-Dor"  
Bed—  
"It's A Murphy"*

**GRINDERS—DISK**

Crescent Machine Co., Leontonia, O. ("Crescent").  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Wausau Abrasives Co., Wausau, Wis.  
**GRINDERS—STONE FLOOR (ELECTRIC)**  
 M. L. Schleuter, 225 W. Illinois St., Chicago, Ill.

**GRINDERS—TOOL**

S. Chaney & Son, Manlius, N. Y. ("Fowler," "Ajax," "Royal," "Farmo").  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Richards-Wilcox Mfg. Co., Aurora, Ill.

**GRINDSTONES**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Whisler Mfg. Co., Gibson, Ia. ("Sampson," "Little Fairy" power grindstone shafts).

**GROUTERS—CEMENT**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich. ("Abram").  
 American Cement Machine Co., Keokuk, Ia. ("Boss").  
 Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**GUARDS—DOOR**

Badger Wire & Iron Works, Milwaukee, Wis.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
**GUARDS—JAMB AND CORNER**  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—RADIATOR**

Central Wire & Iron Works, Des Moines, Ia.  
 International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—SAFETY**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
 Central Wire & Iron Works, Des Moines, Ia.  
 Crescent Machine Co., Leontonia, O.  
 Huther Bros. Saw Mfg. Co., Rochester, N. Y.  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—SKYLIGHT**

Badger Wire & Iron Works, Milwaukee, Wis.  
 Central Wire & Iron Works, Des Moines, Ia.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 Willis Mfg. Co., Galesburg, Ill.

**GUARDS—SNOW**

Edwards Mfg. Co., Cincinnati, O.  
 Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
 F. C. Sheldon Slate Co., Granville, N. Y.

**GUARDS—STALL**

Badger Wire & Iron Works, Milwaukee, Wis.  
 Central Wire & Iron Works, Des Moines, Ia.  
 International Steel & Iron Co., Evansville, Ind.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
 Mast, Foss & Co., Springfield, O. ("Buckeye").  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 J. E. Porter Co., Ottawa, Ill.

**GUARDS—WHEEL**

Donley Bros. Co., Cleveland, O. ("Donley").

**GUARDS—WINDOW**

Badger Wire & Iron Works, Milwaukee, Wis.  
 Central Wire & Iron Works, Des Moines, Ia.  
 Edwards Mfg. Co., Cincinnati, O.  
 Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
 International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Willis Mfg. Co., Galesburg, Ill.

**GUM—ART**

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

**HAMMERS**

Gray Iron Foundry Co., Reading, Pa.  
 Griffith Tool Works, 518 Commerce St., Philadelphia, Pa.  
 Stanley Works, New Britain, Conn.  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.

**HANGERS—ACCORDION DOOR**

Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—BARN DOOR**

Allith-Prouty Co., Danville, Ill. ("Reliable," "Watershed," and trolley).  
 Frantz Mfg. Co., Sterling, Ill.  
 Lane Bros. Co., Poughkeepsie, N. Y.  
 F. E. Myers & Bro. Co., Ashland, O.  
 National Mfg. Co., Sterling, Ill.  
 J. E. Porter Co., Ottawa, Ill. ("Hummer," "Double V," "Straightway").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Wagner Mfg. Co., Cedar Falls, Ia. ("Closetite").

**HANGERS—CLOTHES**

Knappe & Vogt Mfg. Co., Grand Rapids, Mich.

**HANGERS—EAVES TROUGH**

Burrell Mfg. & Supply House, Kankakee, Ill.  
 Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

**HANGERS—ELEVATOR DOOR**

Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—FIXTURE**

Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").

**HANGERS—GARAGE DOOR**

Allith-Prouty Co., Danville, Ill. ("01080" and trolley).  
 Frantz Mfg. Co., Sterling, Ill.  
 Lane Bros. Co., Poughkeepsie, N. Y.  
 National Mfg. Co., Sterling, Ill.  
 J. E. Porter Co., Ottawa, Ill.  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("Slidelite," "R-W").  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—GARMENT**

Knappe & Vogt Mfg. Co., Grand Rapids, Mich.  
 Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Biteway").

**HANGERS—HOUSE DOOR**

Allith-Prouty Co., Danville, Ill. ("Prouty").  
 Lane Bros. Co., Poughkeepsie, N. Y.  
 National Mfg. Co., Sterling, Ill. ("Big 4," "Storm Proof," "National").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—JOIST**

International Steel & Iron Co., Evansville, Ind.

**HANGERS—PARTITION (SLIDING)**

Lane Bros. Co., Poughkeepsie, N. Y.  
 Allith-Prouty Co., Danville, Ill. ("Allith").  
 Richards-Wilcox Mfg. Co., Aurora, Ill.

**HANGERS—PIPE**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U. S. E.").

**HANGERS—SCREEN**

Allith-Prouty Co., Danville, Ill.  
 Frantz Mfg. Co., Sterling, Ill.  
 National Mfg. Co., Sterling, Ill.  
 J. E. Porter Co., Ottawa, Ill.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—SPRINKLER PIPE**

The Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").

**HANGERS—STORM SASH**

Frantz Mfg. Co., Sterling, Ill.  
 National Mfg. Co., Sterling, Ill.  
 The Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").  
 J. E. Porter Co., Ottawa, Ill.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HARDENERS—CEMENT**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
 Wadsworth, Howland & Co., Boston, Mass.

**HARDENERS—FLOOR**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro" integral).  
 Living-Stone Co., Baltimore, Md. ("Lithotex").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
 Wadsworth, Howland & Co., Boston, Mass.

**HARDWARE—CASEMENT WINDOW**

Allith-Prouty Co., Danville, Ill. ("Allith").  
 Mallory Mfg. Co., Flemington, N. J.  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("Air-Way").  
 Sager Lock Co., North Chicago, Ill.  
 Stanley Works, New Britain, Conn.  
 Whitney Window Corp., 132 E. Lake St., Minneapolis, Minn. ("Whitney").

**HARDWARE—DOOR**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y. ("Bommer").  
 Chicago Spring Butt Co., Union Park Ct., Chicago, Ill.  
 Ervin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Tabor").  
 National Mfg. Co., Sterling, Ill.  
 Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Sager Lock Co., North Chicago, Ill.  
 Sargent & Co., New Haven, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HARDWARE—FIRE DOOR**

Allith-Prouty Co., Danville, Ill. ("Allith").  
 Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
 Lane Bros. Co., Poughkeepsie, N. Y.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Sargent & Co., New Haven, Conn.  
 Willis Mfg. Co., Galesburg, Ill.

**HARDWARE—GARAGE**

Allith-Prouty Co., Danville, Ill.  
 Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
 Frantz Mfg. Co., Sterling, Ill.  
 Lane Bros. Co., Poughkeepsie, N. Y.  
 Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill.  
 National Mfg. Co., Sterling, Ill.  
 J. E. Porter Co., Ottawa, Ill. ("Straightaway").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HARDWARE—LAVATORY**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**LAWSON MFG. CO.**

Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson").

**SARGENT & CO.**

Sargent & Co., New Haven, Conn.

**HARDWARE—SCREEN**

Ankyra Mfg. Co., 149 Berkley St., Philadelphia, Pa. ("Ankyra").  
 Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
 Frantz Mfg. Co., Sterling, Ill.  
 Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson").  
 National Mfg. Co., Sterling, Ill.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**HATCHETS—LATHING**

Griffith Tool Works, 518 Commerce St., Philadelphia, Pa.  
 Mack & Co., Rochester, N. Y. ("D. R. Barton").  
 L. A. Sayre & Co., 334 Mulberry St., Newark, N. J.  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.

**HATCHETS—SHINGLING**

L. A. Sayre & Co., 334 Mulberry St., Newark, N. J.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.

**HEADS—DADO**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

Woodworker Mfg. Co., Detroit, Mich.

**HEADS—JOINTER**

Crescent Machine Co., Leontonia, O. ("Crescent").  
 Oliver Machine Co., Grand Rapids, Mich.  
 Silver Mfg. Co., Salem, O.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 Woodworker Mfg. Co., Detroit, Mich.

**HEADS—SHAPE**

Crescent Machine Co., Leontonia, O.  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Parks Ball Bearing Machine Co., Cincinnati, O.

**HEATERS—GARAGE**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Haynes-Langenberg Mfg. Co., St. Louis, Mo. ("Front Bank").  
 P. M. Lattner Mfg. Co., Cedar Rapids, Ia. ("Lattner" automatic).

**HEATERS—ROOM**

Campbell Heating Co., Des Moines, Ia.  
 General Gas Light Co., Kalamazoo, Mich.  
 Haynes-Langenberg Mfg. Co., St. Louis, Mo. ("Front Bank").  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**HEATERS—TANK**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
 Burrell Mfg. & Supply House, Kankakee, Ill.  
 W. E. Caldwell Co., Louisville, Ky.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Hero Furnace Co., Sycamore, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Sterling Foundry Co., Sterling, Ill. ("B-et").  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**HEATERS—WATER**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Hero Furnace Co., Sycamore, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 P. M. Lattner Mfg. Co., Cedar Rapids, Ia. ("Lattner" duplex combination).



# WAUSAU

## "Ruff-Stuff"

### For Smooth Work

As miners, crushers and refiners of our own deposits of Quartz and Garnet in Wisconsin and New Hampshire, we are in a position to insure a high grade of **uniform excellence** in our finished products:

- "Wausau" Flint Paper—in Sheets and Rolls—all sizes and grits.
- "Pioneer" Flint Paper—all sizes and grits, Sheets only.
- "Wausau" Garnet Paper—in Sheets and Rolls—all sizes and grits.
- "Wausau" Garnet Cloth—in Rolls only.

Our location at Wausau, in the heart of the paper-mill country, gives us an advantage in personal contact with the mills making the special grade of tough pliable paper which we use for our products.

### Wausau Metal Abrasives

Are made with two superior abrasive materials—

"WAUSITE"—a product of the electric furnace; The hardest, sharpest, most uniform artificial abrasive ever produced. We offer

- "Wausite" Cloth.
- "Wausite" Wasteproof Strips.
- "Wausite" Grinding Discs.

**EMERY**—Best imported grades used in the manufacture of

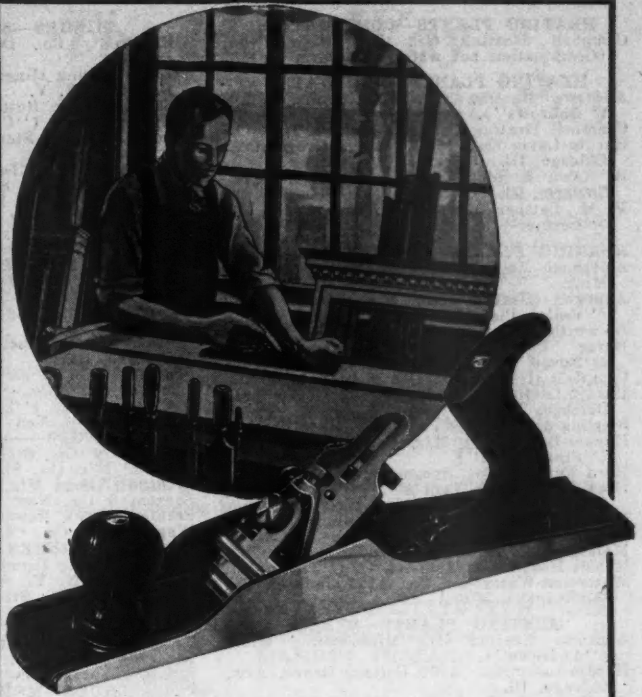
- Wausau Emery Paper—Sheets and Rolls.
- Wausau Emery Cloth.

### Wausau "Ruff-Stuff" Does Smooth Work Because

our up-to-date equipment and our personal care in sizing the grits insures you against the "scratchers" so often found in cheap sandpaper.

*Send for Free Samples* of any of our abrasive cloths or papers and get our prices.

**Wausau Abrasives Co.**  
Wausau, Wisconsin, U. S. A.



## Good Carpenters Demand Good Tools

The more particular a carpenter is about the tools he uses, the more likely he is to select Sargent Planes and Squares.

Chief among the Sargent family of planes is the Auto-Set Bench Plane. With this plane you can remove the blade for sharpening and replace it again in exactly the same position, without readjustment. Made in six sizes. The Sargent book of planes will give full information about this and other Sargent Planes and will be sent free on request.

Sargent Framing Squares eliminate the usual figuring required to get the lengths and cuts of hip, valley, jack and common rafters. The necessary tables are on the square. Simply measure and read. Sargent Framing Squares are made of the best steel in nine finishes. Send for the Sargent Steel Square booklet.

**SARGENT & COMPANY**

Hardware Manufacturers

51 Water Street

New Haven, Conn.

**SARGENT**

LOCKS AND HARDWARE

**HEATING PLANTS—COMBINATION**

Campbell Heating Co., Des Moines, Ia. (Combination hot water and warm air).

**HEATING PLANTS—HOT WATER**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Campbell Heating Co., Des Moines, Ia.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
P. M. Lattner Mfg. Co., Cedar Rapids, Ia. ("Lattner" automatic).

**HEATING PLANTS—PIPELESS FURNACE**

American Bell & Foundry Co., Northville, Mich.  
Andrews Heating Co., Minneapolis, Minn. ("Boiler Plate").  
Beckwith Co., Dowagiac, Mich.  
Bovee Furnace Works, Waterloo, Ia. ("Bovee").  
Campbell Heating Co., Des Moines, Ia.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Sterling Foundry Co., Sterling, Ill. ("Best").  
Haynes-Laurenberg Mfg. Co., St. Louis, Mo. ("Front Bank").  
Hero Furnace Co., Sycamore, Ill.  
Hess Warming & Vent'g Co., Tacoma Bldg., Chicago, Ill. ("Hess" welded steel).  
Holland Furnace Co., Holland, Mich. ("Holland").  
Majestic Co., Huntington, Ind.  
Eybolt Heater Co., Ashland, O. ("Thermo").  
Waterman-Waterbury Co., 1121 Jackson St., Minneapolis, Minn.

**HEATING PLANTS—STEAM**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 Kedzie Ave., Chicago, Ill.  
P. M. Lattner Mfg. Co., Cedar Rapids, Ia. ("Lattner" automatic).

**HEATING PLANTS—VAPOUR SYSTEM**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

**HEATING PLANTS—WARM AIR FURNACE**

American Bell & Foundry Co., Northville, Mich.  
Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Beckwith Co., Dowagiac, Mich.  
Bovee Furnace Works, Waterloo, Ia. ("Bovee").  
Campbell Heating Co., Des Moines, Ia.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Haynes-Laurenberg Mfg. Co., St. Louis, Mo. ("Front Bank").  
Hero Furnace Co., Sycamore, Ill.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill. ("Hess" welded steel).  
Holland Furnace Co., Holland, Mich. ("Holland").  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Majestic Co., Huntington, Ind.  
Waterman-Waterbury Co., Minneapolis, Minn.

**HINGES—BLIND AND SHUTTER**

Sargent & Co., New Haven, Conn.

**HINGES—BUTT**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill.  
Frants Mfg. Co., Sterling, Ill.  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Rapids, Ia.

**HINGES—FLOOR**

Allith-Prouty Co., Danville, Ill. ("Squaw," "Prouty").  
Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y. ("Bommer").  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill. ("Relax," "Premier," "Ajax").  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson").  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.  
Stover Mfg. & Engine Co., Freeport, Ill.

**HINGES—GATE**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill. ("Sagless").  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.

**HINGES—SCREEN DOOR**

Allith-Prouty Co., Danville, Ill. ("King" spring).  
Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill. ("Chicago").  
Frants Mfg. Co., Sterling, Ill.  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson").  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Stover Mfg. & Supply Co., Freeport, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HINGES—SPRING**

Allith-Prouty Co., Danville, Ill. ("King" spring).  
Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., Union Park Ct., Chicago, Ill.  
Frants Mfg. Co., Sterling, Ill.  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson").  
Sargent & Co., New Haven, Conn.

**HINGES—STRAP AND T**

Frants Mfg. Co., Sterling, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Danville, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HINGES—SURFACE**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y. ("Bommer").  
Frants Mfg. Co., Sterling, Ill.  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Stanley Works, New Britain, Conn.

**HOES—MORTAR MIXING**

Abram Cement Tool Co., 3313 Grand River Ave., Detroit, Mich.

**HOISTS—BARNDORF**

Shrauger & Johnson, Atlantic, Ia.

**HOISTS—CELLAR**

J. G. Speidel, Reading, Pa.

**HOISTS—CHAIN**

J. G. Speidel, Reading, Pa. ("Simplex," Also stationary chain hoists).

**HOISTS—ELECTRIC**

American Cement Machine Co., Keokuk, Ia. ("Boss").  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").  
American Saw Mill Machinery Co., Hacketts-town, N. J.  
Construction Machinery Co., Waterloo, Ia.  
Highwood Dumbwaiter Co., Leonia, N. J.  
Kimball Bros. Co., Council Bluffs, Ia. (Ash).  
Lansing Co., Lansing, Mich.  
O. K. Clutch & Machinery Co., Columbia, Pa. ("O. K.").  
Sidney Elevator Mfg. Co., Sidney, O.  
Standard Scale & Supply Co., Pittsburgh, Pa.  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOISTS—FRICTION**

American Cement Machine Co., Keokuk, Ia.

Lansing Co., Lansing, Mich.

O. K. Clutch & Machinery Co., Columbia, Pa. ("O. K.").

J. E. Porter Co., Ottawa, Ill. (Single lever).

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

**HOISTS—FUEL**

Sidney Elevator Mfg. Co., Sidney, O. (Hand-power).

**HOISTS—GASOLINE**

American Cement Machine Co., Keokuk, Ia. ("Boss").

American Saw Mill Machinery Co., Hacketts-town, N. J. ("American").

C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

Construction Machinery Co., Waterloo, Ia.

Contractors Equipment Co., Keokuk, Ia.

Ideal Engine Co., Lansing, Mich. (Light and heavy-duty single and double-drum hoists).

Jaeger Machine Co., Columbus, O.

Judy Mfg. Co., Centerville, Ia. ("The General").

Knickerbocker Co., Jackson, Mich. ("Knickerbocker").

Lansing Co., Lansing, Mich.

O. K. Clutch & Machinery Co., Columbia, Pa. ("O. K.").

T. L. Smith Co., Milwaukee, Wis.

Standard Scale & Supply Co., Pittsburgh, Pa.

Witte Engine Works, Kansas City, Mo.

**HOISTS—HAND**

Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
Highwood Dumbwaiter Co., Leonia, N. J.  
International Steel & Iron Co., Evansville, Ind.  
Judy Mfg. Co., Centerville, Ia. ("The General").  
Lane Bros. Co., Poughkeepsie, N. Y.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Shrauger & Johnson, Atlantic, Ia.  
Sidney Elevator Mfg. Co., Sidney, O.  
J. G. Speidel, Reading, Pa.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOISTS—INVALID**

Sidney Elevator Mfg. Co., Sidney, O.

**HOISTS—MAST**

Insley Mfg. Co., Indianapolis, Ind.

**HOISTS—ROPE**

Highwood Dumbwaiter Co., Leonia, N. J.  
Lane Bros. Co., Poughkeepsie, N. Y.  
Samson Cordage Works, 85 Broad St., Boston, Mass. ("Samson").  
Sidney Elevator Mfg. Co., Sidney, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HOISTS—STEAM**

Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOLDERS—DOOR**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Caldwell Mfg. Co., Rochester, N. Y. ("Empire," "Caldwell," "Caldwell, Jr.").  
Frants Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Sterling Foundry Co., Sterling, Ill. ("Best").  
Wagner Mfg. Co., Cedar Falls, Ia.

**HOLDERS—SASH**

Hardware Sales Co., 30 Church St., New York, N. Y. ("Automatic").  
Sager Lock Co., North Chicago, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HOOKS—TILE**

Donley Bros. Co., Cleveland, O. ("Donley" for handling back-up tile).

**HOPPERS—CONCRETE**

Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.

**HOUSES—GARDEN**

Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

**INKS—DRAWING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.  
New York Blue Print Paper Co., 102 Reade St., New York, N. Y.  
Peerless Blue Print Co., 345 Fifth Ave., New York, N. Y.  
Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa. ("Weber").

**INSERTS—CONCRETE**

Corrugated Bar Co., Mutual Life Bldg., Buffalo, N. Y.  
Donley Bros. Co., Cleveland, O. ("Donley").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Truscon Steel Co., Detroit, Mich.

**INSTRUMENTS—DRAWING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
Keuffel & Esser Co., Hoboken, N. J.  
National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.  
New York Blue Print Paper Co., 102 Reade St., New York, N. Y.  
Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa. ("Ruffer," "Sphinx," "Cosmos," "Eclipse").  
David White Co., Milwaukee, Wis. ("White's Improved").

**INSTRUMENTS—SURVEYING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
L. Beckmann Co., 1002 Jackson St., Toledo, O.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
International Corres. Schools, Scranton, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
New York Blue Print Paper Co., 102 Reade St., New York, N. Y.  
Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa. ("Sterling").  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").

**INSULATION—COLD STORAGE**

Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco").  
Samuel Cabot, Inc., 141 Milk St., Boston, Mass.  
Cornell Wood Products Co., 190 N. State St., Chicago, Ill.  
International Insulation Co., St. Paul, Minn.  
H. W. Johns-Manville Co., 41st and Madison Ave., New York, N. Y.



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**IRON—ARCHITECTURAL**

Badger Wire & Iron Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**IRONS—ANGLE**

International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Stover Mfg. & Engine Co., Freeport, Ill.  
Youngstown Pressed Steel Co., Warren, O.

**IRONS—PLANE**

Buck Bros., Millbury, Mass.  
Mack & Co., Rochester, N. Y. ("D. R. Barton")  
Sargent & Co., New Haven, Conn.  
L. & I. J. White Co., Buffalo, N. Y.

**JACKS—HOUSE MOVING**

LaPlant-Chaste Mfg. Co., Cedar Rapids, Ia.  
("LaPlant-Chaste").

**JACKS—LADDER**

Steel Scaffolding Co., Evansville, Ind.

**JAMES—DOOR (STEEL)**

International Steel & Iron Co., Evansville, Ind.

**JOINTERS—MASONS**

Abram Cement Tool Co., Detroit, Mich.  
("Abram").

**JOINTERS—WOODWORKING**

American Saw Mill Machinery Co., Hackettstown, N. J. ("American")  
Crescent Machine Co., Leontonia, O. ("Crescent")

Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
Standard Scale & Supply Co., Pittsburgh, Pa.  
Woodworker Mfg. Co., Detroit, Mich.

**JOINTS—CONTRACTION**

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")  
Truscon Steel Co., Detroit, Mich.

**JOINTS—EXPANSION**

C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.")  
Truscon Steel Co., Detroit, Mich.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised" Type B.)

**JOISTS—PRESSED STEEL**

Central Steel Co., Massillon, O. ("National")  
International Steel & Iron Co., Evansville, Ind.  
National Pressed Steel Co., Massillon, O.  
Truscon Steel Co., Detroit, Mich.

**KALBOMINE**

M. Ewing Fox Co., 186th and Rider, New York, N. Y. ("Muralite," "Calcitrine")  
Patton Paint Co., Milwaukee, Wis.  
Wadsworth, Howland & Co., Boston, Mass.

**KITCHENETTES**

Frank S. Betz Co., Hammond, Ind. ("Kitchenettes")  
Bisk Corp., Brockton, Mass.  
Electric Kitchenet Co., Fort Wayne, Ind. ("Kozy-Kitch")  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**KITCHENS—STEEL**

Frank S. Betz Co., Hammond, Ind. ("Kitchenettes")  
Bisk Corp., Brockton, Mass.  
Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill. ("Majestic")

**KNIVES—DRAW**

Buck Bros., Millbury, Mass.  
Mack & Co., Rochester, N. Y. ("D. R. Barton")  
James Swan Co., Seymour, Conn.  
L. & I. J. White Co., Buffalo, N. Y.

**KNIVES—MOULDING**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins")  
Henry Diston & Sons, Philadelphia, Pa.  
Mack & Co., Rochester, N. Y. ("D. R. Barton")

Oliver Machinery Co., Grand Rapids, Mich.  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
L. & I. J. White Co., Buffalo, N. Y.  
Woodworker Mfg. Co., Detroit, Mich.

**KNIVES—PLANE**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins")  
Crescent Machine Co., Leontonia, O. ("Crescent")  
Henry Diston & Sons, Philadelphia, Pa.  
Mack & Co., Rochester, N. Y. ("D. R. Barton")  
Oliver Machinery Co., Grand Rapids, Mich.  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
L. & I. J. White Co., Buffalo, N. Y.

**KNOCKERS—DOOR**

Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.

**LADDERS**

Allith-Prouty Co., Danville, Ill. ("Reliable" rolling store).  
W. E. Caldwell Co., Louisville, Ky.  
International Steel & Iron Co., Evansville, Ind.  
F. E. Myers & Bro. Co., Ashland, O. ("Myers" store).  
Richards-Wilcox Mfg. Co., Aurora, Ill. (Store).

**LATCHES**

Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y.  
Frantz Mfg. Co., Sterling, Ill.  
National Mfg. Co., Sterling, Ill.  
J. E. Porter Co., Ottawa, Ill.  
Stover Mfg. & Engine Co., Freeport, Ill.

**LATH—EXPANDED METAL**

Central Steel Co., Massillon, O. ("Universal")  
Concrete Engineering Co., Omaha, Neb. ("Ceco")  
Corrugated Bar Co., Buffalo, N. Y.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Netmesh")  
National Pressed Steel Co., Massillon, O.  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Nemco")  
Sykes Metal Lath & Roofing Co., Niles, O.  
Truscon Steel Co., Detroit, Mich.  
Willis Mfg. Co., Galesburg, Ill.  
Youngtown Pressed Steel Co., Warren, O. ("Mahoning," "Warren," "Ideal")

**LATH—METAL**

American Sheet & Tin Plate Co., Pittsburgh, Pa. ("Cambridge," "Rigid," "Reversible")  
Central Steel Co., Massillon, O. ("Universal")  
Concrete Engineering Co., Omaha, Neb. ("Ceco")  
Corrugated Bar Co., Buffalo, N. Y.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

National Pressed Steel Co., Massillon, O.  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Kno-Burn," "Eureka," "Kno-Fur," "XXth Century," "Chanelath")  
Sykes Metal Lath & Roofing Co., Niles, O.  
Truscon Steel Co., Detroit, Mich.  
Willis Mfg. Co., Galesburg, Ill.  
Youngtown Pressed Steel Co., Warren, O. ("Mahoning," "Ideal," "Zee")

**LATH—SHEATHING**

MacAdams & Call, 1731 Conway Bldg., Chicago, Ill. ("E-Cod Fabric")

**LATH—WIRE**

Concrete Engineering Co., Omaha, Neb. ("Ceco")  
Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
Willis Mfg. Co., Galesburg, Ill.

**LATH—WOOD**

Morgan Co., Oshkosh, Wis.

**LATHES—WOODWORKING**

W. F. & Jno. Barnes Co., Rockford, Ill.  
Oliver Machinery Co., Grand Rapids, Mich.  
T. B. Rayl Co., Detroit, Mich.  
Sidney Machine Tool Co., Sidney, O.

**LAVATORIES**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Kohler Co., Kohler, Wis. (Barber, dental, battery, built-in. ("Balmore," "Bevo," "Bretton," "Clare," "Columbia," "Emmet," "Kenneth," "Naro-Bol," "Prison"))

**LETTERS—METAL**

International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.

**LEVELS—BUILDERS**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
L. Beckmann Co., 1002 Jackson St., Toledo, O.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
Henry Diston & Sons, Philadelphia, Pa.  
Geier & Blumh, Troy, N. Y. ("G. & B.")  
Keuffel & Esser Co., Hoboken, N. J.  
T. B. Rayl Co., Detroit, Mich.  
J. Sand & Son, 4841 Rivard St., Detroit, Mich. ("Sands")  
Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa. ("Sterling")  
F. Weber Co., 1220 Butonwood St., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved")

**LEVELS—CARPENTERS**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
Henry Diston & Sons, Philadelphia, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
T. B. Rayl Co., Detroit, Mich.  
J. Sand & Son, 4841 Rivard St., Detroit, Mich. ("Sands")  
Southington Hardware Co., Southington, Conn.  
Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa. ("Sterling")  
F. Weber Co., 1220 Butonwood St., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved")

**LEVELS—FARM**

Geier & Blumh, Troy, N. Y. ("G. & B.")

**LIFTS—LOG**

Highwood Dumbwaiter Co., Leonia, N. J.

**LIFTS—MAN**

Sidney Elevator Mfg. Co., Sidney, O. (Hand and electric)

**LIFTS—SASH**

Frantz Mfg. Co., Sterling, Ill.  
National Mfg. Co., Sterling, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn. ("Sargent")

**LIFTS—TRANSOM**

T. B. Rayl Co., Detroit, Mich.  
Sargent & Co., New Haven, Conn. ("Sargent")

**LIGHTING SYSTEMS—ELECTRIC**

Andrews Heating Co., Minneapolis, Minn.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee")  
Kohler Co., Kohler, Ill. ("Kohler" automatic power and light, 110-volt, d. c.)  
Milwaukee Air Power Pump Co., Milwaukee, Wis. ("Milwaukee Air Power" domestic and individual non-storage water supply and electric light systems)  
Union Metal Mfg. Co., Canton, O. (Ornamental)

**LIGHTS—FLOOR**

American 3-Way Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
Fred J. Meyers Mfg. Co., Hamilton, O.

**LIGHTS—PRISM**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**LIGHTS—SIDEWALK**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Union Metal Mfg. Co., Canton, O. (Ornamental steel)

**LIGHTS—VAULT**

International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**LIME—HYDRATED**

U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Ivory")

**LINES—CHALK**

Abram Cement Tool Co., Detroit, Mich.  
Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson")  
Silver Lake Co., Newtonville, Mass.

**LINES—DRAG**

Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**LINES—GUY**

Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**LINES—MASON'S**

Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson")

**LINING—FLUE**

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile floor flue, chimney, etc.)

**LOADERS—CAR**

American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
Atlas Engineering Co., Milwaukee, Wis. ("Atlas")  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**LOADERS—WAGON**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas")  
Judy Mfg. Co., Centerville, Ia. ("Speeder")  
T. L. Smith Co., Milwaukee, Wis.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**LOCKERS—METAL**

Badger Wire & Iron Works, Milwaukee, Wis.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.

**LOOKS—DOOR**

Frantz Mfg. Co., Sterling, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.



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for the

## HERO HEATED HOUSE

Because of the ample circulation of warm air which expands into every corner of the house from this scientifically constructed furnace.

And not only is there plenty of heat, but also plenty of moisture—not that dry, uncomfortable, unhealthy heat—but pure, moist air, free from dust and germs, which the doctors say is necessary to good health.

This is a special feature of the—

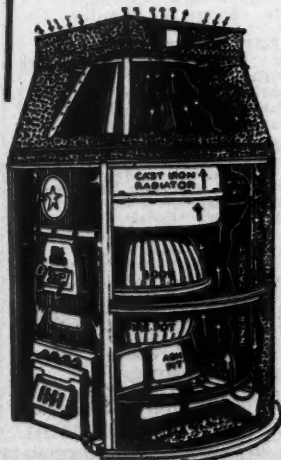
### PIPELESS HERO FURNACES

Special air-washer, humidifier system, with the base of the heater entirely surrounded by water pans.

Agents make quick, easy sales, due to the scientific design and special features of the Hero.

Many advertising and sales helps given by the close co-operation of the Advertising and Sales Departments.

This is the best Winter season in years and next Spring will be even better. Secure this profitable agency now—it will pay you handsomely for either whole or part time.



*Write today and learn what handsome profits our other agents are making.*

## HERO FURNACE CO.

Formerly of Chicago

SYCAMORE, ILLINOIS

## HUTHER SAWS

MEAN ECONOMICAL PRODUCTION

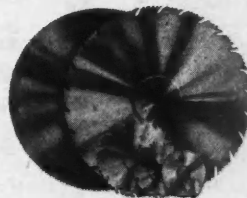
Backed by an experience of more than 50 years in successful saw manufacturing, Huther Saws can be depended upon for their accuracy, durability and freedom from flaw.

### HUTHER BROTHERS DADO HEAD



To facilitate intricate cutting and grooving. Consists of two outside cutters, and enough inside cutters to perform the required operation. Outside cutters can be used singly or in pairs as desired. May be obtained in many different sizes. We were the original patentees of this type of saw.

### HUTHER BROTHERS HOLLOW GROUND SAWS



These saws are noted for the accuracy with which they are ground. Free cutting that leaves a smooth even surface. Now being used by hundreds of woodworkers, furniture manufacturers and cabinet makers.

Write for illustrated catalogue describing these and all other Huther Saws. Order the size you prefer by return mail and return if not satisfactory.

**Huther Bros. Saw Mfg. Co.**  
ROCHESTER, N. Y.

**LOOKS—SASH**

Caldwell Mfg. Co., Rochester, N. Y. ("Empire" sash and locks).  
 Frantz Mfg. Co., Sterling, Ill.  
 National Mfg. Co., Sterling, Ill.  
 Sager Lock Co., North Chicago, Ill.  
 Sargent & Co., New Haven, Conn. ("Sargents").

**LOGS—GAS**

Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
 Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**LUGS—SILO**

W. E. Caldwell Co., Louisville, Ky.

**LUGS—TANK**

Baltimore Cooperage Co., Baltimore, Md.  
 W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

**LUMBER MANUFACTURERS**

California Redwood Ass., Exposition Bldg., San Francisco, Cal. (Redwood for all purposes).  
 Long-Bell Lumber Co., Kansas City, Mo. ("Southern" pine lumber and timbers, crosscut lumber, timber, posts, poles, ties, piling, wood blocks; California white pine lumber; sash and doors; standardized woodwork; gum and oak lumber; oak flooring).  
 Oak Flooring Mfrs. Ass., Ashland Block, Chicago, Ill.  
 Pacific Lumber Co., McCormick Bldg., Chicago, Ill.  
 Southern Cypress Mfrs. Ass., Hibernia Bank Bldg., New Orleans, La.  
 Wood Mosaic Co., New Albany, Ind.

**LUMBER—ASBESTOS**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
 H. W. Johns-Manville Co., Madison and 41st, New York, N. Y. ("Johns-Manville" asbestos wood, ebony asbestos wood).  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").

**LUMBER—CREOSOTED**

Long-Bell Lumber Co., Kansas City, Mo. ("Lone-Bell" fence posts, poles, piling, timbers).

**LUMBER—STEEL**

Central Steel Co., Massillon, O. ("National").  
 Federal Bridge & Structural Co., Waukegan, Wis.  
 International Steel & Iron Co., Evansville, Ind.

**MANTELS—BRICK**

Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**MANTELS—MARBLE**

Art Stone Co., Waynesboro, Pa.

**MANTELS—TILE**

Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
 Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**MANTELS—WOOD**

Gould Mfg. Co., Oshkosh, Wis.  
 Hornet Mantel Co., 1112 Market St., St. Louis, Mo.  
 Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**MARBLE—ARTIFICIAL**

Art Stone Co., Waynesboro, Pa. ("Artisto").

**MARQUEES**

International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 Milwaukee Corrugating Co., Milwaukee, Wis. ("Milcor").  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Willis Mfg. Co., Galesburg, Ill.

**METAL EXPANDED**

Concrete Engineering Co., Omaha, Neb. ("Ceco").  
 Corrugated Bar Co., Buffalo, N. Y.  
 International Steel & Iron Co., Evansville, Ind.  
 North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Econo").  
 Truscon Steel Co., Detroit, Mich.  
 Willis Mfg. Co., Galesburg, Ill.  
 Youngstown Pressed Steel Co., Warren, O. ("Youngstown").

**MILLWORK—WHOLESALE**

Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.  
 Pacific Lumber Co. of Illinois, Chicago, Ill.  
 Whitney Window Corp., Minneapolis, Minn. ("Whitney" ready-fitted sash units).

**MITERING MACHINES**

Sidney Machine Tool Co., Sidney, O.

**MIXERS—CEMENT (BATCH)**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
 A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
 American Cement Machine Co., Keokuk, Ia. ("Boss," "Builders").  
 American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
 Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor").  
 Archer Iron Works, 2488 W. 34th Pl., Chicago, Ill. ("Archer").

Atlas Engineering Co., Milwaukee, Wis.

("Atlas").  
 Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.  
 Badger Wire & Iron Works, Milwaukee, Wis. ("Kwik-Mix").

Blystone Mfg. Co., Cambridge Springs, Pa. ("Blystone").  
 Burrell Mfg. & Supply House, Kankakee, Ill. ("X-L-All").

Chain Belt Co., Milwaukee, Wis.  
 Concrete Equipment Co., Holland, Mich. ("Utility").

Construction Machinery Co., Waterloo, Ia.  
 Contractors Equipment Co., Keokuk, Ia. ("Packard").  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Frank Mfg. Co., Des Moines, Ia. ("Frank").  
 Gray Iron Foundry Co., Reading, Pa. ("Keystone" low-charging power loaders).  
 Helm Brick Machine Co., Cadillac, Mich. ("Helm").

Ideal Concrete Machinery Co., Cincinnati, O. ("Cincinnati").  
 Jaeger Machine Co., Columbus, O.  
 Judy Mfg. Co., Centerville, Ia. ("Giant").

Knickerbocker Co., Jackson, Mich. ("Knickerbocker," "Wolverine").  
 Koehring Co., Milwaukee, Wis. ("Koehring Heavy Duty," "Koehring Dandee").

Lansing Co., Lansing, Mich.  
 Little Whirlwind Mixer Co., La Crosse, Wis. ("Little Whirlwind").  
 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").

Parks Ball Bearing Machine Co., Cincinnati, O.  
 Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").  
 Sheldon Mfg. Co., Nehawka, Neb. ("Sheldon").

T. L. Smith Co., Milwaukee, Wis.  
 Standard Scale & Supply Co., Pittsburgh, Pa. ("The Standard").  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

Universal Cement Mold Co., North Milwaukee, Wis.

**MIXERS—CEMENT (CONTINUOUS)**

Burrell Mfg. & Supply House, Kankakee, Ill. ("X-L-All").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

Knickerbocker Co., Jackson, Mich. ("Coltrin").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

American Cement Machine Co., Keokuk, Ia. ("Boss," "Builders").  
 American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.

Archer Iron Works, 2488 W. 34th Pl., Chicago, Ill.  
 Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

Badger Wire & Iron Works, Milwaukee, Wis.  
 Blystone Mfg. Co., Cambridge Springs, Pa. ("Blystone").  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

Concrete Equipment Co., Holland, Mich. ("Utility").  
 Construction Machinery Co., Waterloo, Ia.  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Frank Mfg. Co., Des Moines, Ia. ("Frank").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").  
 Jaeger Machine Co., Columbus, O.

Judy Mfg. Co., Centerville, Ia.  
 Knickerbocker Co., Jackson, Mich. ("Knickerbocker").  
 Lansing Co., Lansing, Mich.

Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome," "Bantam").  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**MOLDS—CEMENT BLOCK**

Flexo-Concrete Mold Co., Cedar Rapids, Ia. ("Flexo-Crete" wet process).

**MOLDS—CEMENT BRICK**

Anchor Concrete Machinery Co., Rock Rapids, Ia.  
 Helm Brick Machine Co., Cadillac, Mich. ("Helm").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

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

**MOLDS—CEMENT CHIMNEY**

Anchor Concrete Machinery Co., Rock Rapids, Ia.  
 Concrete Equipment Co., Holland, Mich. ("Utility").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

Lansing Co., Lansing, Mich.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**MOLDS—CEMENT DRAIN TILE**

Anchor Concrete Machinery Co., Rock Rapids, Ia.  
 Concrete Equipment Co., Holland, Mich. ("Utility").

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

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

**MOLDS—CEMENT FENCE POST**

Concrete Equipment Co., Holland, Mich. ("Utility").  
 Contractors Equipment Co., Keokuk, Ia.  
 Ideal Concrete Machinery Co., Cincinnati, O.

Sheldon Mfg. Co., Nehawka, Neb. ("Sheldon-Trusty").  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**MOLDS—CEMENT SEWER PIPE**

Concrete Equipment Co., Holland, Mich. ("Utility").  
 W. E. Dunn, Mfg. Co., Holland, Mich. ("Dunn").  
 Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

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

**MOLDS—CEMENT SILO**

Anchor Concrete Machinery Co., Rock Rapids, Ia.  
 Contractors Equipment Co., Keokuk, Ia.  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

Metal Forms Corp., Milwaukee, Wis.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**MOLDS—STEP**

Helm Brick Machine Co., Cadillac, Mich. ("Helm" adjustable sill, step and cap).

**MOLDS—ORNAMENTAL CONCRETE**

Anchor Concrete Machinery Co., Rock Rapids, Ia.  
 Concrete Equipment Co., Holland, Mich. ("Utility").  
 Contractors Equipment Co., Keokuk, Ia.

Helm Brick Machine Co., Cadillac, Mich.  
 Ideal Concrete Machinery Co., Cincinnati, O. (Bench column, mantel).

**MORTISERS—DOOR LOCK**

Colgan Machinery & Supply Co., Columbus, O.  
 Sargent & Co., New Haven, Conn.

**MORTISING MACHINES**

W. F. & John Barnes Co., Rockford, Ill.  
 Black Bros. Co., Mendota, Ill.  
 Colgan Machinery & Supply Co., Columbus, O.  
 Crescent Machine Co., Leontonia, O. ("Crescent").

Oliver Machinery Co., Grand Rapids, Mich.  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 Ransome Concrete Machinery Co., Dunellen, N. J.

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

**MOSAICS**

Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**MOTORS—ELECTRIC**

Choraleon Co., Elkhart, Ind. (Electric motors and springs for phonographs).  
 Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Erwin").  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.

Sidney Machine Tool Co., Sidney, O.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**MOULDINGS—BASE (METAL)**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill. ("Brasco").  
 Detroit Show Case Co., Detroit, Mich.

**MOULDINGS—BASE (WOOD)**

Detroit Show Case Co., Detroit, Mich.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Pacific Lumber Co. of Illinois, Chicago, Ill.

**MOULDINGS—COMPOSITION**

Art Stone Co., Waynesboro, Pa.  
 Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler" asbestos).

**MOULDINGS—METAL**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill. ("Brasco").  
 Concrete Engineering Co., Omaha, Neb.  
 Detroit Show Case Co., Detroit, Mich.

Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Shrauger & Johnson, Atlantic, Ia.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**MOULDINGS—WOOD**

Andersen Lumber Co., South Stillwater, Minn.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.

**NAILERS—ROOF**

Pearson Mfg. Co., Robbinsdale, Minn.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").

**NAILERS—SHINGLE**

Pearson Mfg. Co., Robbinsdale, Minn.  
 NAILING MACHINES  
 Pearson Mfg. Co., Robbinsdale, Minn.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").

**NAILS—GALVANIZED**

Moeschl-Edwards Corrugating Co., Cincinnati, O.

# You Can Pour Concrete in Freezing Weather If You Mix It with 'ANTI-HYDRO'

No need to stop concrete work just because the temperature is below freezing. Use "ANTI-HYDRO" and keep right on.

"ANTI-HYDRO" hydrates cement perfectly at temperatures way below freezing. And in addition it makes the concrete permanently hard and absolutely waterproof—ALL IN ONE OPERATION.

In this building "ANTI-HYDRO" was used for mixing concrete in freezing weather, eliminating delay which would otherwise have been necessary.

"ANTI-HYDRO" is easy to mix because it is a liquid. Requires no skilled labor. During an unbroken period of 17 years it has been producing the most satisfactory results. Don't experiment—use "ANTI-HYDRO."

**ANTI-HYDRO WATERPROOFING CO.**  
NEWARK . . . . . NEW JERSEY



POLYTECHNIC PREPARATORY SCHOOL, BROOKLYN, N.Y., ARCH. LORD & HEWLETT



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**NAILS—ROOFING AND SLATING**

Knickerbocker Slate Corp., 158 E. 38th St., New York, N. Y.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Slatington Slate Co., Slatington, Pa.

**NAILS—SHINGLE**

Creo-Dipt Co., North Tonawanda, N. Y. ("Creo-Dipt" zinc-coated nails).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**NEWS—METAL**

International Steel & Iron Co., Evansville, Ind. (Cast iron and steel).  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel, exterior).

**OPENERS—DOOR (ELECTRIC)**

Allith-Frouthy Co., Danville, Ill. ("Electromatic" for garage doors).  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Sargent & Co., New Haven, Conn.

**OPERATORS—SAW**

Detroit Steel Products Co., Detroit, Mich.  
Sager Lock Co., North Chicago, Ill.  
Truscon Steel Co., Grand Rapids, Mich.  
Whitney Window Corp., Minneapolis, Minn. ("Whitney").

**ORNAMENTS—BRONZE**

International Steel & Iron Co., Evansville, Ind.  
Union Metal Mfg. Co., Canton, O. ("Union Metal").

**ORNAMENTS—COMPOSITION**

Art Stone Co., Waynesboro, Pa.  
Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

**ORNAMENTS—SHEET METAL**

Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville, Ind.

**ORNAMENTS—ZINC**

Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Union Metal Mfg. Co., Canton, O. ("Union Metal").

**ORNAMENTS—ZINC**

Burkett Lightning Rod Co., Fremont, O.  
International Steel & Iron Co., Evansville, Ind.

**OUTFITS—BATHROOM**

Andrews Heating Co., Minneapolis, Minn.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**OUTLETS—EAVES TROUGH**

Burrell Mfg. & Supply House, Kankakee, Ill.  
Concrete Engineering Co., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
Willis Mfg. Co., Galesburg, Ill.

**PAINTS**

Barber Asphalt Paving Co., Philadelphia, Pa. (Protective and Waterproof).  
Beaver Board Cos., Buffalo, N. Y. ("Beaver-tone").  
Bird & Son, East Walpole, Mass. (Red and Black Roofing Paint).  
Cortright Metal Roofing Co., Philadelphia, Pa. ("Cortright").  
M. Ewing Fox Co., 186th and Rider, New York, N. Y. ("Permanite" cold-water).  
H. W. Johns-Manville Co., 41st and Madison, New York, N. Y. (Asbestos, roofing).  
Eugene E. Nice, Philadelphia, Pa. ("Nice," "Yellow Shield").  
Patton Paint Co., Milwaukee, Wis. ("Sun-Proof").  
T. B. Rayl Co., Detroit, Mich.  
Ruberoid Co., 95 Madison Ave., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Wadsworth, Howland & Co., Boston, Mass.

**PAINT SPRAYING MACHINES**

DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
M. Ewing Fox Co., 186th and Rider, New York, N. Y.  
Paasche Air Brush Co., 1230 Jackson Blvd., Chicago, Ill.  
Wadsworth, Howland & Co., Boston, Mass.

**PANTOGRAPHES**

F. Weber Co., Philadelphia, Pa.

**PAPEE—ASBESTOS**

Campbell Heating Co., Des Moines, Ia.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**PAPEE—BLUEPRINT**

A. S. Aloe Co., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
International Correspondence Schools, Scranton, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
New York Blue Print Paper Co., 102 Reade St., New York, N. Y.  
Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.  
Spaulding-Moss Co., Boston, Mass.  
Wadsworth, Howland & Co., Boston, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa. (Also water-process blackprint, drawing and detail paper).

**PAPEE—BUILDING**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. (Asbestos).  
Barber Asphalt Paving Co., Philadelphia, Pa. ("Genasco").  
Bird & Son, East Walpole, Mass. ("Neponset" black, "Coted" waterproof, "American" waterproof).  
H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y.  
Ruberoid Co., 95 Madison Ave., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**PAPEE—GARNET**

Wausau Abrasives Co., Wausau, Wis.

**PAPEE—ROOFING AND SHEATHING**

Barber Asphalt Paving Co., Philadelphia, Pa. ("Genasco").  
Beaver Board Cos., Buffalo, N. Y. ("Vulcanite").  
Philip Carey Co., Cincinnati, O. (Fibrewove insulating paper).

H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y.

Richardson Co., Melrose Park, Ill. ("Flex-a-Tile" felt).

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

Stowell Mfg. Co., Jersey City, N. J.

**PARTITIONS—HOLLOW TILE**

National Fireproofing Co., Pittsburgh, Pa.

**PARTITIONS—METAL**

Frank S. Betz Co., Hammond, Ind. (Toilet).  
Bogert-Carlough Co., Paterson, N. J. (Tubular steel and glass).

Central Steel Co., Massillon, O. ("National").  
Detroit Steel Products Co., Detroit, Mich.

Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, Ohio. (Wire).

National Pressed Steel Co., Massillon, O.  
Truscon Steel Co., Detroit, Mich.

**PARTITIONS—ROLLING AND FOLDING**

Edwards Mfg. Co., Cincinnati, O.

**PARTITIONS—SLATE**

Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
Structural Slate Co., Pen Argy, Pa.

**PARTITIONS—WIRE**

Badger Wire & Iron Works, Milwaukee, Wis.  
Central Wire & Iron Works, Des Moines, Ia.

Fred J. Meyers Mfg. Co., Hamilton, O.

**PARTITIONS—WOOD**

Gould Mfg. Co., Oshkosh, Wis.  
Morgan Co., Oshkosh, Wis.

**PARTITIONS—WOOD (ROLLING)**

Swedish Venetian Blind Co., 1265 Broadway, New York.

**PARTS—PRESSED STEEL**

Youngstown Pressed Steel Co., Warren, O.

**PASTE—DEY**

Campbell Heating Co., Des Moines, Ia.  
M. Ewing Fox Co., 186th and Rider, New York, N. Y. ("Foxpaste").

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

**PAVERS—CONCRETE**

American Cement Machine Co., Keokuk, Ia. ("Boss").  
Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

Chain Belt Co., Milwaukee, Wis.  
Construction Machinery Co., Waterloo, Ia.

Koehring Co., Milwaukee, Wis. ("Koehring").  
Oshkosh Mfg. Co., Oshkosh, Wis.

Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").  
Standard Scale & Supply Co., Pittsburgh, Pa.

**PBBLEDASH**

Robbond Co., Van Wert, O.

**PEDS**

Willis Mfg. Co., Galesburg, Ill.

**PENCILS—CARPENTERS**

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

Spaulding-Moss Co., Boston, Mass.  
Warren-Knight Co., Philadelphia, Pa.

**PENCILS—DRAFTING**

A. S. Aloe Co., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

Keuffel & Esser Co., Hoboken, N. J.  
National Instrument Co., 4705 Hamilton Ave., Chicago, Ill.

New York Blue Print Paper Co., 102 Reade St., New York, N. Y.

Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.

Spaulding-Moss Co., Boston, Mass.  
Wadsworth, Howland & Co., Boston, Mass.

Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.

**PEEGOLAS**

Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).

**PHONOGRAPHS AND SUPPLIES**

Jos. Barnett & Co., Cedar Rapids, Ia. ("Barnett").  
Choraleon Phonograph Co., Elkhart, Ind.

**PIPE—FURNACE**

Andrews Heating Co., Minneapolis, Minn.  
Campbell Heating Co., Des Moines, Ia.  
Edwards Mfg. Co., Cincinnati, O.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

Hero Furnace Co., Sycamore, Ill.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill.

Milwaukee Corrugating Co., Milwaukee, Wis.  
B. Karol & Sons Co., 800 S. Kedzie, Ave., Chicago, Ill.

Willis Mfg. Co., Galesburg, Ill.

**PIPE—SEWER**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill. (Iron).

National Fireproofing Co., Pittsburgh, Pa. (Vitrified lock-joint sewer and culvert tile).

PLANEES—WOOD (SOWER)

American Saw Mill Machinery Co., Jaccettstown, N. J. ("American," "Triumph").

Crescent Machine Co., Leetonia, O. ("Crescent").  
Henry Disston & Sons, Philadelphia, Pa.

Oliver Machinery Co., Grand Rapids, Mich.

Parks Ball Bearing Machine Co., Cincinnati, Ohio.

**PLANES—CARPENTERS**

Concrete Engineering Co., Omaha, Neb. (For weather strips).

Federal Metal Weatherstrip Co., 1240 Fullerton Ave., Chicago, Ill.

Mack & Co., Rochester, N. Y. ("D. R. Barton").

Sargent & Co., New Haven, Conn. ("Sargent").  
Stanley Works, New Britain, Conn.

**PLANIMETERS**

F. Weber Co., Philadelphia, Pa.

**PLANS—BUILDING**

Architectural House Planning Service Co., Philadelphia, Pa. ("Small Homes of Character").

Common Brick Mfrs. Assn., Cleveland, O. (Small brick houses, two-family houses, garages).

Radford Architectural Co., 1827 Prairie Ave., Chicago, Ill. (Special and stock plans for all types of buildings).

E. W. Stillwell & Co., Los Angeles, Calif. (National house-planning service).

**PLASTER—ASBESTOS**

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

H. W. Johns-Manville Co., Madison and 41st St., New York, N. Y.

Robbond Co., Van Wert, O. ("Robbond" magnesite).

**PLASTER—INTERIOR**

Art Stone Co., Waynesboro, Pa.  
National Kellastone Co., 155 E. Superior St., Chicago, Ill. (Magnesite).

U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Adamant," "Alabaster," "Baker," "Big Four," "Buckhorn," "Eldorado," "Flint," "Granite," "Imperial," "Ivory," "O. K.," "Syanize," "Pyramid," "Zenith").

**PLASTERBOARD**

Beaver Board Cos., Buffalo, N. Y. ("Best-wall").

Bishopric Mfg. Co., Cincinnati, Ohio. ("Beaver").

Edwards Mfg. Co., Cincinnati, O.

U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Backett," "Adamant").

**PLATES—DOOR**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill. (Brass or copper kick plates, "Push" or "Pull").

Sager Lock Co., North Chicago, Ill.

Sargent & Co., New Haven, Conn. ("Sargent").

Zouri Drawn Metals Co., Chicago Heights, Ill. (Brass kick and push plates).

**PLUGS—SCREW**

Rawlplug Co., 463 Eighth Ave., New York, N. Y. ("Rawlplugs").

**PLUGS—WALL**

Ankyra Mfg. Co., Philadelphia, Pa. ("Ankyra").

Donley Bros. Co., Cleveland, O. ("Donley").

Rawlplug Co., 463 Eighth Ave., New York, N. Y. ("Rawlplugs").

**PLUMBS**

A. S. Aloe Co., St. Louis, Mo.  
J. Sand & Son, Detroit, Mich. ("Donley").

Stanley Works, New Britain, Conn.

L. S. Starrett Co., Athol, Mass.  
F. Weber Co., Philadelphia, Pa.

**POLISHING MACHINES—FLOOR**

Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill. (Electric surfacing and polishing machine for marble, mosaic, terrazzo, tile, stone, composition).

**POST MACHINES—CEMENT**

American Cement Machine Co., Keokuk, Ia.

**POSTS—CLOTHES**

Donley Bros. Co., Cleveland, O. ("Donley" iron).

**POSTS—CORNER**

Iowa Gate Co., Cedar Falls, Ia. ("Clay" for farm fences).

**PRESERVATIVES—WOOD**

Eugene E. Nice, 268 S. Second St., Philadelphia, Pa. ("Nice," "Yellow Shield").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

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Truscon Steel Co., Detroit, Mich.
- PROTRACTORS**  
L. S. Starrett Co., Athol, Mass.  
F. Weber Co., Philadelphia, Pa.
- PULLERS—NAIL**  
Ohas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill," "Apex")
- PULLERS—STUMP**  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.
- PULLEYS—CEILING**  
American Pulley Co., 4200 Wissahickon Ave., Philadelphia, Pa. ("American")  
Stover Mfg. & Engine Co., Freeport, Ill.
- PULLEYS—CONTRACTORS**  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart")
- PULLEYS—SASH**  
American Pulley Co., 4200 Wissahickon Ave., Philadelphia, Pa.  
Andersen Lumber Co., South Stillwater, Minn.  
Sargent & Co., New Haven, Conn. ("Sargent")  
Stover Mfg. & Engine Co., Freeport, Ill.
- PULLEYS—SCREW**  
American Pulley Co., 4200 Wissahickon Ave., Philadelphia, Pa.  
Andersen Lumber Co., South Stillwater, Minn.  
Sargent & Co., New Haven, Conn.
- PULLS—DOOR**  
Allith-Prouty Co., Danville, Ill. (Malleable iron)  
Frantz Mfg. Co., Sterling, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sager Lock Co., North Chicago, Ill.  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- PUMPS—CONTRACTORS**  
American Cement Machine Co., Keokuk, Ia. ("Boss")  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E." triplex and diaphragm)  
Construction Machinery Co., Waterloo, Ia.  
Contractors Equipment Co., Keokuk, Ia.  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hercules Corp., Evansville, Ind. ("Hercules")  
Ideal Engine Co., Lansing, Mich.  
Koehring Co., Milwaukee, Wis. ("Koehring" steam)  
Mast, Foss & Co., Springfield, O. ("Buckeye")  
F. E. Myers & Bro. Co., Ashland, O.  
T. L. Smith Co., Milwaukee, Wis.  
Standard Scale & Supply Co., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart")
- PUMPS—DRAIN**  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Mast, Foss & Co., Springfield, O. ("Buckeye")  
Standard Scale & Supply Co., Pittsburgh, Pa.
- PUMPS—ELECTRIC-DRIVEN**  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco" hydraulic rain-water pumps or water lifts; automatic electric vacuum and return condensation pumping appliances; electric hot-water circulating systems; drinking water circulating pumps and cooling systems; electric and hydraulic oil-pumping outfits)  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee")  
Mast, Foss & Co., Springfield, O. ("Buckeye")  
Milwaukee Air Power Pump Co., Milwaukee, Wis.  
F. E. Myers & Bro. Co., Ashland, O.  
Pasache Air Brush Co., 1230 Washington Boul., Chicago, Ill.  
Standard Scale & Supply Co., Pittsburgh, Pa.
- PUMPS—FORCE**  
American Cement Machine Co., Keokuk, Ia.  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.")  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill.  
Fuller & Johnson Mfg. Co., Madison, Wis.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Ideal Engine Co., Lansing, Mich.  
Hercules Corp., Evansville, Ind. ("Hercules")  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee")  
Mast, Foss & Co., Springfield, O. ("Buckeye")  
Standard Scale & Supply Co., Pittsburgh, Pa.
- PUMPS—HOUSE**  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee")  
Mast, Foss & Co., Springfield, O. ("Buckeye")  
Milwaukee Air Power Pump Co., Milwaukee, Wis.  
F. E. Myers & Bro. Co., Ashland, O.  
T. B. Rayl Co., Detroit, Mich.
- PUTTY—ROOFING**  
Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco")  
Philip Carey Co., Cincinnati, O. ("Noah's Pitch")  
H. W. Johns-Manville Co., Madison and 41st, New York, N. Y. ("Johns-Manville")  
Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice")  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")  
Stowell Mfg. Co., 670 Cuyler Ave., Jersey City, N. J.
- QUARTZ—FILTRATION**  
Wausau Abrasives Co., Wausau, Wis.
- QUARTZ—SAND BLAST**  
Wausau Abrasives Co., Wausau, Wis.
- RADIATORS—HOT AIR**  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Haynes-Langenberg Co., St. Louis, Mo.  
Hero Furnace Co., Sycamore, Ill.
- RADIATORS—HOT WATER**  
Andrews Heating Co., Minneapolis, Minn.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- RADIATORS—STEAM**  
Andrews Heating Co., Minneapolis, Minn.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- RAILINGS—BRASS**  
Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.
- RAILINGS—IRON**  
Badger Wire & Iron Works, Milwaukee, Wis.  
International Steel & Iron Co., Evansville, Ind.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Fred J. Meyers Mfg. Co., Hamilton, O.
- RAILS—ALTAE**  
Fred J. Meyers Mfg. Co., Hamilton, O.
- RAILS—BARNDORF**  
Allith-Prouty Co., Danville, Ill. ("Reliable")  
Frantz Mfg. Co., Sterling, Ill. ("Frantz")  
Lane Bros. Co., Poughkeepsie, N. Y. ("Lane")  
National Mfg. Co., Sterling, Ill. ("Braced", "Storm Proof")  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W")  
Wagner Mfg. Co., Cedar Falls, Ia. ("Ever-tite", "Leader")
- RAILS—PORCH**  
Hartmann-Sanders Co., 2137 Elston Ave., Chicago, Ill.  
Gould Mfg. Co., Oshkosh, Wis.  
Morgan Co., Oshkosh, Wis.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Pacific Lumber Co. of Illinois, Chicago, Ill.
- RAKES—CONCRETE ROAD**  
Abram Cement Tool Co., Detroit, Mich.
- RAWPLUGS**  
Rawplugs Co., 468 Eighth Ave., New York, N. Y. ("Rawplugs")
- REAMERS**  
James Swan Co., Seymour, Conn.
- RECEIVERS—GABBAGE**  
Donley Bros. Co., Cleveland, O. ("Donley")  
Majestic Co., Huntington, Ind.  
Willis Mfg. Co., Galesburg, Ill.
- RECEIVERS—PACKAGE**  
Donley Bros. Co., Cleveland, O. ("Donley")  
International Steel & Iron Co., Evansville, Ind.  
Majestic Co., Huntington, Ind.
- RECEPTORS—SHOWER**  
Kohler Co., Kohler, Wis. (Enameled ware).
- REFRIGERATORS**  
Gurney Refrigerator Co., Fond du Lac, Wis.  
McCray Refrigerator Co., Kendallville, Ind. ("McCray")  
Herrick Refrigerator Co., Waterloo, Ia.  
Willis Mfg. Co., Galesburg, Ill.
- REFRIGERATORS—OUTSIDE ICING**  
Gurney Refrigerator Co., Fond du Lac, Wis.  
Herrick Refrigerator Co., Waterloo, Ia. ("Herrick")  
McCray Refrigerator Co., Kendallville, Ind. ("McCray")
- REFRIGERATING MACHINERY**  
H. W. Johns-Manville Co., Madison and 41st, New York, N. Y. (Household, hotels, clubs, restaurants, etc.)
- REGISTERS—HOT AIR FURNACE**  
American Bell & Foundry Co., Northville, Mich.  
Borce Furnace Works, Waterloo, Ia.  
Campbell Heating Co., Des Moines, Ia.  
Heat Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Majestic Co., Huntington, Ind.
- REGULATORS—FURNACE**  
American Bell & Foundry Co., Northville, Mich.  
Andrews Heating Co., Minneapolis, Minn. ("Andrews Hired Man")  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco")  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- REGULATORS—HEAT**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews Hired Man")  
Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco")  
Haynes-Langenberg Mfg. Co., St. Louis, Mo. ("Front Rank")  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- REINFORCING**  
Concrete Engineering Co., Omaha, Neb. (Bars, triangle mesh, column spirals, expanded metal)  
Corrugated Bar Co., Buffalo, N. Y.  
International Steel & Iron Co., Evansville, Ind.  
Truscon Steel Co., Detroit, Mich.
- REMOVERS—PAINT AND VARNISH**  
S. O. Johnson & Son, Racine, Wis. (Johnson's Electric Solvo)  
Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa.  
Wadsworth, Howland & Co., Boston, Mass.
- REMOVERS—STAIN**  
E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.
- RESAW MACHINES**  
Oliver Machinery Co., Grand Rapids, Mich.  
Sidney Machine Tool Co., Sidney, O.
- RESISTANTS—ACID (FOR CONCRETE)**  
Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro")
- EDGING—VENTILATED**  
American 3 Way-Luxfer Prism Co., Cicero, Ill.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.
- RIGS—SAW**  
Abram Cement Machine Co., 3818 Grand River Ave., Detroit, Mich.  
American Saw Mill Machinery Co., 1360 Hudson Terminal, New York, N. Y. ("American")  
C. H. & E. Mfg. Co., Inc., Milwaukee, Wis. ("C. H. & E." Portable)  
Fuller & Johnson Mfg. Co., Madison, Wis.  
Hercules Corp., Evansville, Ind. ("Hercules")  
The Knickerbocker Co., 525 Liberty St., Jackson, Mich. ("Knickerbocker")  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh")  
The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sheldon Mfg. Co., Nehawka, Neb. ("Sheldon-Trusty")  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart")  
Stover Mfg. & Engine Co., Freeport, Ill.  
Witte Engine Works, Kansas City, Mo. ("Witte" log, tree and portable cut-off)  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")
- RIVETS**  
International Steel & Iron Co., Evansville, Ind.
- RODS—LIGHTNING**  
Jos. Barnett & Co., 218 4th Ave., Cedar Rapids, Ia. ("Barnett System")  
The Burkett Lightning Rod Co., Fremont, O. ("Burkett System")  
Hawkeye Lightning Rod Co., Cedar Rapids, Ia. ("Hawkeye")  
Shrauger & Johnson, Atlantic, Ia.  
George E. Thompson Lightning Rod Co., Owatonna, Minn. ("Thompson's World's Best")
- ROLLERS—BARNDORF**  
Allith-Prouty Co., Danville, Ill.  
Frantz Mfg. Co., Sterling, Ill.  
Lane Bros. Co., Poughkeepsie, N. Y. ("Lane")  
F. E. Myers & Bro., Ashland, O. ("Myers" "Sure Grip" "O. K." "New Way" "Giant" "Faultless")  
National Mfg. Co., Sterling, Ill. ("Big 4" "Storm Proof" "National")  
J. E. Porter Co., Ottawa, Ill. ("Hummer" "Double-V")  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn. ("Sargent")  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner")



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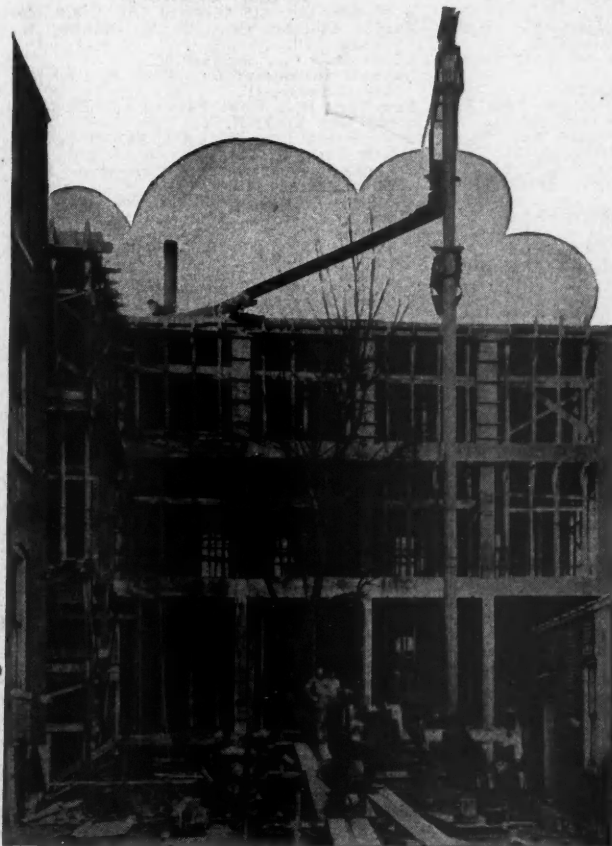
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Engineers and Manufacturers  
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Allith-Fronty Co., Danville, Ill. ("Frouty").  
Knap & Vogt Mfg. Co., Grand Rapids, Mich.  
Lane Bros. Co., Poughkeepsie, N. Y.  
("Lane").  
National Mfg. Co., Sterling, Ill. ("82  
Silent").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.

**ROLLERS—HOUSE MOVING**

LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.  
("LaPlant-Choate").

**ROOFING—ASBESTOS**

Philip Carey Co., Lockland, Cincinnati, O.  
H. W. Johns-Manville Co., 41st St. and Madison  
Ave., New York, N. Y. (Ready-to-lay  
and built up).

**ROOFING—ASBESTOS SHINGLES**

Asbestos Shingle, Slate & Sheathing Co.,  
Ambler, Pa. ("Ambler").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
H. W. Johns-Manville Co., 41st St. and  
Madison Ave., New York, N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Servicised").

**ROOFING—ASPHALT (READY)**

Barber Asphalt Paving Co., Land Title Bldg.,  
Philadelphia, Pa. ("Genasco").  
Jos. Barnett & Co., 218 E. Fourth Ave.,  
Cedar Rapids, Ia. ("Over the Top").  
Philip Carey Co., Lockland, Cincinnati, O.  
("Philo," "Sterling," "Manhattan,"  
"Lastile," "Micakote," "Premium,"  
"Surety").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.

Richardson Co., Melrose Park, Ill. ("Flex-  
a-tile" prepared roofings).  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").  
Stowell Mfg. Co., 670 Culver Ave., Jersey  
City, N. J.

**ROOFING—ASPHALT SHINGLES**

Barber Asphalt Paving Co., Land Title Bldg.,  
Philadelphia, Pa. ("Genasco").  
Beaver Board Companies, Buffalo, N. Y.  
("Vulcanite").  
Bird & Son, Inc., East Walpole, Mass.  
("Noponset" twin shingles, "American"  
twin shingles, "Proslate" individual  
shingles).  
Philip Carey Co., Lockland, Cincinnati, O.  
("Asfaltate," "Junior," "Firefiter").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Richardson Co., Melrose Park, Ill. ("Flex-  
a-tile" asphalt shingles).  
Ruberoid Co., 95 Madison Ave., New York,  
N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").  
Stowell Mfg. Co., 670 Culver Ave., Jersey  
City, N. J.

**ROOFING—BUILT-UP**

Barber Asphalt Paving Co., Land Title  
Bldg., Philadelphia, Pa. ("Standard,"  
"Trinidad").  
Beaver Board Companies, Buffalo, N. Y.  
("Vulcanite").  
Bird & Son, Inc., East Walpole, Mass. (For  
factory buildings).  
Philip Carey Co., Lockland, Cincinnati, O.  
("Carey Contract Roofing Styles B. C.  
D. F." "Carey Roof Specifications  
2, 3, 4").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Richardson Co., Melrose Park, Ill. ("Flex-  
a-tile" asphalt and felts for built-up  
roofs).  
Ruberoid Co., 95 Madison Ave., New York,  
N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING—CANVAS**

Wm. L. Barrell Co., 8 Thomas St., New  
York, N. Y.  
John Boyle & Co., 112 Duane St., New York,  
N. Y. ("Bayonne").  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING—MASTIC**

Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING—METAL (CORRUGATED)**

American Sheet & Tin Plate Co., Pittsburgh,  
Pa. ("American," "Apollo" galvanized,  
"Apollo-Keystone" galvanized).  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. and  
Burnham St., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
National Sheet Metal Roofing Co., 339 Grand  
St., Jersey City, N. J.  
Shrauger & Johnson, Atlantic, Ia.  
Willis Mfg. Co., Galesburg, Ill.

**ROOFING—METAL (SHEETS)**

American Sheet & Tin Plate Co., Pittsburgh,  
Pa. ("American," "Apollo" galvanized,  
"Apollo-Keystone" galvanized).  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. &  
Burnham St., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
National Sheet Metal Roofing Co., 339 Grand  
St., Jersey City, N. J.

**ROOFING—METAL SHINGLES**

Willis Mfg. Co., Galesburg, Ill.  
Cortright Metal Roofing Co., 50 N. 23d St.,  
Philadelphia, Pa. ("Cortright").  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. &  
Burnham St., Milwaukee, Wis. ("Tite-  
lock").  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
National Sheet Metal Roofing Co., 329 Grand  
St., Jersey City, N. J.  
Shrauger & Johnson, Atlantic, Ia. (Con-  
tinuous hip shingles).

**ROOFING—ROLL**

Barber Asphalt Paving Co., Land Title Bldg.,  
Philadelphia, Pa. ("Genasco").  
Beaver Board Companies, Buffalo, N. Y.  
("Vulcanite").  
Bird & Son, Inc., East Walpole, Mass. (Red  
or green slate-surfaced; "Art-Craft" tile  
design; slate-surfaced, granitized, two  
weights; "American" ready roofing, three  
weights).

Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O. (Metal).  
International Steel & Iron Co., Evansville,  
Ind.  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
Richardson Co., Melrose Park, Ill. ("Flex-  
a-tile" roll roofings).  
Ruberoid Co., 95 Madison Ave., New York,  
N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING—RUBBER**

Philip Carey Co., Lockland, Cincinnati, O.  
("Philo," "Sterling," "Manhattan,"  
"Lastile," "Micakote," "Premium,"  
"Surety").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Richardson Co., Melrose Park, Ill. ("Flex-  
a-tile" roll roofings).  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").  
Stowell Mfg. Co., 670 Culver Ave., Jersey  
City, N. J.

**ROOFING—SLATE**

Knickerbocker Slate Corp., 153 E. 38th St.,  
New York, N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").  
F. O. Sheldon Slate Co., Granville, N. Y.  
Stowell Mfg. Co., 670 Culver Ave., Jersey  
City, N. J.  
Structural Slate Co., Pen Argyl, Pa.  
Vendor Slate Co., Bangor, Pa. (All brands).

**ROOFING—TILE (CEMENT)**

L. Hansen Co., 3617 E. 23d St., Kansas City,  
Mo. (Machinery for making cement roof-  
ing tile).  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING—TILE (REINFORCED CEMENT)**

Truscon Steel Co., Detroit, Mich.  
**ROOFING—TILE (GYPSUM)**  
United States Gypsum Co., 205 W. Monroe  
St., Chicago, Ill. ("Pyrrabar").  
**ROOFING—TILE (METAL)**  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. &  
Burnham St., Milwaukee, Wis. ("Tite-  
lock").  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
National Sheet Metal Roofing Co., 329 Grand  
St., Jersey City, N. J.

**ROOFING—TIN**

American Sheet & Tin Plate Co., Pittsburgh,  
Pa. ("MF," "U. S. Eagle," "Ameri-  
can," "Fire Door," "Numethod").  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. &  
Burnham St., Milwaukee, Wis.  
**ROOFING—WOOD SHINGLES**  
Cresco-Dipt Co., North Tonawanda, N. Y.  
("Cresco-Dipt" stained shingles).  
Morgan Co., Oshkosh, Wis.  
Pacific Lumber Co. of Illinois, Chicago, Ill.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING AND SIDING—ASBESTOS**

Asbestos Shingle, Slate & Sheathing Co.,  
Ambler, Pa. ("Ambler" corrugated).  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROOFING AND SIDING—IRON AND STEEL**

American Sheet & Tin Plate Co., Pittsburgh,  
Pa. ("American," "Apollo" galvanized,  
"Apollo-Keystone" galvanized).  
Burrell Mfg. & Supply House, Kankakee, Ill.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Milwaukee Corrugating Co., 36th Ave. &  
Burnham St., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.

**ROOFING AND SIDING—SLATE**

Knickerbocker Slate Corp., 153 E. 38th St.,  
New York, N. Y.  
F. O. Sheldon Slate Co., Granville, N. Y.

**ROOFS—SILO**

American Sheet & Tin Plate Co., Pitts-  
burgh, Pa.  
Slatington Slate Co., Slatington, Pa.  
Burrell Mfg. & Supply House, Kankakee, Ill.  
Edwards Mfg. Co., Cincinnati, O.  
Metal Forms Corp., Milwaukee, Wis.

**ROOFS—THATCHED**

Bishopric Mfg. Co., Cincinnati, O.  
Cresco-Dipt Co., North Tonawanda, N. Y.  
("Cresco-Dipt" stained shingles).  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill. ("Everstick").

**ROPE**

Samson Cordage Works, 88 Broad St., Bos-  
ton, Mass. ("Samson" cotton rope,  
braided).  
Standard Scale & Supply Co., 1631 Liberty  
Ave., Pittsburgh, Pa.

**ROPE—TRANSMISSION**

Williamsport Wire Rope Co., Peoples Gas  
Bldg., Chicago, Ill.

**ROTARY MACHINES—ELECTRIC**

Electric Rotary Machine Co., 40 S. Clinton  
St., Chicago, Ill. (For surfacing and  
polishing marble, etc., and sand-papering  
and refinishing wood floors).

**ROUTERS**

American Router & Mfg. Co., 238 Fourth  
Ave., Pittsburgh, Pa.

**RULES—BOXWOOD**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St.,  
Chicago, Ill.  
Lufkin Rule Co., Saginaw, Mich.  
National Instrument Co., 4705 N. Hamilton  
Ave., Chicago, Ill.  
New York Blue Print Paper Co., 102 Reade  
St., New York, N. Y.  
The Peerless Blue Print Co., 341 Fifth Ave.,  
New York, N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill.  
Stanley Works, New Britain, Conn.  
Warren-Knight Co., 136 N. 12th St., Phila-  
delphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Phila-  
delphia, Pa.

**RULES—CALIPER**

Eugene Dietzgen Co., 166 W. Monroe St.,  
Chicago, Ill.  
Lufkin Rule Co., Saginaw, Mich.  
Master Rule Mfg. Co., 841 E. 136th St., New  
York, N. Y. ("Interlox" Master Slide).  
National Instrument Co., 4705 N. Hamilton  
Ave., Chicago, Ill.  
New York Blue Print Paper Co., 102 Reade  
St., New York, N. Y.  
The Peerless Blue Print Co., 341 Fifth Ave.,  
New York, N. Y.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Phila-  
delphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Phila-  
delphia, Pa.

**RULES—EXTENSION**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St.,  
Chicago, Ill.  
International Correspondence Schools, Scrant-  
on, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
Master Rule Mfg. Co., 841 E. 136th St.,  
New York, N. Y.  
National Instrument Co., 4705 N. Hamilton  
Ave., Chicago, Ill.  
New York Blue Print Paper Co., 102 Reade  
St., New York, N. Y.  
The Peerless Blue Print Co., 341 Fifth Ave.,  
New York, N. Y.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill.  
Warren-Knight Co., 136 N. 12th St., Phila-  
delphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Phila-  
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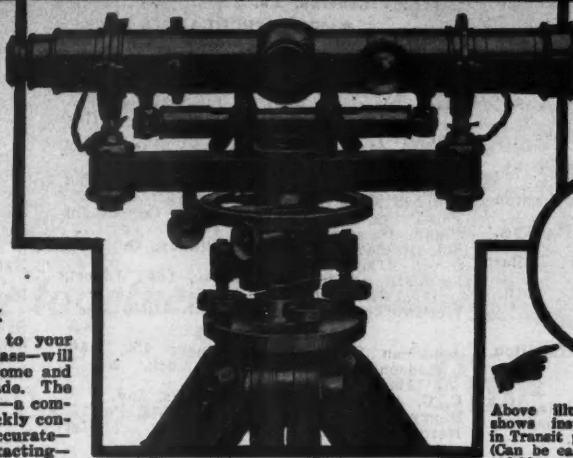
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Master Rule Mfg. Co., 841 E. 136th St., New York, N. Y.  
National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.  
The Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.  
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Lufkin Rule Co., Saginaw, Mich.  
National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.  
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The Parks Ball Bearing Machine Co., Cincinnati, O.

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M. L. Schlueter, 225 W. Illinois St., Chicago, Ill.  
Wausau Abrasives Co., Wausau, Wis.

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**SANDPAPERING MACHINES**

Black Bros. Co., Mendota, Ill.  
Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill. (Electric floor).  
Parks Ball Bearing Machine Co., Cincinnati, O.

**SASH—BASEMENT**

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Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.  
International Steel & Iron Co., Evansville, Ind.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Willis Mfg. Co., Galesburg, Ill.  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**SASH—STORM**

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Orange Screen Co., Maplewood, N. J. ("Orsco").  
Truscon Steel Co., Detroit, Mich.  
Wagner Mfg. Co., Cedar Falls, Ia.

**SASH—UNIT WINDOW**

Lanken Window Co., 4750 Cherry St., Cincinnati, O.

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American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").  
Oliver Machinery Co., Grand Rapids, Mich.  
Sidney Machine Tool Co., Sidney, O.  
Woodworker Mfg. Co., Detroit, Mich.

**SAWS—BAND**

American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").

E. C. Atkins & Co., Indianapolis, Ind.  
Chicago Machinery Exchange, 1219 Washington Bldg., Chicago, Ill.  
Crescent Machine Co., Leontonia, O. ("Crescent").  
Henry Disston & Sons, Philadelphia, Pa.  
Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

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American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").  
E. C. Atkins & Co., Indianapolis, Ind.  
Henry Disston & Sons, Philadelphia, Pa.  
Hercules Corp., Evansville, Ind. ("Hercules").  
Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.  
Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Woodworker Mfg. Co., Detroit, Mich.

**SAWS—DRAG**

American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").  
E. C. Atkins & Co., Indianapolis, Ind.  
Henry Disston & Sons, Philadelphia, Pa.  
Hercules Corp., Evansville, Ind. ("Hercules").  
Witte Engine Works, Kansas City, Mo.

**SAWS—GANG**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
Henry Disston & Sons, Philadelphia, Pa.

**SAWS—GROOVING**

E. C. Atkins & Co., Indianapolis, Ind.  
Henry Disston & Sons, Philadelphia, Pa.  
Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.  
Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Woodworker Mfg. Co., Detroit, Mich.

**SAWS—HAND**

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Henry Disston & Sons, Philadelphia, Pa. (Coping, compass, keyhole, square-hole and stair-builders saws).  
Rockford Mitre Box Co., Rockford, Ill. (Mitre saws).  
T. B. Rayl Co., Detroit, Mich.

**SAWS—JIG**

American Saw Mill Machinery Co., 50 Church St., New York, N. Y.  
E. C. Atkins & Co., Indianapolis, Ind.  
W. F. & Jno. Barnes Co., Rockford, Ill.  
Henry Disston & Sons, Philadelphia, Pa.  
Oliver Machinery Co., Grand Rapids, Mich.  
Sidney Machine Tool Co., Sidney, O.

**SAWS—SWING**

E. C. Atkins & Co., Indianapolis, Ind. ("Crescent").  
Henry Disston & Sons, Philadelphia, Pa.  
Knickerbocker Co., Jackson, Mich. ("Knickerbocker").  
Oliver Machinery Co., Grand Rapids, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O. ("Silver's").  
Anchor Concrete Machinery Co., Rock Rapids, Ia. (Silo).  
Elite Mfg. Co., Ashland, O.  
International Steel & Iron Co., Evansville, Ind.  
Metal Forms Corp., Milwaukee, Wis.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
The Steel Scaffolding Co., Evansville, Ind.

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Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
Keuffel & Esser Co., Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.  
Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.  
F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

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Standard Scale & Supply Co., Pittsburgh, Pa. (For weighing building materials).

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Chicago Technical College, 2721 S. Michigan Ave., Chicago, Ill. (Home study courses for builders, plan reading courses, estimating courses, architectural courses, drafting courses, correspondence courses for builders).  
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Wagner Mfg. Co., Cedar Falls, Ia.

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Concrete Engineering Co., Omaha, Nat. Bank Bldg., Omaha, Neb. ("Coco").  
Milwaukee Corrugating Co., 36th & Burnham, Milwaukee, Wis.  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Nemco").  
Truscon Steel Co., Detroit, Mich.  
Youngtown Pressed Steel Co., Warren, O. ("Sharon").

**SCREENS—BANK AND COUNTER**

Badger Wire & Iron Works, Milwaukee, Wis.  
Central Wire & Iron Works, Des Moines, Ia.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**SCREENS—ROLLING**

Acme Metal Weatherstrip Co., Rochester, N. Y.

**SCREENS—REVOLVING**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**SCREENS—SAND AND GRAVEL**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
Badger Wire & Iron Works, Milwaukee, Wis.  
Central Wire & Iron Works, Des Moines, Ia.  
Lansing Co., Lansing, Mich.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**SCREENS—UNIT WINDOW**

Lunken Window Co., 4750 Cherry St., Cincinnati, O.

**SCREENS—WINDOW AND DOOR**

Acme Metal Weatherstrip Co., Rochester, N. Y.  
Badger Wire & Iron Works, Milwaukee, Wis.  
Gould Mfg. Co., Oshkosh, Wis.  
Lansing Co., Lansing, Mich.  
Orange Screen Co., Maplewood, N. J. ("Orsco").

**SCREWDRIVERS**

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North Bros. Mfg. Co., Lehigh Ave. & American St., Philadelphia, Pa. ("Yankee" plain and spiral ratchet).  
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Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.  
James Swan Co., Seymour, Conn. ("Swan"). ("Swan").

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Stanley Works, New Britain, Conn.

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Husher Bros., Saw Mfg. Co., Rochester, N. Y.  
Chas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill," "Apex")  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.

**SETS—SCREEN DOOR**

Allith-Prouty Co., Danville, Ill. ("King")  
The Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y. ("Bommer")  
Frantz Mfg. Co., Sterling, Ill.  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Lawson")  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven, Conn.  
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The Crescent Machine Co., Leontonia, O. (Single and double spindle).  
Oliver Machinery Co., Grand Rapids, Mich.  
Sidney Machine Tool Co., Sidney, O.

**SHARPENERS—TOOL**

Oliver Machinery Co., Grand Rapids, Mich.

**SHEAVES—SPOKE**

Mack & Co., Rochester, N. Y. ("D. R. Barton")  
James Swan Co., Seymour, Conn. ("Swan")

**SHEATHING—ASBESTOS**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler")  
H. W. Johns-Manville Co., Madison Ave. & 41st St., New York, N. Y. ("Johns-Manville Asbestoside," asbestos corrugated siding, asbestos slaters felt, roofing and insulating felt, asbestos paper and roll board, asbestos sheet millboard, asbestos corrugated paper, "Regal" roofing).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")

**SHEAVES—BALLBEARING**

Knappe & Vogt Mfg. Co., Grand Rapids, Mich.

**SHEAVES—WIRE ROPE**

Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**SHEETS—GALVANIZED**

American Sheet & Tin Plate Co., Pittsburgh, Pa.

**SHEETS—IRON AND STEEL**

American Sheet & Tin Plate Co., Pittsburgh, Pa. ("American," "Apollo" galvanized, "Apollo-Keystone" galvanized).  
Burrell Mfg. & Supply House, Kankakee, Ill.  
W. E. Caldwell Co., Louisville, Ky.  
Central Steel Co., Massillon, O. ("Central")

Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., 36th Ave. & Burnham St., Milwaukee, Wis. ("Milcor")  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Willis Mfg. Co., Galesburg, Ill.

**SHELLS—EXPANSION**

Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
Ankyra Mfg. Co., 149 Berkley St., Wayne Junc., Philadelphia, Pa. ("Ankyra")  
International Steel & Iron Co., Evansville, Ind.  
The Faine Co., 1742 W. Van Buren St., Chicago, Ill. ("Faine")  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
U. S. Expansion Bolt Co., 189 Franklin St., New York, N. Y. ("U. S. E.")

**SHELVING—STEEL**

Frank S. Betz & Co., Hammond, Ind. ("Betsco")

**SHIELDS—EXPANSION**

Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
Ankyra Mfg. Co., 149 Berkley St., Wayne Junc., Philadelphia, Pa. ("Ankyra")  
International Steel & Iron Co., Evansville, Ind.  
The Rawlplug Co., 463 Eighth Ave., New York, N. Y. ("Rawlplug")  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Savage Expansion Bolt Co., 9 Desbrosses St., New York, N. Y.  
U. S. Expansion Bolt Co., 189 Franklin St., New York, N. Y. ("U. S. E.")

**SHIELDS—RADIATOR**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
Erwin & Co., 3724 Cottage Grove Ave., Chicago, Ill. ("Erco")

**SHOVELS—ELECTRIC**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**SHOVELS—GASOLINE**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**SHOVELS—HAND**

Sterling Wheelbarrow Co., Milwaukee, Wis.

**SHOVELS—STEAM**

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**SHOWCASES**

Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.

International Steel & Iron Co., Evansville, Ind.

La Grange Fixture Corp., La Grange, Ind.

Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

Zouri Drawn Metals Co., Chicago Heights, Ill.

Edwards Mfg. Co., Cincinnati, O.

International Steel & Iron Co., Evansville, Ind.

Lane Bros. Co., Poughkeepsie, N. Y.

Fred J. Meyers Mfg. Co., Hamilton, O.

Moeschl-Edwards Corrugating Co., Cincinnati, O.

Willis Mfg. Co., Galesburg, Ill.

**SHUTTERS—STEEL**

Swedish Venetian Blind Co., 1265 Broadway, New York.

**SHUTTERS—STEEL (ROLLING)**

Swedish Venetian Blind Co., 1265 Broadway, New York.

**SHUTTER-WORKERS**

Mallory Mfg. Co., Flemington, N. J. ("Mallory's" standard shutter workers).

**SIGHTS—LEVEL**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.

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

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

J. Sands & Sons, 4841 Rivard St., Detroit, Mich.

Stanley Works, New Britain, Conn.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**SIGNS**

Badger Wire & Iron Works, Milwaukee, Wis. (Wire).

Central Wire & Iron Works, Des Moines, Ia.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

Shrauger & Johnson, Atlantic, Ia.

**SILCO MACHINES**

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor")

Burrell Mfg. & Supply House, Kankakee, Ill. ("X-L-All")

Helm Brick Machine Co., Cadillac, Mich. (Blocks).

Metal Forms Corp., Milwaukee, Wis. ("Metaforms")

T. L. Smith Co., 1125 32d St., Milwaukee, Wis.

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

The Willsea Works, Rochester, N. Y. ("Hercules")

**SILOS—CEMENT**

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor")

Metal Forms Corp., Milwaukee, Wis. ("Metaforms")

Universal Cement Mold Co., North Milwaukee, Wis.

**SILOS—TILE**

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunfile")

National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).

**SILOS—WOOD**

Baltimore Cooperage Co., Baltimore, Md.

**SINKS—FACTORY WASH**

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis. (Enamelled ware).

**SINKS—KITCHEN**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis. (Also slop sinks, kitchenette sinks, enamelled ware).

Structural Slate Co., Pen Argyl, Pa. (Slate).

**SKYLIGHTS**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer" steelcled).  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Puttyless")  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
National Sheet Metal Roofing Co., 329 Grand St., Jersey City N. J.  
Shrauger & Johnson, Atlantic, Ia.  
Willis Mfg. Co., Galesburg, Ill. ("Willis")

**SLABS—GYPSUM**

United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Pyrofill")

**SLABS—REINFORCED CONCRETE**

American 3 Way-Luxfer Prism Co., Cicero, Ill.  
Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
International Steel & Iron Co., Evansville, Ind.

**SLATE—STRUCTURAL**

Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
F. O. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa. (Clear black).  
Structural Slate Co., Pen Argyl, Pa.

**SLICKS—CARPENTERS**

Mack & Co., Rochester, N. Y. ("D. R. Barton")  
James Swan Co., Seymour, Conn.

**SOCKETS—STUDDING**

Sterling Foundry Co., Sterling, Ill. ("Best")  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner")

**SOCKETS—WIRE ROPE**

Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**SPINDLES—POUCH**

Gould Mfg. Co., Oshkosh, Wis.

Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.

Morgan Co., Oshkosh, Wis.

Pacific Lumber Co. of Illinois, Chicago, Ill.

**SPOUTING—CONCRETE**

Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.

Atlas Engineering Co., 3009 Lisbon Ave., Milwaukee, Wis. ("Atlas")

Insley Mfg. Co., Indianapolis, Ind.

Judy Mfg. Co., Centerville, Ia. ("Akron")

Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome")

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

**SPRINGS—DOOR**

Allith-Prouty Co., Danville, Ill. ("Perfection Coil")

The Bommer Spring Hinge Co., 263 Classon Ave., Brooklyn, N. Y. ("Bommer")

Chicago Spring Butt Co., Union Park Court, Chicago, Ill. ("Chicago," "Reliance")

Sargent & Co., New Haven, Conn. ("Sargent")

Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner")

**SPUNWORK—ZINC OR COPPER**

Edwards Mfg. Co., Cincinnati, O.

**SQUARES—BEVEL**

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

Richards-Wilcox Mfg. Co., Aurora, Ill.

L. S. Starrett Co., Athol, Mass.

**SQUARES—COMBINATION**

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

L. S. Starrett Co., Athol, Mass.

**SQUARES—STEEL**

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

International Correspondence Schools, Scranton, Pa.

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

Nicholls Mfg. Co., Ottumwa, Ia.

Sargent & Co., New Haven, Conn. ("Sargent")

Southington Hardware Co., Southington, Conn.

Stanley Works, New Britain, Conn.

L. S. Starrett Co., Athol, Mass.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**SQUARES—"T"**

A. S. Aloe Co., St. Louis, Mo. ("Aloe's")

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

International Correspondence Schools, Scranton, Pa.

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

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

New York Blue Paper Print Co., 102 Reade St., New York, N. Y.

The Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.

L. S. Starrett Co., Athol, Mass.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

## Have You Got a Ventilator Job?

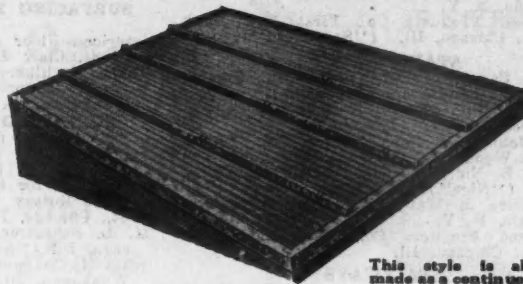
If you are about to install a ventilator it will be worth your while to look over the Willis line of ventilators.

We make high class ventilators for every purpose and they are so simply designed that every carpenter can install them quickly and easily with a hammer and nails.

**WILLIS MANUFACTURING CO.**  
GALESBURG, ILLINOIS



These side sashes are operated singly or in batteries. The sashes are pivoted and very easily operated.



This style is also made as a continuous skylight for factory buildings.



We construct skylights of this style such as is used for lighting hotel lobbies, etc.

# WILLIS

### Special Notice

Do not cut hole in the wall or make arrangement for outside icing refrigerator until you get Herrick complete plans and instructions. You can save your client money and yourself prestige, time and trouble by knowing exactly how and where to place the opening. Herrick plans sent free to Architects and Builders.

**Home Builders.** If your architect or contractor can not furnish this information write to us giving their name and address.



# HERRICK

## The Refrigerator of Interest to all Builders

The Herrick refrigerator is of especial interest to the Builders—because, by reason of its built-in construction, he is the logical man for the job.

Every modern house must sooner or later have a refrigerator and the Builder is in position to make it a Herrick at a substantial profit both in the sale and the installation.

### EASY TO SET IN PLACE

The Herrick has individual features that make it desirable in all cases.

**Outside Icing.** This appeals to the housewife. Keeps the muddy footed ice man out on the porch.

**Herrick System of Dry Air Circulation.** Maintains the atmosphere in the ice box that is just as dry and pure as in a room. And requires no ice in cold weather.

**Herrick Service Helps You.** Answers your refrigerating problems and provides FREE PLANS and selling help.

*Don't put off writing our catalog and details of our selling services.*

**Herrick Refrigerator Co.**  
Waterloo, Iowa



The "HERRICK" Waterloo Iowa - Outside Icing

**SQUARES—TAKEDOWN**

Southington Hardware Co., Southington, Conn.

**SQUARES—TEY AND MITRE**

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

Southington Hardware Co., Southington, Conn.

Stanley Works, New Britain, Conn.

L. S. Starrett Co., Athol, Mass.

**STAINS—CEMENT**

Samuel Cabot, Inc., 141 Milk St., Boston, Mass. (Cabot's waterproof cement stains).

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**STAINS—SHINGLES**

Samuel Cabot, Inc., 141 Milk St., Boston, Mass. (Cabot's creosote stains).

Creo-Dipt Co., Inc., North Tonawanda, N. Y. ("Creo-Dipt").

Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice").

Price Fire and Water Proofing Co., Poughkeepsie, N. Y.

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**STAINS—WOOD**

Samuel Cabot, Inc., 141 Milk St., Boston, Mass. (Cabot's creosote stains).

Creo-Dipt Co., North Tonawanda, N. Y. ("Creo-Dipt").

S. C. Johnson & Son, Racine, Wis. (Johnson's Wood Dye).

Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice").

Price Fire and Water Proofing Co., Poughkeepsie, N. Y.

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.

**STAIRWAYS**

The Beasler Movable Stairway Co., Akron, O. (Movable).

Badger Wire & Iron Works, Milwaukee, Wis. (Iron).

Gould Mfg. Co., Oshkosh, Wis.

International Steel & Iron Co., Evansville, Ind. (Steel).

Fred J. Meyers Co., Hamilton, O. (Iron).

Oliver Machinery Co., Grand Rapids, Mich. (Spiral Iron only).

**STALLS—URNAL**

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

The Structural Slate Co., Pen Argyl, Pa. (Slate).

**STANCHIONS—CATTLE**

Iowa Gate Co., Cedar Falls, Ia. ("Clay").

James Mfg. Co., Fort Atkinson, Wis.

Mast, Foss & Co., Springfield, O. ("Buck-eye").

J. E. Porter Co., Ottawa, Ill. ("Cow-proof" latch).

**STANCHIONS—COLUMN**

Donley Bros. Co., Cleveland, O. ("Donley").

Mast, Foss & Co., Springfield, O. ("Buck-eye").

J. E. Porter Co., Ottawa, Ill.

**STANDARDS—ENTRANCE**

Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).

**STANDS—BOILER**

Donley Bros. Co., Cleveland, O. ("Donley").

**STEEL—FABRICATED**

Federal Bridge & Structural Co., Waukesha, Wis.

**STEEL—STRUCTURAL**

Bogart-Carlough Co., 240 Straight St., Paterson, N. J.

W. E. Caldwell Co., Louisville, Ky.

Central Steel Co., Massillon, O.

Federal Bridge & Structural Co., Waukesha, Wis.

Insley Mfg. Co., Indianapolis, Ind.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**STILLS—WATER**

P. M. Lattner Mfg. Co., Cedar Rapids, Ia.

**STOCK—DIMENSION**

Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" trademarked yellow pine).

Pacific Lumber Co. of Illinois, Chicago, Ill.

Wood Mosaic Co., New Albany, Ind.

**STOCK—FIBRODOOR**

American Sheet & Tin Plate Co., Pittsburgh, Pa.

**STOCK—TANK**

Burrell Mfg. & Supply House, Kankakee, Ill.

**STONE—BACKING**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y.

**STOPS—BENCH**

Chas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill", "Apex").

Sargent & Co., New Haven, Conn.

**STOPS—DOOR**

Chicago Spring Butt Co., Union Park Court, Chicago, Ill. ("Chicago").

Frantz Mfg. Co., Sterling, Ill.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Sager Lock Co., North Chicago, Ill.

Wagner Mfg. Co., New Haven, Conn.

**STRAINERS—SEWER PIPE**

Donley Bros. Co., Cleveland, O. (Perforated and bar. "Donley").

**STUCCO**

American Magnesia Products Co., 5730 W. Roosevelt Road, Chicago, Ill. ("Kragstone").

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro").

National Kellastone Co., 155 E. Superior St., Chicago, Ill. (Magnesite).

The Robbond Co., Van Wert, O. ("Robbond").

U. S. Materials Co., Conway Bldg., Chicago, Ill. ("Elastic").

Wausau Abrasives Co., Wausau, Wis. (Dash).

**STUCCO MACHINES**

Master Rule Mfg. Co., 841 E. 136th St., New York, N. Y. (Improved automatic).

**STUCCO—FIREPROOF**

Trucon Steel Co., Detroit, Mich.

**SURFACERS**

The Crescent Machine Co., Leontonia, O. ("Crescent").

Oliver Machinery Co., Grand Rapids, Mich.

Sidney Machine Tool Co., Sidney, O.

**SURFACING MACHINES—DESK AND TABLE**

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

Oliver Machinery Co., Grand Rapids, Mich.

Wayvell, Chappell & Co., 139 N. Jackson St., Waukegan, Ill.

**SURFACING MACHINES—FLOOR (ELECTRIC)**

American Floor Surfacing Machine Co., 515 S. St. Clair St., Toledo, O. (Surfacing machines for terrazo, marble and mosaic).

Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill.

M. L. Schlueter, 225 W. Illinois St., Chicago, Ill. ("Schlueter").

Wayvell, Chappell & Co., 139 N. Jackson St., Waukegan, Ill.

**SURFACING MACHINES—FLOOR (HAND)**

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

Fox Supply Co., Brooklyn, Wis. ("Fox").

Sidney Machine Tool Co., Sidney, O.

Triple "A" Machine Co., 4601 Ravenswood Ave., Chicago, Ill.

**SWAGES—SAW**

E. C. Atkins & Co., Indianapolis, Ind.

Henry Disston & Sons, Philadelphia, Pa.

Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

Oliver Machinery Co., Grand Rapids, Mich.

Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.

**TABLES—DRAFTING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

International Correspondence Schools, Scranton, Pa.

Keuffel & Esser, Hoboken, N. J.

New York Blue Print Paper Co., 102 Reade St., New York, N. Y.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

**TABLES—KITOHEEN (STEEL)**

Bisk Corporation, Brockton, Mass.

**TABLES—SAW**

American Cement Machine Co., Keokuk, Ia.

American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").

W. F. & Jno. Barnes, Rockford, Ill.

O. H. & E. Mfg. Co., Inc., Milwaukee, Wis. ("O. H. & E.").

Contractors Equipment Co., Keokuk, Ia.

Crescent Machine Co., Leontonia, O. ("Crescent").

Henry Disston & Sons, Philadelphia, Pa.

Hercules Corp., Evansville, Ind. ("Hercules").

Knickerbocker Co., Jackson, Mich. ("Knickerbocker").

Oliver Machinery Co., Grand Rapids, Mich.

Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").

The Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.

Silver Mfg. Co., Salem, O.

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

Woodworker Mfg. Co., Detroit, Mich.

**TAMPERS—CONCRETE**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich. ("Abram").

Anchor Concrete Machinery Co., Rock Rapids, Ia. ("Anchor").

Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

Construction Machinery Co., Waterloo, Ia.

Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").

**TANKS—CEMENT STAVE**

W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").

**TANKS—CLOSET**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kohler Co., Kohler, Wis.

**TANKS—PNEUMATIC WATER**

W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Erco").

The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee Indian" brand).

Milwaukee Air Power Pump Co., Milwaukee, Wis.

**TANKS—SEPTIC**

Andrews Heating Co., 2529 University Ave., S. E., Minneapolis, Minn. ("Andrews").

Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y. ("Perfection").

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").

**TANKS—SLATE**

Structural Slate Co., Pen Argyl, Pa. ("Pyramid").

**TANKS—STEEL AND IRON**

Andrews Heating Co., 2529 University Ave., S. E., Minneapolis, Minn. ("Andrews").

W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y.

Edwards Mfg. Co., Cincinnati, O.

Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Erco").

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

International Steel & Iron Co., Evansville, Ind.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Milwaukee Air Power Pump Co., Milwaukee, Wis.

Milwaukee Corrugating Co., 36th & Burnham, Milwaukee, Wis.

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

**TANKS—WOOD**

Baltimore Cooperage Co., Baltimore, Md.

W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

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

**TAPES—MEASURING**

A. S. Aloe Co., 513 Olive St., St. Louis, Mo.

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

International Correspondence Schools, Scranton, Pa.

Lufkin Rule Co., Saginaw, Mich.

National Instrument Co., 4705 N. Hamilton Ave., Chicago, Ill.

New York Blue Print Paper Co., 102 Reade St., New York, N. Y.

Peerless Blue Print Co., 341 Fifth Ave., New York, N. Y.

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

L. S. Starrett Co., Athol, Mass.

Warren-Knight Co., 136 N. 12th St., Philadelphia, Pa.

F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

David White Co., 901 Chestnut St., Milwaukee, Wis. ("White's Improved").

**TENONERS**

Oliver Machinery Co., Grand Rapids, Mich.

The Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.

**THIMBLES—WIRE ROPE (GALVANIZED)**

Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

**THRESHOLDS—METAL**

Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill. ("Brasco").

Concrete Engineering Co., Omaha, Nat. Bank Bldg., Omaha, Neb.

Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

Sager Lock Co., North Chicago, Ill.

Zouri Drawn Metals Co., Chicago Heights, Ill.

**THRESHOLDS—SLATE**

The Structural Slate Co., Pen Argyl, Pa.

**THRESHOLDS—WOOD**

Gould Mfg. Co., Oshkosh, Wis.

Morgan Co., Oshkosh, Wis.

**TIES—WALL**

Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.

Campbell Heating Co., Des Moines, Ia.

Concrete Engineering Co., Omaha, Nat. Bank Bldg., Omaha, Neb.

Donley Bros. Co., Cleveland, O. ("Donley").

Edwards Mfg. Co., Cincinnati, O.

Helm Brick Machine Co., Cadillac, Mich.

Milwaukee Corrugating Co., 36th Ave & Burnham St., Milwaukee, Wis.

Shrauger & Johnson, Atlantic, Ia.

Sykes Metal Lath & Roofing Co., Niles, O.

Universal Cement Mold Co., North Milwaukee, Wis.

Waterman-Waterbury Co., 1121 Jackson St., N. E., Minneapolis, Minn.

Willis Mfg. Co., Galesburg, Ill.

Builders buy  
what they can see

Sell your prod-  
uct by showing  
at the permanent

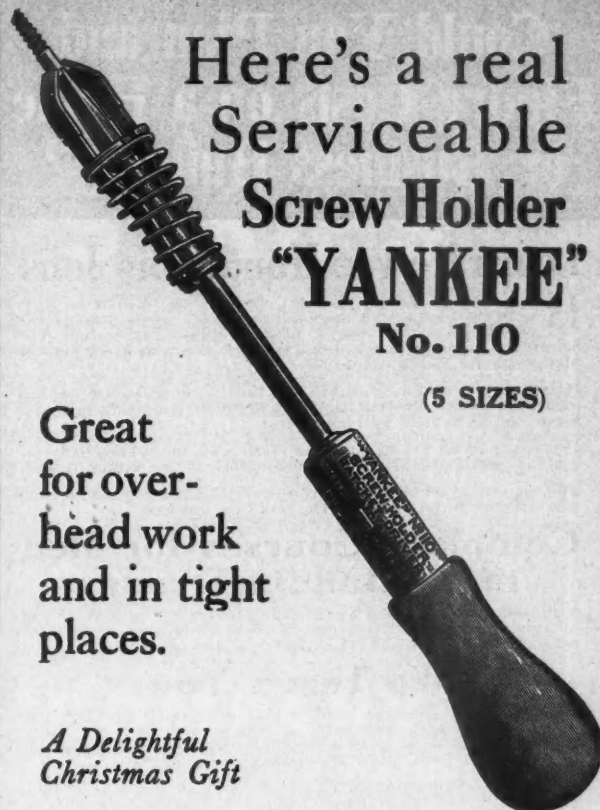
# BUILDING MATERIAL EXHIBIT

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ucts Manufacturers and  
the general buying public.

Desirable  
space now  
being  
allotted

Henry A. Guthrie, Manager  
Fifteen East Van Buren Street  
Chicago



Here's a real  
Serviceable  
Screw Holder  
"YANKEE"

No. 110

(5 SIZES)

Great  
for over-  
head work  
and in tight  
places.

*A Delightful  
Christmas Gift*

Think a moment, how often you need  
quickly, a real serviceable screw holder for some  
overhead work, or some place out of reach with an  
ordinary driver.



This screw holder is carried on the back  
of the blade out of the way, when not in use, but  
right at your fingers' ends when you need it.

Slip it out over the bit and it is ready. Compress-  
ing the spring forward with the thumb opens the  
jaws. Insert the screw head, release the spring and  
you are ready to drive the screw.



The holder releases itself as the screw  
sinks into the wood. Can you think of anything  
easier and quicker? They are made in five lengths  
of blade—3 to 8 inches.

Your dealer can supply you and save you time.  
*If not, write us for prices.*

Send for the "YANKEE" Tool Book

**NORTH BROS. MFG. CO.**  
Department A PHILADELPHIA, PA.

# Could You Plan and Figure Costs on a Home or Business Building?

## Learn How to Handle Big Jobs

**B**UILDING is sure to "pick up" before long. People already need more homes, business will soon need more stores, shops, factories and warehouses. Greater opportunities than ever before are coming for building experts—men who know how to plan, estimate and direct work.

If you are the workman on the job, this is your time to prepare to be the "boss." If you are now a foreman, get ready to hold a bigger job or to start as a contractor.

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Occupation \_\_\_\_\_

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



# The Ideal Plastering Base

**W**HETHER you erect a mansion or a silo, a cottage or an apartment building, or just remodel the old house into a beautiful, modern, fire-proof dwelling, you can save money and do better by using **E-COD FABRIC**. It is the best plastering base on the market today.

## For All Plastering—Exterior and Interior

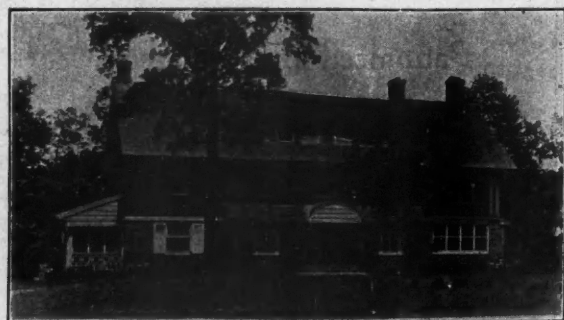
**E-COD FABRIC**, Wire Reinforced or Wood Reinforced, has the heavy asphalt felt backing which insulates against cold and heat; is moisture-proof, sound-deadening. Eliminates checking and cracking of plaster.

Write for full particulars

## MAC ADAMS & CALL

111 W Washington Street

CHICAGO, ILL.



Stained with Cabot's Creosote Stains  
B. V. White, Architect, New York

## Save Half Your Painting Bill

You can actually save more than half the cost on both material and labor, and get better results in beauty of coloring, wearing qualities and wood preservation, by using

### Cabot's Creosote Stains

instead of paint, on shingles, siding and all similar outside wood-work. The colors are rich and handsome, not "painty." They wear as long as the best paint and wear better, and they are made of creosote, which penetrates the wood and thoroughly preserves it.

### Cabot's Quilt

A genuine house-warmer. It's a cushion of dead-air spaces and is 30 times warmer than building paper. Quilt will pay for itself in a short time in saving coal, to say nothing of making the house comfortable for all time. Also a complete sound-deadener.

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

## SAMUEL CABOT, Inc., Mfg. Chemists

BOSTON, MASS.

342 Madison Ave., New York    24 W. Kinzie St., Chicago  
Cabot's Conservo Wood Preservative, Stucco Stains, Brick Stains, Damp-Proofing



# SAGER METAL WEATHER STRIPS

Give your dollar a chance to make good. Get the best that money will buy. The market for the best products that are made consists of the people who HAVE TRIED THE OTHER KIND and who know that it pays to pay the right price first, at the time of purchase, instead of paying much more during the period of use.

You will make a big hit with your

customers if you will PROTECT the value of their dollars by sticking to the value of QUALITY. Dollars and quality help the world to make good. Dollars invested in something cheap are beaten before they've had their chance. The greatest bargain that the world ever offered to humanity is QUALITY.

SAGER WEATHER STRIP is the QUALITY strip.

*Some good territory open for live agents*

## SAGER LOCK COMPANY

NORTH CHICAGO

(Established 1880)

ILLINOIS

# Do You Know Why Shinn-Flat Business Is Good When Other Lines Are Quiet?

**D**URING this year, when practically every line selling to the farmer slumped way down the business of selling Shinn-Flat Lightning Protection ran about 85% as heavy as last year, which was the greatest year in our history.

Remember, also, this was in the face of very little building, on account of high material costs for most of the year.

Our own figures, and the figures of our principal dealers, prove this. In fact, many of our dealers have shown an increase in 1921 business over 1920.

You may wonder why this business has been good when so many other lines have been almost dead. This is the reason. When money is scarce, and times are rather dull, and everyone is a little uncertain about the future, people want to protect and hold what they have. They can't afford to take chances on losses. Therefore, the Lightning Protection business is good, just as most insurance business is good. And it is natural that it should be so—it is mighty good sense for people to protect the homes and other property they have.

1922 will be a bigger year than 1921 for this business, for there will be considerable new building, and almost all new buildings are protected from Lightning as soon as finished—especially when a Shinn-Flat dealer is on the job.

You ought to represent a live business like this. We shall be glad to explain it to you fully, if you will write us.

**W. C. Shinn Mfg. Company**  
1228 Lytton Bldg. CHICAGO, ILL.



**Woven**  
in a continuous flat cable of pure copper wires 1-inch wide, with greater carrying capacity for electricity.

## ***Shinn-Flat***

### LIGHTNING RODS ARE SUPERIOR

Electricity travels only on the surface, consequently only surface wires are of any potential value in carrying current. Every wire in Shinn-Flat is a surface wire, giving it greater capacity. There are no buried wires, or useless material as in old-fashioned round cables. Shinn-Flat is the only lightning rod woven in such form as to allow for expansion and contraction, with changing temperatures.

Shinn Tops are extra heavy, made of copper tubing, with silver tipped points, held permanently in place with patented self-locking four-legged brace.

**TILE—DRAIN**  
American Router Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
National Fireproofing Co., Pittsburgh, Pa. (Vitrified).  
Sterling Foundry Co., Sterling, Ill. (Covers).

**TILE—FIREPROOF**  
National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Pyrobar").

**TILE—FLOOR AND WALL**  
Chas. F. Lorenzen Co., 521 W. Monroe St., Chicago, Ill.  
National Fireproofing Co., Pittsburgh, Pa. (Long-span hollow tile).  
The Structural Slate Co., Pen Argyl, Pa.  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Pyrobar").

**TILE—HOLLOW BUILDING**  
Truscon Steel Co., Detroit, Mich.

**TILE—PARTITION**  
W. E. Dunn Mfg. Co., Holland, Mich. ("Duntile").  
National Fireproofing Co., Pittsburgh, Pa. (Hollow tile).  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Pyrobar").

**TILE—SEWER**  
National Fireproofing Co., Pittsburgh, Pa. (Lock-joint).

**TILE—SILO**  
American Router Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
National Fireproofing Co., Pittsburgh, Pa.

**TILE—SLATE**  
F. C. Sheldon Slate Co., Granville, N. Y.

**TILE—STEEL**  
Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
Milwaukee Corrugating Co., 36th & Burnham, Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Truscon Steel Co., Detroit, Mich.

**TILE MACHINES—DRAIN (CEMENT)**  
W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").  
Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

**TILE MACHINES—FLOOR AND WALL**  
American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.  
Blystone Mfg. Co., Cambridge Springs, Pa.

**TILE MACHINES—HOLLOW BUILDING**  
American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.

**TILE MACHINES—ROOFING (CEMENT)**  
American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
L. Hansen Co., Kansas City, Mo. (Tile machines for making cement roofing tiles, both French design and S-shaped Spanish style—both interlocking in both ends and sides of the tiles. "U. S. Champion Tile Machines").

**TILE—MACHINES—SEWER**  
American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.

**TILE PLANTS**  
American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn" complete equipment for concrete tile plants; Hollow Building, Drain and Hollow Silo Tile).

**TIMBERS**  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" long-leaf yellow pine).

**TINTS—WALL**  
M. Ewing Fox Co., 136th St. and Rider Ave., New York, N. Y. ("Muralite," "Calcitrine").  
Patton Paint Co., Milwaukee, Wis.  
Wadsworth, Howland & Co., Boston, Mass.

**TOOLS—CARVING**  
Buck Bros., Millbury, Mass.  
Mack & Co., Rochester, N. Y. ("D. R. Barton").

**TOOLS—CEMENT WORKERS**  
Abram Cement Tool Co., 29 Woodward Ave., Detroit, Mich. ("Abram" cement finishing trowels, floats, groovers, rollers, grout cutters, edgers, jointers).  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
E. C. Atkins & Co., Indianapolis, Ind.  
Henry Diston & Sons, Philadelphia, Pa.  
T. B. Rayl Co., Detroit, Mich.

**TOOLS—MASONS**  
Abram Cement Tool Co., 2313 Grand River Ave., Detroit, Mich. ("Abram").  
E. C. Atkins & Co., Indianapolis, Ind.  
Henry Diston & Sons, Philadelphia, Pa.

**TOOLS—SLATERS**  
Knickerbocker Slate Corp., 153 E. 39th St., New York, N. Y.  
F. C. Sheldon Slate Co., Granville, N. Y.

**TOOLS—WEATHERSTRIP**  
Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
Federal Metal Weatherstrip Co., 1240 Fullerton Ave., Chicago, Ill.

**TOPS—CHIMNEY**  
Frantz Mfg. Co., Sterling, Ill.  
International Steel & Iron Co., Evansville, Ind.  
Sterling Foundry Co., Sterling, Ill. ("Best"), (Revolving).

**TOWERS—CONCRETE PLACING**  
American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2438 W. 34th Pl., Chicago, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").

**TOWERS—STEEL**  
Baltimore Coopers Co., Baltimore, Md.  
Bogert & Carough Co., 240 Straight St., Paterson, N. J.  
W. E. Caldwell Co., Louisville, Ky. ("Caldwell" Water, etc.).  
International Steel & Iron Co., Evansville, Ind.  
Mast, Foss & Co., Springfield, O. ("Imperial").

**TRACK—HAY**  
J. E. Porter Co., Ottawa, Ill. ("Columbian" double-head).

**TRACTORS**  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").  
Rogers Bros. Co., Albion, Pa. ("Rogers" four-wheel-drive).

**TRAILERS—AUTO, MOTOR TRUCK, ETC.**  
Hercules Corp., Evansville, Ind. ("Hercules").  
Rogers Bros. Co., Albion, Pa. ("Rogers" all-steel).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

Buyers' Guide continued on page 172

# PLAN FOR A Gurney REFRIGERATOR



No kitchen is complete without a Gurney. The Athermos All-Steel Refrigerators are long lived, efficient in service and unusually attractive in glistening white finish.

They can be furnished with rear or end ice doors and water cooler if desired at a slightly advanced cost.

If your dealer does not handle this attractive line, write direct to us for catalog and further information.

**GURNEY REFRIGERATOR CO.**

® FOND DU LAC, WISCONSIN

Permanent Chicago Exhibit, 308 N. Michigan Ave.



*Oh! It's easy to smile on a fine summer night  
When the engine is working just right,  
But the smile that's worth while is the LATTNER Smile  
At the end of that last cold mile!*

## INSTALL A LATTNER GARAGE HEATER

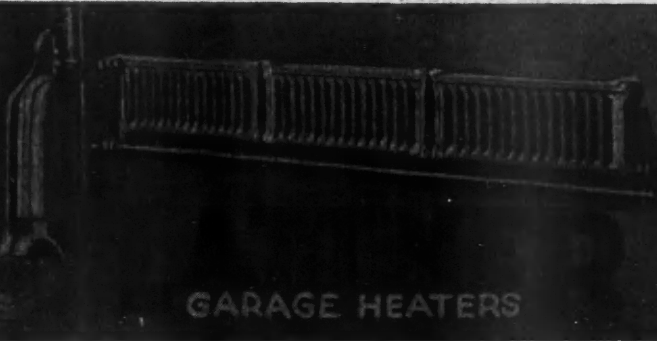
and that garage owner will wear a satisfied smile that will mean more installations.

Every garage owner will appreciate the comforts of a Lattner heater when he comes in from a long cold trip or wants to make some repairs or change tires.

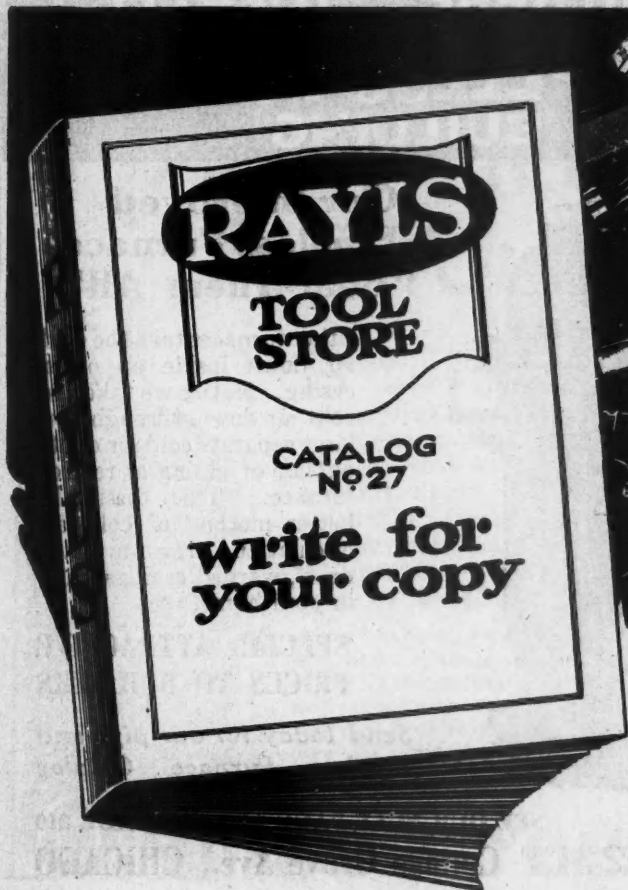
The Lattner is a hot water heating system burning kerosene, gas or gasoline, needs very little attention and is absolutely safe. Very easy to install, and an opportunity for any builder.

For complete information write for Bulletin

**THE P. M. LATTNER COMPANY**  
Cedar Rapids, Iowa



GARAGE HEATERS



**The Tool You Want  
is in the Book!**

This catalog of 350 pages should be in your possession. Every type of building tool is listed and in many different makes.

If you are interested in a new tool just look it up in Rayl's Tool Store catalog.

We will be glad to mail you this book Free on request.

**T. B. RAYL COMPANY**  
Grand River at Woodward      Detroit, Mich.

**TRANSITS**  
 A. S. Aloe Co., 513 Olive St., St. Louis, Mo.  
 The L. Beckmann Co., 1002 Jackson St., Toledo, O.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 Geier & Blum, Troy, N. Y. ("G. & B.")  
 International Correspondence Schools, Scranton, Pa.  
 Koufel & Easer Co., Hoboken, N. J.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced")  
 Spaulding-Moss Co., 42 Franklin St., Boston, Mass.  
 L. S. Starrett Co., Athol, Mass.  
 Warren-Knight Co., 186 N. 12th St., Philadelphia, Pa.  
 F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa.

**TRAMMELS**  
 L. S. Starrett Co., Athol, Mass.  
**TRANSMISSION MACHINERY**  
 W. E. Caldwell Co., Louisville, Ky.  
 Chain Belt Co., Milwaukee, Wis.

**TRAPS—BATH**  
 Donley Bros. Co., Cleveland, O. ("Donley")  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**TRAPS—REFRIGERATOR**  
 Donley Bros. Co., Cleveland, O. ("Donley")  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**TRAYS—LAUNDRY**  
 The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Kohler Co., Kohler, Wis.

**TREAS—STAIR**  
 Badger Wire & Iron Works, Milwaukee, Wis.  
 International Steel & Iron Co., Evansville, Ind.  
 Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
 Structural Slate Co., Penn Argyl, Pa. ("Pyramid")  
 Truseon Steel Co., Detroit, Mich.

**TRENCHING MACHINES**  
 Austin Machinery Corp., Railway Exchange Bldg., Chicago, Ill.

**TRESTLES**  
 W. E. Caldwell Co., Louisville, Ky. ("Caldwell")  
 Steel Scaffolding Co., Evansville, Ind. (For bricklayers, plasterers, stuccoers).

**TRIANGLES**  
 F. Weber Co., 1220 Buttonwood St., Philadelphia, Pa. (Transparent).

**TRIM—DOOR AND WINDOW**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.

**TRIM—INTERIOR (HARDWOOD)**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.  
 Morgan Co., Oshkosh, Wis.

**TRIM—INTERIOR (MARBLE)**  
 Art Stone Co., Waynesboro, Pa.

**TRIM—INTERIOR (METAL)**  
 Brace Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.  
 Edwards Mfg. Co., Cincinnati, O.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

**TRIMMERS—WOOD**  
 Oliver Machinery Co., Grand Rapids, Mich.

**TRIPODS—PORTABLE**  
 J. G. Speidel, Reading, Pa.

**TROLLEYS AND TRAMWAYS**  
 J. G. Speidel, Reading, Pa.

**TROWELS—CEMENT WORKERS**  
 Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich. ("Abram")  
 E. C. Atkins & Co., Indianapolis, Ind.  
 Henry Disston & Sons, Philadelphia, Pa.

**TROWELS—MASONS**  
 Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
 E. C. Atkins & Co., Indianapolis, Ind.  
 Henry Disston & Sons, Philadelphia, Pa.  
 Nicholls Mfg. Co., Ottumwa, Ia.  
 Southington Hardware Co., Southington, Conn.

**TRUCKS—CONCRETE**  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**TRUCKS—FACTORY**  
 Lansing Co., Lansing, Mich.  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**TRUCKS—HAND**  
 Helm Brick Machine Co., Cadillac, Mich.  
 Lansing Co., Lansing, Mich.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**TRUCKS—HOUSE MOVING**  
 La-Plant-Choate Mfg. Co., Cedar Rapids, Ia. ("La-Plant-Choate")

**TRUCKS—MOTOR**  
 Acme Motor Truck Co., Cadillac, Mich. ("Acme") Built in seven models— $\frac{1}{2}$ , 1, 1 $\frac{1}{2}$ , 2, 2 $\frac{1}{2}$ , Special 2, 2 $\frac{1}{2}$ , 3 $\frac{1}{2}$  and 5-ton capacity.  
 General Motors Truck Co., Pontiac, Mich. ("G. M. O.")  
 Winther Motor Truck Co., Kenosha, Wis.

**TRUSSES—ROOF**  
 Bogert-Carlough Co., 240 Straight St., Paterson, N. J.

W. E. Caldwell Co., Louisville, Ky.  
 International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**TRUSSES—STEEL**  
 Bogert & Carlough Co., 240 Straight St., Paterson, N. J.

W. E. Caldwell Co., Louisville, Ky. ("Caldwell")  
 Federal Bridge & Structural Co., Waukesha, Wis.  
 International Steel & Iron Co., Evansville, Ind.

**TRUSSES—WOOD**  
 McKeown Bros. Co., 112 W. Adams St., Chicago, Ill.

**TUBS—BATH**  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Kohler Co., Kohler, Wis. ("Baroness")

**TUBS—LAUNDRY**  
 Baltimore Cooperage Co., Baltimore, Md.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Slatington Slate Co., Slatington, Pa. (Clear black).

The Structural Slate Co., Penn Argyl, Pa.  
**TURNBUCKLES—WIRE ROPE**  
 Williamsport Wire Rope Co., Peoples Gas Bldg., Chicago, Ill.

Buyers' Guide continued on page 174

## CONTRACTORS AND BUILDERS — INSTALL A HARDIN-LAVIN PIPELESS FURNACE IN YOUR NEXT BUILDING

**Our Pipeless Furnaces are Superior Because —**

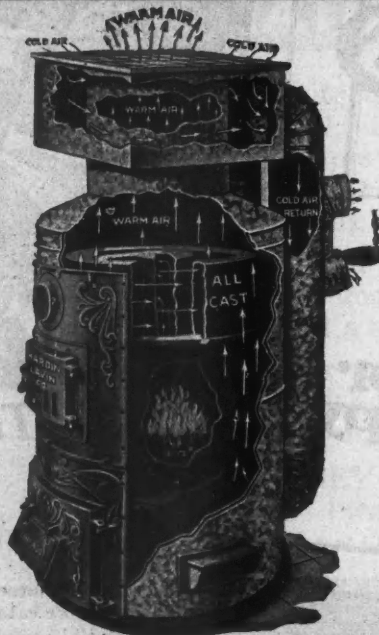
The interior and large front are all heavy cast.

Long circular fire travel saves fuel.

Improved air cleaning humidifier eliminates dust.

Reinforced dumping grates, burns hard coal, soft coal or wood economically.

Has adjustable throat to fit any basement.



**Our Improved Pipeless Furnaces "Beat Them All"**

Other furnaces take the cold air down inside an outer casing. Notice we take the cold air down through two large separate cold air ducts outside of casing at rear of furnace. This distinctly better method of cold air circulation prevents back draft, warped casings, dust in your home, etc.

**SPECIAL ATTRACTIVE PRICES TO BUILDERS**

Send today for our pipe and Pipeless Furnace Catalog

\$500,000 PLANTS BEHIND OUR GUARANTEE

SEE OUR FULL PAGE ADV. ON PAGE 210

**HARDIN-LAVIN CO.** 50 Years at 4522-34 F Cottage Grove Ave., CHICAGO



This Booklet tells all about the machine and the business. WRITE FOR IT



AUTOMATIC — RAPID — DURABLE  
ENORMOUS PRESSURE  
CAPACITY: 15,000 BRICK 1,500 BLOCKS DAILY

# \$30 DAILY PROFITS

Hundreds of Carpenters and Builders all over the United States and Canada are making better profits with Helm Brick and Block machines.

Building permits have jumped by leaps and bounds in the last few weeks and the demand for concrete brick and block cannot be supplied. This spring is going to see an unequalled demand for high grade concrete products.

## START NOW!

Put yourself in position to get your share of the business that is going to be done this spring. The first thing to do is to

WRITE FOR THE BOOKLET

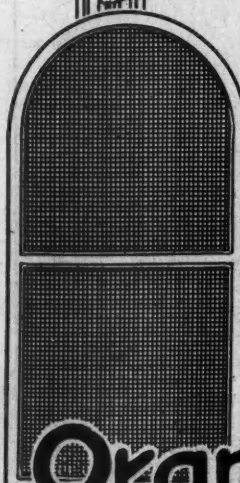
**THE HELM BRICK MACHINE COMPANY**  
779 Mitchell Street CADILLAC, MICHIGAN

# HELM

**BRICK & BLOCK MACHINES**

*Made in all sizes both hand and power machines*

# Carpenters!—Builders! An All Year Business For You—



**BIGGER Profits—Better Business**  
—Steady Income—Furnishing needed ORSCO products to the homes in your community. Every house a prospect that will materialize thru our proven plan of advertising and solicitation. One sale creates another for the comfort and convenience of the customers causes them to create a desire by others in the neighborhood.

Get in line for your territory before another progressive carpenter or builder beats you to it. No competition as we allow only one man in each city to sell ORSCO products. Write for Booklet outlining proposition. It does not obligate you in any particular.



**Orange Screen Co.** VALLEY ST. MAPLEWOOD, N.J.

**TURNTABLES—AUTO**

International Steel & Iron Co., Evansville, Ind.  
Richards-Wilcox Mfg. Co., Aurora, Ill.

**URINALS**

Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Kohler Co., Kohler Wis. (Enamelled ware).  
Structural Slate Co., Pen Argyl, Pa. ("Pyramid").

**VALVES—RADIATOR**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**VERMISHES—ARCHITECTURAL**

E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice", "Yellow Shield").  
Patton Paint Co., Milwaukee, Wis.  
Huberoid Co., 95 Madison Ave., New York, N. Y.

Wadsworth, Howland & Co., Boston, Mass.  
**VAULTS—SEPTIC CLOSET**  
Chemical Toilet Corp., 2626 S. Salina St., Syracuse, N. Y.

**VENEERS**

Wood-Mosaic Co., New Albany, Ind.  
**VENEER TAPING MACHINES**  
Black Bros. Co., Mendota, Ill.

**VENTILATING SYSTEMS**

Erwin & Co., 8734 Cottage Grove Ave., Chicago, Ill. ("Erc")  
Lowa Gate Co., Cedar Falls, Ia. ("Clay")  
King Ventilating Co., Owatonna, Minn.  
Pullman Vent. & Mfg. Co., York, Pa. ("Pullman")

**VENTILATORS—CHIMNEY**

Shrauger & Johnson, Atlantic, Iowa.  
Globe Ventilator Co., 205 River St., Troy, N. Y. ("Globe")  
Pullman Ventilator & Mfg. Co., York, Pa.  
Shrauger & Johnson, Atlantic, Iowa.

**VENTILATORS—DOOR PANEL**

V-W Ventilator Co., 101 N. High St., Columbus, O. ("V-W")

**VENTILATORS—EXHAUST**

Globe Ventilating Co., 205 River St., Troy, N. Y. ("Globe")  
Iowa Gate Co., Cedar Falls, Ia. ("Clay")

Pullman Ventilator & Mfg. Co., York, Pa. ("Pullman")

Shrauger & Johnson, Atlantic, Ia.  
Willis Mfg. Co., Galesburg, Ill.

**VENTILATORS—ROOF**

Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
Globe Ventilator Co., 205 River St., Troy, N. Y. ("Globe")

International Steel & Iron Co., Evansville, Ind.

James Mfg. Co., Fort Atkinson, Wis.  
King Ventilating Co., Owatonna, Minn.  
Milwaukee Corrugating Co., 86th Ave. and Burnham St., Milwaukee, Wis. ("Alpina")  
Moeschl-Edwards Corrugating Co., Cincinnati, O.

J. E. Porter Co., Ottawa, Ill. ("Porter")  
Pullman Ventilator & Mfg. Co., York, Pa. ("Pullman")

Shrauger & Johnson, Atlantic, Iowa.  
Willis Mfg. Co., Galesburg, Ill. ("Willis")

**VENTILATORS—SIDEWALK**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
Edwards Mfg. Co., Cincinnati, O.

**VENTILATORS—STEEL SASH**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
Bogert & Carrough Co., 240 Straight St., Paterson, N. J. ("Boca")  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.  
Shrauger & Johnson, Atlantic, Iowa.

V-W Ventilator Co., 101 N. High St., Columbus, O. ("V-W", also wood sash).  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**VENTILATORS—STORE FRONT**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.

Kawner Co., Niles, Mich.  
Pullman Ventilator & Mfg. Co., York, Pa.  
V-W Ventilator Co., 101 N. High St., Columbus, O. ("V-W")

Zouri Drawn Metals Co., Chicago Heights, Ill.

**VENTILATORS—TRANSOM**

V-W Ventilator Co., 101 N. High St., Columbus, O. ("V-W")

**VENTILATORS—WALL**

Donley Bros Co., Cleveland, O. ("Donley")  
Pullman Ventilator & Mfg. Co., York, Pa.  
V-W Ventilator Co., 101 N. High St., Columbus, O. ("V-W")

**VENTILATORS—WINDOW**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer")  
James Mfg. Co., Fort Atkinson, Wis.  
J. E. Porter Co., Ottawa, Ill.  
Pullman Ventilator & Mfg. Co., York, Pa. ("Pullman")  
Shrauger & Johnson, Atlantic, Ia.  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**VICES**

E. C. Atkins & Co., Indianapolis, Ind.  
The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill. (Pipe).

North Bros. Mfg. Co., Lehigh Ave. and American St., Philadelphia, Pa. ("Yankee" swivel base and machine).  
Oliver Machinery Co., Grand Rapids, Mich.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W")

Rockford Mitre Box Co., Rockford, Ill. (Picture frame holders for mitering).  
Stanley Works, New Britain, Conn.

**WALBOARD**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler Linabestos")  
The Beaver Board Companies, Buffalo, N. Y. ("Beaver Board")

Bird & Son, Inc., East Walpole, Mass. ("Neponset", cream white; "American")

Bishopric Mfg. Co., Cincinnati, O. ("Bishopric")

Compo-Board Co., 5777 Lyndale Ave., E., Minneapolis, Minn. ("Compo-Board")

Cornell Wood Products Co., 190 N. State St., Chicago, Ill. (Cornell Wood Board).

Edwards Mfg. Co., Cincinnati, O.  
International Insulation Co., 2832 University Ave., St. Paul, Minn. (Felted fibre board, waterproofed, for inside and outside construction).

Buyers' Guide continued on page 176

# Be a Weatherstrip Contractor

## \$5000 per Year Men Needed

One of our contractor agents started in business for himself about two years ago and in this short time is handling jobs such as the great Somerset Hotel of Chicago. He has grown from a one-man organization to two salesmen and several mechanics. What's more, he's making money hand over fist.

### Opportunities in Small Towns, Too

Not only are our big town agents making good, but also those in smaller communities are becoming independent.

"I have plenty of work and orders are coming in all the time," writes Geo. Whiting, of Collingwood, N. J.

Letters like this are coming in daily from hundreds of contractor-agents throughout the United States.

Don't pass this opportunity up. It's an all-year business—and a business of your own, requiring very little capital. We assist you to get contracts. Write for our selling plan.



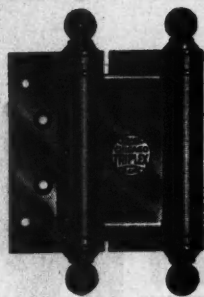
Somerset Hotel, Chicago Allmetal Weatherstrip Equipped,

**ALLMETAL WEATHERSTRIP COMPANY, 124 W. Kinzie St., Chicago, Ill.**

TRADE  
**CHICAGO**  
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**SPRING HINGES  
A SUGGESTION**

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



**Chicago "Triplex" Spring Butts**

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation for goods that are unsatisfactory.

Send for Catalogue C-36. It illustrates and describes the most complete line of Spring Hinges manufactured.

**Chicago Spring Butt Company**

CHICAGO

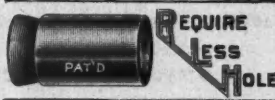


NEW YORK

**THREE REASONS WHY**  
*Ackerman-Johnson*

EXPANSIVE SCREW ANCHORS

**SAVE TIME**



**1** They require holes of only about half the depth necessary for other types. Time saved. Drills saved.

**2** After the drilling, they are set completely expanded without the aid of the screw or bolt in less time than required for the preliminary adjustment of other types, before their expansion is even started.

**3** After expansion the final application of the object to be fastened is quickly made, with ease, because the driving of the screw is in no way retarded. The screw has nothing to do with the expansion, so may be spun in with the fingers to near the final turn.

Write us for more WHYS.

*Ackerman-Johnson Co.*

MANUFACTURERS

627 West Jackson Boulevard

CHICAGO

No. 15

Other Myer Products

Pumps and Hay Tools



**MYERS GIANT**

**Door Hangers and Track**

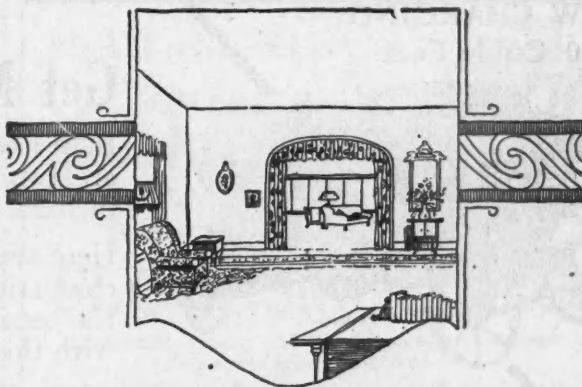
You know the kind of weather when the Myers Giant Tandem Adjustable Hanger and heavy Tubular Girder Steel Track will be appreciated most. It requires an extra heavy door or a mighty bad day to out this combination out of the running. Both Hanger and Track are designed for hard service and stormy weather. They "push and pull" easily and can be opened and closed the year through.

Friendly in fair as well as stormy weather, always fit and ready for service, they satisfy users. Glad to mail catalog and quote.

**The F. E. Myers & Bro. Co.**

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THE MYERS GIANT TUBULAR TRACK  
PATENTED



**MURALITE**

**KEEP** the cost down! People are just as anxious to decorate and redecorate as ever. But oil paints are costly. Muralite is not. At a cost of only a dollar or two a room, anyone can secure beautiful, lasting, sanitary walls and ceilings. Muralite is the hot water calcimine—the standard interior finish for all sorts of buildings everywhere. Let us send color card and full details about Muralite—NOW.

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NEW YORK

CHICAGO



MacAndrews & Forbes Co., 300 Fifth Ave., New York. ("Fiberlic").  
 Messchl-Edwards Corrugating Co., Cincinnati, O.  
 Richardson Co., Melrose Park, Ill. ("Richardson").  
 Roberts Mfg. Co., Marion, Ind. ("Ideal").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").  
 United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Sheetrock").

**WASHERS—BIBB**  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**WASHSTANDS**  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**WATERERS—STOCK**  
 J. E. Porter Co., Ottawa, Ill. (Automatic water bowls for cattle).

**WATERPROOFING FOR CEMENT**

Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y. ("Anti-Hydro").  
 Barber Asphalt Paving Co., Land Title Bldg., Philadelphia, Pa. ("Genasco" positive seal).

Bitu-Mortar Waterproofing Co., Inc., 332 E. 27th St., New York, N. Y. ("B. M. No. 78").

Samuel Cabot, Inc., 141 Milk St., Boston, Mass. ("Cabot's").  
 H. W. Johns-Manville Co., Madison and 41st, New York, N. Y.

Price Fire & Water Proofing Co., Poughkeepsie, N. Y.  
 Richardson Co., Melrose Park, Ill. ("Flex-a-tile" paints, felts and asphalts).

M. L. Schlueter, 225 W. Illinois St., Chicago, Ill. (Concrete Clinch Waterproofing).  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced").

**WATER SUPPLY SYSTEMS**

Andrews Heating Co., 2520 University Ave., S. E., Minneapolis, Minn. ("Andrews").  
 Baltimore Cooperage Co., Baltimore, Md. ("Simplex").

W. E. Caldwell Co., Louisville, Ky. ("Caldwell").  
 Erwin & Co., 3734 Cottage Grove Ave., Chicago, Ill. ("Ereco").

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").  
 Milwaukee Air Power Pump Co., Milwaukee, Wis. ("Milwaukee Air Power" domestic and individual non-storage water supply systems).

Romort Mfg. Co., 1923 Michigan Ave., Chicago, Ill. (For gasoline filling stations).

Buyers' Guide continued on page 178



# BOMMER

## SPRING HINGES

Standard for over 45 years, and steadily improved, retaining superiority over all others. In universal demand. Easiest to apply.

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

**LOW CHARGING**  
 10 Cubic Feet



Patented

## Get More Production in 1922

Increased yardage and better quality concrete are two factors most essential to profit making in 1922.

Here are the machines that are built to meet the competitive conditions certain to prevail during the coming construction season. You can win out with this equipment.

## KEYSTONE ALL-STEEL MIXERS

Thirty Seconds for mixing and twelve to sixteen seconds for discharging is the uniform performance of this super-mixer. Strong because simple with few parts, all interchangeable, and sold at the lowest price for such an efficient, sturdy and durable machine.

### KEYSTONE HALF-BAG MIXER

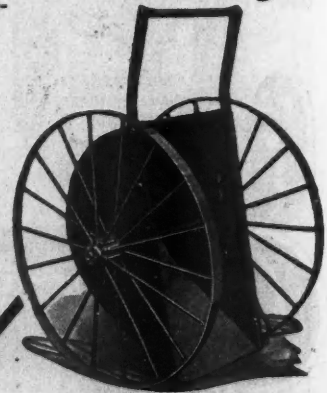
Economical for small jobs because of low operating cost; providing capacity enough for much of the large work, Model Six, Keystone Mixer is the logical machine for all except the big contractor. No builder can afford not to have at least one Keystone.

Its light weight makes it easy to move about the work and from one job to another.

Bulletin 10-B gives full details of Power Loader, Low Charging, and Half-Bag Mixers, also Keystone Cart. Write before you buy.

### Keystone Cart

Enables one man to do the work of three with wheelbarrows. Built to last. Axle runs clear through; no chance of wheels breaking off. Dumps clean. A time saver and money maker.



**[GRAY IRON FOUNDRY COMPANY**

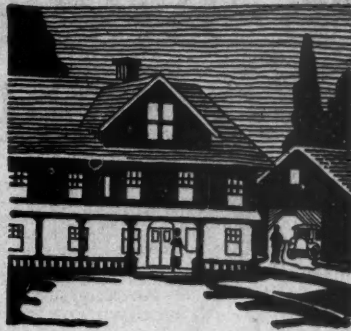
Established 1903

READING, PENNSYLVANIA

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Advise  
This  
Man?



The man who wants private utilities in his home? Can you tell him what company makes the best light, water and sewage disposal systems for the country home, the building or institution far removed from public utilities? Send for the bulletins illustrating and describing.

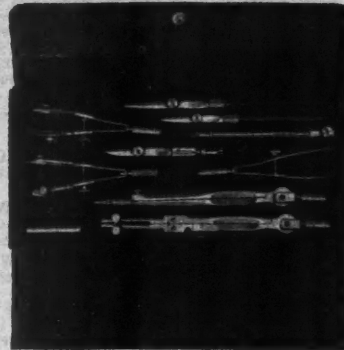


Running Water Electric Light Sewage Disposal  
These are FREE to Architects, Contractors and Builders. They contain the complete Kewanee line of more than 150 sizes and models of REAL PRIVATE UTILITY PLANTS, that have been the standard for nearly a quarter of a century. Helping your clients plan their home comforts is an important part of your service. Kewanee will help you. Write today.  
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424 S. Franklin St. Kewanee, Illinois

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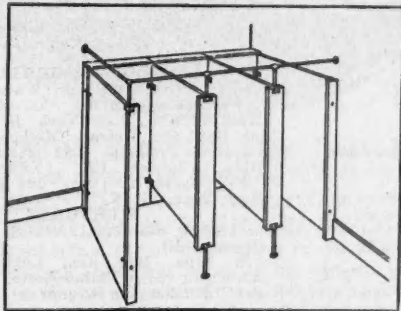
And is your one chance to earn—the biggest money of your life, and will be one of the most profitable investments you have ever made.

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The essential purpose of this Chapter 5 is to make readily available to everyone the results of an analysis of sizes, arrangements, erection and standardization of parts with respect to Toilet Enclosures that may be most effectively, quickly and economically installed to meet sanitary and practical requirements.

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"Back to pre-war prices"

Yours for a

## SMOOTH FINISH

The Triple "A"  
Spring Driven



## FLOORSMOOTHER

*It will smooth out the rough spots in your floors and leave a perfect finish*

Where else does the character of workmanship stand out like on a finished hardwood floor? It's as plain as the "writing on the wall." It goes farther in establishing the mechanical rating of a builder in the mind of a prospective owner or tenant than any other part of the job, and it's a wise builder who gives special attention to the manner of finishing his floors.

The Triple "A" has stood the test of time for over twelve years, and is universally acclaimed by all architects and builders, who have seen its work, as the *very best* floor surfacing machine on the market. It excels in quality of work, ease of operation, economy and ready adaptability to any job. The wonderful labor saving **SPRING MOTOR**, with which this machine is equipped, gives it a three-fold work performing capacity, as compared with other hand power machines.

**Sold at pre-war prices**

In doing "our bit" to stimulate trade during the winter months we are now offering this machine for a limited time at the price it sold for before the war. Order now and save one-third of the cost, besides being sure of having the machine when you need it in the big spring rush that is surely coming. At that time we fear it will be impossible for us to fill orders promptly enough to satisfy those who wait until they need the machine.

Full information mailed upon request. Ask for our easy payment plan.

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4601 Ravenswood Ave., Chicago, Ill.

**WAX—FLOOR**  
 S. C. Johnson & Son, Racine Wis. (Johnson's Prepared Wax, Paste, Liquid and powdered).  
 E. B. Moore & Co., 15 E. Van Buren St., Chicago, Ill.  
 Eugene E. Nice, 268 S. 2d St., Philadelphia, Pa. ("Nice").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
 Wadsworth, Howland & Co., Boston, Mass.

**WAXING MACHINES**  
 Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill. (For waxing and polishing floors).

**WEATHERSTRIPS**  
 Acme Metal Weatherstrip Co., Rochester, N. Y.  
 Allmetal Weatherstrip Co., 126 W. Kinzie St., Chicago, Ill. ("Allmetal").  
 Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb. ("Occo" metal).  
 Diamond Metal Weatherstrip Co., 626 Kerr St., Columbus, O. ("Diamond").  
 Erwin & Co., 3784 Cottage Grove Ave., Chicago, Ill. ("Tabor").  
 Federal Metal Weatherstrip Co., 1240 Fullerton Ave., Chicago, Ill. (Zinc).  
 Lunken Window Co., 4750 Cherry St., Cincinnati, O. (Unit Window).  
 Orange Screen Co., Mapleswood, N. J. ("Orsco" metal).  
 Sager Lock Co., North Chicago, Ill.

**WEATHERVANES**  
 Burkett Lightning Rod Co., Fremont, O.  
 Edwards Mfg. Co., Cincinnati, O.  
 Milwaukee Corrugating Co., 36th and Burnham, Milwaukee, Wis.  
 National Sheet Metal Roofing Co., 339 Grand St., Jersey City, N. J.

**WHEELBARROWS**  
 Abram Cement Tool Co., 3818 Grand River Ave., Detroit, Mich.  
 Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
 Judy Mfg. Co., Centerville, Ia. ("Akron").  
 T. B. Rayl Co., Detroit, Mich.  
 Standard Scale & Supply Co., Pittsburgh, Pa.  
 Sterling Wheelbarrow Co., Milwaukee, Wis.

**WINCHES—BOOM**  
 O. K. Clutch & Machinery Co., Columbia, Pa. ("O. K.").  
 Sargon Derrick Co., 8101 Grand Ave., Chicago, Ill. (Hand and Power).  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.

**WINDMILLS**  
 Baltimore Cooperage Co., Baltimore, Md.  
 W. E. Caldwell Co., Louisville, Ky. ("Caldwell").  
 Mast, Foss & Co., Springfield, O. ("Imperial").

**WINDOWS—BOXHEAD**  
 Lunken Window Co., 4750 Cherry St., Cincinnati, O.  
 Morgan Co., Oshkosh, Wis.

**WINDOWS—CASEMENT**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Erwin & Co., 3784 Cottage Grove Ave., Chicago, Ill. ("Tabor").  
 Whitney Window Corp., 152 E. Lake St., Minneapolis, Minn. ("Whitney").

**WINDOWS—CELLAR**  
 Bogert & Carlough Co., 240 Straight St., Paterson, N. J.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.  
 Majestic Co., Huntington, Ind.  
 Shrauger & Johnson, Atlantic, Iowa.

**WINDOWS—COTTAGE**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.

**WINDOWS—DOUBLE-ACTING**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Morgan Co., Oshkosh, Wis.

**WINDOWS—HOGHOUSE**  
 Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit, Mich.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Shauger & Johnson, Atlantic, Iowa.

**WINDOWS—HOLLOW METAL**  
 Detroit Show Case Co., 1654 W. Fort St., Detroit, Mich.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 The Kawneer Co., Niles, Mich.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Willis Mfg. Co., Galesburg, Ill.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**WINDOWS—PUTTYLESS**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Shrauger & Johnson, Atlantic, Ia.

**WINDOWS—REVERSIBLE**  
 Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit, Mich.  
 Erwin & Co., 3784 Cottage Grove Ave., Chicago, Ill. ("Tabor").  
 Kawneer Co., Niles, Mich.

**WINDOWS—ROOF**  
 Iowa Gate Co., Cedar Falls, Ia. ("Clay").  
 Milwaukee Corrugating Co., 36th and Burnham, Milwaukee, Wis.  
 Shrauger & Johnson, Atlantic, Ia.  
 Willis Mfg. Co., Galesburg, Ill.

**WINDOWS—STEEL**  
 Bogert & Carlough Co., 240 Straight St., Paterson, N. J. ("Boca").  
 Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit, Mich.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., 36th and Burnham, Milwaukee, Wis.  
 Truscen Steel Co., Detroit, Mich.

**WINDOWS—UNIT (COMPLETE ASSEMBLED)**  
 Lunken Window Co., 4750 Cherry St., Cincinnati, O.

**WINDOWS—WALL**  
 Shrauger & Johnson, Atlantic, Ia.

**WINDOWS—WIRE GLASS**  
 Edwards Mfg. Co., Cincinnati, O.  
 Gould Mfg. Co., Oshkosh, Wis.  
 Willis Mfg. Co., Galesburg, Ill.

**WIRE**  
 Concrete Engineering Co., Omaha Nat. Bank Bldg., Omaha, Neb.  
 International Steel & Iron Co., Evansville, Ind.

**WOOD—ASBESTOS**  
 Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
 H. W. Johns-Manville Co., 41st St. and Madison Ave., New York, N. Y. (Transite and Ebony for construction and electrical purposes).  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**WOODWORK**  
 Gould Mfg. Co., Oshkosh, Wis.  
 Hartmann-Sanders Co., 2187 Elston Ave., Chicago, Ill.  
 Morgan Co., Oshkosh, Wis.

**WOODWORKERS—VARIETY**  
 American Cement Machine Co., Keokuk, Ia.  
 American Saw Mill Machinery Co., 1860 Hudson Terminal, New York, N. Y. ("American").  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

The Crescent Machine Co., Leetonia, O. ("Crescent").  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 The Parks Ball Bearing Machine Co., Cincinnati, O.  
 Sidney Machine Tool Co., Sidney, O.  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**WOODWORKING MACHINERY—FOOT AND HAND POWER**  
 W. F. & Jno. Barnes Co., Rockford, Ill.  
 Crescent Machine Co., Leetonia, O. ("Crescent").  
 The Parks Ball Bearing Machine Co., Cincinnati, O.  
 Sidney Machine Tool Co., Sidney, O.  
 Silver Mfg. Co., Salem, O. ("Silver's").  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 James L. Taylor Mfg. Co., 108 Parker Ave., Poughkeepsie, N. Y.

**WOODWORKING MACHINERY—POWER DRIVEN**  
 American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
 American Saw Mill Machy. Co., 1860 Hudson Terminal, New York, N. Y. ("American").  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

The Crescent Machine Co., Leetonia, Ohio.  
 Knickerbocker Co., Jackson, Mich. ("Knickerbocker").  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 The Parks Ball Bearing Machine Co., Cincinnati, O.

Sheldon Mfg. Co., Nehawka, Neb. ("Sheldon-Trusty").  
 Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").  
 Sidney Machine Tool Co., Sidney, O.  
 Silver Mfg. Co., Salem, O. ("Silver").  
 Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 James L. Taylor Mfg. Co., 108 Parker Ave., Poughkeepsie, N. Y.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**WOODWORKING MACHINERY—SECOND-HAND**  
 Oliver Machinery Co., Grand Rapids, Mich.  
 Sidney Machine Tool Co., Sidney, O.  
 Woodworker Mfg. Co., Detroit, Mich.

**WOODWORKING MACHINERY—UNIVERSAL**  
 American Router & Mfg. Co., 238 Fourth Ave., Pittsburgh, Pa.  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

Standard Scale & Supply Co., 1631 Liberty Ave., Pittsburgh, Pa.  
 The Crescent Machine Co., Leetonia, Ohio.  
 Oshkosh Mfg. Co., Oshkosh, Wis.  
 The Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
 Sidney Machine Tool Co., Sidney, O.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master").

**WOOL—MINERAL**  
 Herrick Refrigerator Co., Waterloo, Ia.  
 H. W. Johns-Manville Co., 41st St. and Madison Ave., New York, N. Y.  
 T. B. Rayl Co., Detroit, Mich.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
 U. S. Mineral Wool Co., 280 Madison Ave., New York, N. Y.

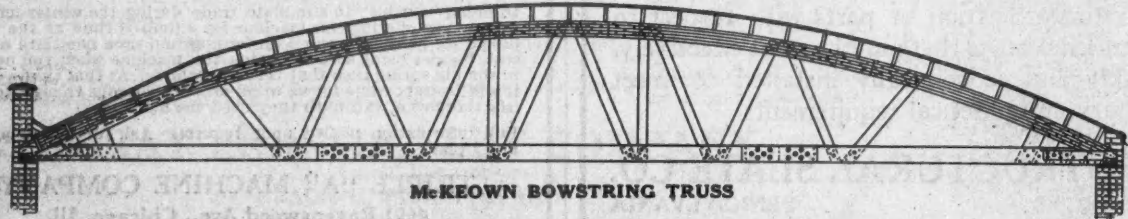
**WRENCHES**  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 North Bros. Mfg. Co., Lehigh Ave. and American St., Philadelphia, Pa. ("Yankee" ratchet tap wrenches).

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THE NEXT TIME YOU ARE IN THE MARKET FOR  
 THEY CAN FURNISH YOU WOOD TRUSSES ERECTED  
 IN PLACE OR IN KNOCKDOWN FORM F. O. B. THE JOB.

**ROOF TRUSSES**



McKEOWN BOWSTRING TRUSS

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# ECONOMIZE ON BUILDING COSTS



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## "Reliable" Scaffold Brackets

They are made of steel and will last indefinitely; can be attached in a few seconds and detached without defacing siding. The heavier the load the tighter they cling, reducing chance for accidents to a minimum.

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are manufactured by a special process which insures lead perfection and remarkable lasting qualities. Hexagon, yellow polished, stamped in gold; 9 degrees, 2B to 6H.

List Price, \$1.25 a Dozen

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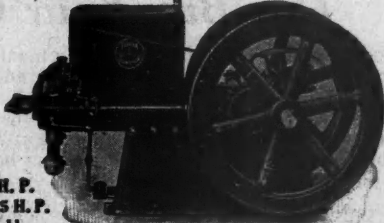
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USE  
**FULLER & JOHNSON**  
POWER  
RELIABLE

**EVERY CONTRACTOR REALIZES** the necessity of good, reliable power on the job. That's the reason their choice is the **FULLER & JOHNSON Model "N"** gasoline engine. It is the engine that's absolutely dependable. Therefore, whether buying an engine alone or as part of an outfit, contractors specify the **FULLER & JOHNSON Engine**. This also explains why leading manufacturers of combined power driven outfits have adopted the **FULLER & JOHNSON Engine** as standard equipment. Write for catalog 21A.

Let your next engine be a **FULLER & JOHNSON ONCE AN OWNER — ALWAYS A BOOSTER**

**FULLER & JOHNSON MFG. CO.**

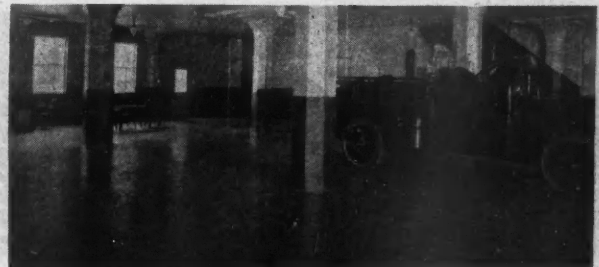
Established 1910  
129 Alms Street Madison, Wis.



Built in sizes,  
1½, 3, 5, 7, 9, 12 H. P.  
Other models up to 25 H. P.  
Stationary or Portable.

This engine fills the contractors' requirements.

EASY TO START



## Lay Better Composition Floors use **Everlasbestos** Flooring

You are absolutely certain of the architect's approval and the owner's satisfaction when you lay Everlasbestos — The Composition of Highest Quality —

Use it for stores, offices, schools, factories, restaurants and kitchens, and bathrooms in homes. Easily laid, hardens in 24 hours, bonds with wood or concrete.

Write for complete information today

**Everlasbestos Flooring Company**

North & Amity Streets  
ROCHESTER, N. Y.





# Garage Sliding Doors

## Run Smoother Last Longer

**F**OR garage door construction there is a specially built A-P hanger with malleable iron truck frame, roller bearing wheels, ball bearing swivel and anti-friction guide rollers.

The guide rollers turn as they come into contact with the side of the track, preventing friction and insuring ease of operation. This feature is protected by A-P patents. No other hangers have it.

Brackets are of malleable iron. Corrugated washers on top hold track loop immovable. Folding sliding doors fitted with this hardware can't get out of alignment.

The A-P track for garage doors is made of 16-inch gauge steel with round troughs for hanger wheels to run in. It is far superior to tracks with square turns, because, as you know, right angle bends weaken metal. Round trough tracks carry heavier loads and last longer than the square turn variety.

### Send for Catalog

Send for illustrated catalog which describes this and other A-P improved hardware specialties for modern garages.

Allith-Prouty Co.,

Danville, Ill.



TRADE MARK REGISTERED.

**AS HOT AS—THEY LIKE IT!**  
YES, SPEAKING OF THE

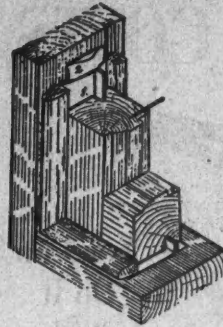
**FRONT RANK**  
STEEL FURNACES

Your clients will sure like it because it gives them full value for all coal consumed. Now's the time, dealers, to be thinking about next winter's heating problems; write for catalog.

**HAYNES-LANGENBERG MFG. CO.**  
4052 Forest Park Blvd., St. Louis, Mo.

## Only Good Carpenters and Builders Need Apply

Exclusive rights on a quota basis for the installation of



## Acme Cushion Weatherstrip

will be given only to those carpenters and builders who will learn from Acme experience the correct way to install this simple weather strip and whose activity and ability as workmen warrant the profits to be made from an exclusive proposition. The Acme Cushion feature

provides for sash expansion and contraction at the same time insuring a free running window, but tight.

If you feel that you can qualify describe the territory that you want and state why you can guarantee covering it. Your outfit will consist of special tools, which we'll supply at cost, a sample demonstrating model (like the illustration herewith), material and instruction sheets showing just what to use for various conditions and a small quantity of stripping.

Get your application in today. You'll be given a chance for exclusive rights unless someone else gets ahead of you.

The Acme Weather Strip Company

3 Circle Street, Rochester, N. Y.

**For This Original and Only  
Cushion Weatherstrip**

## Electric Rotary Machine



Sandpapering Disc  
14 inches in  
diameter

For sandpapering and finishing wood floors old or new

Stone Rub Holder Attachment

For surfacing and polishing marble, mosaic, terrazzo, cement, etc.

### This Buy Your Gain

Do you know that this is the only machine for properly finishing floors? That contractors and builders have bought it after trying all other makes? That there are thousands of these machines in daily use? That it will pay you to investigate our claims for it? We can show you how this machine will be the best buy.

Write for particulars today.

**THE ELECTRIC ROTARY MACHINE CO.**  
40 South Clinton Street, Dept. J-E Chicago, Ill.

# BIRD'S NEPONSET BLACK BUILDING PAPER



SAVES FUEL  
STAYS WATERPROOF  
KEEPS OUT DRAFTS AND DAMPNESS  
LASTS AS LONG AS THE BUILDING

*Residence of Philip P. Barber  
Tenafly, New Jersey  
Architects: E. C. Hummer & Bro.  
601 Fifth Ave., N. Y. C.*

## BIRD & SON, inc.

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BIRD  
**NEPONSET**  
PRODUCTS



# Kawneer

SOLID COPPER  
STORE FRONTS



Resilient or Vise Like Grip on Plate Glass? Which will give your customers best service?

Any one of the 150,000 Kawneer Store Fronts successfully installed with our patented, resilient spring glass settings, points to the answer.

Contractors everywhere are building prestige by specializing in Kawneer Resilient Grip Store Fronts. Let us show you how you can make money in this line of work.

Write For Full Information To-day

THE  
**Kawneer**  
COMPANY

1726 FRONT ST.

NILES, MICH.

## Distributors Stock Steel Joists In Mill Lengths

NATIONAL STEEL JOIST sections are shipped in long lengths to structural steel fabricating companies throughout the United States. Delivery to the construction job is made from these stocks, every piece sawed to the exact length specified, painted and ready in every way to be set in place.

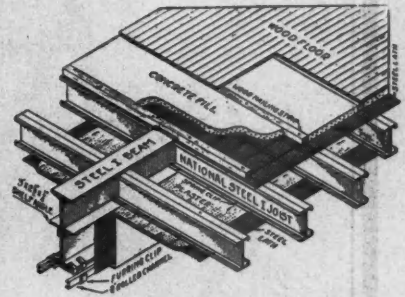
With these sturdy, light, steel joists is constructed the modern fireproof floor for Office Buildings, Stores, Apartments, Schools, Hotels, Hospitals, Residences, etc.

During construction of a building, steel joists represent but a small part of the total cost. When the building is completed they are covered up by ceiling plaster and floor surface. Made to serve unseen, yet they form the structural or supporting members of that part of a building which takes the main burdens and wear of occupancy.

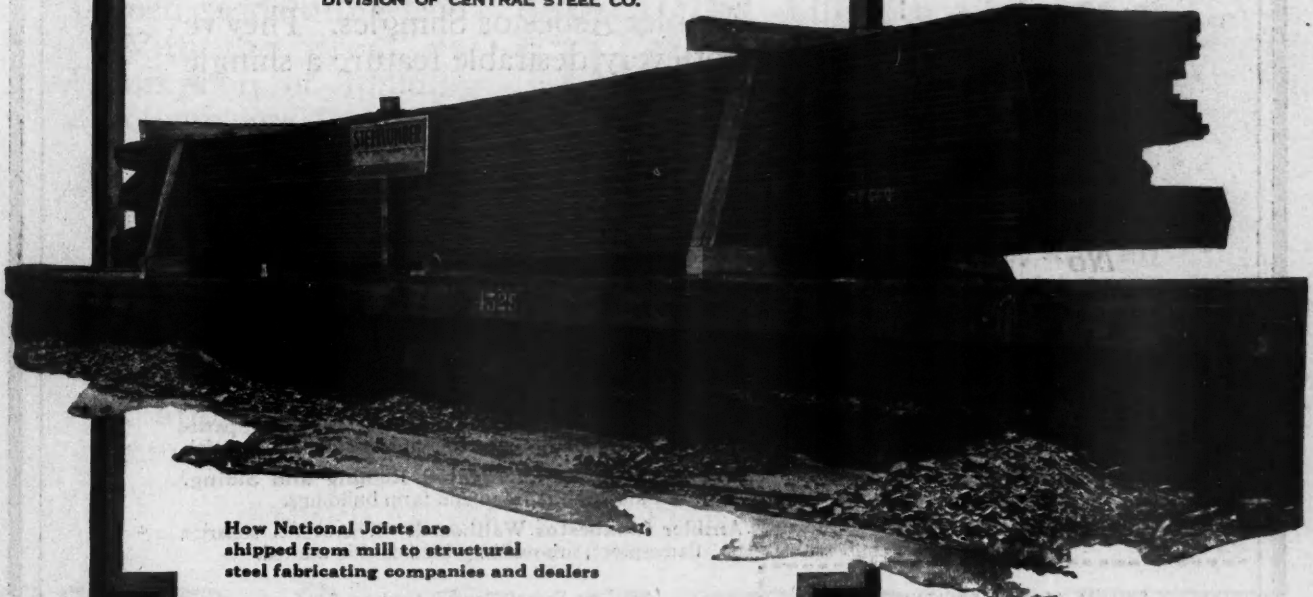
In fifteen years this product has set the standard for Permanency, Strength and Incombustibility in building construction.

Write for copy of pamphlet giving details of firesafe first floor for residences.

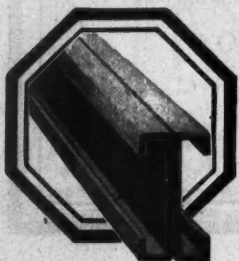
**The NATIONAL PRESSED STEEL CO.**  
 MASSILLON, OHIO  
 DIVISION OF CENTRAL STEEL CO.



Detail of Steel Joist Full Fireproof Floor Construction



How National Joists are shipped from mill to structural steel fabricating companies and dealers



# NATIONAL STEEL JOISTS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



# Talk about *talking* points for dealers!

**Fireproof—**

**No  
paint—**

**No  
repairs—**

**Last  
forever**

**T**HERE are no shingles or other roofing materials in the world that have the talking points of Ambler Asbestos Shingles. They've got every desirable feature a shingle *can* have.

## FIREPROOF AMBLER ASBESTOS SHINGLES

**Ambler Asbestos Shingles.** Made in three styles, four permanent colors, Newport grey, natural slate, red and green. Lie snug to the roof, forming water-tight and fire-tight covering.

**Ambler Asbestos Building Lumber.** For siding, partitions, fire doors and wherever fire resistance is essential.

**Ambler Asbestos Corrugated Roofing and Siding.** For industrial, railroad and farm buildings.

**Ambler Linabestos Wallboard.** Wherever a superior flame-proof, fire-resisting wallboard is wanted.

*Send for Samples and Literature showing reproductions of installations.*

### ASBESTOS SHINGLE, SLATE & SHEATHING CO. AMBLER, PENNA.

BRANCH OFFICES: — Atlanta—Boston—Buffalo—Chicago  
Cincinnati—Cleveland—Minneapolis—New York  
Philadelphia—Pittsburgh—Washington.

*Distributors throughout the Country.*

ASBESTOS SHINGLE, SLATE & SHEATHING CO.,  
Ambler, Penna., Dept. A.

Dear Sirs:—

Kindly reserve my territory for me as sole distributor of Ambler Asbestos Shingles and Building Products and send your man along with your proposition. This in no way obligates me.

Signed.....

Address.....

State.....





# 1922 will be a Kragstone year

Kragstone sales have been good during 1921. With the great resumption of building activity we look for a Kragstone "year" in 1922.

The possibilities of Kragstone for beauty, permanence, economy and ease of handling, are becoming more widely recognized, through thousands of applications all over the country.

**KRAGSTONE**  
AMERICAN MAGNESIA PRODUCTS CO. CHICAGO  
**STUCCO**

Its universal adaptability to all forms of construction and styles of architecture has made it increasingly popular with the builder.

The Kragstone dealer thus has a well proven product and an unlimited field in which to build up a business that is highly profitable.

We will be glad to send you our dealer's proposition.

AMERICAN MAGNESIA PRODUCTS COMPANY  
 5732 Roosevelt Road, Chicago, Ill.

# KRAGSTONE

*The* STUCCO BEAUTIFUL

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## You Can Figure Any DESCO Store Front Accurately

**N**OT only can any carpenter install Desco store fronts, but any contractor can accurately figure a Desco front. This means profit on every Desco job for the contractor who is taking advantage of the growing demand for modern store fronts.

### A New Business For You

Become the store front specialist in your town. No experience or training is necessary. The book we will send you contains the sum total of our years' experience in building store front material.

It describes Desco construction, built to give permanent satisfaction; our method of cushion-

ing the glass against creosoted cypress blocks; the provisions for ventilation and drainage. It contains illustrations of a number of attractive store front designs and tells you the businesses they fit.

### Easy to Start

Most retailers realize that a modern store front means more business. Show them how attractive and inexpensive a Desco front is. Take the measurements and we will send the material ready for a rapid money making installation.

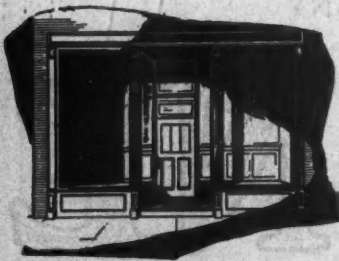
The book contains a front for practically every type of business in various widths and locations—it is literally full of suggestions, drawings and helpful information. Every one of them is a money maker for you. And the book is FREE. Send a post card for it today.

See Sweet's Catalog Pages 819-827 for Desco Details

DETROIT SHOW CASE COMPANY

1654 Fort Street, W.

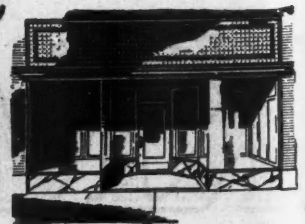
DETROIT, MICHIGAN



It is a simple job to tear out an old-fashioned front. Shoring up the upper structure and installing an I-beam requires little equipment. Fitting the building for the new Desco store front takes but a short time ordinarily.

# Desco

METAL



## STORE FRONTS

Ordinary carpenters can install Desco store fronts profitably—they save time in installing Desco construction because it is simple. Be sure to get full particulars.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

# Things every builder should know about SHEETROCK

Sheetrock is plaster in wallboard form.

It comes all ready for use, in broad, ceiling-high sections that any good carpenter can put up easily and quickly.

It makes rigid, smooth-surfaced, fireproof walls and ceilings, as permanent as the building itself.

### It Is a Rock Product

Sheetrock is made from rock, from pure gypsum, which from time immemorial has been the finest material for plastering.

Made from rock, it will not warp or buckle. It cannot burn. It is so processed that it can be sawed and nailed like lumber.

### Sheetrock Is Economical

Sheetrock saves the cost of lathing; it is nailed direct to the joists and studding. It eliminates the expense of mixing plaster.

With Sheetrock, the same type of labor—carpentering—is used throughout for building the walls. Sheetrock does away with such costly delays as waiting for the building to dry. It can be erected in any weather.

### Takes Any Decoration

Sheetrock can be papered, painted or paneled. It takes wallpaper perfectly.

The USG patented reinforcement at the joining edges provides such a tight, flush joint that when Sheetrock Finisher is used with Sheetrock, it is almost impossible to detect where the sections join under the wallpaper.

### Has Many Uses

Sheetrock is used in much new construction, especially in moderate-sized and moderate-priced dwellings. It is just the material for partitions in home or office. It makes non-bulging, firesafe

walls and ceilings for furnace rooms, vegetable cellars and garages.

Clip and mail the coupon below for a sample of Sheetrock and our plan to help you get Sheetrock jobs.



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

# SHEETROCK

## The FIREPROOF WALLBOARD

UNITED STATES GYPSUM COMPANY, General Offices: Dept. A, 205 W. Monroe St., Chicago, Ill.

*World's Largest Producers of Gypsum Products*

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

MINES AND MILLS: Oakfield, N. Y., Plasterco, Va., Cleveland, Ohio, Gypsum, Ohio, Genoa, Ohio, Detroit, Mich., Alabaster, Mich., Grand Rapids, Mich., Milwaukee, Wis., Fort Dodge, Iowa, Blue Rapids, Kansas, Southard, Okla., Eldorado, Okla., Piedmont, S. D., Loveland, Colorado, Denver, Colorado, Arden, Nevada, Amboy, California

UNITED STATES GYPSUM CO.

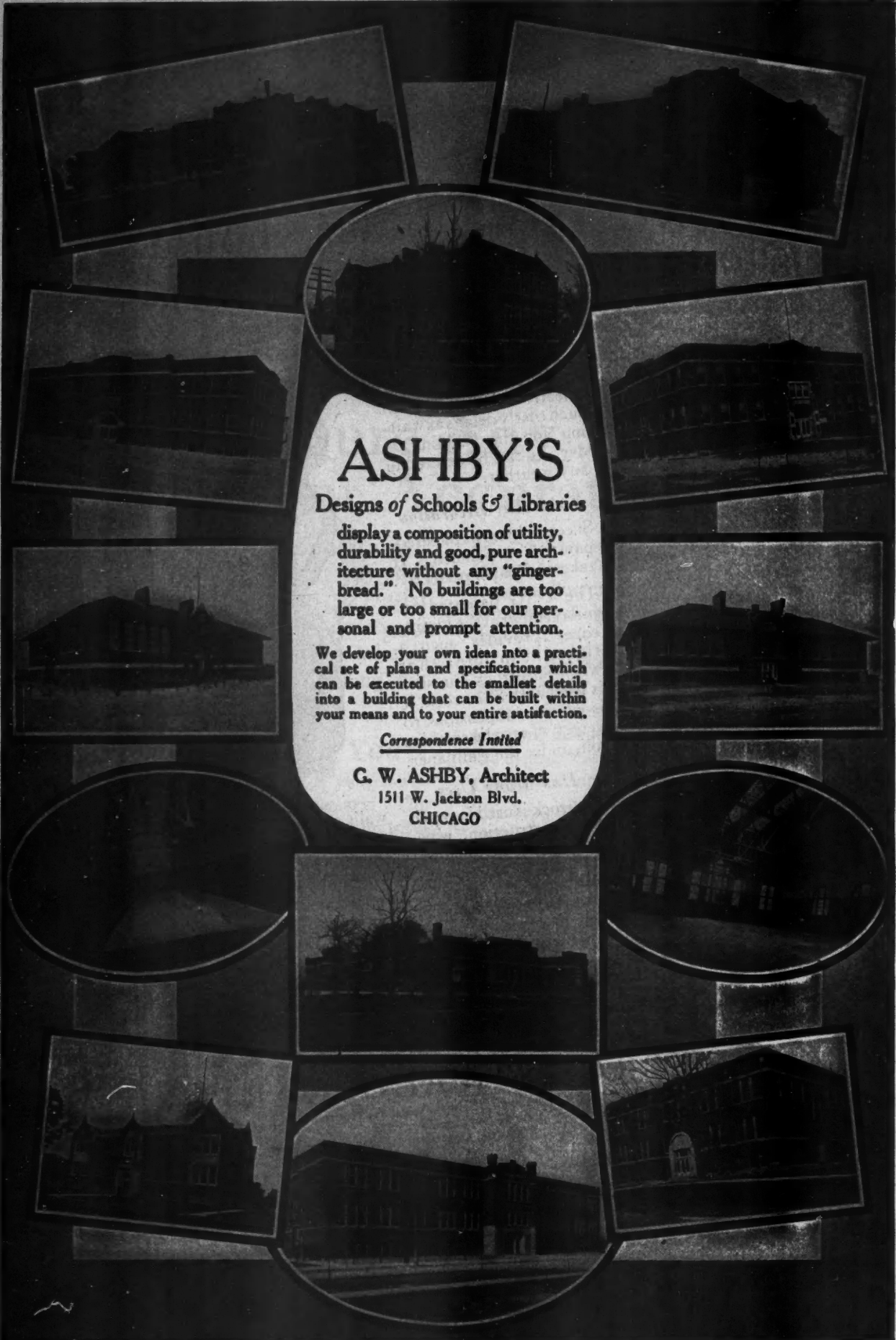
Dept. A, 205 West Monroe St., Chicago, Ill.

I am interested in knowing more about Sheetrock—please send sample.

Sheetrock comes in standard sizes: 3/8 inch thick, 32 or 48 inches wide and 6 to 10 feet long

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Designs of Schools & Libraries

display a composition of utility, durability and good, pure architecture without any "gingerbread." No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

*Correspondence Invited*

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CHICAGO

# Money Making Building Facts Explained

**N**OW ready for you—the new Library of Carpentry and Contracting—showing the very things that are helping other men make more money—all the new and better ways of doing things—a complete course in building methods for the beginner—a handy reference guide for the seasoned workman.

Every carpenter, every contractor, every man interested in any kind of building should see these books. They are the combined work of 25 well-known men, each an expert in his own particular field. They explain everything you want to know about carpentry and the contracting business. Every problem, great and small, every type of building, every new and improved method is made clear with hundreds of plans, pictures and blueprints.

Over 200,000 men in various lines of industry have made good and are earning more money because of what they have learned from the A. T. S. Books. What other men have done, you can do too.

## World's Greatest Building Books

Just to give you an idea of what these books contain and what they will do for you, read through the partial table of contents given below. There are several thousand different subject but these few will show how complete the books are.

### Partial Contents:

Carpentry (including everything from the raw timber and tools to the trimming and turning over to the owner) — Stair-Building — Steel Square—Plastering and Painting—Mechanical Drawing—Blue Print Reading—Architectural Drawing—Sheet Metal Work—Building Superintendence—Underwriters' Requirements—Heating and Ventilating—Steam and Hot Water Fitting—Sanitary Appliances—Water Supply—Drainage and Venting—Domestic Hot Water Supply—Hardware—Estimating—Contracts and Specifications—Legal Relations—Building Code—General Index and Review Questions and Index to each volume.

**5 Big Volumes  
2140 Pages  
1000 Pictures  
Blueprints and Plans**

## Cash In on What Other Men Have Learned

The old days of hit-or-miss experience are passed. You have got to know if you want to keep in the running now. It takes time and work to figure things out and keep doing it year after year. Don't you keep on doing it. Take the short cut and let these great books help you. You can't go wrong if you follow in the footsteps of men who have made good. The very knowledge and methods that made the authors of these books experts in their chosen fields are bound to help you to a lasting success and a greater earning power than you have now.

## Membership Free

With each set of Carpentry & Contracting books we give a one year membership in this Society worth \$12.00. This membership entitles you to the following benefits:

**Consulting Privileges:** The Society maintains a staff of engineers and experts to work out problems and answer questions by mail for its members.

**Standard Tests:** The means by which you are able to determine your exact fitness for the work you are doing or would like to do. This means finding out how much you really know about your job.

**Free Employment Service:** All members can use the Society's free employment service to get a good job. This includes listing in the bulletin called "Men."

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We will lend you the whole set of these great money-making building books for a week to use as you please in your shop or home. Examine them carefully and decide with the books before you if you want to take advantage of this golden opportunity. Over 50,000 sets have been sold on this no-money-down plan—keep the books a week and send them back at our expense or pay \$3.00 a month until the special price of \$24.80 is paid. Regular price \$37.50. There are no strings to this offer. It is open to every man over 21 in the United States and Canada. You sign nothing but this coupon. No agent will call on you. Mail the coupon and get the books, then decide whether or not you want to keep them. Mail the coupon now.

**American Technical Society, Chicago**

**AMERICAN TECHNICAL SOCIETY**  
Dept. C-331, Chicago

Send me the five volume set of Carpentry & Contracting for a week's free trial by express collect. I will either return the books in one week at your expense or send you \$2.80 as first payment and \$3.00 every month until a total of \$24.80 is paid. With these books I am to receive a free membership in your Society, including Consulting Privileges, Standard Tests and FREE Employment Service.

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City.....  
Reference.....

# Modern Furnace Heating

is the title of our illustrated booklet on this subject. It tells how to heat any house, with any furnace, in simple terms, easily understood and applied. So well is the subject treated that many copies are requested annually, for information only, where purchases of heaters are not contemplated.

Educational institutions use them for student instruction in domestic engineering. Among recent requests is the following letter from the Librarian of

**Columbia University,  
New York City**

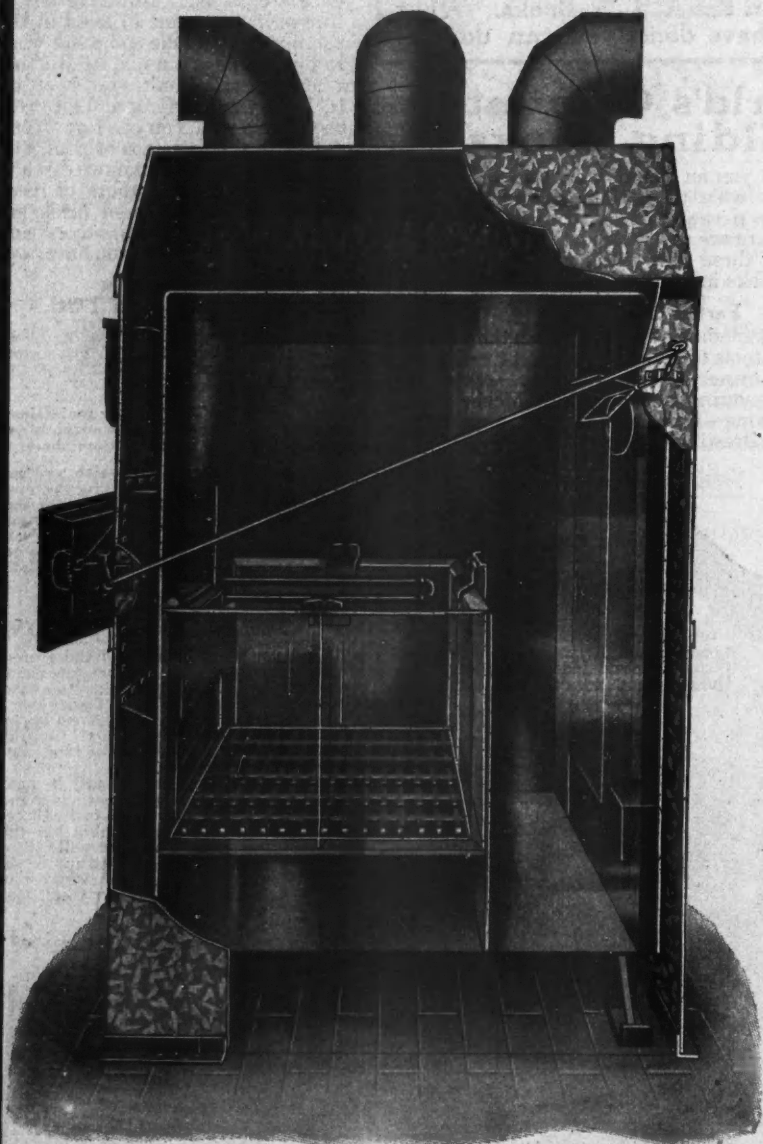
"Gentlemen—Will you please send us ten copies of your catalog descriptive of Modern Furnace Heating, for use in our engineering classes?"

We find these very valuable, used as supplementary textbooks, and we maintain a special department in our library, where they are kept."

## The Hess Welded Steel Furnace Burns Anything

### DELIVERS ALL THE HEAT

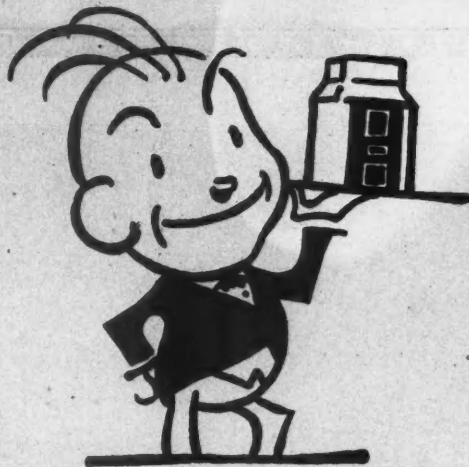
In planning a home, church, store, cottage, etc., you can do no better than to consult us in the matter of heating. Our planning and estimating facilities are yours for the asking—FREE—and no obligation. Send us your plans or sketches, and let us tell you how to heat the building and what it will cost. The booklet is sent free on request. Every contractor should have one.



**HESS WARMING & VENTILATING COMPANY**

1220 M Tacoma Building, CHICAGO

596 National Avenue, Milwaukee, Wisconsin



## It Protects Your Reputation as a Good Builder

The heating systems he installs, largely determine a man's reputation as a builder.

For poorly heated homes, even though they are beyond reproach in other respects, create as much dissatisfaction as beautiful cars with inferior engines.

The famous, nationally advertised Round Oak Pipeless Heating System offers an economical means to insure each home-buyer more than a generation of satisfactory heating and thereby protects your reputation.

Built of massively oversize parts, accurately fitted at the factory before shipment, and, by a patented method, bolted everlastingly leak-tight when installed, the Round Oak Pipeless may well be said to be the best on the market.

Likewise, in their classes, the Round Oak Ironbilt Furnace for pipe installation and the Round Oak Moistair Heating System are unapproached for quality.

The Round Oak catalogs should be in your files. May we, quite without obligation on your part, send you copies?

**THE BECKWITH COMPANY**  
"Round Oak Folks"

Dowagiac, Michigan  
Established 1871

# ROUND OAK HEATING SYSTEMS

The Round Oak Engineering Department and the local Round Oak Dealer will gladly co-operate with you. Heating plans are furnished gratis, if you supply blueprints of the houses



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The HUMPHREY  
**Radiantfire**

(Registered U. S. Patent Office)

*A Beautiful Gas Fire for the  
 Discriminating Home Builder*

You know from experience that the home buyer and builder today insist on practical comfort features more than ever before. For real fireplace comfort and satisfaction, show and recommend to your customer one of the attractive new Radiantfires. All the beauty of an open fireplace without any of the familiar inconveniences—and double the heat. It is the first really efficient gas heating device and is not to be compared with the old fashioned gas logs and asbestos grates.

Burns either manufactured or natural gas at a cost of from only one to four cents an hour. Saves at least one or two tons of coal every winter.

*See the many attractive designs at your dealers or in the gas company's showroom. Booklet free on request.*

**GENERAL GAS LIGHT COMPANY**

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KALAMAZOO

SAN FRANCISCO  
 768 MISSION STREET



## The Choice of Experienced Builders

"The Furnace is the  
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## A Certified Heating Service

**W**HEN you specify a HOLLAND furnace in the house you build, the HOLLAND Furnace Company takes the responsibility of a satisfactory heating plant off your hands completely.

For the HOLLAND is planned and installed only the HOLLAND way—by schooled HOLLAND men in the HOLLAND branches.

Its quality is guaranteed—its adequate heating service is guaranteed—by a five-year transferable service bond, backed by the largest installers of warm air systems in the world.

When you specify the HOLLAND way, you not only assure yourself of a product of acknowledged quality. You also relieve yourself of all further care as to its satisfactory service.

It will pay you to communicate with the nearest HOLLAND branch and learn the facts about our guaranteed installation plan.

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WORLD'S LARGEST INSTALLERS  
OF FURNACES

General Office: HOLLAND, MICHIGAN

Two Factories: Holland, Michigan, and Cedar Rapids, Iowa

Central Chicago Office: Building Material Exhibit, 6th Floor, Leiter Bldg., 15 East Van Buren St.

# 20 BOOKS FREE

## A FARM BUILDING PLAN SERVICE FREE

**H**ERE are four wonderful farm building books all ready to work for you in your territory. Between their two-color lithographed covers you will find 160 pages of practical money-making ideas! There are 168 varieties of farm buildings and worth-while improvements pictured and described. Sixteen pages of complete building blue prints, in color, for which an architect would charge from \$25.00 to \$100.00 per set.

Get the people in your community thinking about improving their farm buildings by placing in their hands these books. Select the book on the subject your prospect is interested in. It presents in graphic form many ideas that will create a real desire to build. These designs are so attractive, and so practical, that they will make an instant hit with every person who sees them. Many people are groping in the dark looking for building ideas. Here is your chance to furnish them ideas that will help your business.

Each book has 40 pages, size 8½x11½ inches. The many large illustrations are printed on good paper stock and the covers are lithographed in two colors.

Never before have you had an opportunity to obtain free of charge the valuable information and sales helps contained in these books. They are a splendid enlargement on the farm building subjects treated each month in FARM MECHANICS.

"How to Make More Money Raising Hogs" should have been the title of this HOG HOUSE AND HOG YARD BOOK. Here you have 40 pages of practical, money-making ideas! Forty-seven varieties of hog buildings! It gives the latest approved ideas in sunbiny, clean, dry, well ventilated, modern hog houses. There also are complete colored blue prints in this book, the work of a man who has bred hogs all his lifetime. Actual size, 8½x11½ inches. Well illustrated thruout; two-color cover.

THE entire farm family will read the DAIRY BOOK. First of all, there is a set of complete blue prints of a modern cow barn. Then there are discussions of many kinds and sizes of practical cow barns; the utility barn of the bank variety; the combination creamery and ice storage; the mechanical milker; the certified milk "factory"; and many other features you will appreciate. Actual size, 8½x11½ inches; 40 pages and attractive two-color cover.

## FARM MECHANICS is the Only Publication Going to Farmers That Advocates Better Farm Buildings

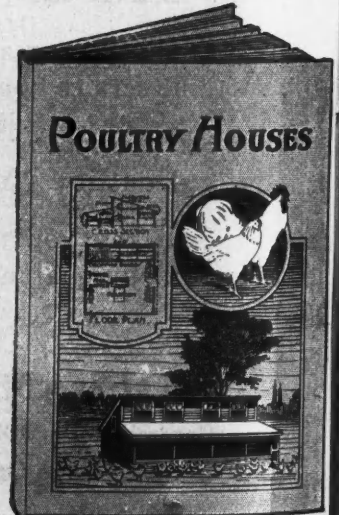
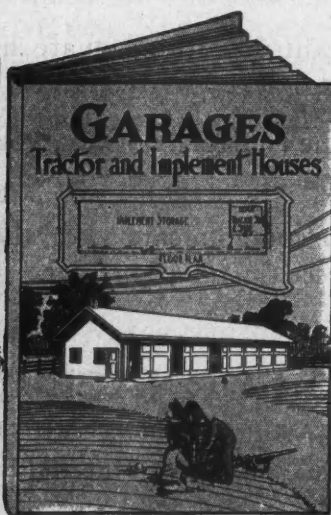
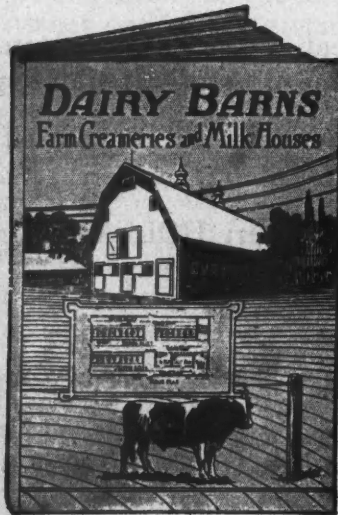
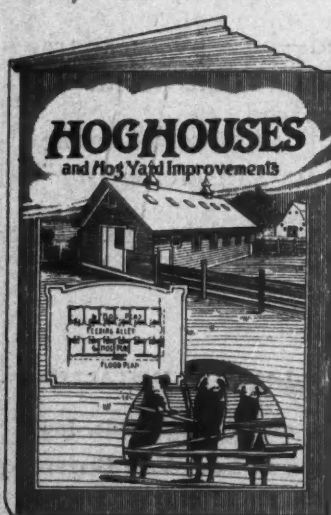
Farm Mechanics is a big, monthly, illustrated magazine of wonderful value in promoting building activity among the farmers. In every issue dozens of modern farm building plans and ideas are presented. Departments are featured of special interest to country carpenters and to the handy man with tools around the farm.

The best farmers in every community — the young and enterprising farmers have taken a great interest in this magazine. Farm Mechanics has the endorsement of the leaders among the farmers.

Every farmer in your territory who ought to be thinking of building this year should receive Farm Mechanics each month. Will you see that he gets it?

**YOU** know better than anyone else how much farm machinery has cost. It represents a big investment. Therefore it is a good policy to take proper care of the machinery in the off-season. Don't winter your implements outdoors. Let the GARAGE AND IMPLEMENT HOUSE BOOK guide you in building a good storage house. This free book has a set of complete blue prints that can be placed on the lumber dealer's desk when ordering material. Actual size, 8½x11½ inches. Well illustrated, 40 pages and two-color cover.

**RURAL** women will be greatly interested in the POULTRY BOOK. Between its two-color covers are 40 pages of practical and timely advice, written by a man who has made his mark in the business. Let him help in selecting the right kind of house for your hens. Study the large illustrations and detailed diagrams of the 16 community houses and 6 colony houses given. This book also explains the best in feed hoppers, trap nests, poultry yards, and many other things involved in successful poultry work. Actual size, 8½x11½ inches. Complete set of blue prints, in color.



**5 COPIES FREE \_ 5 COPIES FREE \_ 5 COPIES FREE \_ 5 COPIES FREE**



# Read the story of Henry Ford and his Power Farm in "FARM MECHANICS" for February

**Mr. Ford says:**

**"21 days a year does all farm work."**

**WHAT** is done with the other 344 days in a year is told in the story.

You and your farmer friends will be deeply interested in reading of the methods used on this remarkable farm where 5,000 acres are cultivated without a single horse and where they put in a 2,500 acre winter wheat crop in just five and one-half days.

The fact that Henry Ford is a farmer and was born and raised on a farm gives weight to the prophesies he makes for the future of farming in this big February issue of FARM MECHANICS.

## Write for 20 FREE BOOKS

Put FARM MECHANICS to work for you in your community. Each month FARM MECHANICS contains:

Four or more full page illustrations of modern, practical farm building designs, with complete floor plans.

More than 100 clearly printed pictures of farm activity.

Interesting and instructive articles on power farming, modern farm equipment, machinery and implements, all fully illustrated.

New farm facts that have been developed by the agricultural colleges, state experiment stations and the experts of the United States Department of Agriculture.

Special tractor overhauling articles, that give specific instructions for overhauling the different makes of farm tractors.

Short "Tractor in Action" articles that give helpful and practical methods of operating tractors and tractor-drawn implements.

"Motor Trouble Advice" conducted by our motor expert, F. M. Service, who answers all questions relative to trouble with automobiles, motor trucks, tractors and gas engines.

Besides these are numerous departments, such as "Handy Andy's Department," departments for the farm women and farm girls; "Something for the Boys to Make," and many others.

"Farm Mechanics Pictorial" contains four or more pages of pictures of new inventions and unusual uses made of ordinary farm equipment.

FARM MECHANICS is a real magazine for farmers, printed on high-class paper, bound in a beautiful four-color lithographed cover.

## Valuable Books FREE

We offer you absolutely FREE OF CHARGE 20 copies of our four popular books on modern Farm Buildings. Each is a book of 40 pages. The many large illustrations are printed on good paper stock and the covers are lithographed in two colors. The subscription price to FARM MECHANICS is \$1.00 per year — a price so small that it will soon be forgotten. If any more copies are desired of any of these books, they can be had at 25 cents each. Tear out the coupon. Fill in the lines and mail it at once.



FARM MECHANICS,  
Wm. A. Redford, President  
1527 Prairie Ave., Chicago

Enter my order for 10 yearly subscriptions to Farm Mechanics Magazine to go each month to the ten names and addresses herewith; and Send me absolutely FREE 5 Copies each of your Four Farm Building Books, "Hog Houses and Hog Yard Improvements," "Garages and Implement Houses," "Poultry Houses," and "Dairy Barns, Creameries, Etc.," (20 Copies in all) which I will use for promoting farm building trade in this territory.

You are to bill me \$10.00 for these 10 subscriptions, which I will pay on receipt of your invoice.

Name \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Route \_\_\_\_\_ Box No. \_\_\_\_\_



# General Motors Trucks

*Priceless Service—  
Rightly Priced*

There is one sure rule to follow in the purchase of a motor truck—that is this, "Only a truck well built is a truck well bought."

—And that points unerringly to GMC.

From the moment of purchase and with every succeeding mile; day after day, year in year out; GMC trucks go on rolling up new records of thrift. On every hand you find them; veterans in years, still youthful in ability. On every side and in every branch of business and industry you hear them praised. No wonder GMC owners consider their service-savings an enduring quality, far beyond comparison or competition.

With GMC you get features which *only* GMC can give you such as Removable Cylinder Walls, Removable Valve Lifter Assemblies, Dual Cooling, Super-heated Carburetion, Centrifugal Fly-Ball Governor and Special Process Connecting Rod Bearing.

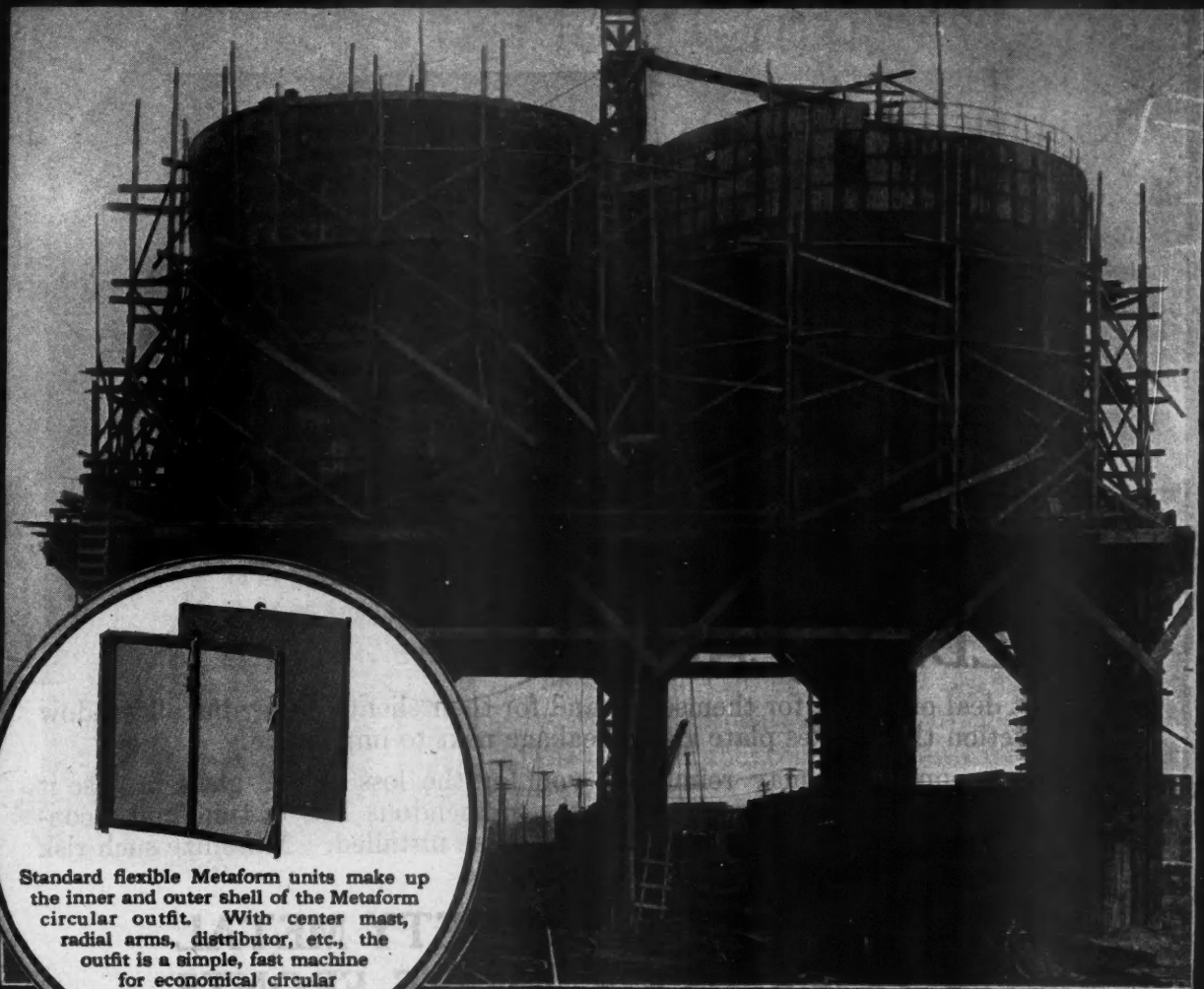
*Even this is not all.* GMC has met the price situation squarely; reduced the K-16 one ton truck \$500 and cut substantially all along the entire line from  $\frac{3}{4}$  to 5 ton capacity.

Naturally, these advantages appeal to every user of motor truck transportation whose problem is to cut down delivery expense. See your GMC dealer and begin saving.

**GENERAL MOTORS TRUCK COMPANY**

*Division of General Motors Corporation*

PONTIAC, MICHIGAN



Standard flexible Metaform units make up the inner and outer shell of the Metaform circular outfit. With center mast, radial arms, distributor, etc., the outfit is a simple, fast machine for economical circular wall construction.

**—Total, 14½ Days—with a Metaform Outfit**

**T**WO huge coal pockets—each 33 feet in diameter and 30 feet high, with floor slabs 30 feet from the ground—built in 14½ ten-hour working days! Such was the record set with a Metaform circular outfit at the New York Central's new engine terminal, Solvay, New York.

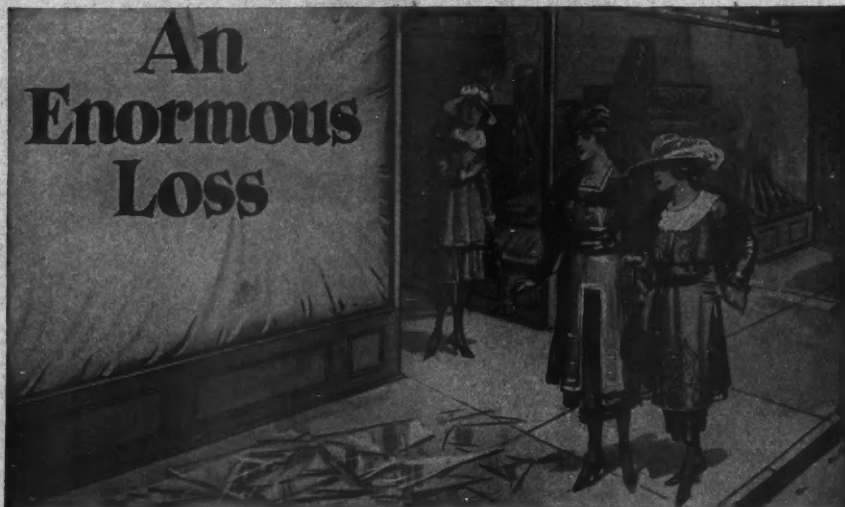
Metaform standardized circular outfits offer the cheapest, fastest, best method of building every type of circular monolithic concrete structure. With them, hundreds of contractors are making bigger profits out of silos, grain elevators, coal pockets, water tanks, smoke stacks, etc. Full information on request.

*Fill in the coupon or attach to your letterhead. The Metaform books will be sent to you free.*

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Quickly send me the two books on Metaform Equipment.



## BUILDERS CAN SAVE—

A great deal of money for themselves and for their clients if they install window construction that makes plate glass breakage next to impossible.

Insurance companies may reimburse you for the loss of the glass in case it breaks, but there is no way to recover the tremendous loss of time and inconvenience, while waiting for a new window to be installed. Minimize such risk by using

# ZOURI SAFETY METAL STORE FRONTS

Glass breakage and faulty installation are next to impossible when Zouri construction is used. Zouri popularity and display values are universally acclaimed. Underwriters' Laboratories fully approves Zouri construction. It meets with the approval of a greater number of builders every year. If you don't already know about Zouri advantages,

### *Consult Our Nearest Representative*

We have 198 Distributors in the United States and Canada. There is one near you with a complete stock of Zouri Safety and International Construction — assurances against delay in shipments.

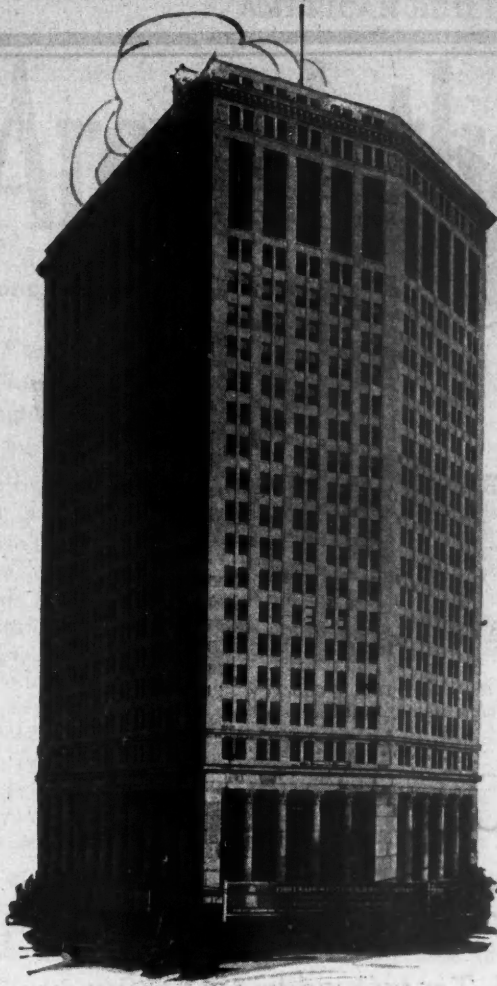
All distributors maintain store front departments in charge of especially trained men. They will be pleased to place at your disposal, without obligation, their broad experience in building show windows that command maximum sales. Write us for name of our nearest distributor.

## Zouri Drawn Metals Company

*Factory and General Office*

1606 East End Ave., CHICAGO HEIGHTS, ILLINOIS

Makers also of the Famous International Store Front Construction



First National Bank Building of Detroit is but one of many beautiful structures that have been laid up in "the cement that nature mixed."

Architect: Albert Kahn, Detroit  
Contractors: The Foundation Company

## How Carney's Cement differs from others

**N**ATURE deposited the stone from which Carney's cement is made thousands of years ago at a spot near Mankato, Minnesota. In this particular stone deposit just the right amount of lime was added chemically by nature so that when the stone is burned and ground and mixed into mortar no additional lime is necessary.

Carney's Cement is different than any other cement you have ever used in brick or tile construction work. It requires but three parts of sand to one of cement to make a slower setting and easy working mortar. This eliminates a great deal of the labor ordinarily required at the mortar box.

The story of Carney's Cement is a story of lowered costs. The ultimate cost of Carney's Cement is less than that of other cements because it lays more bricks to the barrel. Carney's Cement has plastic working properties that enable the mason to work faster and easier, thereby cutting labor costs. There is no waste in Carney's Cement. Left over cement mortar can be used the next day by simply adding water.

Carney's Cement is not a new and untried product, but is now giving service in the walls of many of America's finest buildings. Contractors have found that in the finished wall the mortar is harder than the bricks.

*Write for Complete Information*

Naturally there are questions you will want to ask about Carney's Cement. We will be glad to answer them and to send complete information. Write today!

### Carney's Cement Company

Cement Makers Since 1883  
Mankato, Minn.

#### District Sales Offices:

The Carney's Cement Sales Co., Leader News Bldg., Cleveland; Chamber of Commerce Bldg., Chicago; Omaha National Bank Bldg., Omaha; Syndicate Trust Bldg., St. Louis; Jas. Quinn, Jr., Book Bldg., Detroit; Carney's Cement Co., Builders' Exchange, Minneapolis.

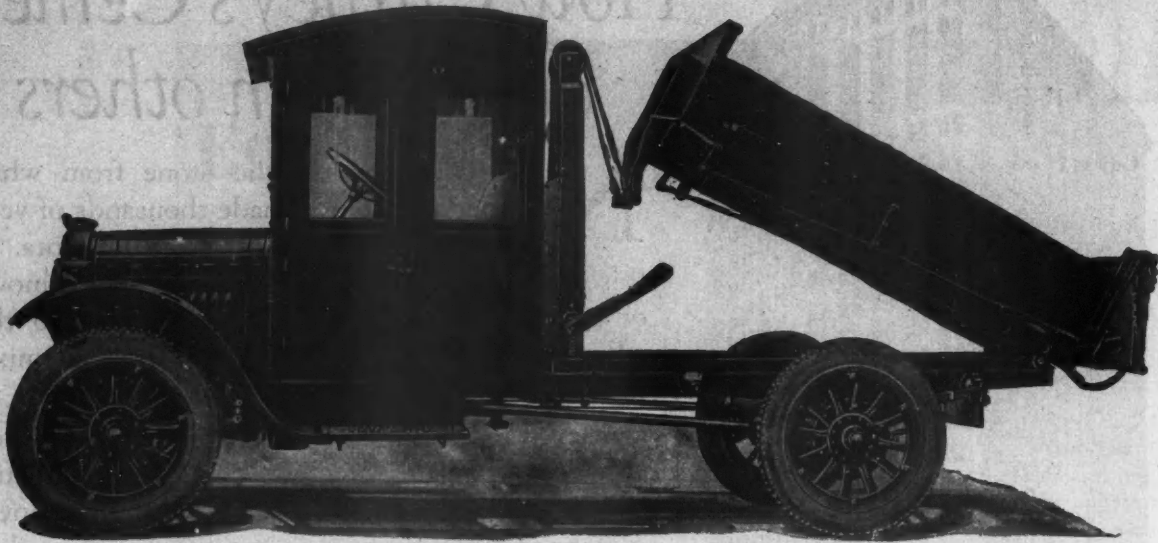
Specifications: 1 part Carney's Cement, 3 parts sand; no lime



# CARNEY'S CEMENT

*For Brick and Tile Mortar*

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



*Republic Rapid Transit with one-yard Dump Body and Closed Cab.  
Cord Tires, Electric Starter and Lights. Price on Application*

## Cuts Haulage Costs and Increases Contractors' Profits



*Other Body Types Include*

Canopy Top  
Stock Rack  
Screen Enclosed  
Bottlers Body  
Open Express  
Double Deck  
Platform Stake  
Tank Body  
Police Patrol  
Grain Body  
Carry-All  
Panel Body  
Bus Body

The Republic Rapid Transit adds to profits by hauling at much less than the usual cost. Its low operation and upkeep expense effects a saving on every load.

It is speedy and dependable—fit for any contracting job in city or country.

At its present low price, the Republic Rapid Transit is the most economical truck of its capacity in existence.

The Republic Line:  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ ,  $2\frac{1}{2}$ ,  $3\frac{1}{2}$  tons capacity

REPUBLIC TRUCK SALES CORPORATION, - ALMA, MICHIGAN

# REPUBLIC

## RAPID TRANSIT<sup>©</sup>

A Real Truck—Not a Converted Passenger Car



# Around the Family Table

## Front Cover Home and Building Cost

The other day a woman called us up and wanted to know if she would have to be a millionaire to build a house like that shown on the front cover of the November issue. It was a beauty, wasn't it? Well, she was tickled over it and we soon removed fear from her mind that it would cost a small fortune to build. *Good looking houses can be built for a reasonable sum nowadays.* Costs have been gradually adjusting themselves. That accounts for the remarkable showing of the building records in September, October and November, three months which ordinarily show a large decline because of the weather. This year it is different. The front cover homes have been attracting favorable attention since they started and we intend to keep up this feature.

## New Steel Sash Department

**H**AVE you noticed our new department on steel sash? This type of construction came into prominence not so long ago when it proved to be the most effective weapon in the fight on the old sweat shop. It has proved so successful in factory and industrial establishment work that it is now being used in many small buildings such as garages, warehouses, small shops, etc.

Have you ever installed any of this sash? Write and tell us about it and send some pictures of your work. We will gladly show them in this department.

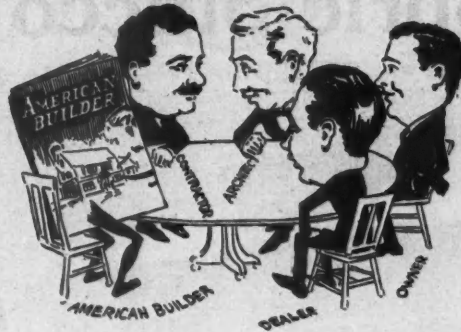
## Send in Pictures of Your Work

And any other construction pictures that you think will look good in the American Builder—pictures of farm buildings, stores, banks, homes, any kind of work you may have done. If you are especially proud of some piece of work *don't be a blushing violet but send it along* so that we can show it where it will be appreciated.

What are you doing during these cold days to help the family larder? Have you got a shop where you are making cabinets, phonographs, stairs, lattices and trellises for gardens, fences, or something of that sort? Don't keep this interesting work to yourself.

## Make Machinery Do Your Work

We also want to show our readers are taking advantage of the machinery which is lifting the builder's load and increasing his income. We know many of you have woodworkers, saw rigs, mixers, concrete block machines, floor surfacers, and that you are making good with them. You want to stop and realize that your good friends the manufacturers who advertise their equipment and machinery in this paper are *very* much interested in your results—perhaps you have some of their products. *Figures, we don't*



know why, probably they smack so much of the truth, are always interesting.

And have you any suggestions as to improvement in the AMERICAN BUILDER? Brother Weber of Chicago, architect, started an interesting discussion the other day by criticizing one of our Blue Ribbon home designs. We found out that we had a whole raft of good friends. But we do not want to discourage Brother Weber or any other reader who sees fit to offer a criticism. It stimulates thought on our part and on the part of the readers.

*If you don't like something we do, tell us about it. We won't be peeved. "A little criticism now and then is relished by the best of men."*

## Vast Amount of Literature Free Every Month

By the way, have you been taking advantage of the wonderful list of booklets and literature that are being distributed by manufacturers in the building field? *Don't forget* to look over the list of books, bulletins and catalogs which are published in the back section of the American Builder each month. There is a lot of valuable information in these publications and you should write and get them. The manufacturers are only *too glad* to send them out.

## Suggestions in Order

**H**ERE is a chance for some of the brothers to offer some helpful suggestions on winter work.

N. P. Walter, with his father, has a contracting and building material business in Centreville, Md., and is in search of some ideas for winter work. He writes:

*"We have tried to find some wood specialties that we could manufacture at a profit and thereby enable us to keep going all winter with a full crew and possibly, if the business could be developed, to make it a twelvemonth proposition instead of just winter work."*

*"We would like very much to get something of this character."*

The Walters are confronted with a situation similar to that of many builders in small towns. There is no appreciable increase in the population from year to year to cause more than a small amount of new building. But some builders under the same conditions have worked up a specialty business that has netted them a handsome profit and given them a steady all-year-round business.

These are the men we want to hear from. They may have some interesting and valuable suggestions to offer which will help the Walters and others. Now that we think of it, we recall the case of one builder in a small town in Iowa who made a fortune building specialties for the farmers such as feeding crates, racks, small portable buildings, etc. The population in his town was stationary—yet he overcame this obstacle.

Have you done the same? Tell us about it.

Cordially, EDITOR AMERICAN BUILDER.

(See pages 101-104 for profitable winter work)

# Build Stucco Houses in Winter

WITH

## Bishopric Stucco Base



Residence—Wm. Mills, Cedar Rapids, Iowa. Architect—Wm. J. Brown. Stucco Contractor—Chas. R. Carpen er. Bishopric Base applied and left standing during Winter. Stucco applied in Spring.

It can be applied—left until Spring without fear of damage.

All interior work can be completed. Men can work in comfort.

Greatly increasing labor efficiency—

consequently

Greatly decreasing labor cost.

Many of your clients will be glad to know you can go ahead and complete their building this Winter—so it will be ready for occupancy without delay.

### Think of the Tremendous Saving!

Mr. Contractor, keep your good men busy. *Make* instead of losing money during winter season. It means all-year business for you.

### Bishopric Stucco Base Gives You

- (A) Least cost for labor.
- (B) Least cost for material.
- (C) Speed of construction.
- (D) Weather-proof qualities, insulation.
- (E) Strength, stability, endurance.
- (F) Lowest maintenance cost.

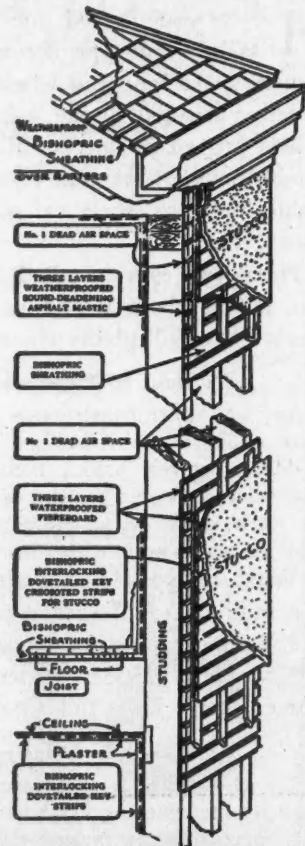
Write for booklet "FOR ALL TIME AND CLIME."  
Beautifully illustrated—working details—specifications.  
LET IT SOLVE YOUR BUILDING PROBLEMS.

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