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### American Builder

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### AN INVITATION TO YOU

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

(Please fill in blanks below and mail to the Andersen Lumber Co., South Stillwater, Minnesota. We wish to know what our customers think of ANDERSEN WHITE PINE FRAMES)

Date Sept 12<sup>th</sup> 1921

Dear Sirs:—

My answers to your questions are as follows:

Are the frames satisfactory? yes

What do you think of Genuine White Pine which is used for all exposed parts of these frames? Can't be beat - Put together in seven minutes

Could you suggest any improvements in these frames? No

Name Donald MacKinnon Street or R.F.D. 91 Adelaide St.

Town Belleville State New Jersey

## A Frame Up in 10 Minutes

IT TAKES just 10 minutes for an average carpenter to nail up an Andersen Standard Window Frame. Many men can do it in seven minutes. We've heard of some that have done it in three.

An ordinary frame is made up of 57 separate parts. Andersen Frames combine these 57 parts into seven units. These seven units are then shipped in two compact plainly marked bundles, each weighing less than 20 pounds.

The elimination of 50 parts in an Andersen Frame is a direct saving of time, labor and money in the assembling of the complete frame. Using only a hammer, these seven units can now be nailed up in 10 minutes or less forming a frame complete with pockets and pulleys in place.

Any dealer in Andersen Standard White

Pine Frames can supply immediately any one of 121 different sizes from a small stock of only 11 standard sizes. This is done by simply interchanging heights and widths.

All exposed portions of Andersen Standard Frames are of genuine White Pine. White Pine has demonstrated its ability to endure for centuries without changing with time or weather. Windows slide easily because Andersen Standard Frames are accurately made; the use of White Pine keeps them smooth running for all time.

*Write for This Book*

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

Andersen Lumber Company  
Department A-12 South Stillwater, Minn.



T.M.

REG.

# Andersen FRAMES

# FRIENDLY CHATS *with the* EDITOR



## Accumulated Housing Shortage

THE table below, compiled from figures secured from the Health and Building Departments of the City of Chicago by the Chicago Association of Commerce, shows that during the four normal building years of 1913-1916, permits were approved for an average of over 18,000 apartments each year.

Figures also below noted and compiled from the same source indicate that on this basis of average annual construction there accumulated a shortage of approximately 71,000 apartments during the five years from 1917-1921.

### Four Years of Twice Normal Building to Catch Up

Taking into account the 100,000-125,000 normal increase in the population of Chicago, there would seem to be no immediate apartment surplus. Indeed if each year twice the average normal building of apartment buildings were done, it would take nearly four years to catch up with the 71,000 shortage which has accumulated.

TOTAL APARTMENT PERMITS APPROVED								
1913	1914	1915	1916	1917	1918	1919	1920	1921
15,105	16,577	19,925	20,525	5,491	1,030	4,758	1,091	6,708

And over the same period there has accumulated a shortage below the average construction of over 4,500 private family dwellings.

### Accumulated Housing Shortage the Country Over

Recent statements by Secretary of Commerce Herbert Hoover are to the effect that 1,000,000 homes are needed in the United States at this time.

L. C. Batdorff, executive secretary of the Michigan Real Estate Association, declares that in Michigan alone 31,083 homes, apartments and flat buildings must be built within the next year if the housing shortage is to be overcome—in Detroit the shortage is in excess of 8,000.



### Chicago Strong for Winter Building

THAT winter construction of homes in Chicago and vicinity will surpass last year's record is the prediction of the well informed.

The building permits for Chicago during October showed a sharp jump over those for September, both

in number and in total value. Permits numbered 1,103 for October as against 924 for September, while the total values were \$14,996,150 and \$12,262,100, respectively.

The surprising feature of the permits is the number taken out for single family dwellings. These numbered 561, surpassing a number of the summer months when building conditions were more favorable for this type of construction than they are in the winter.

Evidently the Chicago apartment dweller is still on the warpath and is using the most effective method possible of bringing down rents. He is getting into a home of his own as rapidly as he can, despite factors which have increased building costs over the levels in the spring of this year.

Money is plentiful and available at lower rates than a year ago. This in part offsets the increases in other lines.

Rents, too, are still at levels where it is cheaper to buy a house at a slightly inflated value and pay for it over a long period of years than to meet the monthly sums demanded for an apartment in any moderately good locality.

The amount of winter construction last year surprised veteran builders, but we think it is going to be passed this winter.



### Japs Live in Standardized Houses

HOUSES in Japan are probably more standardized than in any other country of the world. The rooms are always of standard size, approximately 3 by 6 feet. The Japs do not ordinarily have wooden floors in their homes, but use "jo" or thick mats. The rooms are invariably built to fit a certain number of these mats, usually from four to ten. The height of the rooms is the same in all native houses, except those built in semi-foreign style by the wealthier Japanese.

The usual or common Jap house is partitioned off by the standardized sliding doors which when pushed open practically convert all communicating rooms into one large room. The windows are never of uniform size, but may extend from the floor to the ceiling or from the ceiling to several feet below it, according to the design of the house. The windows are all made to slide into a box-like receptacle built on a corner of the exterior of the house. All the windows, as well as the doors, may be slid back, thus exposing the whole side of the house to the weather.

This explains, says the lumber division of the Department of Commerce, why the Japanese don't buy more American doors and sash.

# New Uses for Old Woods Save \$30,000,000

Uncle Sam is Conducting the Most Novel Timber Tests Ever Attempted

By GEORGE H. DACY

**A**S a direct result of the research investigations conducted at the Forest Products Laboratory at Madison, Wisconsin, a branch office of the U. S. Forest Service, the American lumber industry is saving annually more than \$30,000,000.

This experimental station seeks to develop not only new and more efficient processes, but to find ways of utilizing material which otherwise would be wasted; to find new uses for old materials and new materials for old uses.

It renders practical assistance to the manufacturers and users of wood and wood products and at the same time promotes forest conservation and the practice of forestry.

## Lessens Leaks and Losses

The government research wood shops are general clearing houses for information for the more efficient utilization of wood and timber. To take the leaks and losses out of lumber is one of its primary goals.



Timber Experts Can Identify Wood from Any of Our Native Trees by Examining it Under the Microscope. The revolving chart above shows the diversity in wood structure brought out under the powerful lens.

It answers questions and conducts complicated experiments to decide debatable and mooted intricacies of the timber trade. It presents an opportunity for every manufacturer, user and timber grower to supplement the information obtained by experience and



The National Timber Experts Have Invented a Valuable Water-Spray Kiln in which Humidity Can Be Controlled Artificially. The drying rate of the lumber is regulated by conditioning the air with sprays of water whose temperature is carefully regulated.

hard knocks with technical data acquired thru scientific research.

To curtail the wastage of three-fourths of every tree that is cut and to make more efficient use of our available lumber supply are forestry ideals which the timber laboratory is striving to realize.

## Solves Lumber Riddles

In co-operation with the University of Wisconsin, the Forest Products Laboratory was established by the U. S. Forest Service 12 years ago and for several years was the only establishment in existence which aimed to solve lumber riddles by turning the

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Strength

searchlight of scientific research upon such problems. During its brief history, this novel establishment has greatly increased our technical knowledge about the mechanical, physical and chemical properties of wood. In practice, it has applied these scientific data to the manufacture of wood products and chemical materials derived from wood. In addition to investigating the multitudinous matters directly associated with wood, it has also delved deeply into the study of such subjects as glues, moisture-proof coatings, wood preservatives, laminated wood and fire-retarding materials.

### Merely a Matter of Nails

Take for example, the simple matter of how to nail together the ordinary packing crate or container which has to bear the brunt of "baggage busting," perhaps, from one side of the continent to the other. Commercial concerns annually lost millions of dollars worth of valuable goods while the railroads had to pay enormous yearly claims due to the collapse and failure of shipments during transit. The Forest Products Laboratory got busy. It ascertained that the chief trouble came from the methods of nailing boxes. By devising

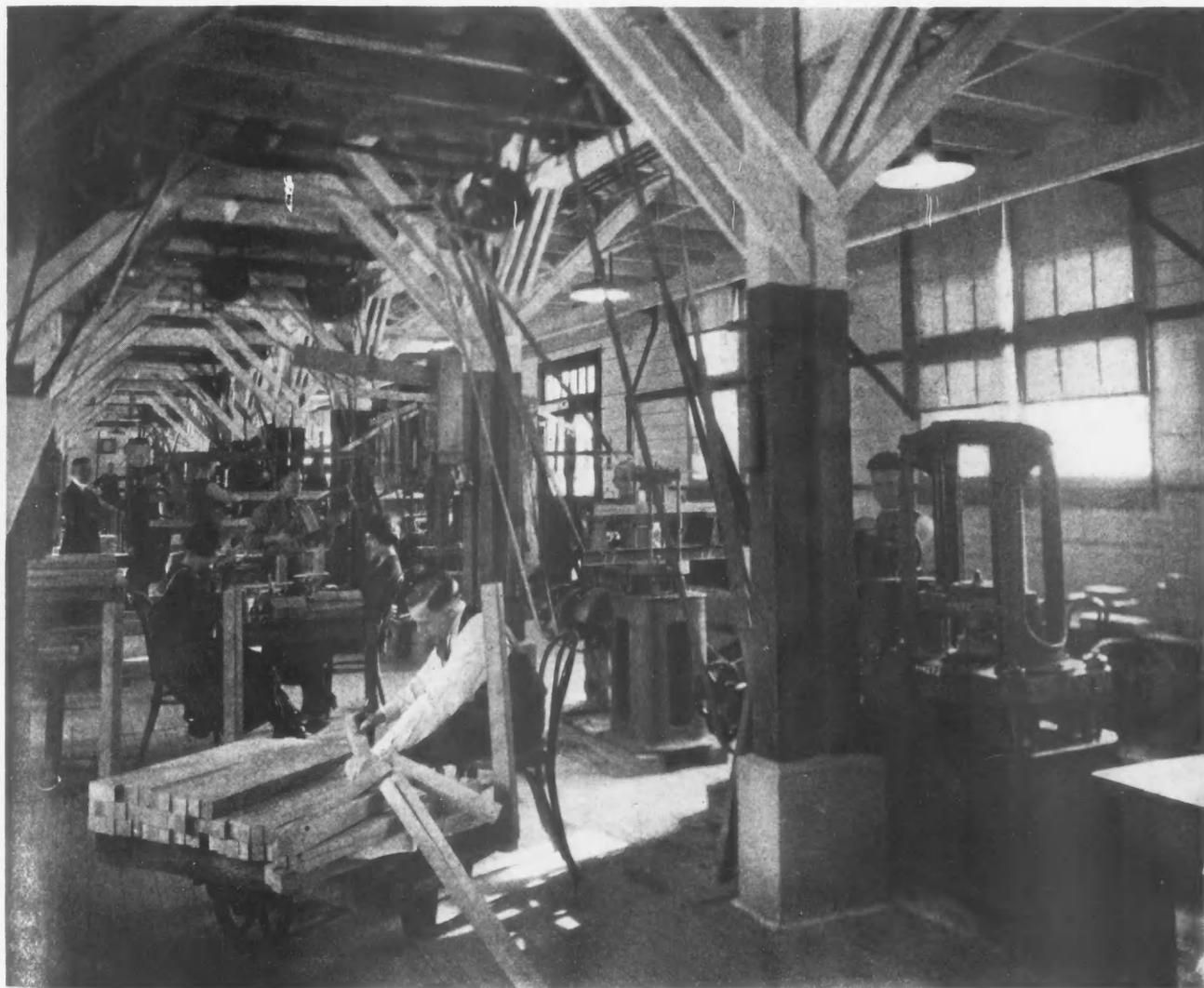
efficient methods Uncle Sam has saved the railroads many millions of dollars annually.

When the first men who inhabited the world came into being there were millions of trees—gigantic, towering masterly rulers of the forests—already in possession of the choicest soils and geographical locations. Trees were one of our first possessions, yet we know relatively little about them. That explains why the federal foresters formulated plans to investigate tree problems which previously had been neglected.

It is trying to learn everything about timber mechanics and physics, wood preservation, pulp and paper, decay, mold and stains of wood, chemical wood products such as turpentine, alcohol and acetic acid and about methods, practices, grades and specifications of the lumber industry.

### Timber Strengths

Up to the present time, more than 500,000 mechanical tests of different kinds of woods under standardized conditions have been made at Uncle Sam's Madison plant. Data from tests of small clear specimens are now available on 126 species of woods grown in the United States, on 23 additional native species and



Strength Testing Machines Are Employed to Determine the Working Strength of Native Woods. The other machines are used to test wooden parts. Airplane wing ribs are being tested on some of these devices.

on 60 other varieties found chiefly in South America and the Philippines. This information is most valuable in comparing the properties of different species, in locating satisfactory substitutes for the scarcer and more costly timbers, in standardizing the uses to which different woods are put and in establishing correct working stresses. These experiments have demonstrated the necessity of grading timber accurately for all uses where strength is of prime importance. Such defects as knots, shakes, checks and their effects on the strength of bridge stringers, car sills and factory timbers have been studied with the results that better grading rules and correct working stresses for structural timbers have been evolved. The influences of preservative treatments, which in some cases weaken the wood, have been investigated. Subjecting timbers to high temperatures and great pressures lessen the strength of the wood and are annually responsible for large losses. Uncle Sam has paid particular attention to the matters of kiln-drying and preservative treatments and systems of conditioning wood for bending. Detailed strength tests of plywood have been made so that, if possible, new uses for plywood and veneer products may be developed.

#### Use of Small Pieces

The government experts are devoting special attention to the testing of vehicle and implement parts, airplane parts, doors and other articles manufactured

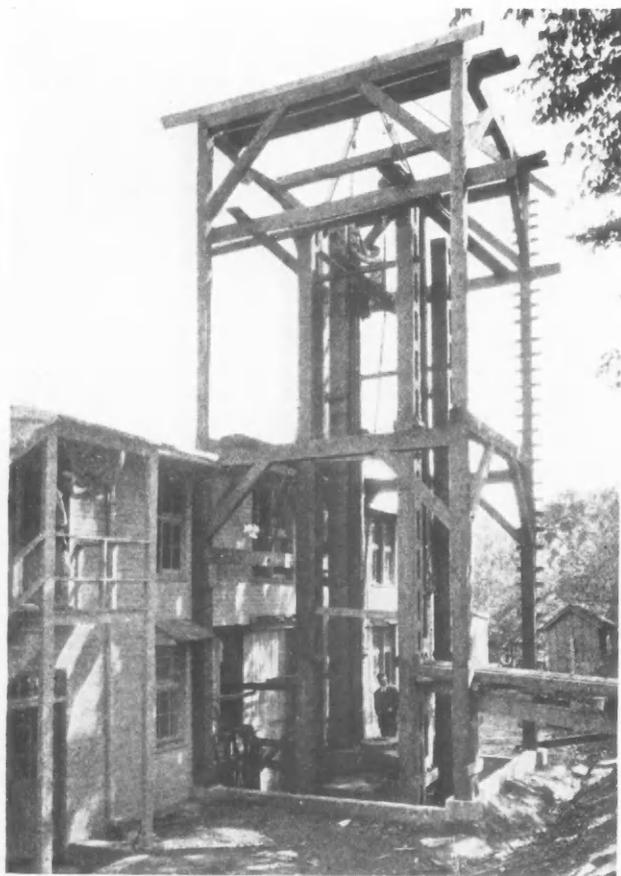


**Ascertaining the Moisture Content of Wood Samples by Simple Tests.** A knowledge of the moisture content of the stock makes it possible to avoid costly manufacturing difficulties.

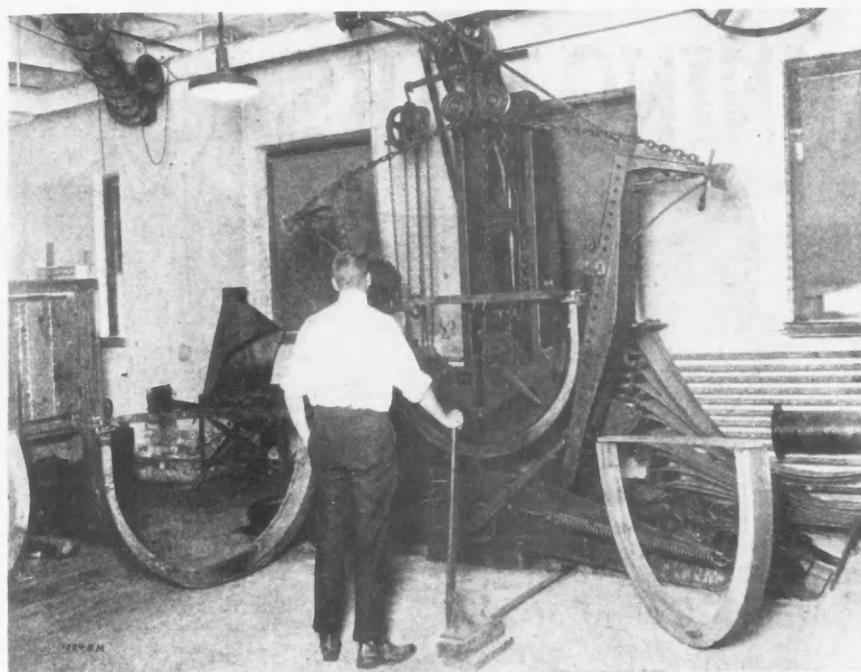
of wood in order to show the suitability of substitute species, to develop and to improve designs and to obtain more economical and efficient use of wood. The limitations and possibilities of laminated construction are also being studied with a view to conserving lumber thru the increased use of small pieces and low grades. If effective uses of these methods of building up materials from small pieces can be perfected, smaller trees which can be grown in comparatively short periods in addition to much material which is now wasted because of its small size, can be employed to replace larger and more valuable lumber stock.

Dry kilns are used in curing green lumber because they save many months time and produce more reliable results. Statistics show that about 10 per cent of the valuable hard-woods that are now dried artificially in kilns are wasted because the proper methods and kilns are not employed. Uncle Sam has spent considerable experimental effort in perfecting kilns and methods of drying. A special water-spray kiln has been developed which is now used successfully in many manufacturing plants where drying requirements of material are very exacting. An extensive series of experiments is at present under way to determine the proper drying schedules for all the most important woods. The results will be of great value to the wood-using industries. Detailed investigation is also being accorded such other propositions as the proper steam bending of heavy wooden parts such as artillery wheel rims. The proper moisture conditions of the stock, the length and temperature of steaming or other preliminary treatment and the mechanical details of the actual bending must all be worked out before present high losses in this process can be overcome.

The national wood scientists also do much work each year in identifying different kinds of woods for hundreds of inquirers. Annually several thousand specimens of wood are identified for commercial firms. Microscopic slides and photomicrographs made from



**The Giant of All the Testing Machinery is Capable of Exerting a Force of 1,000,000 Pounds and is Used in Testing to Destruction Wooden Columns that are 30 Feet Long and a Foot Square.**



**Steam Bending Machine Used by Uncle Sam's Foresters in the Federal Laboratory at Madison, Wisconsin.** This apparatus has been used in investigations to reduce the losses in steambended lumber. Improper treatment will weaken the furniture, vehicle or parts handled in this manner.

the slides have now been prepared for practically all the American woods of importance. Fundamental studies under the microscope to determine the relation of structure to shrinkage are in progress and similar investigations to ascertain the relation of structure to certain mechanical and physical properties of wood have been begun.

#### Loss by Decay

Decay organisms are as effective as are forest fires in ravaging our timber crops. Federal surveys show that an equivalent amount of timber to that destroyed each year by forest fires is consumed by the decay of railroad ties, mine timbers, posts, poles and similar products. At present there are more than 85,000,000 railroad ties in the country which have never been treated with preventive measures to protect them against decay. Experts claim that the American lumber industry would save 1,500,000,000 board feet of material annually if all these ties were properly protected against rotting. Uncle Sam is now making a minute study of all available preservative materials in order to cull the chaff from the wheat and to select the best types of decay preventives. Another problem of vast economical significance in the field of wood preservation is how to protect frame construction against fire. Each year, it costs about \$250,000,000 to cover our fire losses in this country. Fireproofing wood and designing buildings so that they will offer the minimum fire hazard are effective means of curtailing these heavy losses.

#### Lessen Logging Waste

How to eliminate logging and lumbering wastes, is one big problem that the Forest Products Laboratory

is just tackling. Less than 30 per cent of the wood in the primeval forest ever reaches the stage of seasoned, unplanned lumber. Ten to 25 per cent of this material is wasted in the process of manufacture. In some cases only 3 per cent of the wood of the forest may be used in the finished article of commerce. One of the toughest research riddles ever presented to a body of scientific investigators is associated with restricting such logging and lumbering losses to a minimum. Experts report that the 5,000,000,000 to 6,000,000,000 board feet of material used each year in the manufacture of small dimension stock could be drawn entirely from material which now is wasted without any depreciation in value or quality of the finished articles.

Uncle Sam has studied and compared the relative durability of different American woods as well as the effects of moisture and wood-destroying fungi upon them. Data have been collected upon the least and most favorable temperatures for the growth of fungi, and the amount of heat essential to stop their growth. An application of these investigations occurs in the modern methods of controlling "dry rot" in buildings. Extensive investigations to determine the prevalence of decay in buildings thruout the United States have been made. As a result of information collected over a ten-year period, recommendations have been developed as to changes in architectural design, proper species for different uses and suitable antiseptic treatments. Infections in stored lumber both in lumber yards and manufacturing plants have been investigated and protective methods have been devised to prevent the spread of the contamination to the manufactured articles.



**A** CERTAIN "concrete" arch bridge in the south of France, known as the Pont du Gard, was erected in the rather remote year 56 B. C., and has, therefore, been in use for nearly 2,000 years.

The concrete of this structure was not composed of crushed stone or other small aggregate of the variety now employed in bridge work, but was of the old style, consisting of alternate layers of large and small stones, gravel, etc., and of cementitious materials.

Vitruvius describes the materials and methods in use before the Christian era and many writers of the Middle Ages go into minute details as to how "the ancients," as they called them, "used boards laid on edge, filling the space between them with cement and all sorts of large and small stones mingled together."

# HOME PLANNING TALKS

By Our  
Head Draftsman



## "A Fine Home—But You Will Never be Able to Get Your Money Out of it—"

NOT long ago a client came into our Drafting Rooms a good deal upset in his mind over some well intended advice his friends had been giving him about going ahead at this particular time with his home building plans.

"It is a fine home," they told him, "just what you need for your family—but don't build it, you'll never be able to get your money out of it."

This man is not the first to get cold water thrown on his hopeful building plans by such doleful reference to getting the money out. Thousands have been stopped by giving ear to this line of talk just at the deciding moment, when all of their thoughts *should have been* on going ahead and building well and lastingly just the home required. Instead, they have turned back in fear, and have kept on paying rent and putting up with the shortcomings and the uncertainties of rented house existence.

We gave this perplexed client of ours what we believe was good counsel. We told him to go ahead, to build FOR USE and not for sale.

There is practically nothing else *except buildings* which we buy and use and then expect to get our money out of them—as much or perhaps more than we put it. You buy an automobile and put a good big chunk of money into it. You drive it five years and its resale value has shrunk to practically nothing. Yet you are satisfied. You have had the use of the car. You buy a suit of clothes, a pair of shoes, and an overcoat. They cost you a good bit these days. You wear them. You never expect to sell them off after their period of service, and "get your money out."

It is only when you propose to put money into a

home that your well-meaning friends rise up and cry "It's a fine home, all right, and you need it; but suppose you would want to sell, you would never be able to get your money out of it."

Now, it is true that a very great number of homes and other buildings have been sold after serving well for a period of years; and their full cost has been realized, perhaps more. And in this, building has it all over practically every other commodity for which we spend our money. Very often you can buy it and use it for years and then sell it for as much or more than you paid. *But this should not be demanded.* If it becomes desirable to sell and you can get your money out, well and good; but if not, that is nothing to cry about. *You will have had the use and the enjoyment of the home all of those years.*

In other words, plan right and build right; plan and build for permanency, for lasting satisfaction and for use—not for sale. The home is worth every cent it costs and will pay dividends every year in wholesome family life, self-respect, and the feeling of independence which it brings.

So we talked to our perplexed client in this wise. Our words sunk in. They had the desired effect and he has gone ahead with his building. He will have a home well suited to his requirements. The satisfaction which he will have in occupying it will remain long after the cost has been forgotten.

"**T**HAT'S a beautiful little house you show on page so and so of your current issue—How much will it cost me to build it?"—A fair question and an important one—But you've asked the young fellow. We know how much it would cost for us to build it here, but not for you there. Go to your local builder and supply dealer. They will figure it for you and stand back of their figures.

**All buildings illustrated in the American Builder are real buildings that have actually been constructed and found to be practical and popular. Anyone interested in obtaining working plans and other detailed information should consult the nearest architect, builder or dealer, or write the American Builder, 1827 Prairie Ave., Chicago.**

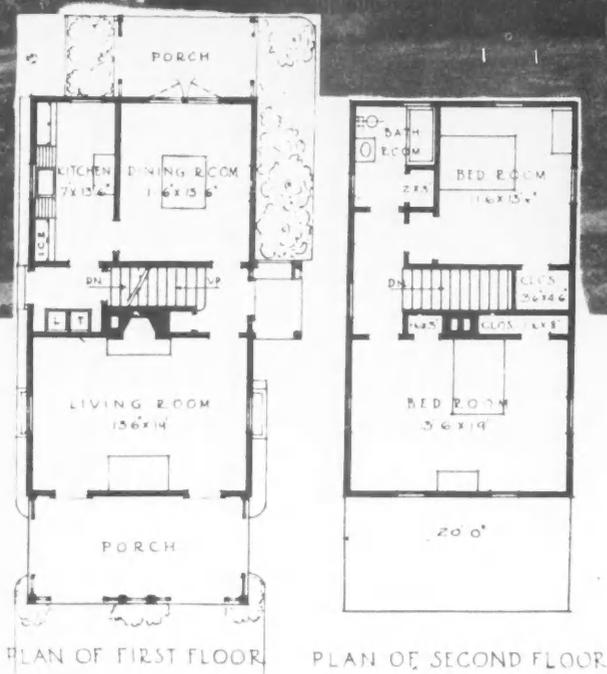
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# New York's Demonstration Home

First of a Series to be Built to Educate the Public and to Test Home Building Costs

BY L. PORTER MOORE



ON October 9, a neat two story and a half Colonial frame house, painted white with green trimmings and occupying a landscaped corner plot in Larchmont Gardens, a New York suburb, was thrown open for public inspection. During the first day hundreds of prospective home-builders flocked to it, inspecting it inside and out and making a minute examination of its construction features, its furnishings, its electrical equipment. This house was built under the supervision of the Home Owners' Service

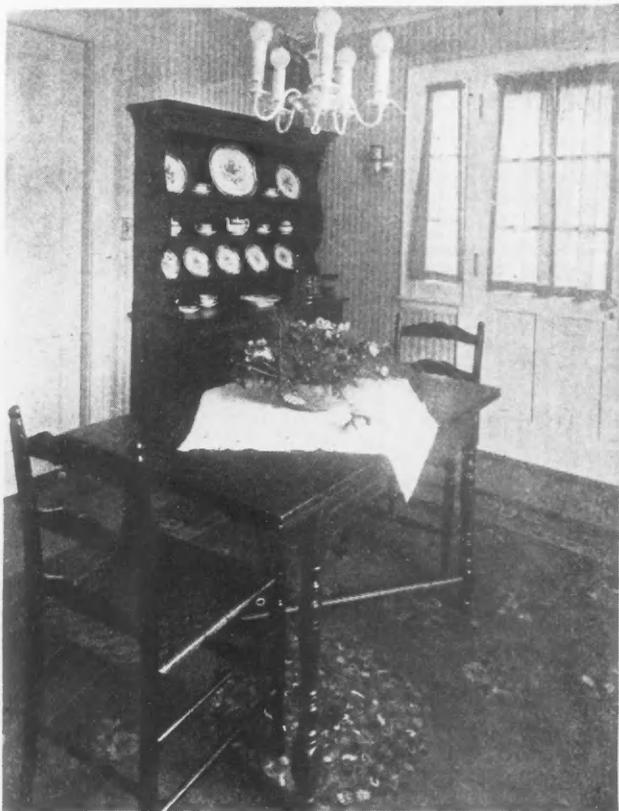
Institute, with the co-operation of the New York Tribune.

During the first thirteen days that the house was open more than 6,000 people visited it. On the final day of Better Homes Week, 1,200 persons were on hand.

The construction of the house was undertaken to determine the actual present-day building costs and conditions. Mere cheapness of construction was not sought. The thought uppermost in mind was to obtain the best material, the best prices and the whole-hearted co-operation of the building craft. According to the verdict of the thousands who visited the home during the two weeks that it remained open, the experiment was a huge success.

The Larchmont house is one of six small houses to be built as a test to determine New York City building costs. To the prospective home builder the architect, the building contractor, the realtor—in fact, to all connected with the building trades in the vicinity

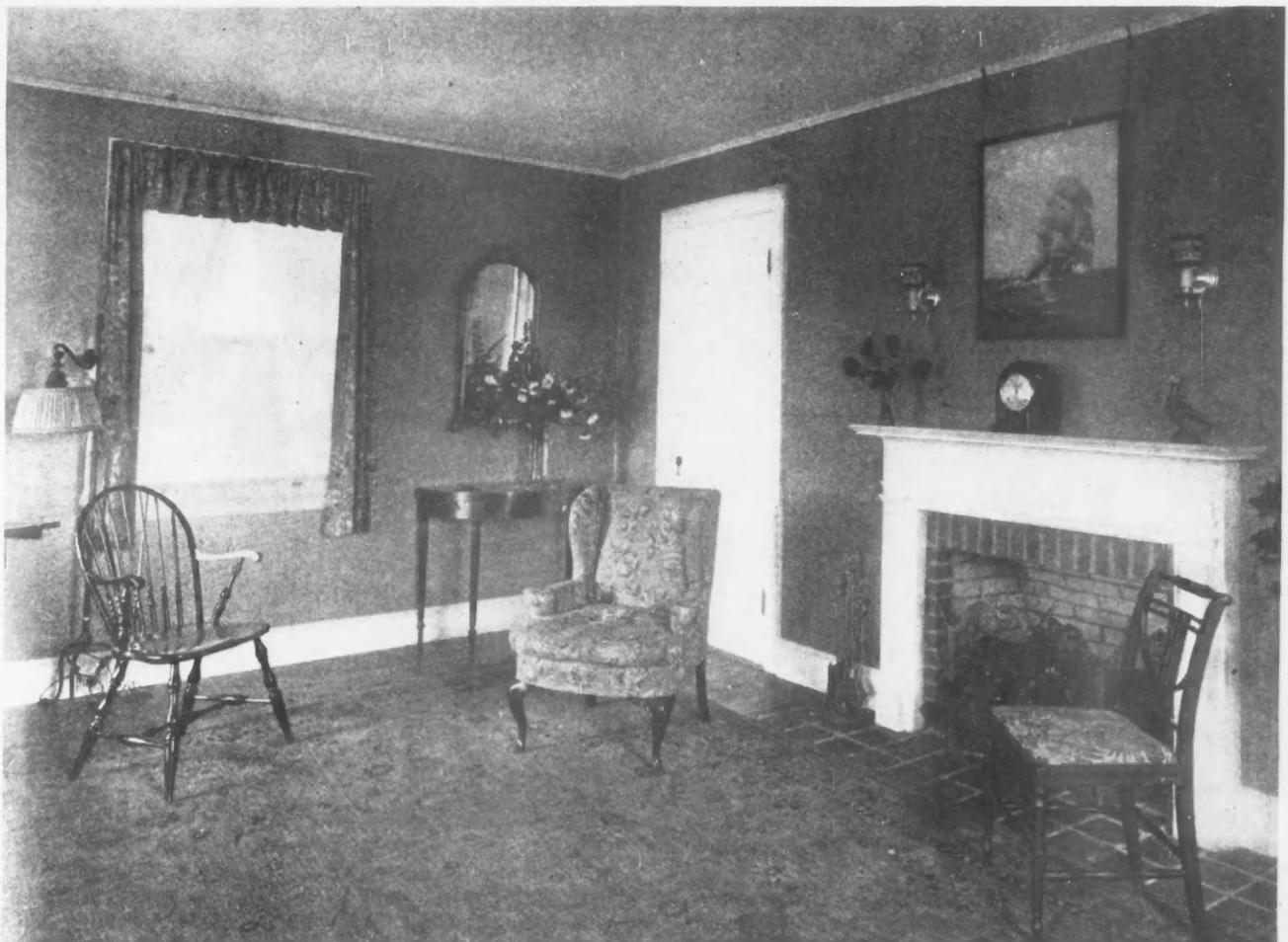
(Illustrations on next page; text Continued to page 103.)



Dining Room of the Home Which is the First of a Series to Be Built in New York to Promote Home Ownership.



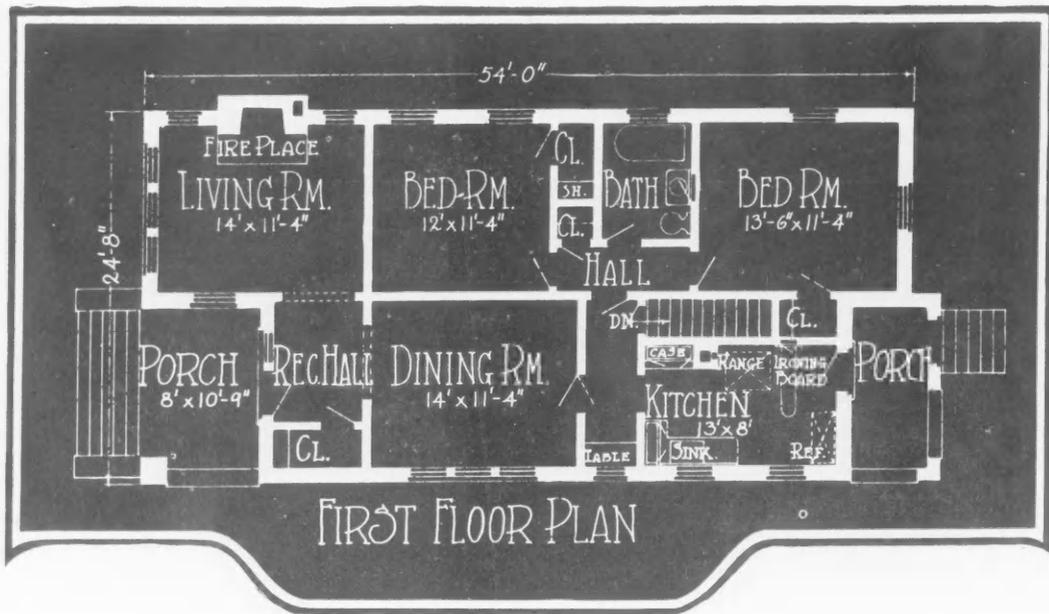
Front Entrance of Colonial House in a New York Suburb. It was built as a demonstration of Better Homes



The Inviting Living Room of the Demonstration Home. The interior arrangement is excellent, the living room, dining room and kitchen occupying the first floor and the two bedrooms and bath occupying the second. This home won first prize in the recent National Architects' Small House Competition.

# BLUE RIBBON HOMES

PRACTICAL  
&  
ARTISTIC

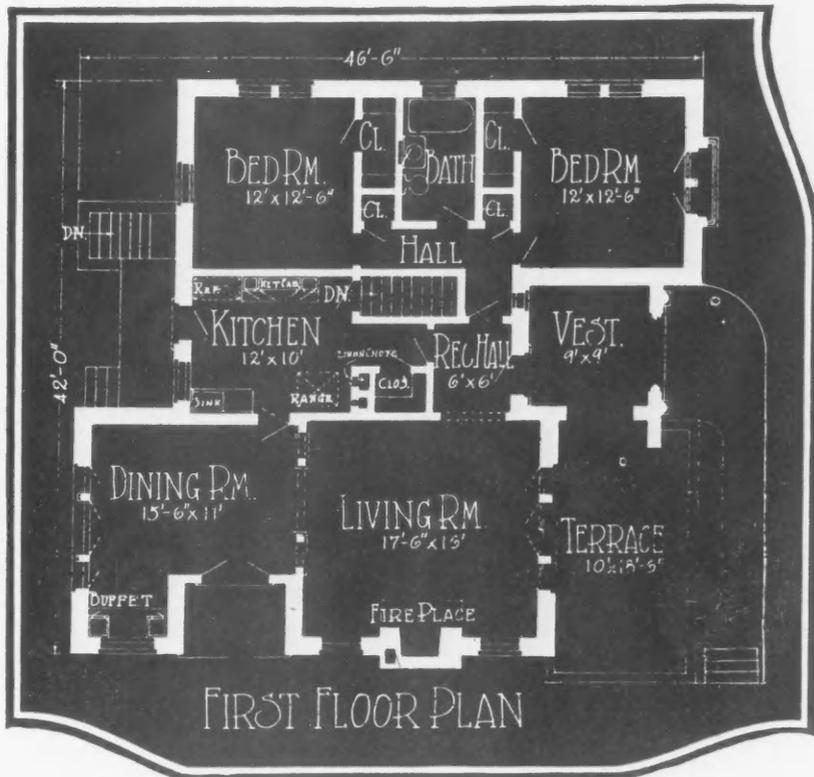


**A** TTRACTIVE AND ECONOMICAL BRICK AND STUCCO HOME. Here is a house especially designed for those preferring a brick and stucco home that is cozy and compact. It has a substantial and conservative appearance, is well constructed and will last long and give excellent service. The rooms are all comfortable and the arrangement is very convenient and pleasing. From the porch one enters the reception hall. Directly to the left is the living room with the three windows facing the street. Just ahead of the reception hall is the dining room. At the other end the dining room opens onto a hall. Across the hall is the kitchen. The two bedrooms and bath also open onto this hall.

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**BLUE RIBBON HOMES**

PRACTICAL & ARTISTIC



**UNIQUE SPANISH MISSION HOME DESIGN.** While it reminds one of the quaint old Spanish missions it still retains the delightful atmosphere, conveniences and room arrangement of a modern American bungalow. The exterior of stucco, the roof of red tile and the Spanish terrace create an appearance that is very pleasing. Walking thru the vestibule one enters the reception hall. To the left is the living room with the four windows facing the terrace. The dining room with a built-in buffet takes up the rest of this side of the house. The kitchen joins the dining room at its right. The kitchen is connected with the reception hall so it can be entered from the front door without having to walk thru the living and dining rooms first. On the right side of the house are the two bedrooms and bath. They all open into a hall which is entered from the right of the reception hall.

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# “Garlows” New Aid to Home-builders

Chicago Realtor Builds Ingenious and Attractive Two-Car Garages That Make Excellent Homes Until Main Residences Can be Built



A NEW IDEA IN HOMEBUILDING. Group of garlows in Chicago built by Mr. Richard Cramer who coined the word “garlow” from “bungalow” and “garage” and originated the idea. Each one is built on the rear of a lot 4 feet from the alley, leaving the front of the lot for the regular home whenever the owner can afford to build it.



Mr. Richard Cramer, Chicago Realty Dealer, Originator of the “Garlow” Idea.

A NEW type of building, the garlow, is solving the building problem for many families. The name “garlow” is made by combining bungalow and garage, and the structure is all that its name implies.

It is designed as a two-car garage, but an ingenious use of partitions, which may be made of plaster board, turns the garlow into a four or five-room home that may be equipped with all the conveniences and space-saving devices of a modern hotel apartment.

It then serves as a comfortable dwelling until the owner is ready to build his house on the front of the lot; and after the completion of the main residence may be converted into a garage by removing the partition and a portion of the rear wall, which has been designed so as to be removable without injuring the main structure of the building.

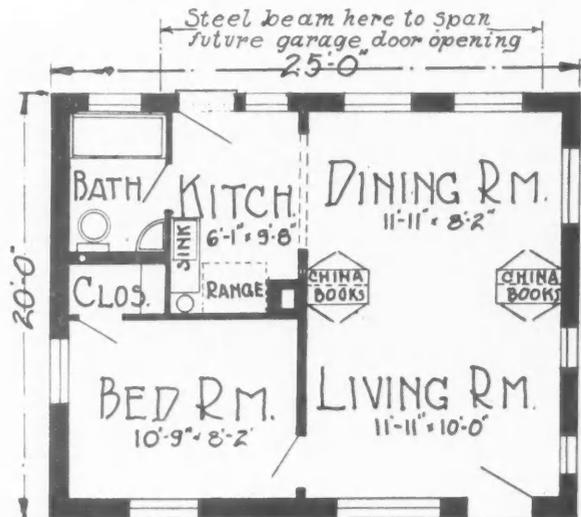
“High rents and the high cost of building brought forward this new type of construction,” said Mr. Richard Cramer, realty dealer and home builder who originated both the idea and the word in Chicago in September 1921.

“Those familiar with conditions in Chicago during

1919, 1920 and 1921,” he continued, “will recall how rents were going up sky-high along with the selling price of all types of buildings—and since there was very little building going on at that time these prices were boosted even higher.

“We found that small homes, purchased on small, down payments that the average working man could handle, were greatly in demand. It was the effort to find a solution to this situation and a means of meeting this demand that first suggested to me the idea of the ‘garlow.’

“Thus the plan was originated to meet the needs of those people who no longer wished to pay the high



Floor Plan of 3-4-Room Garlow.

rents but were handicapped because they had only a small sum of money saved for a first payment. We believe that with the amount of cash they had to invest they were more likely of getting better property value thru our plan than they could in any other way. For the garlow is but a step towards owning a fine building with an income. It holds a valuable lot while the purchaser is paying for it and at the same time provides him a home.

"The purchasers of these little homes are buying with the intentions of living in them until their property is paid for, and then build in front. They can use the doors, fixtures, etc., from the little house in the main building, as they are of the highest quality, being installed with that idea in view. Then when they tear out the brick panel underneath the steel beam in the back wall, it is ready to swing garage doors.

"I believe that this 18 ft. steel beam built into the back wall with the brick beneath the beam built into a panel which can be removed without disturbing the rest of the wall is the most unique and main feature of the whole building.

"The original buildings were 25 feet wide by 20 feet deep, and were built on the back of the lot 4 feet from the alley on lots 30 by 150 feet. We have since built some 25 by 28 feet, set 12 feet from the alley, to meet the demand of people with families too large for the smaller houses. The first buildings have four rooms, a living room, dining room, bedroom, kitchen, and bath or two bedrooms, and a combination dining-room and kitchenette. The larger buildings have 5 rooms. Some are designed with two front doors, providing separate entrances into the two car garage. They are constructed of brick, with a 4 ft. concrete



Rear Wall of a Garlow Showing 18 Ft. Built-in Steel Beam Construction. The brick beneath the beam is built into a panel which can be removed without disturbing the rest of the wall. This leaves a space for swinging the garage doors.

foundation; the interior is finished with hardwood floors, birch-mahogany trim, up to date electric fixtures and other modern furnishings.

"The four-room homes sell for \$2500 and the 5 room for \$3000 plus the cost of the lot on which they are erected."

Mr. Cramer is very optimistic over the future of the garlows and feels that the idea now is only in its infancy. The photographs in connection with this article are a group his company has already built in Chicago. These were so popular that they recently began construction on another and much larger group.

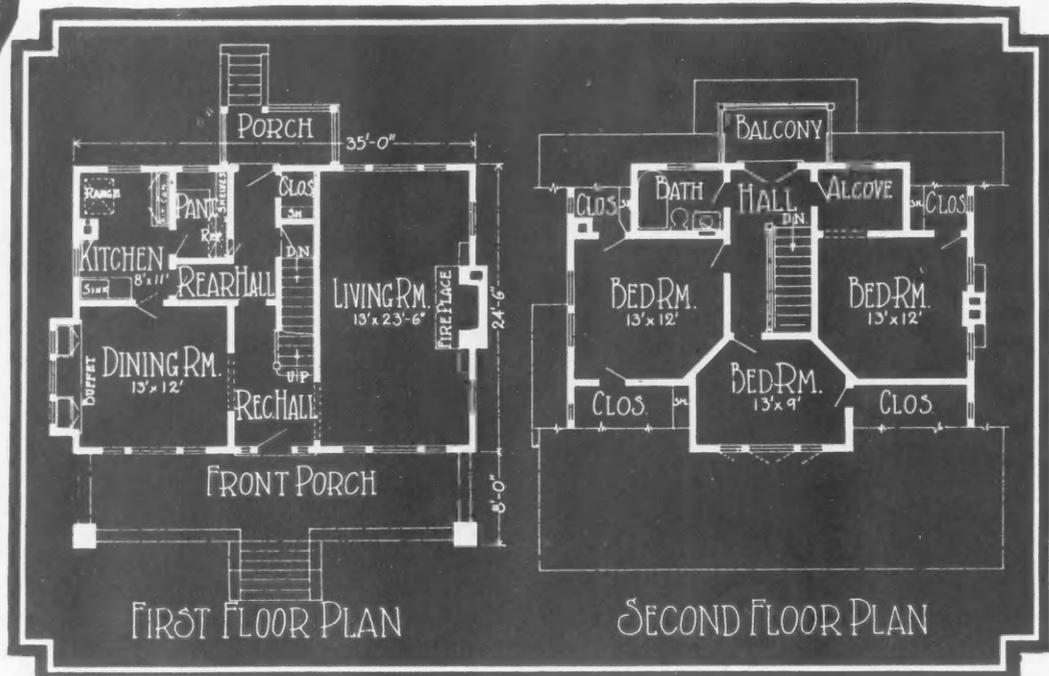
The idea is spreading rapidly and meeting with a hearty response wherever it is introduced, and while only a little more than a year old garlows are giving excellent satisfaction in many communities in every section of the country.



A Front View of Two 4-Room Garlows. Many families live in these attractive homes until they can afford to build regular residences. The garlow then is converted into an excellent two-car garage with two doors providing separate entrances into each side.

# BLUE RIBBON HOMES

PRACTICAL  
&  
ARTISTIC

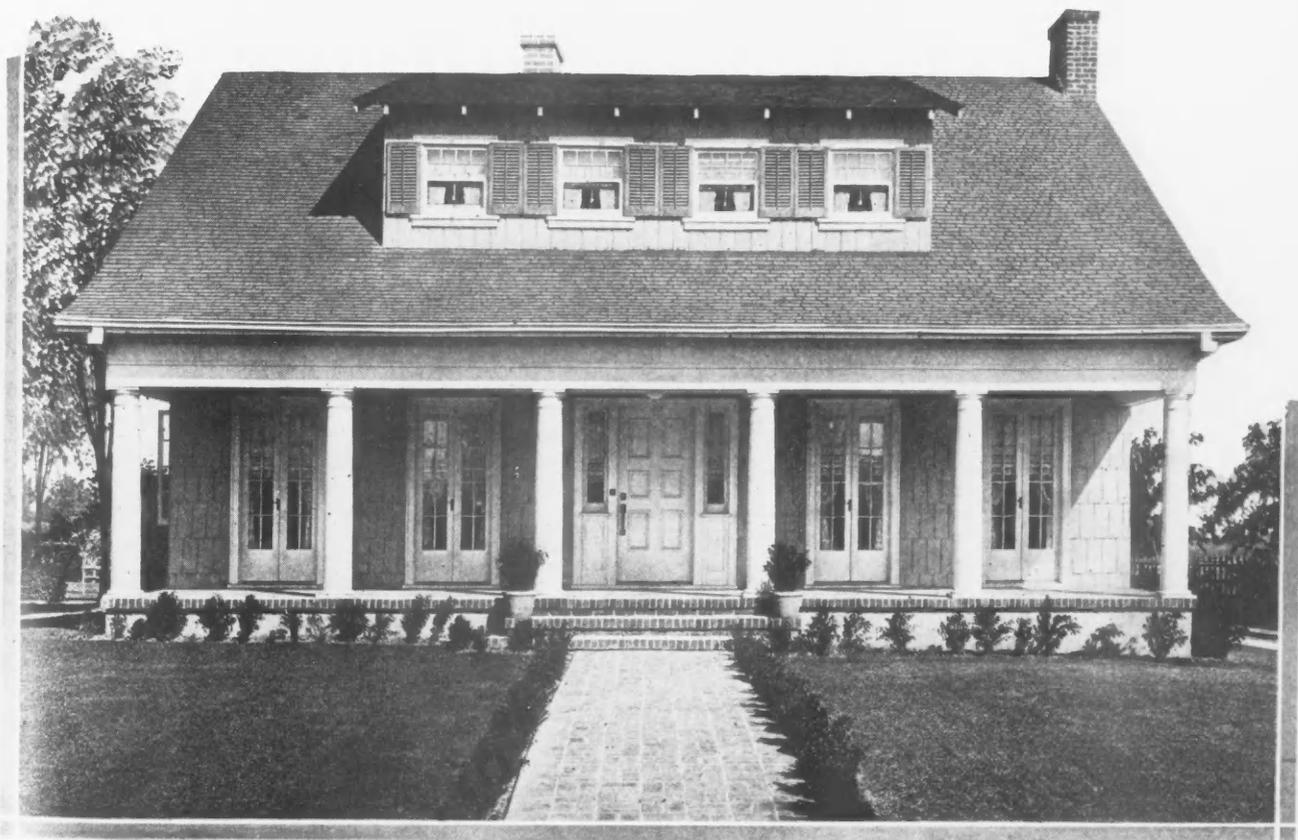
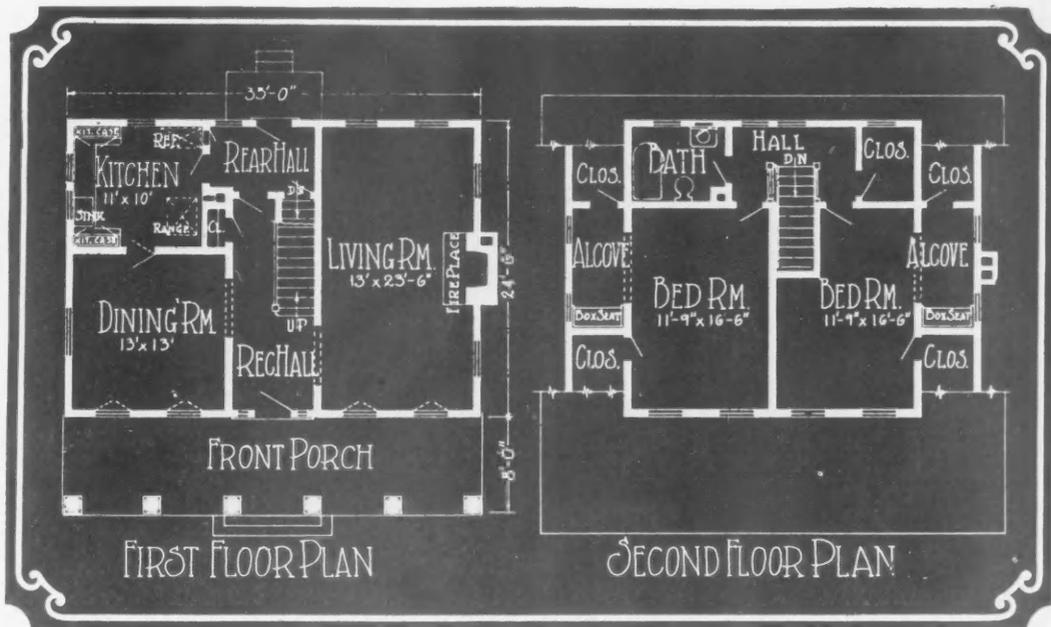


**AN IDEAL TWO-STORY BUNGALOW HOME.** The spacious front porch built under the sloping roof, the shingled walls, and dormer have all been combined with excellent taste. There are seven rooms. A living room, dining room and kitchen on the first floor and three bedrooms and a bath on the second. From the front porch one enters the reception hall. On the right, occupying the entire left side of the first floor is the large living room, one of the most attractive and desirable features of the home. The dining room and kitchen take up the other side of the house. The stairway, located in the reception hall, opens onto another hall upstairs. Two bedrooms and the bath are entered from this hall while the third bedroom is reached thru the alcove. The hall leads to a balcony at the rear.

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**BLUE RIBBON HOMES**

PRACTICAL & ARTISTIC



**MODERN COLONIAL HOME OF UNUSUAL DESIGN.** While it reminds one of a stately old Colonial mansion, it still retains all the practical features of a modern American home. The broad expanse of porch, with plain Tuscan columns and projecting eaves, the sloping roof, the French doors and the shingled walls blend both these desirable types without losing the dignity of the one or the conveniences of the other. Entering the reception hall from the porch, the dining room is at the left. It leads to the kitchen. The large and comfortable living room occupies the entire right side of the house. On the second floor are the two bedrooms, the bath, two alcoves and five closets.

# The BUNGALOWETTE



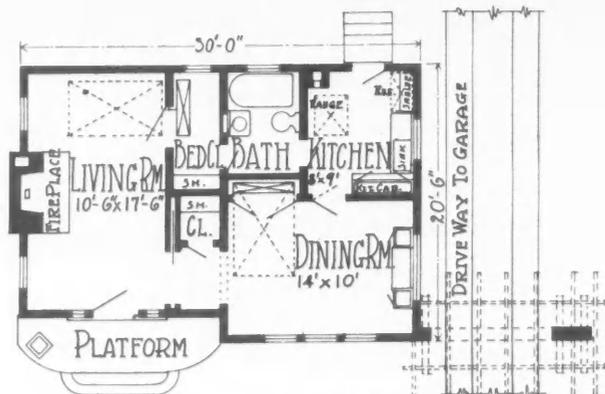
## Another Hotel Apartment Bungalow

Architects Have Also Incorporated in This Attractive Little Bungalowette Many Space-Saving Features and Conveniences

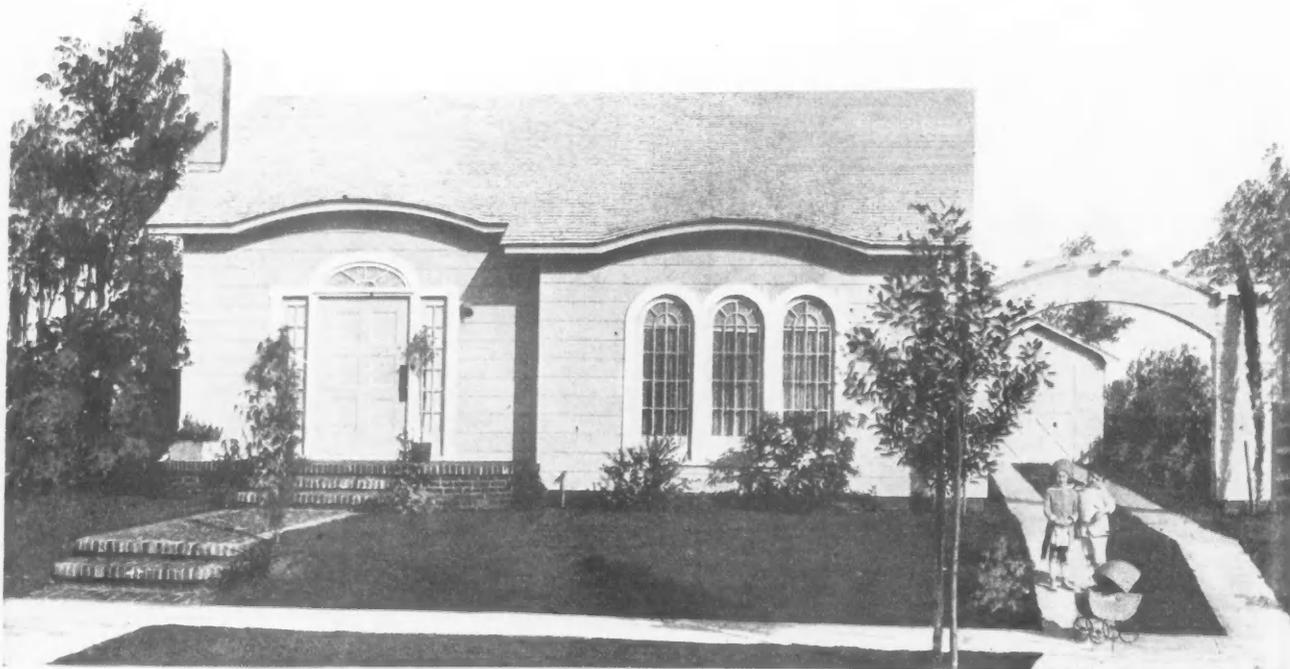
OUR front cover home in the November issue received so much favorable comment that we are illustrating another in this department this month designed along similar lines.

Like last month's home, this charming and aristocratic little three-room bungalowette artistically and economically provides all the conveniences and accommodations of a modern city apartment hotel.

It has been equipped with space-saving beds and fixtures with every convenience for comfort and efficiency. Home builders everywhere are fast recogniz-



FLOOR PLAN OF BUNGALOWETTE



The Architects Have Designed This Beautiful Little Bungalowette So That It Has All the Conveniences and Comforts of a Modern Hotel Apartment. There are three rooms, a living room, dining room, and kitchen, also, a bath. Wall beds are installed in both the living and dining rooms so that they can be transformed quickly into bedrooms at night.

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ing the advantages of equipping their homes with space-saving equipment because it eliminates waste space, reduces the building cost, increases the living comfort and raises the rental value.

The designer of this home has delightfully worked in features of Colonial architecture, and its individuality is apparent in many ways. The clapboard walls, the casement windows, the brick walk and platform, the sloping roof and the arch over the driveway are all features that would make this little place stand out attractively and distinctively in any city.

The house is 30 by 20 feet 6 inches and may be built on an average sized lot, saving plenty of room for a beautiful lawn and the garage driveway. There are three rooms and bath, the living room, dining room and kitchen. But it has been designed so that it is possible to live just as comfortably and much more conveniently in these three rooms than it was formerly to live in five or six. And a house of this type is always much easier to take care of, particularly when the arrangement follows the plan it does.

From the front platform one enters the large and commodious living room extending clear across the house. It is 10 feet 6 inches by 17 feet 6 inches with a real fireplace for a genuine fire. This room is easily and quickly transformed at night into a bedroom by swinging out the door bed from its hiding place in the closet. The location of the bed at night may be seen from the floor plan.

In entering the living room thru the front door the entrance to the dining room is immediately to the right. A wall bed is installed in this room, making it possible to have two bedrooms whenever desired. The room



Everything Tastes Better When You Are in Your Own Home

is well lighted and ventilated with three casement windows. The dining room opens into the kitchen, which is a very practical size that every housewife will appreciate. It is small enough to save many steps, yet there is plenty of space for all the equipment she needs.

The bathroom may be entered from either the bed closet or the kitchen, as it is located just between them. In addition to the bed closet there is also a closet for outside wraps, conveniently located near the front door.



City friend: "How do you like the combination furniture now in use in our newest flats?"

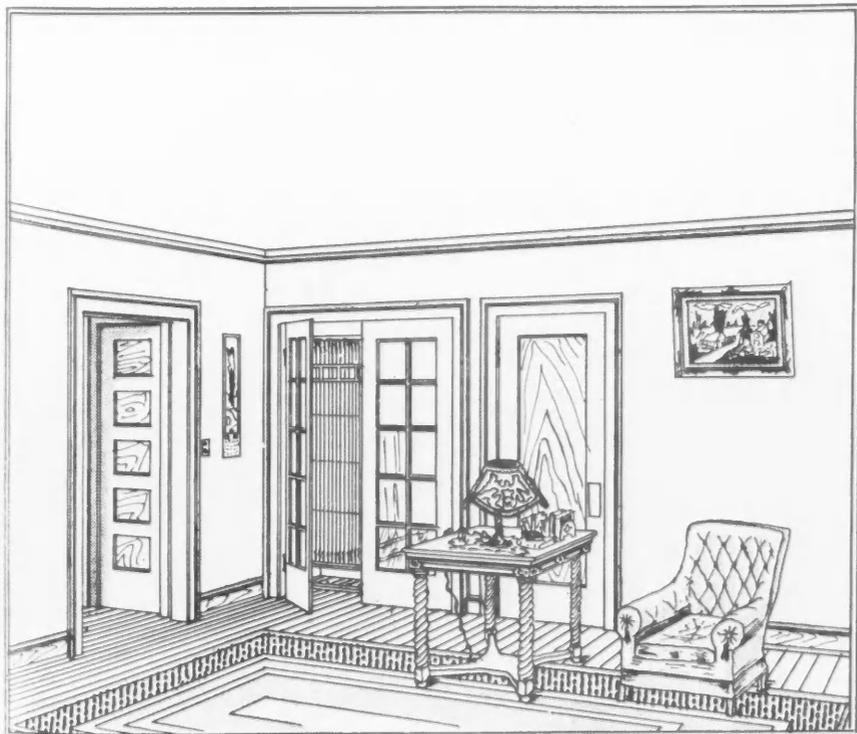
Country friend: "Not at all. I went to bed in a piece of it at a friend's house the other night, and what do you think? When I woke up two women were serving breakfast on the foot-board, a fellow was writing a letter on the head-board and the maid was underneath the bed making coffee."



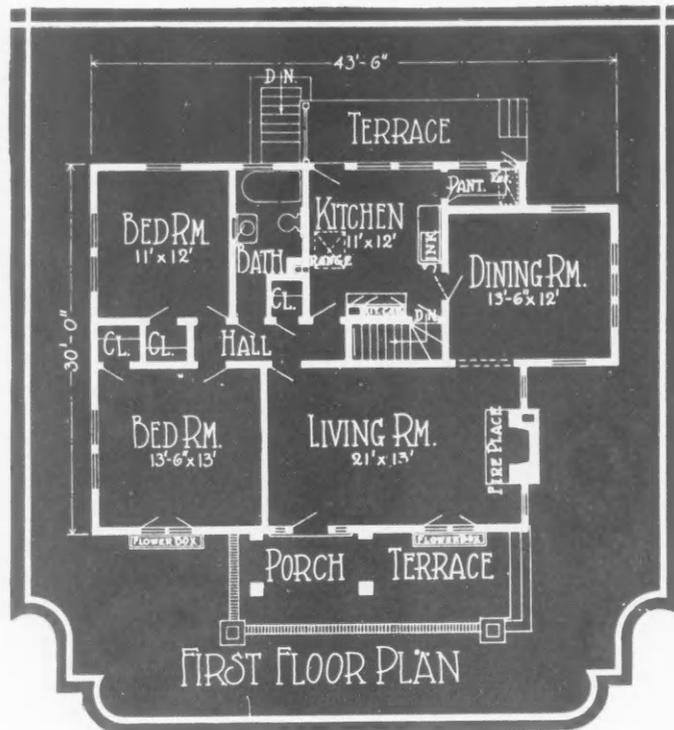
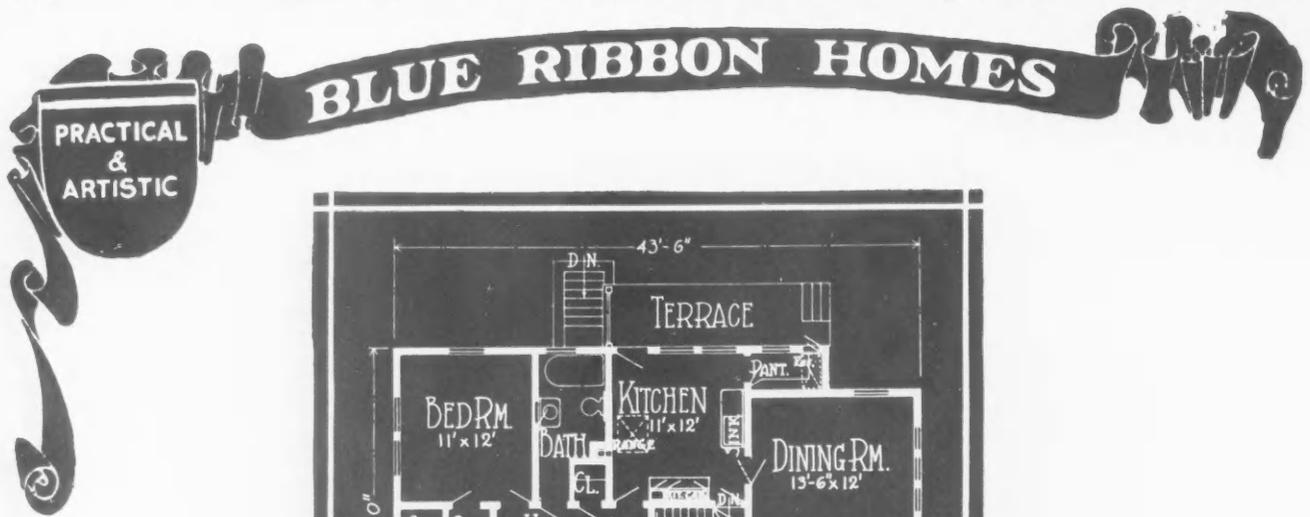
**M**ORE wood is used for shipbuilding today than when wooden vessels were the only ones afloat.



**T**HE only ship that comes to a man who sits down and waits is a receivership.



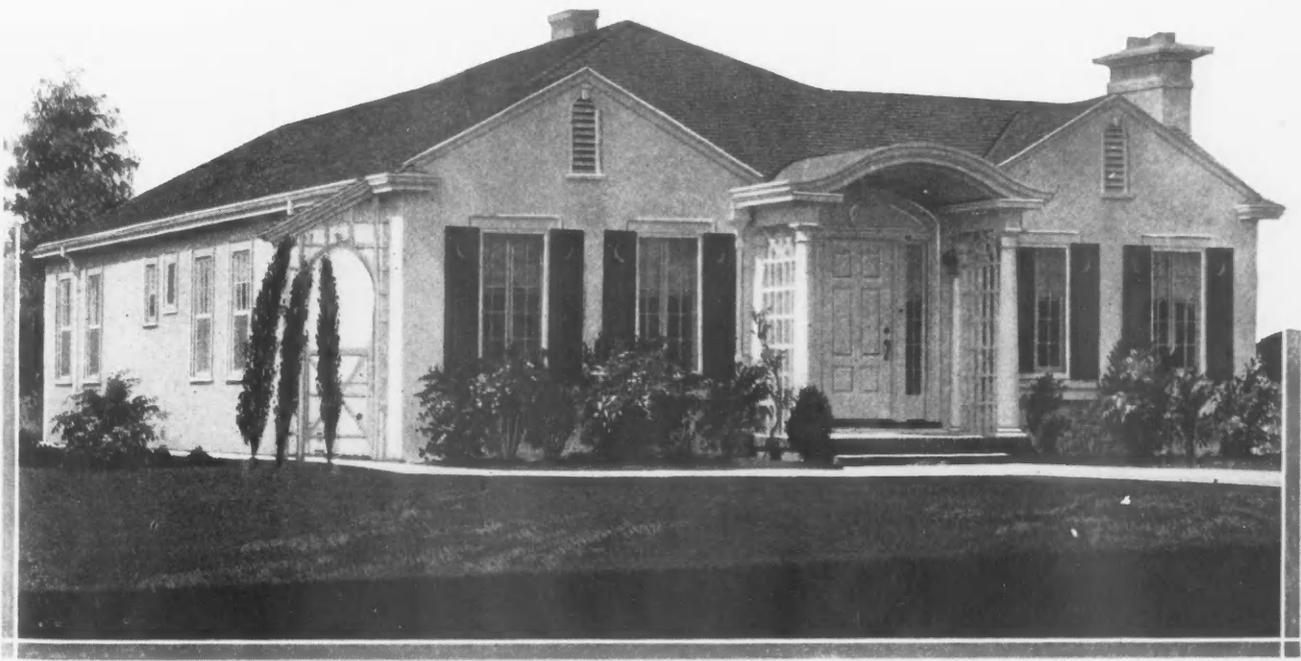
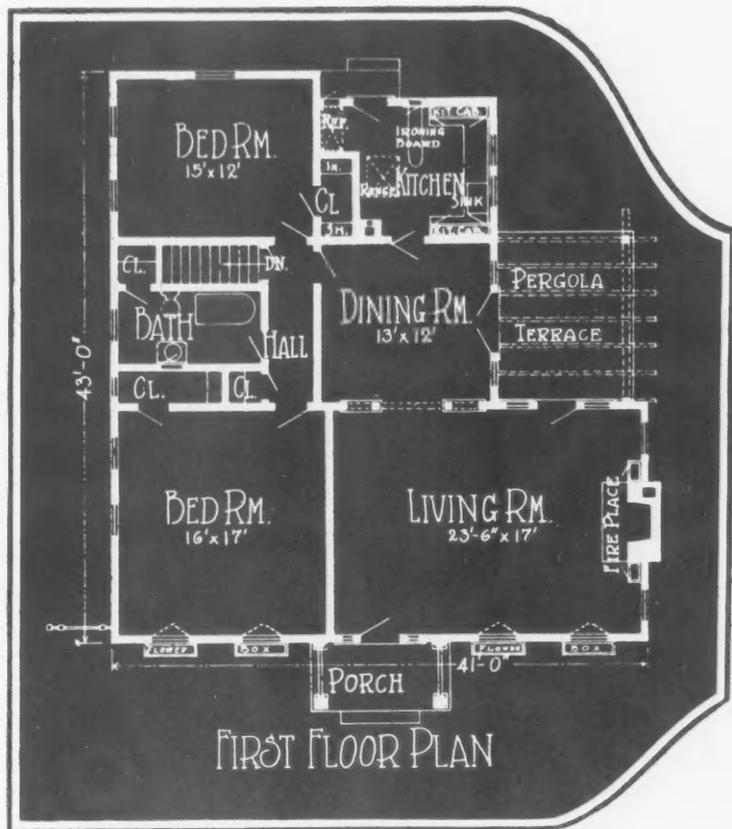
One Corner of the Dining Room. This is a large and comfortable room extending clear across the house. The glass doors indicate the bed closet where the bed is put away out of sight during the day permitting this space to be used as a spacious living room.



**QUAINT AND ARTISTIC BUNGALOW.** The white clapboard walls, the roof, the inviting front entrance and terrace, all lend a charm to this home that would make it stand out distinctively in any city. It is built of substantial and practical materials and could be constructed economically. The front entrance opens into the living room that is large and comfortable with a real fireplace. As can be seen by the floor plan, the living room has entrances opening into the dining room and hall. The bedrooms are located on the left of the house and are entered from this hall. The kitchen is located directly back of the living room, but is entered thru either the hall or dining room. It opens onto another terrace in the rear.

**WINNING BLUE RIBBON HOMES**

PRactical  
&  
ARTISTIC



**CHARMING BUNGALOW OF ENGLISH DESIGN.** The exterior of this little home with its English lines creates an impression of a distinction that is very pleasing. From the inviting front porch one enters the living room which is large and comfortable being 23 feet 6 inches by 17 feet. It opens into the dining room which joins the kitchen. Both the dining and living rooms open onto a pergola terrace towards the rear at the right side of the house. While not shown in the photograph, its location may be seen from the floor plan. The two bedrooms and bath take up the entire left side of the house.

# Five Double Houses Arranged in Court Plan

By CHARLES ALMA BYERS

SEEKERS of ideas on planning income property projects will doubtless find in the accompanying illustrations a suggestion of quite exceptional interest. It consists, as will be discerned, of a number of houses, intended for renting, grouped into the so-called community court arrangement. The here-presented representation of the idea is, however, an especially economical one, particularly in respect to the ground area to which it is confined. It is also unusually well carried out in other ways—in attractiveness of the arrangement in general, in the interior planning of the various units, and so forth.

The ground plot utilized by this project has a street frontage of approximately 120 feet and a depth of about 150 feet, which makes it virtually equivalent to two city lots of ordinary size. By the usual method of building, this area would be made to accommodate only two houses—and three at most. Here, however, it has very satisfactorily been utilized for the erection of five houses, each of which, moreover, is a double or two-family structure. The arrangement, therefore, provides a total of ten separate apartments, or homes for ten families. The space further gives room to an automobile driveway extending down one side and to a garage for each of the ten apartments in the rear.

The five double houses are identical with each other both in exterior designing and in interior arrangement, and each apartment or half of each house is an exact duplicate of the other, in reverse order. The floor plans reproduced herewith therefore present the arrangement of the interior of all five houses. Hence,

as will be observed, each apartment provides living room, dining room, kitchen and the usual screened or kitchen porch on the first floor and two bed rooms and bath room on the second floor, besides closets for the bed room and a number of excellent built-in features. Each of the five houses also possesses a roomy open porch or terrace on the front, and the living room in all instances contains a good fireplace.

The houses, it will be seen, instead of fronting upon the street, are arranged to face directly upon a small community courtyard or parking. This space, treated in particularly attractive garden style, with low-growing shrubbery and well-kept lawns, features an electric light on a neat white standard in the middle-front and an enhancing arrangement of cement-paved walks.

The buildings have concrete foundations, and their outside walls are of cement-stucco over metal lath and frame construction. This stucco is given a pure white surface, and the slight trimming, confined almost entirely to the windows and front doorways, is done in light French gray. The roofs are covered with ordinary shingles, laid with every fourth course doubled, and are painted green. The chimneys are of brick construction, with an exterior surfacing of stucco, and the front porches or terraces are floored with cement and finished with low piers of concrete and stucco at the corners and entrances. Each apartment naturally has its own private entrance, and all front doors are of small glass panes. French windows further open to the front porch from each apartment's living room.



A Community Court Arrangement of Five Two-Story Double Houses arranged on a lot 120 by 150 feet. The houses are identical with each other both in exterior and in interior arrangement. They have concrete foundations and outside walls are of cement stucco over metal lath and frame construction.

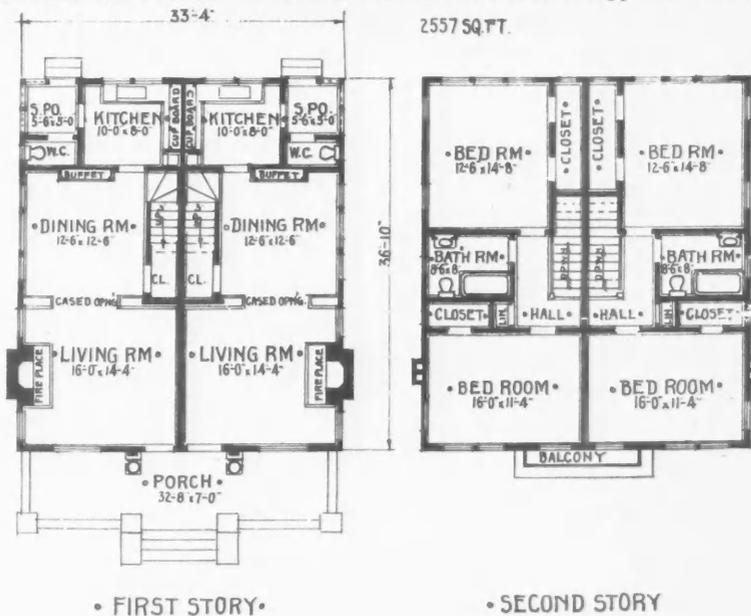


Each of the Five Houses Provides 5-Room Apartments for Two Families. The living room, dining room and kitchen of each apartment are located on the first floor while the two bedrooms and bath in each unit occupy the second.

Referring to the floor plans, it will be seen that the interior planning handles the floor space most economically, and yet provides convenient accessibility and very commodious rooms. The front door opens direct to the living room, and a broad cased opening joins the latter to the dining room. The stairway to the second floor rooms ascends from one corner of the dining room, and the up-stair hall forms direct communication with both the bath room and the two bed rooms.

The closets and built-in features with which each apartment is provided especially deserve notice. They include a coat and general utility closet under the stairway, a buffet and china cupboard in the dining room, a draft cooler-closet, fine cupboards and the other usual conveniences in the kitchen, a toilet off the kitchen porch, a linen cabinet in the upstairs hall, a wall medicine-case in the bath room, and a large wardrobe closet for each of the bed rooms. It should be noticed in this connection that the long closet of the back bed room is, in fact, virtually two closets in one, for it is provided with two doors and hence may be partitioned or otherwise divided, if desired.

The several units naturally have their interiors carried out in uniform style. The woodwork of the living rooms and dining rooms consists of pine in old ivory finish, to which is added a limited use of mahogany as trim, and in the second floor halls and bed



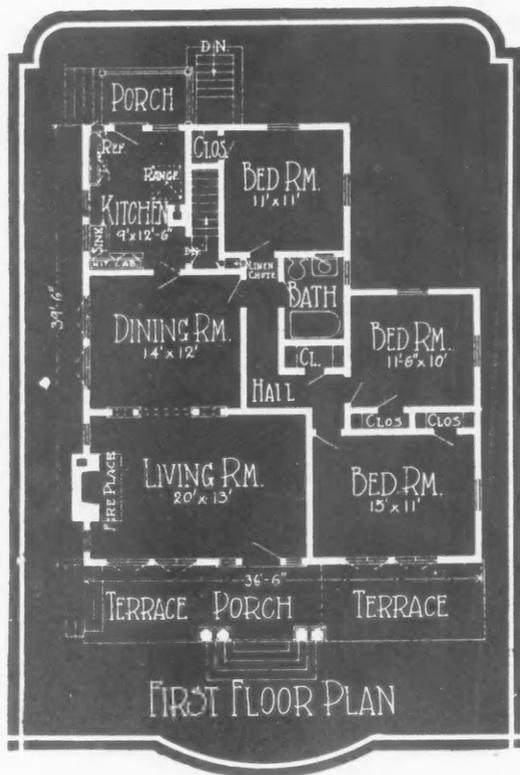
Arrangement of Rooms in Each of the Double Houses

rooms it is of pine in old ivory alone, while in the kitchens and bath rooms the pine woodwork is finished in white enamel. The walls of the kitchens and bath rooms are given a smooth, hard plaster surface.

This community court is located in Los Angeles, California, and the plans are by Floyd A. Dernier, of that city. Because of the attractiveness of the arrangement and the excellent planning of the interiors, the apartments are naturally quite easy to find tenants for, and the property constitutes, in every way, a very desirable and well-paying investment.

# BLUE RIBBON HOMES

PRACTICAL & ARTISTIC

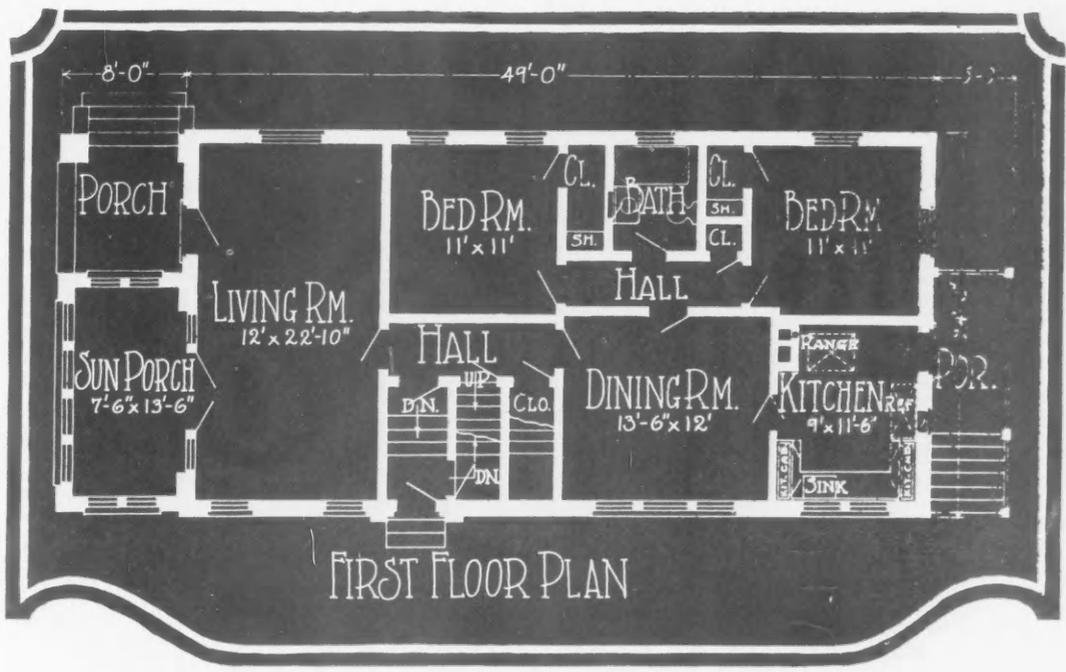


**AN ARISTOCRATIC SIX-ROOM BUNGALOW.** The artistic thatched roof, the front entrance with the white columns and cement terrace on each side and the attractive window arrangement are all features that will attract the attention of every passer-by. The floor plan follows the customary American plan of bungalows. From the front terrace one enters the living room. It opens into the dining room. It leads to the kitchen which occupies the remainder of the left side of the house. The three bedrooms and bath, on the right side of the house, open onto a hall which is entered from the dining room. There is a two-car garage in the rear built in harmony with the house.

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**WINNING BLUE RIBBON HOMES**

**PRACTICAL & ARTISTIC**



**PRACTICAL AND COZY BRICK BUNGALOW.** There is something substantial and reassuring about brick that makes it a favorite, and this little home will appeal particularly to the homeseekers who want a modern bungalow of brick. A particularly attractive feature is the sun porch which is 7 feet 6 inches by 13 feet 6 inches. Its location may be seen from the floor plan. From the front porch one enters the large living room, 12 by 22 feet 10 inches, extending clear across the house. The dining room and kitchen occupy the right side and are entered from the living room thru a hall. As can be seen from the photograph there is a side entrance leading up to this hall thru which you may enter the dining room or living rooms. It is also a handy and quick entrance to the basement for the man who wants a workshop or small office down there.

# A Barn That Became a Studio

A Successful Remodeling Job at Bethayres, Pa., Wilson Eyre, Architect

By ESTELLE A. RIES

**T**HE colonists who followed William Penn to Pennsylvania and located in the suburbs of what is now Philadelphia, were almost without exception an agricultural people. They plowed the land and felled the trees and built the best evidence of their craftsmanship into their houses and farm buildings.

Standing today near suburban Philadelphia, in a locality celebrated for its fine domestic architecture, are a number of delightful residences of noteworthy artistic interest because of the correctness of their proportions.

These houses are the result of alterations of old barns into the best artistic types of residences. The reclamation of these old buildings offers unusual possibilities and it is highly desirable that these opportunities for the conservation of a fine architectural resource should be availed of.

One example that these farmers set to succeeding generations was the use of ledge stone for building purposes. This material, of a fine color and of sharp fracture, is famous thruout the outlying districts of Philadelphia and in that vicinity ledge stone work



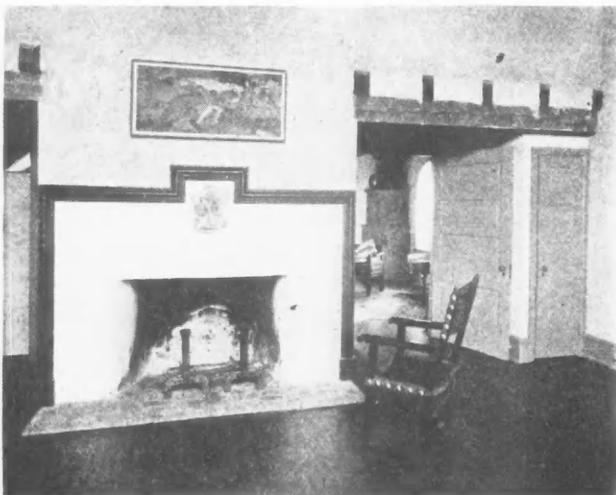
Close-up View of Front Entrance to Studio. The attractive canopy, and artistic windows and shutters give the historic barn a distinctive appearance.

has been wrought into forms that it is difficult to exceed in artistic appearance.

The studio of Henry McCarter at Bethayres, Pa., is one of these examples of remodeling an old barn, carried forward in a manner that has reverently regarded all the traditions of its original architectural style and its adaption for use as a studio building. Wilson Eyre was the architect.

Many attempted restorations have resulted disastrously for the reason that the shell or fabric has not at the outset been sufficiently good to warrant its becoming the base of a remodeled structure. But the fine old barns which the colonists under William Penn built, reflected the substantial competence that was so important a feature in the development of this country.

In the last analysis, good architecture is nothing more or less than the relation of solids to voids—the relative proportion of wall area to window and door spaces. The early settlers seemed to appreciate this fundamental factor in architectural design, and it is the conservation of these features, the retaining of the fine proportions, that insures the



Interior View of Barn of William Penn's Time as It Appears Today After Being Remodelled Into a Studio.



Living Room of Studio. Years ago this comfortable looking room housed horses and cattle

successful results in modern restoration methods. In remodelling an old house, the floor plan or its larger subdivisions are usually retained and ceiling heights are also fixed. But in adapting a barn to a house as in the present instance, the architect may fix his ceiling heights and arrange his plan to suit the needs of his client.

So well was the original barn conceived, that it has

only been necessary to alter the plan of the building inside, adapting it to dwelling purposes, and to put on a new roof and such small embellishments as may be required to give the impression of domesticity and add to the convenience of the building or habitation.

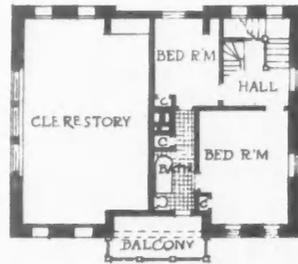
This house will suggest to the observer the early type of barn which combined large spaces for the storage of hay in its upper recesses, with ample room on the lower or ground floor to be utilized for the cattle and horses. Seen from the rear, perhaps the most interesting elevation, it has simply been necessary to add the arched windows and the overhanging porch. With these exceptions the barn may be regarded as almost identical with the original structure.

A service court with lattice has been added, and a balcony from the second floor has been placed between the two units of the side elevation.

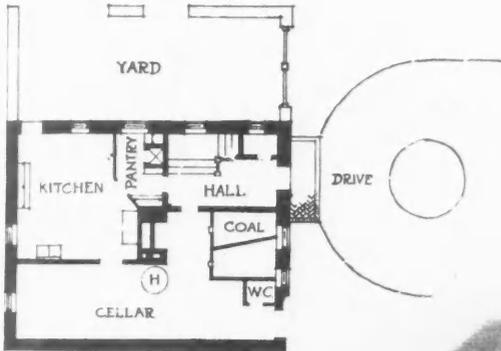
The original beams of the old barn have been retained and are exposed in the interior.



FIRST FLOOR PLAN

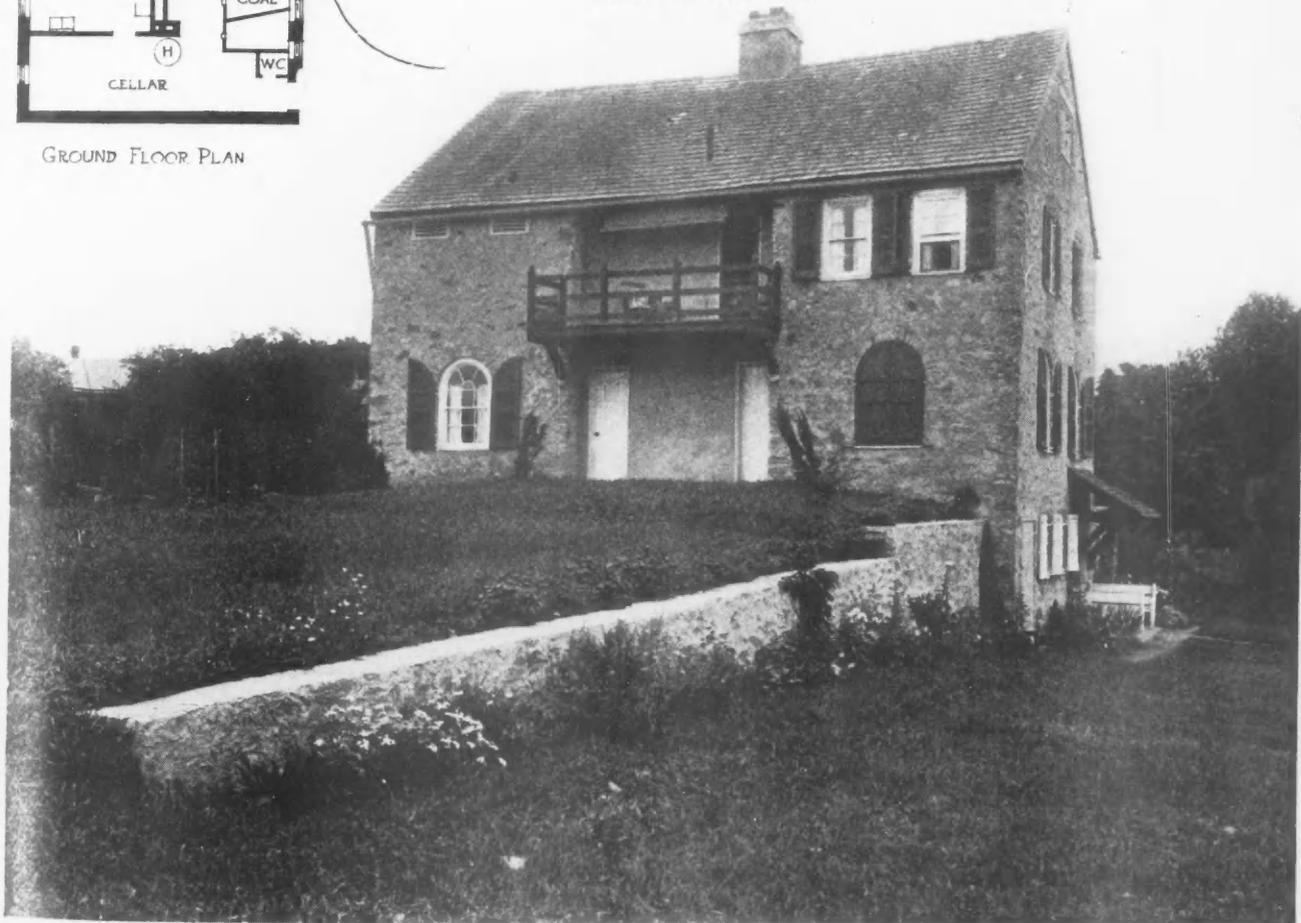


SECOND FLOOR PLAN



GROUND FLOOR PLAN

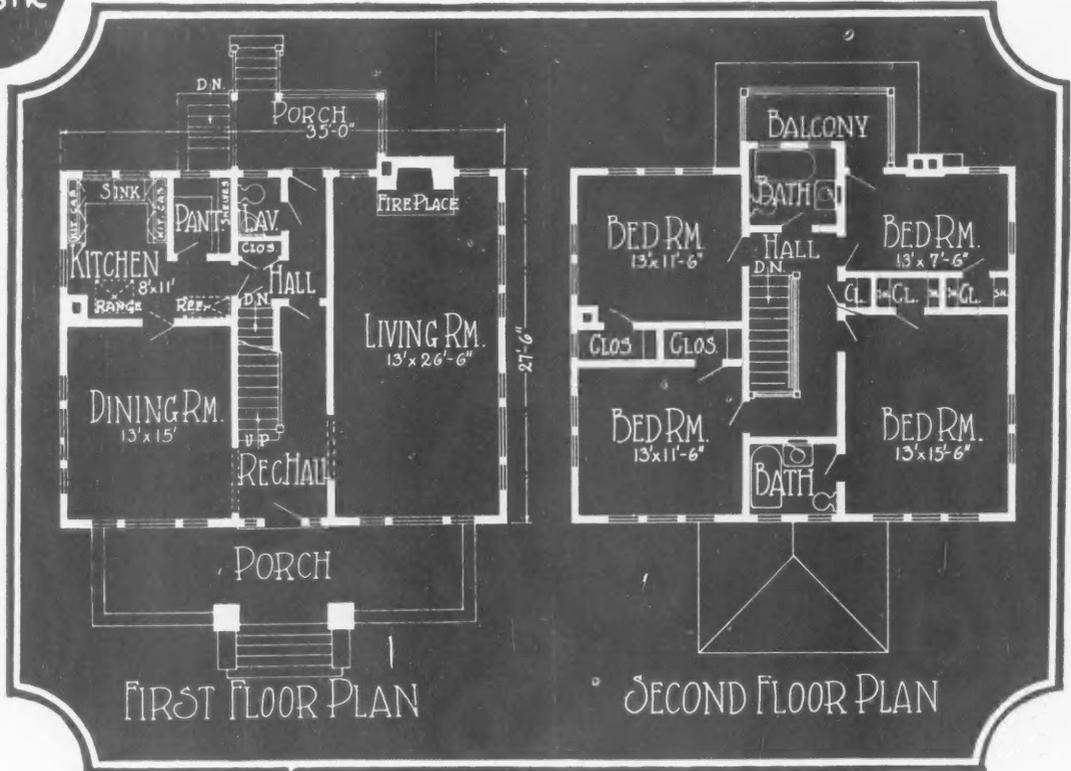
STUDIO AT BETHAYRES-PA  
FOR MR. HENRY McCARTER  
WILSON EYRE - ARCHITECT  
PHILADELPHIA AND NEW YORK



This is the Studio of Henry McCarter at Bethayres, Penn., which was a barn belonging to the time of William Penn, when Pennsylvania was a colony. In remodeling it into a studio they retained all the traditions of its original architectural style.

**BLUE RIBBON HOMES**

PRACTICAL & ARTISTIC

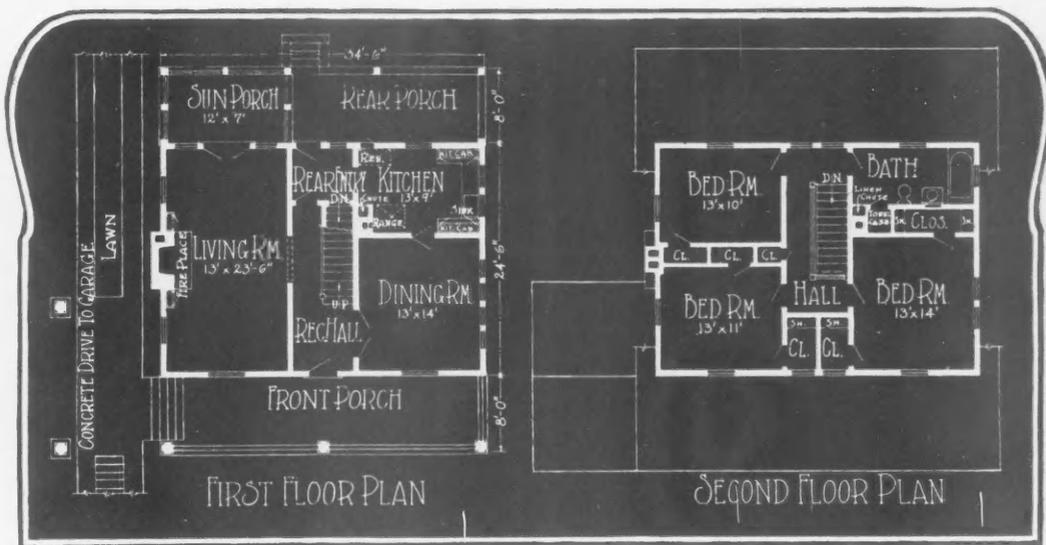


**A**N EIGHT-ROOM HOME OF CONSERVATIVE AND SUBSTANTIAL APPEARANCE. Thoroly American in architecture, it is a home anyone can well be proud to identify as "My Home." It is designed especially for a large family who demand plenty of room and comfort in an attractive house that will stand up. The front porch architecture is quite unusual and pleasing. On the first floor are the three regular rooms, living room, dining room and kitchen, also a pantry and lavatory. The home-like living room occupies the entire right side of the house, being 13 by 26 feet 6 inches. Upstairs are four bedrooms and two baths. One bathroom is located between the two front bedrooms and one between the two in the rear. The rooms are all well lighted. One of the rear rooms opens onto a balcony.

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**BLUE RIBBON HOMES**

PRACTICAL & ARTISTIC



**AN IDEAL FAMILY HOME.** The large front porch and rambling lines make this house appear unusually hospitable and comfortable. There is a strong appeal in the large front porch with the roof extending clear across the driveway. This residence has been so designed that it would be especially desirable for a 50-foot lot. From the front porch one enters the reception hall—where the stairs leading to the second floor are located. The large living room, 13 by 23 feet, 6 inches is to the left. It opens into an excellent sun porch at the rear of the house not shown in the photograph. Turning to the right in the reception hall one enters the dining room. It leads to the kitchen which opens onto the back porch. On the second floor are the three bedrooms and bath all opening onto a common hallway.

# ARCHITECTURAL DRAWING



## The Selection of Instruments

The Second of a Series of Articles of Great Practical Value to Builders

By M. K. Teach

Instructor in Architectural Drawing, Bradley Polytechnic Institute

**T**HIS article might rightfully have been article No. 1 for drawing instruments and the accessory tools are the basis of all architectural drawings. First of all let me say that no beginner can make a legible drawing with poor instruments. Several years ago a well known architect speaking before an architectural club composed of college students made the following statement, "the finest instruments are none too good, even for the best of draftsmen." A good set of instruments will last a lifetime provided they are treated with reasonable care, but a cheap set will be an annoyance from the start and will soon become entirely worthless. To the beginner a good set and a poor one may appear the same, so it is well for him to have the advice of a good judge, or to buy from a good and reliable dealer. Alteneder, Keuffel & Esser, Dietzgen and Richter instruments are almost always sure to be of good quality and can be relied upon by the draftsman. The amateur should make sure that the set consists of substantially the following articles:

- 1—5½ or 6-inch compass with lengthening bar and pen points.
- 1—5½ or 6-inch divider with hair spring adjustment.
- 2—ruling pens (one to be a "Swede" pen if possible).
- 3—bow instruments (one bow divider, one bow pencil and one bow pen).

The compass, bow pencil and bow pen should be equipped with "shoulder" point needles.

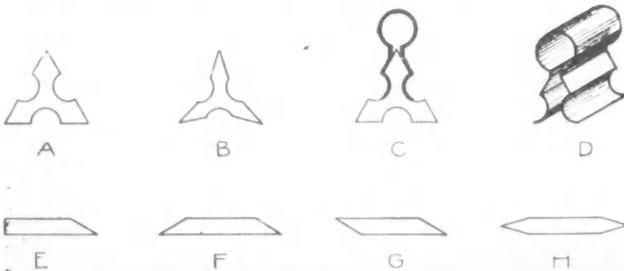


Fig. 1. Cross Sections of Draftsmen's Scales.

The next logical thing to select is the board upon which the drawings are to be made. Now, most of the drawing boards are made of clear white pine cleated to prevent warping. Boxwood has also been used but has not proven entirely satisfactory. So-called "bread boards" or those with no cleats on the back should never be selected, for in this type of board the grain of the end cleats is perpendicular to the grain of the boards. Consequently, when the board shrinks, which it is sure to do, the ends of the cleats will project beyond the longitudinal edges of the board, this rendering these edges useless for setting the T-square against them near the ends of the board when the lower side is used for a straight-edge. A 24 by 30-inch board is a good size for the beginner to buy.

Every draftsman should have at least two transparent triangles, altho opaque ones made of wood or hard rubber may be used. The transparent celluloid triangles are without question the best for all work for numerous reasons altho they do have a tendency to warp. For ordinary work an eight-inch 45-degree and a ten-inch 30 to 60 degrees are good sizes.

Now, in selecting a scale the amateur should make sure that he is sold an "architects" scale and not an "engineers" scale. The former is divided into feet and inches while the latter, which is commonly used in map drawing, has subdivisions in decimals. Boxwood is the most common material of which scales are made, altho paper or metal are sometimes sold. Steel scales are very thin, often flexible, and absolutely accurate in their markings but they should not be used for the divisions are difficult to see, especially by artificial light and the material will eventually rust thereby disfiguring the drawing. By far the most satisfactory scale is one of boxwood with ivory edge but is more expensive than those of the plainer type.

The most common shapes of boxwood scales are shown in Fig. I, of which the triangular form (A and B) is the commonest. In fact, it has only one advantage, it having more scales on one stick than any of the others. This advantage is offset by the delay and confusion in finding the scale wanted. However, this fault can be corrected to a great extent by the use of metal clips as shown in Fig. I (C and D) which can be bought at the instrument supply house for a few cents.

For ordinary work a triangular scale graduated in inches and sixteenths, 3", 1½", 1", ¾", ½", ⅜", ¼", 3/16", ⅛" and 3/32" will suffice.

Any medium priced fixed head T-square 24 to 36 inches in length will be good enough for all ordinary work. Two T-squares of this type are shown in Fig. 2 (A and B). However, every office should have at least one adjustable head T-square as shown in Fig. 2 (C). These squares should be made of hard wood and the edges of the blade lined with ebony or celluloid, the latter being preferred.

Of course the drawing pencil is the draftsman's most useful instrument. Without a good pencil of the proper grade the draftsman is at a great disadvantage. L. & C. Hardmuth Co.'s "Kohinoor" pencils are perhaps the best on the market altho the "Eldorado" made by Dixon can be recommended. These pencils come in a series of varying grades from 6B (softest), 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, to 8H (extremely hard). Now, for sketching an HB or F can be recommended, but for line drawing a harder grade, such as an H, 2H, or 4H should be used, varying as the type of work demands. The pencil should be sharpened to a long conical point and kept with a fine point by the use of a sandpaper pad or a small flat file. As lines are drawn, the pencil may be rotated between the fingers, thereby keeping it sharp for a greater length of time than can be done by always keeping it in same position.

Small thumbtacks should be selected as the larger ones are more expensive, make too large holes in the board, and are too hard to pull out. The paper on the board is not held down by the prong, but by the head of the tack and for that reason should be pressed down the full length into the board.

The architect or draftsman has use for several different kinds of paper, depending upon the type of work to be done. Detail paper for ordinary working drawings may be obtained in sheets or rolls. The rolls vary in width from 32 to 54 inches. A good detail paper should possess the following qualities: (1) It should have sufficient "tooth" to take the pencil but not too rough to obtain clear, sharp lines; (2) it should be agreeable to the eye and have little glare, for this reason a cream or buff colored paper is preferred to white; (3) it should take ink well without "spreading" or "picking up"; (4) it must have good body and surface to permit of erasing. Tracing paper, a thin, white, transparent paper used for making one drawing on top of another, comes in

rolls from 30 to 48 inches in width. This paper is also used extensively for sketching. Water color paper of which "Whatman," an imported paper, is the best, is used for renderings for display drawings and usually is of a rough texture. If a wash drawing is to be made this paper must be pasted to or "stretched" to the board. We will touch upon this feature later in this work.

An irregular curve, a French curve as it is commonly called, of celluloid composition, should be considered in the list of materials for the draftsman. It will come into use in drawing curves other than circles or circle arcs.

To all the above discussed articles we will also add the following as essential requisites: Pencil eraser, art gum or sponge rubber, Higgins India ink (black),

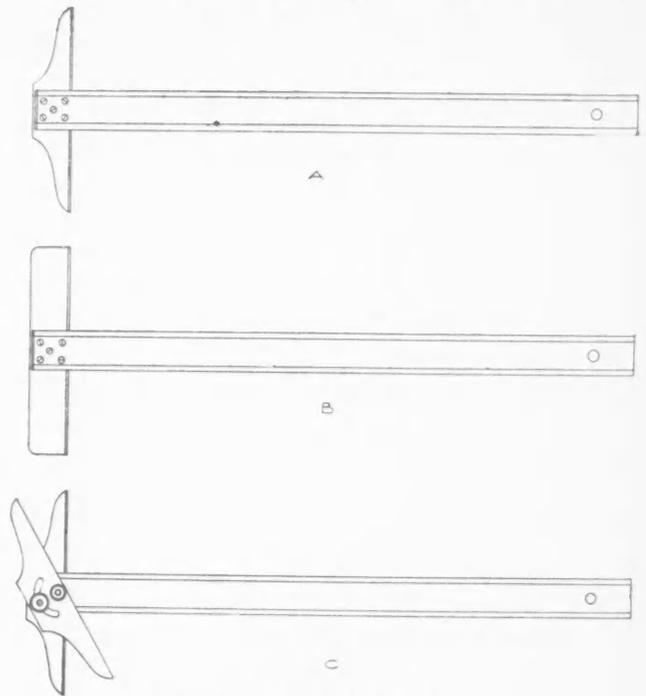


Fig. 2. Types of T-Squares.

pen holder, protractor, several pen points and pen wiper or lintless piece of cloth.

Let me now tabulate these instruments and accessories which are necessary before attempting any architectural drawing:

- 1—One set of drafting instruments.
- 2—One 8-inch 45-degree triangle.
- 3—One 10-inch 30-60 degree triangle.
- 4—One 12-inch architects scale.
- 5—One French curve.
- 6—Eight (or more) small thumbtacks.
- 7—One pencil eraser.
- 8—One piece art gum.
- 9—One HB, and one H or 2H pencil.
- 10—One bottle Higgins black India ink.
- 11—One penholder.
- 12—Several penpoints.
- 13—One protractor.
- 14—One piece of lintless cloth.
- 15—One sandpaper pad or flat file.
- 16—Drawing paper, to suit.

The use of the above articles will be touched upon in the next article.

# DESIGN of SAFE CONSTRUCTION



## Elements of Reinforced Concrete

### Fixed and Continuous Beams

BY J. F. MANGOLD

Associate Professor of Mechanics, Armour Institute of Technology

**T**HUS far in the articles of this series, the reader has analyzed the stresses in a simple beam, that is, the beam freely supported at the ends. He has followed thru the derivation of the working equations needed in design. The rectangular and Tee beams were treated and problems were solved to show how to determine the dimensions of the cross sections of the beams. The reader was further made familiar with the methods of computing the reinforcing steel, and was shown how to place it in the beam in order to resist the stresses.

#### Beams Not Always Simple Beams

Actually, a beam is not always a simple beam because of the methods and details of construction. For instance, a piece of flooring will rest on, and is nailed to, a number of floor joists. Such a piece, supported at a large number of points, instead of at the ends only, is called a continuous beam, while the floor joist itself is supported at the ends and acts as a simple beam. Now, suppose that the flooring is sawed so that each piece will extend from the center of one joist to the center of the next. If the pieces are not nailed they will act as simple beams. But, if these pieces are nailed, they are called beams fixed at the ends. The reader might try this experiment. Let him take a twelve-foot board and place it on supports two or three feet apart. Now let him stand on the board near the middle of its length and between supports. There will be a certain amount of sag or deflection of the board due to the effect of the reader's weight. Let him note the amount of this sag. If he will then take a piece of the same board just long enough for two supports, one at each end, and note the sag under the effect of his weight, he will find it greater than in the first case. Now let him nail the short piece to the two supports and observe the sag under his weight, and he will note that this sag will be the same as for the long board but much less than for the same short piece not nailed. Such an experiment is, of course, crude, because it requires rather delicate apparatus to measure the sag accurately. The reader will state his conclusions as follows: that both the fixed and continuous beams are stronger and stiffer than the simple beam.

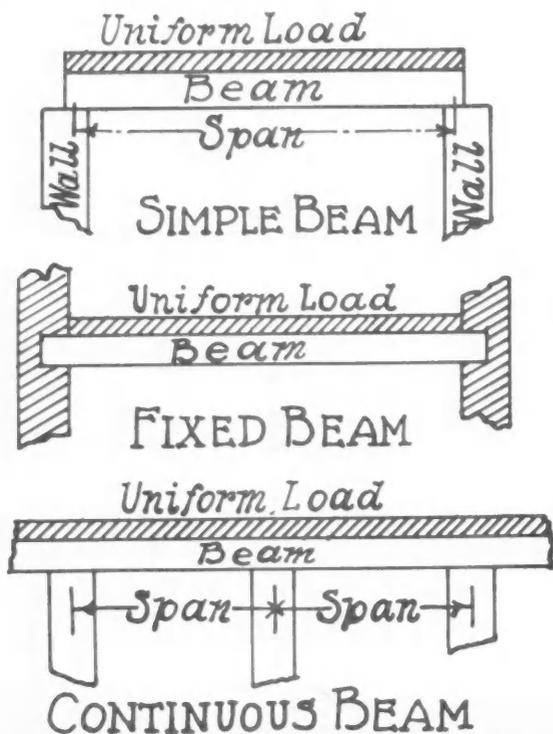


Figure 1. Showing Different Kinds of Beams.

The reader may ask, "Why not design all beams as simple beams?" The answer is, while the simple beam

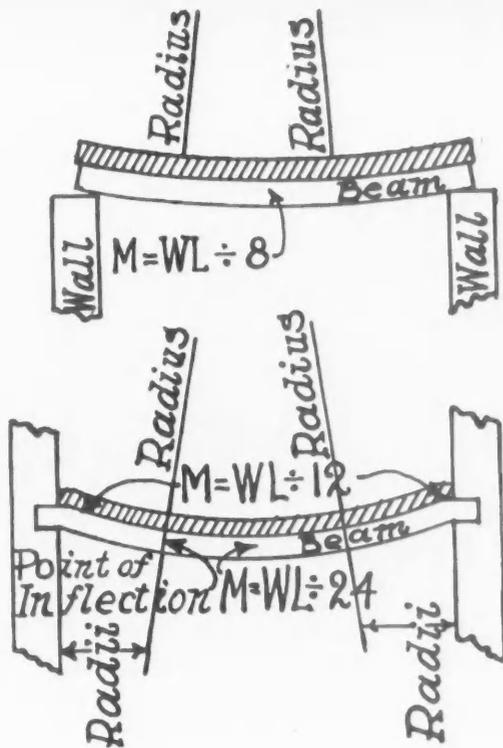


Figure 2. Showing Simple and Fixed Beams Bent Under Load.

Comparative Strength and Stiffness

These beams with the same cross sections and distances between supports have different strengths as well as deflections. But by means of higher mathematics we are able to derive working expressions which enable us to determine how each kind of beam will sag under load and how much load it will safely carry. These equations show us that a simple beam carrying a uniformly distributed load will deflect five times as much as the same beam would if fixed at the ends. The strengths may be compared by computing the fiber stresses, which in turn depend on the bending moment. The expressions for the bending moments are as follows: For a simple beam,  $M = WL \div 8$  at the middle; for either the fixed or continuous beam,  $M = WL \div 12$  at the supports, and  $M = WL \div 24$  at the middle. Comparing these equations, we find that the stress in a simple beam is one and one-half times the stress in either the fixed beam or the continuous beam. Or, for equal stresses in the beams the fixed beam would support a load one and one-half times as great as the simple beam. In practice it is sometimes difficult to build a beam which is entirely fixed at the ends. In any case, tests show that the beam is much strengthened by partial fixing. Engineers have compromised by using the expression  $M = WL \div 10$  to determine the moment in case of doubt regarding the rigidity of the support.

Design Affected by Supports

The difference between the simple and fixed beams brings us to a very important step in the design. In the simple beam, the tension is in the lower part of the beam and the reinforcing steel is placed there, while in the fixed beam there is an upward bending at the fixed ends and a downward bending at the middle. As a result, tension will exist in the upper part of the beam

will give us the largest cross section, the reinforcing steel as placed in this beam does not meet the requirements in the fixed beam. In order that we may make the difference in design evident, let us proceed with this further explanation. For instance, take the concrete floor. Usually a large section of it is placed at one time, and it may extend across a large number of supports, or across the building without a break. For purposes of design, we assume the floor divided into strips one foot wide, which are computed as beams actually continuous over a number of supports. The beams which support the floor will extend from column to column, or between cross beams in such a way that due to the continuity of the concrete these beams are either continuous over a number of supports or else fixed at the ends. In Fig. 1 we have sketched the different kinds of beams.

Slab

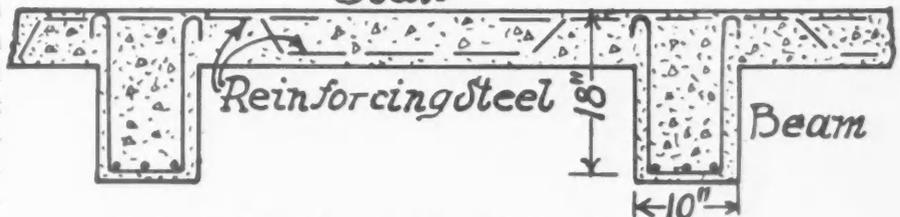


Figure 3 (a). Beam Showing Slab Reinforcing.

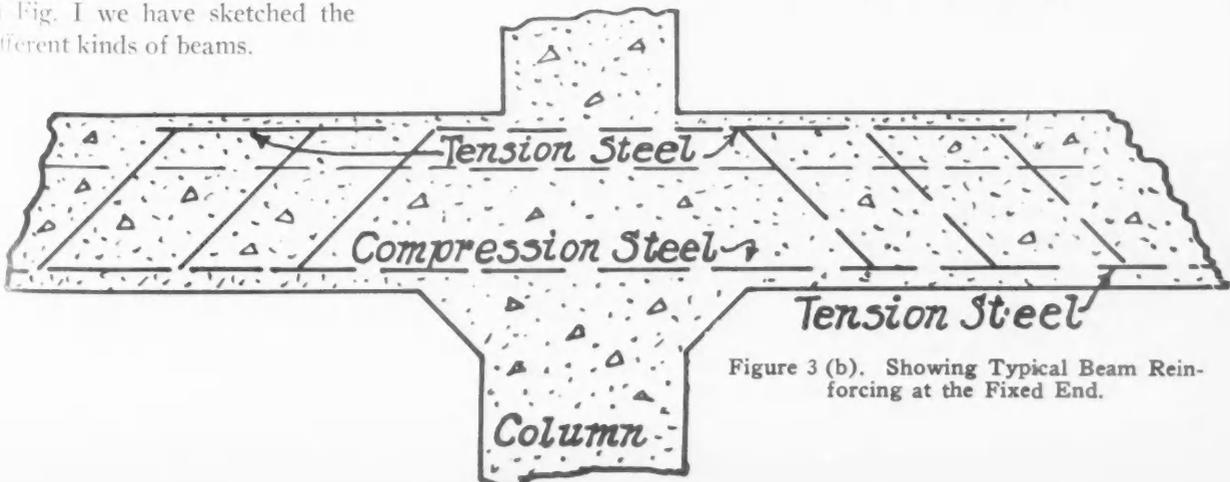


Figure 3 (b). Showing Typical Beam Reinforcing at the Fixed End.

at the fixed ends and in the lower part at the middle. Therefore, it is necessary to place the steel accordingly in order to meet these conditions. Fig. 2 shows exaggerated views of beams assuming the curved shapes under the action of the loads. The simple beam has the center of the curve above. The fixed beam assumes a reverse curve. A portion of the curve at each end has its center below, while the middle portion has its center above. The point where the center of the curve changes from one side to the other is called the point of inflection. At this point there is no bending, and also there is very little bending for some distance on each side of this point. Therefore, this region of the beam is where the tension reinforcing may conveniently pass from the tension region in the bottom of the beam to the tension region in the upper part at the fixed ends. The general arrangement of the steel is shown in Fig. 3 (a) and (b). The tension steel could be placed horizontally with the upper steel independent of the bottom steel. However, the bending up is desirable because of the shearing stresses.

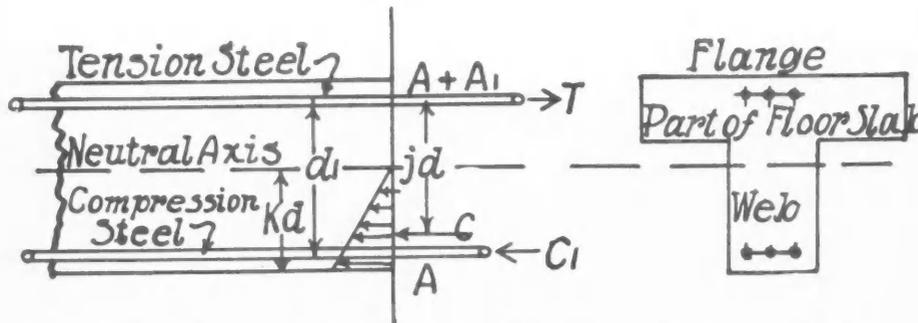


Figure 4. Showing Resisting Moments in Beam with Compressive Steel.

**Tee Beams a Special Design**

If the beam is designed to be rectangular as is the case with the floor slab, no further difficulties are met. But in the case of the beam or girder designed as a Tee beam, careful design is required at the fixed ends. The flange of the Tee is in compression at the middle of the span, and in tension over the support; at the supports the compression will be in the stem or web. Since the flange is no longer available for compression, the reader will see at once that there is not sufficient concrete area below the neutral axis to resist the compression without increasing this area in some way, or else by adding steel reinforcement for compression. In order to compute the area of the compressive steel needed, we must work out some relations between the tension and compression. The tensile stress is assumed to be in the steel alone, but the compression is made up of the compressive stress in the concrete plus the stress in the compressive steel. Since the total compression in a beam section must equal the total tension, a part of the tensile steel must balance the compressive stress in the concrete, and the remainder of the tensile steel must balance the compressive steel. The reader may now readily see that the resisting moment of the beam may be divided into two parts: first, the resisting moment of the beam reinforced for tension

only; second, the resisting moment of the compressive steel acting with a portion of the tensile steel. These two resisting moments are shown in Fig. 4. The moment due to the concrete below the neutral axis may be expressed as  $Mc = \frac{fckjbd^2}{2}$ . This moment is also equal to the moment of that part of the tensile steel which balances the total compression in the concrete. Then,  $\frac{fckjbd^2}{2} = f_s A_1 jd$ . The reader will at once set down the other part of the resisting moment as  $M = f_s A d_1$ . Let the moment to be resisted be  $M = WL \div 2$ ; the  $WL \div 12 = f_s A_1 jd + f_s A d_1$ .

**Illustrative Example**

Suppose we have given a Tee beam with a total depth of 18 inches and a width of web of 10 inches. The bending moment from a previous computation is 550,000 inch pounds. Let the allowable unit stresses be 16,000 pounds per square inch for steel and 700 pounds per square inch for concrete. The values of k, p and j are computed from the expressions for these quantities previously derived. It is found that  $k = .397$ ;  $p = .87$  per cent and  $j = .868$ . And  $A_1 = 10 \times 10 \times .0087 = 1.57$  square inches. Then the resisting moment of this amount of steel will be  $M = F_s A_1 jd = 16,000 \times 1.57 \times .868 \times 18 = 392,000$  pound inches. Now an additional amount of tensile steel and an equal amount of compressive steel must be added in order that the total resisting moment may be equal to the bending moment. Assume that the center of the compression steel is  $1\frac{1}{2}$  inches above the compression surface, then the moment arm of the steel will be equal to 18 inches minus  $1\frac{1}{2}$  or  $16\frac{1}{2}$  inches. Then  $f_s A d_1 = 550,000 - 392,000 = 158,000$  pound inches. And  $16,000 \times 16\frac{1}{2} A = 158,000$ ;  $A = .6$  square inch. The total tension steel will be  $(1.57 + .6) = 2.17$  square inches. Three  $\frac{7}{8}$ -inch square rods would serve as tension steel, and three  $\frac{1}{2}$ -inch square rods for the compression steel. Any beam intended to be reinforced for both tension and compression may be treated in the same way. While we have indicated an analysis for a fixed beam, the continuous beam is treated similarly, since each span length is restrained by the spans beyond.



**Sacks Take 17,000 Miles of Cloth**

EVERY year the textile manufacturers of the United States are called upon to furnish the cement companies with 30,000,000 new sacks. It requires a piece of cotton cloth 30 inches wide and 17,000 miles long to make these sacks. At the present time there are approximately 200,000,000 cotton sacks, either in sack storage houses, at the mills, or in customers' hands.

# A Well Wired Dining Room

## Wired Table that Permits Better Use of Electrical Cooking Device a Factor in Making Home Pleasant

ANY man, much less wise than Solomon, might have discovered that vanity is a part of every person's make-up. And vanity, like many other characteristics, serves a useful purpose. That vanity, which may be better termed self-respect or reasonable pride, is a quality which spurs all of us on to better effort and better accomplishment.

Who can question the perfectly natural feeling that the home owner has in being proud of his home? If it were not for that sense of pride he might never have a home of his own. And who can wonder that a woman wants her company to carry away pleasant recollections of her entertainment of them?

The central event of every occasion when company comes is the dinner or the luncheon. And the importance of the dining room is making that "big" event successful can scarcely be overlooked.

Hostesses have special delight in their electrical cooking equipment when they entertain. Of course the every-day economies and usefulness of such devices

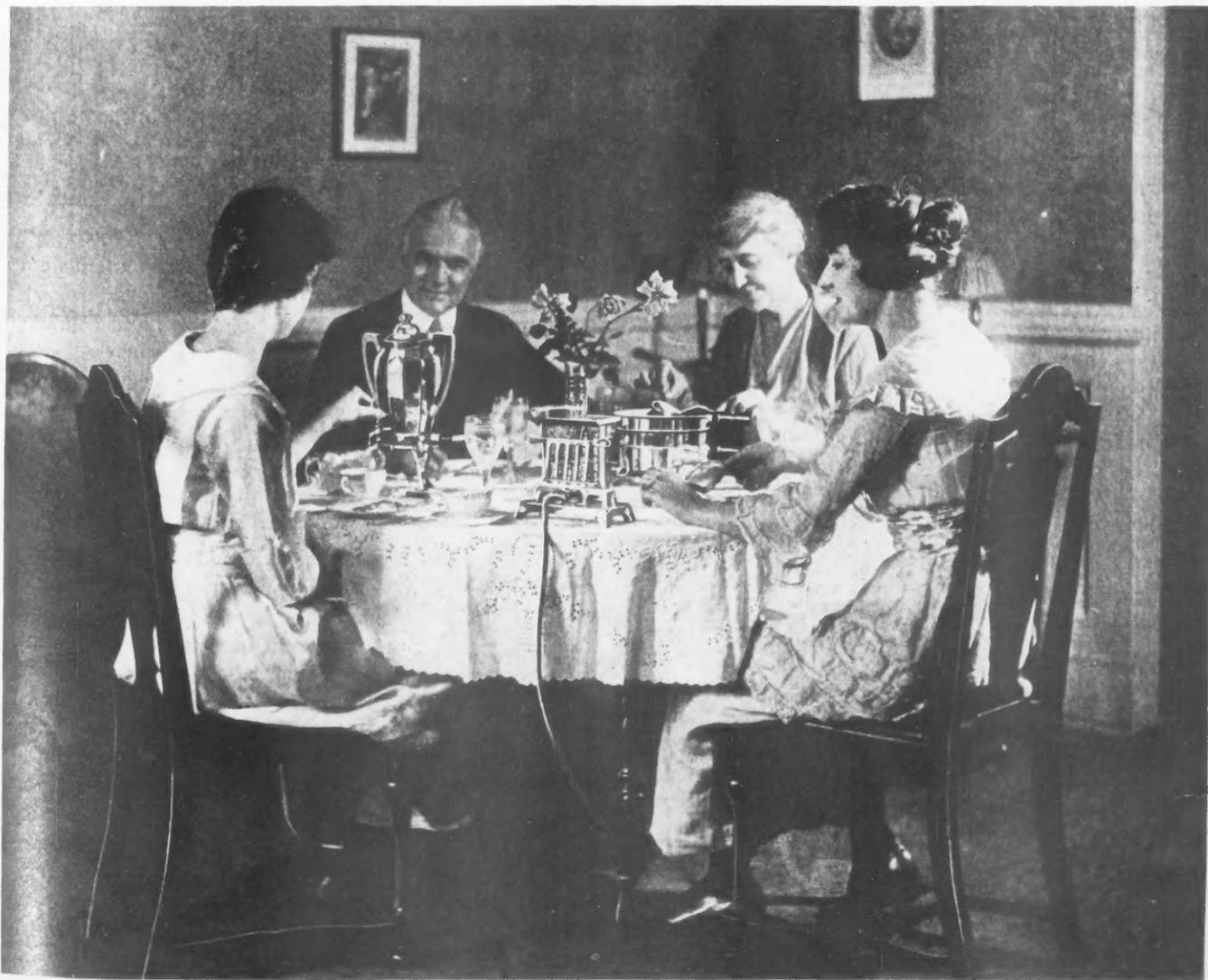
more than justify their use but they come in handy in an unusual sense when outsiders are guests.

The use of the electric percolator, the chafing dish, the toaster and like utensils permits the hostess to sit at the table and visit with her friends while some of the cooking duties are being discharged. They also permit the serving of food in a hot and wholly fresh condition. Then, too, there are some dishes which can best be prepared by these devices.

### Popularity of Wired Furniture

It is this situation which has given rise to the wide use of wired furniture in the past few months. An old table which has been wired or a new table bought as a wired table accommodates a larger number of cooking devices than is possible when lighting fixtures are used. Such furniture also permits a more practical use of the devices.

Home is a wide word. It means not only the structure but its equipment.



The Hostess Is Proud and the Guests Are Happy When a Meal Is Made More Appetizing by Table Electrical Cooking Devices.

# Selling the Home Seeker

What a Real Estate Women Has Learned About Home Buyers

By ZELIA M. WALTERS

**I**N a modest way I deal in the building and selling of homes, and I have learned some things about home buyers. Especially I have been obliged to notice their mistakes and misconceptions. I believe that every head of a family, who has good health and a steady job is justified in buying a home. He can do so safely if he will learn to avoid the common mistakes. In fact I know he can do it. I bought my first home with a five-dollar down payment. I lived in it several years, planted the lot, put improvements in the house costing two hundred, and sold at a profit of two thousand dollars. And at that time my income was far from secure.

Error number one, I should say, is the tendency of the man, or his wife, or both of them, to expect too much in the first home. They have been living, perhaps, in an apartment, and paying fifty dollars a month. They see an advertisement for a house at moderate price. They have an inspiration. Why shouldn't that fifty dollars a month go on a house of their own? So far they have reasoned well. They go to look at the house. It is in rather an unfinished section of town. The street is muddy. The house needs paint. The yard looks unkempt. There is no electricity in the house. They immediately begin to talk of the things they cannot do without. They go back to their four room apartment, with its conveniences, and go on paying rent to the end of their lives. Another

buyer and his wife come to look at the same house. They, too, are apartment dwellers, but for the sake of the children they have decided that they must have a bit of land. And they see the advantages instead of the defects. The house needs paint. "Well," says the husband, "I can paint it myself, and it will look like a new place." They pick out locations for the fruit trees, the vines, the roses, the vegetable garden. "Such a nice big lot. The children can have a play-house here." The inside of the house is inconvenient. But they will all help and make it do until they can afford the alterations. The city will put cinders on the muddy walks. The house is for sale for four thousand, four hundred dollars down and forty dollars a month. "We can easily afford that," they say jubilantly. Next day they are home owners. In another year their house is easily worth another thousand dollars, tho they have spent very little money. They have had a year's rent applied on it. They are saving without any painful effort, and their work in the house and on the lot is bringing them health and happiness. To be sure the neighborhood is not fashionable, and there are makeshifts in the house. Never mind, this family is on its way to prosperity, and can move into a better neighborhood some day if it desires.

There isn't a middle sized city or town in the country where you cannot buy a house on these terms and at this price or even lower. It will not be an up-to-date modern dwelling in a fine neighborhood. But if you have faith and courage, and a will to work, you can make it a real home, and when you sell you can make a profit on your investment.

Error number two is closely related to number one. Many people pledge themselves for payments that are larger than they can afford. Fifty dollars a month doesn't sound like much if you are accustomed to paying rent in a modern apartment. But if you have also pledged yourself to meet interest twice a year on five thousand dollars, to pay taxes, to put in some improvements, and perhaps pay street assessments, you may easily find that you cannot meet your obligations. I believe in pledging a good amount on monthly payments. You'll find you can save for your home as you couldn't for a mere abstract bank account.



The Living Room Is the Most Important Part of a House to the Women; There It is That Guests Are Welcomed

But do not be like the man in the Bible,\* who laid the foundations of his tower, and had not wherewithal to finish it. Take time to consider all your obligations as related to your income. Then assume the largest payments you can, and go ahead without fear.

Let me illustrate by a case. I had a pretty seven room house to sell. It was just outside the city, set in a grove of trees, near a new allotment that will probably be made up of fine residences. The lot is 100 by 150. I found I could sell it as it stood for \$4,000. A family with children went to look at it. They found all the defects: its proximity to a railroad, its distance from a paved street, no electricity, the rear of the lot was low, etc. But at length they said they would take it if I would put in a number of improvements. I agreed, and before we were thru meeting the wife's demands the improvements cost \$1,600. They were greatly astonished at the total, tho they had been informed what each desired improvement would cost. They moved in, still protesting. I did not feel that I had a stable sale. They made their monthly payments until nearly time for the first interest payment. Then they came to tell me they could not meet the interest.

"Very well," I said, "I will take the interest out of what you have paid, and apply the remainder on the principal."

"But we are getting nowhere," they protested; "only twenty dollars a month is going on the house."

"It isn't much. But I should think it would be better than nothing at all."

However, they decided they couldn't carry it, and moved out.

I sold again to a young couple who had a thousand dollars saved, and had a slightly larger income. They have very ambitious plans for their house and grounds. But they are putting them in as they go along, doing much of the work themselves. The low wet spot they seized upon with joy. It is to be a lily pond, and sunken garden. The allotment near them is building up with fine homes. Their property is already worth much more than they paid. They belong to the class that is going up to prosperity. The other family, which had an equal opportunity, will always wonder just where they lost out.

Error number three is timidity. When you come to deal with home buyers you find there is a much larger streak of cautiousness in the American nature than you suspect. After the irresponsible person, who blithely agrees to pay out more than his income, you are sure to meet the very timid one who dares not accept the responsibility of a four or five thousand dollar home, even if his income amply justifies him in buying.

A young couple came to me to look at a house. They had eighteen hundred dollars in the bank, drawing four percent. They were paying forty dollars a month rent, and saving twenty-five dollars a month. They ardently wished they had seen my little four

thousand dollar house before it was otherwise disposed of. I could show them one for six thousand that was a good bargain. Their savings would have reduced it enough that the carrying of it would have been no burden. They waited, and hesitated, and at length decided that they dared not undertake it. They are still renting a small and unattractive house. They have no incentive to improve it, for they may lose it any month. But I doubt if that extremely timid pair will ever obligate themselves for more than a month's rent at a time.

You must have faith if you're going to buy on a small income, and then bend every energy to justify that faith. I've known a dozen people who took what



Keep Home in Repair By Timely Painting

looked like a long chance in buying. But not one of them lost. Some of them have sold at a profit, and then bought again and again, until they have made a considerable sum. You'll find unsuspected ways of earning extra money, or saving once you have the incentive of putting it into "our own home." You'll be a better employee, and have a better prospect of having your salary raised. You'll make it, if you're just ordinarily intelligent and courageous.

For the person who has only a small sum of money, or can make a small monthly saving, there is no better investment than to buy an old unattractive house, improve it judiciously, and sell it. I have repeatedly seen people double their money in a year's time in doing this. I do not mean they simply doubled the small sum they put in, but they received double the original price of the house. All about my neighborhood are old houses, restored and modernized. And they are the choice places. You can hardly lose in doing this. If you can do part of the work yourself your gain will be larger.

Perhaps the fourth error is the failure to plan for beauty in the house or site. This applies more to the builder of a new home than to the buyer of one already built. The young home planners realize that they must economize. So they rigidly cut out of their house budget every thing that makes for beauty. Utility, they sternly reason, is the only consideration for the economical. That is a great mistake. Place two houses side by side, with exactly the same amount of room, and at the same cost. The one that has the plan, and the little touches that make for beauty, will sell at a higher price than the one that lacks these things. It will sell quicker too. And it should. We are going to live in our homes, to shape our characters and destiny there. The life that would exist without beauty is a barren one indeed. It costs very little to add beauty to a house. You need not hire a high priced architect if that is beyond your means. All of the domestic magazines picture artistically designed houses, planned by high class architects. And the working plans for these houses are sold for a trifling sum. These architects seem to make a specialty of designing beautiful and convenient low priced houses. Surely there is no longer an excuse for anyone allowing a contractor to build a box of a house. And do not neglect to make the lot beautiful whether you expect to live in it or to sell it. You need not turn it over to a high priced landscape artist. You can do your own planting if you will take pains to learn how. Friends will give you roots of perennials. There will be bargain sales. One of my prettiest lots

was planted almost entirely by shrubs from the five and ten cent store. And do not forget the nearest woods. Our native shrubs alone will make a large or small lot a place of beauty. The despised elderberry is a beautiful ornamental shrub. If it came from Japan and boasted an unpronounceable name, and a high price, we would all be buying it eagerly. It makes a good boundary shrub. It grows tall and thick quickly and gives you privacy.

What do women want in a home? I am a woman and I know what I want, but that alone wouldn't count for much. I have been noticing women buyers closely and getting ideas for any new house I may build. Most real estate men think a pretty and convenient kitchen is the chief attraction for women. They are mistaken in most cases. A woman wants first, a large well proportioned living room with a pretty fireplace in it, next a pleasing exterior, and next plenty of closets and cupboards. I have known women to decide to buy a house before they had seen the inside. The exterior and the surroundings pleased them. The living room, where guests are welcomed, where casual caller and intimate friend alike get their impressions of the family, is the important room. The kitchen is the workshop and should be designed for convenience and attractiveness, but the living room houses the soul of the home, and must be considered before the kitchen. In the living room women want well placed groups of windows, preferably not of the old conventional type. They like bookcases and a window seat. Of course there never could be too many cup-



Women Demand a Pretty Exterior and Attractive Surroundings for the Home They Select. Some have even decided to buy before seeing the inside just because the exterior and surroundings pleased them.

boards, closets and drawers to suit a housekeeper. Some day builders will learn to utilize every bit of waste space. They do not do so now, unless a woman is watching them.

It seems to be a sort of a pose just now for men to scoff at the idea of a den. And perhaps a den decorated to suit a fussy woman's taste might be a terror to a man. But I have noticed that if you can show a man an extra room, somewhat off from the living rooms, and suggest that he could use it for his own traps, he welcomes the idea with enthusiasm. The chances are that he likes the house after that. I am surprised at the number of men who show great interest in a well planned basement. I don't know why. They surely do not spend much time in the basement. Men, too, want the outside of the house to look well; they want a good foundation and substantial woodwork.

But I suppose every real estate dealer knows that he must sell to the woman. Not one man out of a hundred would buy a house that his wife had decided definitely she did not want.

Everyone has heard people say something like this: "I could have bought that piece of land a few years ago for a thousand dollars, and yesterday it sold for fifteen thousand. If I'd only known it was going to increase in value!"

Every family has such a story. Perhaps you've known the man whose grandfather might have owned a valuable part of New York City, or Chicago or Cleveland, at the time when the land was going for a song. We have such a story in our own family. One of my grandfathers helped to clear land which is now in the heart of Akron, Ohio. He could have bought adjoining land then for five dollars an acre, that is now sold at three thousand dollars a foot. So we missed our family fortune because grandfather had no vision of the future Rubber City.

But there are today as great opportunities as there were then—if only we have the good judgment to know them when we see them. Perhaps the best chance now to realize on an investment in a short time is in high class suburban residence allotments. In the short time I have been in business of selling I have seen land in a wooded lake shore district rise from thirty dollars a foot to one hundred. Some lots trebled in value in three years. Yet when that allotment was opened we had to beg people to buy the lots. Some timid souls to whom I talked, came and looked at the lots, but kept their small capital in the bank, thus losing one of their real opportunities to make a large and legitimate profit.

Own your own home! It may sound like a slogan for the real estate promoter. But it is a good slogan for every new family. Young people can not do a wiser thing than to begin to buy a home at once. Do not heed the short sighted people who advance plausible figures to show you that it is much cheaper to rent than to buy a house. If you own a bit of the earth you are richer by much more than the number

of dollars put into your property. And you cannot lose if you use only as good judgment as you would in selecting a suit or coat. Own your own home. Begin to buy it now.



### New York's Demonstration Home

(Continued from page 74.)

of Greater New York it is well known that in various districts within the metropolitan district, home building costs vary from ten to twenty per cent for various reasons. This proposed educational campaign, for one thing, will determine the variance in costs in the different districts. The greatest amount of information for the prospective home builder, it is believed, can be gathered thru the construction of small houses of different architectural design which have been selected by the Building Plans Committee.

Other model houses to be erected to determine costs include an Italian adaptation, cement stucco on metal lath; a Dutch Colonial of frame; an English stucco type using magnesite finish; a structure architecturally depicting Middle-west traditions, of cement block stuccoed, and two houses of brick, using face and common brick, respectively.

The construction of the model house at Larchmont was begun August 1. On October 9 it was completed in every detail, within and without, and was ready for immediate occupancy. It cost \$8,842.06, including the builder's profit. The cost of the land and the landscaping brought the total cost to \$11,896.32. At this cost, the structure represented the very highest construction standards, and was what its builders intended that it should be—a thing of trimness and stability. Some slight changes from the original plans and specifications for the house were made during the course of construction, but without these changes the Colonial frame house can be erected for \$7,505.07.

The house was designed by J. Floyd Yewell, New York architect, winning first group prize in the recent National Architects Small House Competition.

The plan for the model house includes living room, dining room and kitchen on the first floor, and two porches. There are two bedrooms and a bath on the second floor. The house is 20 feet by 34.6, not including three porches. As planned and specified, the cubical contents were 18,673 cubic feet. As built at Larchmont the cubical contents were 20,311 cubic feet.

The National Lumber Manufacturers' Association, the Associated Metal Lath Manufacturers, the Copper and Brass Research Association, the Portland Association, Society for Electrical Development and the American Gas Association collaborated in planning and equipping this house.



### Arkansas Will Protect Forests

A TEMPORARY organization of the Arkansas Forestry and Game Association was completed recently. Its main purpose will be the preservation of Arkansas forests and to insist on deforestation that will not strip the woods as has been done in some states.

# An Economical House

Built for Mrs. L. M. Lockwood, in Hackensack, N. J.

By R. C. HUNTER & BRO., Architects

**T**HE basic economy in home building may be said to rest on the plan. That is, the arrangement of the various rooms with reference to the halls, closets and other space, and whether the required construction is simple or complex.

A rectangular plan is the most economical, and hall space is of doubtful value. Closet space is, of course, absolutely necessary, but it must be so arranged that every inch of space can be utilized.

The architects designed the house illustrated herewith with these factors in mind.

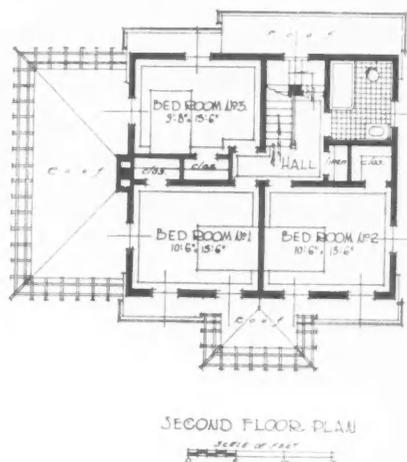
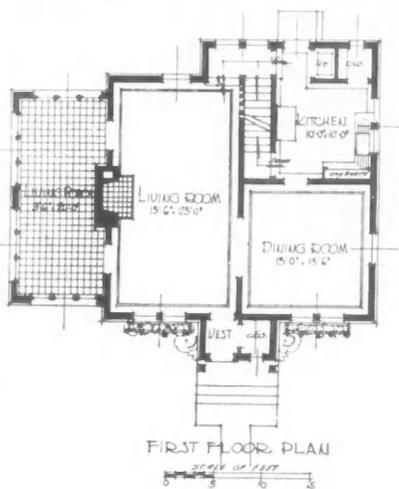
An entrance vestibule with coat closet allows the usual hall to be eliminated, while the stairs start up from the rear of the living room and land in the center of the house in the second story, thus serving the bedrooms with a short hall space. Steps from the main stair platform lead down to the kitchen, thus eliminating the service stairs.

This scheme gives a large unob-

structed living room. The second floor provides three bed rooms and a bath.

The exterior of the house is a modified Colonial treatment; a Dutch type roof, white shingle walls and a green slate roof. The pergola ends are interesting details on the porches.

A generous attic is provided and a cellar extends under the entire house.



This Beautiful and Substantial Dutch Colonial with White Shingled Walls and Green Slate Roof Has Been Designed Along the Lines of Convenience and Economy. The construction is simple and the floor plan utilizes every inch of space efficiently. The house measures 38 feet 6 inches by 27 feet 6 inches on the ground.



**Right of Principal Contractor to Damages From Subcontractor for Loss Caused by Latter's Breach of Contract to Supply Materials or Complete Work on Time**

By LESLIE CHILDS

THE question of the liability of a subcontractor, for breach of his contract to the principal contractor which causes loss to the latter, is one of great importance to all parties concerned. The point has been the cause of a number of lawsuits, but, as each case of this kind has necessarily been decided upon the particular facts involved, it cannot be covered by the statement of a hard and fast rule.

However, generally speaking, and without regard for specific cases, a subcontractor will usually be liable for losses caused the principal contractor by his breach of the contract which were in contemplation of the parties at the time the contract was entered into. In other words, where the subcontractor knows the terms of the principal contract, he will, generally speaking, be liable to the principal contractor if his breach causes the latter loss upon the work.

Under this rule, if the principal contractor is bound to complete a given contract within a certain time, and the subcontractor knows of this and yet delays the work so that the principal contractor is unable to complete in time, he, the subcontractor, may be liable for any loss thus occurring to the principal contractor. The application of this point in building law is illustrated in a number of cases, among them being *Shurter vs. Butler*, 43 Tex. Civ. App. 353. The facts which culminated in the action were substantially as follows:

A contractor undertook to construct certain sewers for the city of Houston. The contract required him, among other things, to finish the work in 120 days, and it was stipulated that upon failure to so complete the work the contractor should pay as liquidating damages the sum of ten dollars per day, for each day beyond this time limit required in completing the work.

work the contractor bought 1,000,000 brick of the subcontractor, the latter agreeing to deliver the brick as needed and ordered. The subcontractor, it appears, also knew of the terms of the principal contract, and that the contractor had only the 120 days to complete if he would avoid payment of the ten dollars per day liquidating damages. All right.

Thereafter the subcontractor filed the instant suit against the contractor to collect what he alleges was due him for brick furnished. In reply to this the contractor pleaded an offset which, among other things, included damages alleged to have been suffered by virtue of the subcontractor's failure to deliver the brick as ordered and needed.

Upon the trial of the cause it was in evidence that instead of completing the contract in 120 days it had taken nearly one year. The evidence also showed that there had been delay in delivering the brick, and that the contractor had threatened to buy his requirements elsewhere; and that then the subcontractor had promised that the brick would be promptly delivered from then on.

The trial court, however, took the view that the damages suffered by the contractor by failure of the subcontractor to deliver on time, were too remote to be recovered upon. For this reason that testimony was ruled out. The trial resulted in a judgment in favor of the subcontractor, and the contractor appealed. The higher court, in passing upon the question

of the correctness of this elimination of the contractor's evidence, and the right of the latter to recover from the subcontractor, in part, said:

"We think the court erred in sustaining objections to the testimony offered as to these items of damages. It cannot be said that, as a matter of law, they



Sub-Contractor Is Liable to Principal Contractor When He Fails to Fulfill His Share of Contract on Time.

In contemplation of this

were too remote to be recovered. Appellee [subcontractor] knew that the work had to be completed in 120 days, and that the completion of the work depended upon his furnishing the brick promptly as needed in the prosecution of the work.

"There is evidence tending to show that appellant [the contractor] proposed to purchase the brick elsewhere, when appellee's [subcontractor] failure to furnish them as required began to delay the work, and that he was dissuaded from doing so by appellee's agent, who promised that brick should be promptly furnished. If there was a breach of the contract by appellee, he was liable to appellant for such damages as were the proximate result of the breach; that is, for all such damages as resulted directly from such breach and which might be reasonably supposed to have been in contemplation of the parties, at the time of making the contract, as likely to result therefrom \* \* \*"

After considering other points, not material to the subject of this article, the court in conclusion reversed the judgment rendered in the lower court in favor of the subcontractor. Holding, as outlined in the opinion, that it was error for the lower court to sustain objections to the evidence offered by the contractor as to his damages alleged to have been caused by the failure of the subcontractor to supply the brick as agreed. In other words that the subcontractor should be liable for all damages caused directly by his contract to furnish the brick on time.

The foregoing Texas case was carefully considered and is in accord with the weight of authority upon the point decided. This authority holding, in general, that where the subcontractor has notice of the terms of the principal contract, when he enters into his contract, he will be liable for loss suffered by the principal contractor caused directly by his (the subcontractor's) breach of his contract. This, of course, assuming that the damages resulting were, by the facts involved and the terms of the contract, clearly in contemplation of the parties when the contract was made.



### Companies Consolidate

THE consolidation of the Patten Manufacturing Company with the Street Bros. Machine Works, both of Chattanooga, Tenn., was announced recently. Both companies are manufacturers of hoisting equipment and their products in the future will be manufactured and sold by "Street Bros. Machine Works, Inc."

J. H. Street will continue as president of the new organization, and J. W. Burgess, sales manager of the Patten Manufacturing Company, will be the sales manager of the new company.

### STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of American Builder, published monthly at Chicago, Ill., for October, 1922.

State of Illinois, County of Cook, ss.

Before me, a Notary Public, in and for the state and county aforesaid, personally appeared E. L. Hatfield, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Builder, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher, American Carpenter & Builder Co., Chicago, Ill.; Editor, Wm. A. Radford, Chicago, Ill.; Managing Editor, Bernard L. Johnson, Chicago, Ill.; Business Manager, E. L. Hatfield, Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

Wm. A. Radford, Chicago, Ill.; H. M. Radford, Chicago, Ill.; Roland D. Radford, Chicago, Ill.; Wm. A. Radford, Jr., Chicago, Ill.; E. L. Hatfield, Chicago, Ill.; G. W. Ashby, Berwyn, Ill.

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

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

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

E. L. HATFIELD,

Business Manager.

Sworn to and subscribed before me this 30th day of Sept., 1922.  
(SEAL) ANDREW JOHN NAUMANN.

(My commission expires Oct. 23, 1925.)



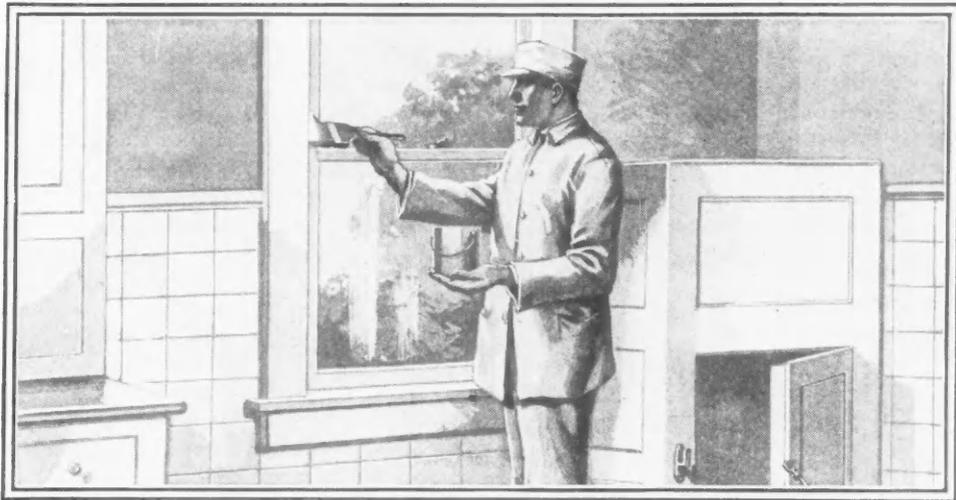
THERE are opportunities in the building field in nearly every community today for contractors and builders who will go after automobile owners and build them pleasing, practical and economical garages like the one shown in the photograph.

Now is the time of the year when a good garage is badly needed and much appreciated. Expensive machines have made it necessary to provide good buildings to keep them in. The days of the old shed for the car have passed.

This is the type of garages favored by most builders today. It is a two-car garage, designed and built of permanent and substantial materials that will last long and serve well. It is a style that will stand out attractively in any neighborhood. Windows are plentiful and the abundance of light is one of its most attractive and desirable features.

Garage hardware is a very important item in building a home for the car and the builder should take pains in selecting that equipment. There are a number of excellent manufacturers offering complete lines and these firms publish catalogs and other literature that will be helpful and valuable to you in selecting your garage hardware requirements.

# For Light, Cheerful Rooms



## JOHNSON'S ENAMEL

You can't do your best work with inferior materials—and your reputation and success depend upon *always* turning out good work. Build up a reputation as the best contractor in your locality—then you can get the price and will never experience a poor season.

Contractors who use Johnson's Artistic Interior Finishes soon find themselves getting more of the profitable, better class work. Johnson's Artistic Interior Finishes are right when they go into the can and they stay right. They do not change or deteriorate in any way.

You can give your customers the finest kind of a job by finishing both walls and trim with Johnson's Perfectone Undercoat and Johnson's Perfectone Enamel. These products will give equally good satisfaction on wood, plaster and metal. With them you can turn out perfect work—satisfy your trade and complete more jobs each season.

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# Sixteen to One

## A True Success Story with a Punch to It

By B. F. CLARK

**T**HE good but peculiar people of a little town in Kansas wanted to build a "Community building," and the Masons wanted to build a lodge hall. The village banker wanted to build a better room for his thriving bank. The banker suggested that the three interested parties get together and build a two-story building—the Masons owning the second floor, he the front end of the building for his bank and the city taking the rear of the building and the basement for their Community hall.

The parties interested in the proposition accepted the banker's idea, convened and appointed three different building committees; one to look after the interests of the community, one for the banker and one for the Masons. Each committee was composed of five different persons. The banker was chosen president of the three building committees. The banker and Masons soon raised their prorata funds and the commercial club soon sold enough stock to take care of their expenses.

After the funds had been secured for the erection of the building the building committees met and appointed an architecturally inclined high school student to make "plans and specifications" for the building.

After the plans had been drawn and accepted by the committees they secured the service of a most reliable contractor to put up their building. This contractor got busy at once, and three weeks from then had the basement dug and all the concrete walls poured.

After finishing the foundation the contractor took down the forms as soon as the concrete set and went home, intend-

ing to return and start laying brick as soon as the concrete work was well set.

After the foundation had been finished the banker and the committee for the city decided that they had made a mistake by not having a grade entrance made in the basement; but as they had a way to enter the basement from the inside they decided to let the matter drop.

The contractor had been home only a few days when he received a letter from the banker which read: "All three of the building committees have condemned your basement walls, and I see no other way but to wreck them and build new ones. Please come at once and attend to these matters."

Having used good material and plenty of it, the contractor was at a loss to know what could be wrong. He went to that little town at once and examined the walls, and found them to be in good condition with the exception of an expansion crack which ran perpendicular in the rear wall. He then called on the banker and told him to have the building committees meet him on the job that evening and he would prove to them that his work was O. K.

Along in the evening fifteen men headed by the banker called at the job and the contractor took a cold chisel and a hammer and tried to convince these men that the concrete work was substantial.

He tried to explain to them the freakish nature of concrete; and endeavored to show them that a little crack like that would not necessarily damage the foundation. A few seemed to understand, but the majority did not. They finally

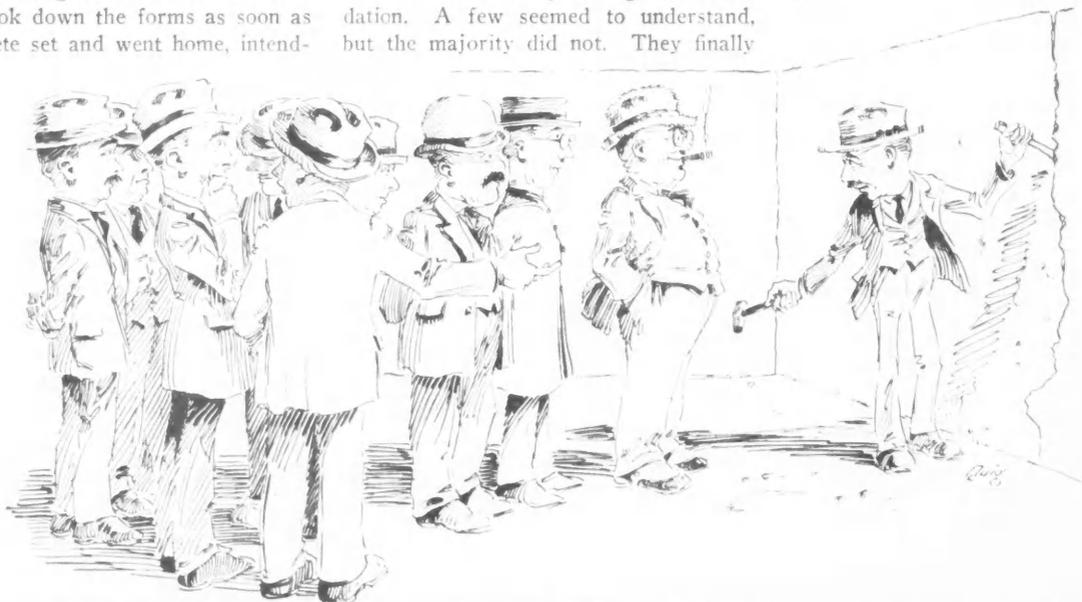
decided to vote on the question and after doing so it was found that the majority were in favor of wrecking the walls and building new ones.

The contractor being a man of experience in his line knew that he could win the suit if he had to go to law. But not wishing to appeal to the law, and believing that the majority of these men would be reasonable if he could only make them understand the matter as he did, after going to bed that night he did some scheming.

The following morning the contractor phoned the banker to bring the dissatisfied committees to the building again; saying that he had a good proposition to offer them.

One hour later the banker was on the job with his building committees. These men had been selected at random in the little town; among them being a lawyer, a doctor and a preacher. Upon arriving at the job the contractor called them into the basement and lined them up in front of the crack in the wall and calmly said: "Gentlemen, I'll tell you what I'll do. You say you would like to have an outside door here (pointing to the crack in the wall), so, if you had rather have a crack here three feet wide than to have one a quarter of an inch wide, I'll gladly make the change for you."

Here the banker caught on, and began to smile; and a smile spread over the faces of the committeemen; then a dozen voices rang out "go ahead." And the preacher clapped the climax by shouting, "Amen."



The Sixteen Members of the Three Building Committees Had Condemned the Basement Walls and Had Decided That They Must Be Wrecked and New Ones Built. The contractor knew the walls were safe. Read the interesting story of how he won them to his viewpoint.

Up the roof  
in no time



## Nail 'em over the old shingles!

**G**ONE is the dirt and confusion of the re-roofing job! No more scraping the old shingles off—throw away the rippers and spades.

Just lay Johns-Manville Asbestos Shingles right over the old roof.

It's as easy as laying a new roof on a solid deck—a clean quick job from start to finish.

### And profitable, too

Because of the many advantages to the house owner through this method of re-roofing you are bound to get a lot of new business.

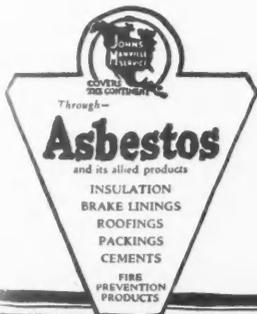
The house owner gets a double roof protection with the blanket of old shingles under the new, permanent Asbestos Shingles.

The experience of dealers all over the country has been that one of these jobs in any locality brings many more from interested neighbors.

Get in on this profitable business. Our national advertising and dealers' helps are ready to back you up.

Write our nearest branch today.

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# JOHNS-MANVILLE Asbestos Shingles

# Plaster Model Wins Approval

Design of Philadelphia's New Sectional City Hall Shown in Complete Detail in Miniature—John P. B. Sinkler, Architect—Joseph H. Bass, Sculptor of Model

BY JOHN F. McCLARREN

A VERY attractive design for a building to be used for municipal purposes in Philadelphia has just been completed by the City's Architect, John P. B. Sinkler. The building is to be a sort of sectional City Hall; that is, it is to be constructed in a section far removed from the center of the city for the purpose of facilitating for the people of that section, the transaction of city business.

The building will be of Georgian architecture fashioned somewhat after the design of the White House in Washington. It will be faced with marble. Thruout the construction will be fireproof. Columns of Ionic order, 24 feet in height will grace the front porch facing on the main street. In providing for the rotunda, this being 33 feet in diameter and 37 feet in height, the plan arranges for a chamber which is to be used as a memorial chamber.

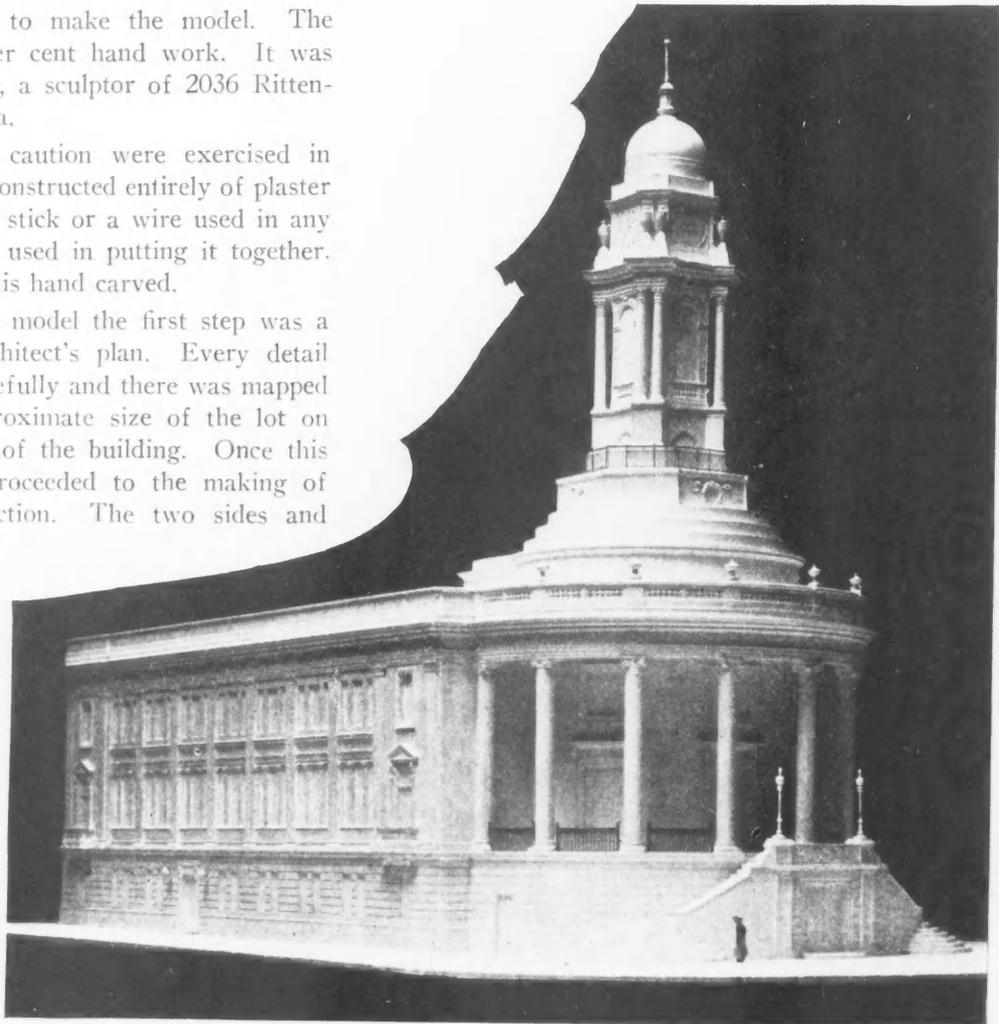
It required the undivided time of one man for a period of three months to make the model. The model is virtually 100 per cent hand work. It was made by Joseph H. Bass, a sculptor of 2036 Rittenhouse Street, Philadelphia.

The utmost care and caution were exercised in making the model. It is constructed entirely of plaster of Paris. There is not a stick or a wire used in any part of it nor were such used in putting it together. Excepting the cornices, it is hand carved.

In proceeding with the model the first step was a careful study of the architect's plan. Every detail of this was gone over carefully and there was mapped out on the plan the approximate size of the lot on which is located the site of the building. Once this was done the sculptor proceeded to the making of the model section by section. The two sides and rear of the model were first made on the bench and molded as plain sections. Later with the plan as a guide, the carving of the windows and architectural features was proceeded with. The cornices were first molded in tin, this molding being done in sections and then the sections were fitted together on the model. The same idea as to sectional construction was followed in the dome, all of the ornamental fea-

tures being later carved by hand.

The model, which is considered one of the very best ever made in Philadelphia, was developed strictly along exact scale dimensions. As it appears as finished and exhibited, the model is the third of the same building made by the sculptor. This was due to a reason which really led to the making of the model. The architect felt that inasmuch as the building was to be unique in a sense and should be not only attractive in design but meet all utilitarian purposes, it would not be wise to proceed with it until the opportunity was afforded to see just what it would look like. Consequently after the first two models were made, the advisability of some changes became evident and in the production of the third and accepted model, these changes were effected and all necessities, architecturally and otherwise, were met.



A Photograph of a Very Remarkable Plaster Model of the New Sectional City Hall in Philadelphia, Built for the Convenience of the People Who Dwell Far Removed From the Central Municipal Building. The entire structure was hand sculptured. This is the third model of the building. The first two required improvements.

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John Katsch  
Architect

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

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

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

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

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

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

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

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

### The Common Brick Industry of America

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



## Ideal Brick Hollow Wall

*"Brick Homes at the Cost of Frame"*

# WHAT'S NEW?



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

## Aluminum Shingles the Latest

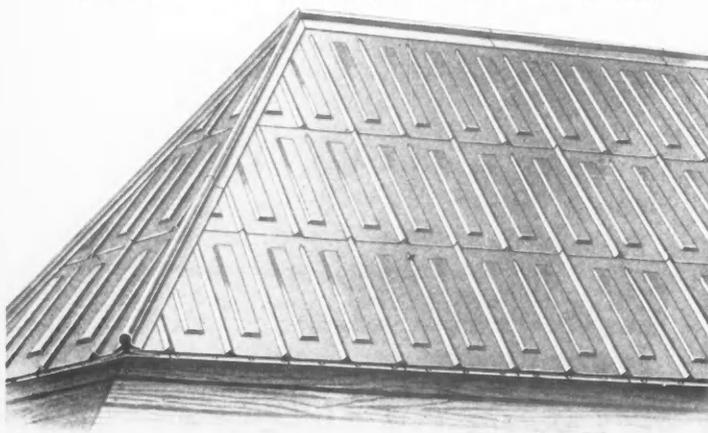
**A** NEW roofing shingle, made entirely of aluminum, has recently been placed upon the market. Two qualities make the metal excellent for roofing purposes—namely, its lightness and the great resistance it offers to the elements. Aluminum is fire-proof, rust-proof, weather-proof, hail-proof, water-proof, acid-proof, buckle-proof, sweat-proof, a protection against lightning and will wear for years.

The aluminum shingles are made by forming the aluminum plates with suitable locks and flanges to interlock one with another. They have an ornamental embossment, giving a rectangular tile effect. The exposed surface of the shingle is 12 by 14 inches. Eighty-six shingles are required per square (covering 100 square feet). The weight is 40 pounds per square. The shingles with necessary aluminum nails and instructions for application are placed in corrugated cartons, each containing sufficient roofing to cover 100 square feet.

In covering a roof with aluminum the shingles are laid downward from the ridge. By this practice scaffolding is eliminated. Instead a foot support is nailed to the roof deck five or six feet below the ridge, which is moved downward as the work progresses.

One of the most important features of this shingle is the side-locking device. This is so constructed that it automatically locks the shingles, making it impossible for them to come apart. When one shingle has been placed the next one will slide into the side of the first and firmly interlock.

The top of the shingle, which is shoved into the lock of the shingle above, is provided with corrugations acting as an expansion joint, as well as permitting a constant air circulation. Air circulation is also provided thru the sidelocks.

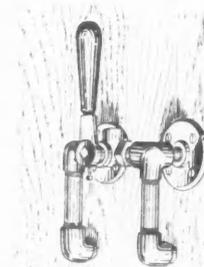


Portion of Roof Covered With Aluminum Laid Downward From the Ridge

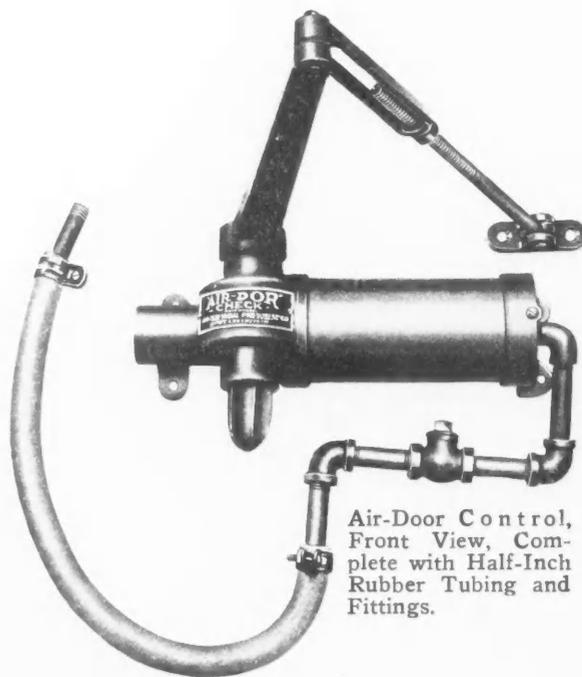
## Air Door Controls Aid Efficiency

**T**HE air-door control system shown in the accompanying illustrations will enable the man sitting at the desk or in the shop to control the opening and the closing of the distant doors and gates in the building.

The system may be used with any hinged doors, but not with folding or sliding doors. The controls are fastened to the doors one wishes to regulate and connected by an air supply line to levers located in any other part of the establishment. These levers open or close the doors by air pressure. There is a special three-way valve device which makes it possible to control the doors from several different locations. The air supply line requires 3/4-inch pipe and can be easily put up, as the installation of the entire system is very simple. The controls can be operated with



Three-Way Air Cock with Special Release for Operating Air-Door Controls, an Essential Part of the System.



Air-Door Control, Front View, Complete with Half-Inch Rubber Tubing and Fittings.

any air pressure from 20 to 75 pounds, according to the size of the doors. The ordinary automatic air system which is used in the factory or garage will operate the door controls. There is included in the air pressure equipment an air pressure regulator which will keep the actual pressure necessary for opening and closing the doors at any speed you desire.

Controls are furnished for any size doors with openings from 3 by 6 feet to 12 by 12 feet.

# Here comes the plumber!

Your water pipes are causing trouble. Perhaps it is a leak in the ceiling or a pipe clogged with rust that leaves only a thin trickle of water.

Anyway, you are in for it. Walls must be opened, floors ripped up to get at the leaky or clogged pipe. The plumber is not to blame. Inferior, corrodible pipe has failed.

You can avoid all this—easily.

Anaconda Brass Pipe resists corrosion and is good for a generation. It insures you against the plumbing troubles that require the repair man. It saves you the cost of his service.

The added cost of an Anaconda Brass Pipe installation is negligible—only about \$75 for a \$15,000 house.

Isn't it worth it?

*Write for our new booklet "Ten Years Hence" which tells how you can save on your plumbing. It is free*



**THE AMERICAN BRASS COMPANY**  
GENERAL OFFICES: WATERBURY, CONN.

MILLS AND FACTORIES

Ansonia, Conn. Torrington Conn. Waterbury, Conn. Buffalo, N.Y. Kenosha Wis.

OFFICES AND AGENCIES

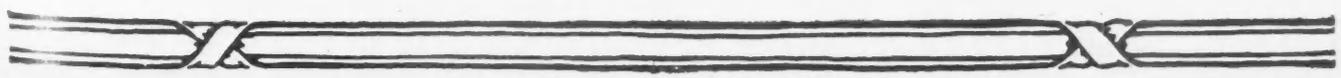
New York Philadelphia Boston Providence Pittsburgh  
Cleveland Cincinnati Detroit Chicago St. Louis San Francisco

ANACONDA AMERICAN BRASS LIMITED NEW TORONTO ONTARIO CANADA



# ANACONDA

## BRASS PIPE



**Mixers Equipped With Rubber Tires**

**T**HERE appears to be a growing demand for concrete mixers of smaller type, especially the one bag size, equipped with rubber tires. They are particularly useful in city work where the mixers must frequently be hauled for a considerable distance over hard surfaced roads, often brick



**Rubber Tires Transform Mixers Into Fast, Smooth Running Vehicles.**

or stone, across street car tracks and other obstructions which jar the mixers severely. Rubber tires cause few shocks to the mixer and in addition are easier on the pavement.

The mixer shown in the illustration is one of seven concrete mixers, equipped with rubber tires, operated by the city of Milwaukee, while the rubber tired paver is operated by the Milwaukee Electric Railway and Light Company.

Concerns who have been equipping a great deal of their construction machinery with rubber tires find it reduces the wear and tear considerably. The Milwaukee Electric Railway and Light Company recently moved its paver from one part of the city to another with a hammer lying on the boom for the entire distance.

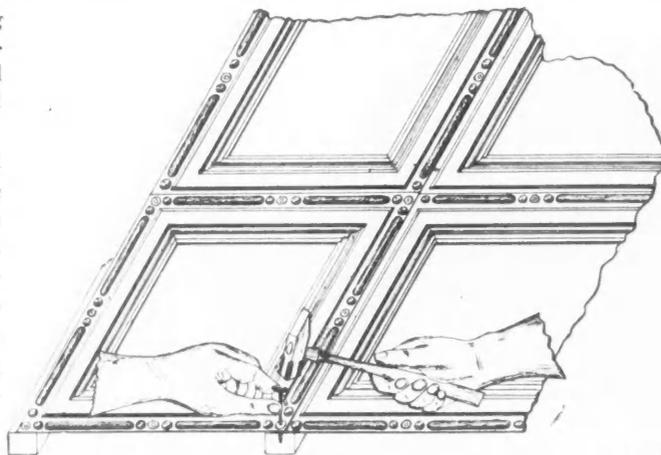


**Metal Ceiling Has New Features**

**B**UILDERS, architects and designers will be interested in learning of a new steel ceiling that has recently been perfected. As may be seen in the accompanying illustration the new ceiling has two outstanding features, the repressed beads and die punched nail holes.

The repressed beads facilitate the lining up of plates and insure a perfect fit, eliminating all hand caulking owing to imperfect beads, etc. Another advantage is that the beads of various plates will always be uniform and fit perfectly even tho they were made at different times, and on different dies.

The new metal ceilings can be easily and quickly put up and are so constructed that they give excellent service and wear well. The die punched nail holes are a great convenience



**Metal Ceiling Has Repressed Beads and Die Punched Holes.**



**Milwaukee Firm Uses Rubber Tired Pavers Because They Transmit Few Shocks and Are Easier on the Pavement.**

for they save considerable time in erecting the ceiling and in addition make the operation of nailing thru four thicknesses of metal an easy matter.

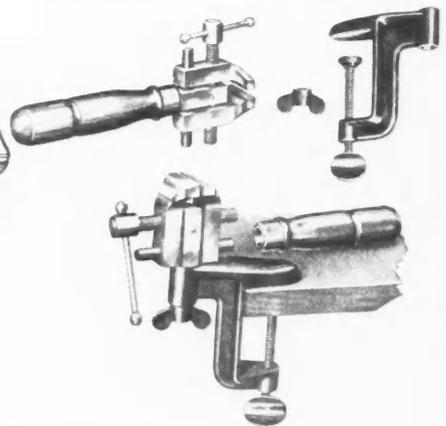


**A Handy Combination Hand Vise**

**A** NEW combination hand vise is announced, a tool of especial interest because of its wide usefulness both in the shop and around the house.

The use of a ball and handle for tightening the jaws, instead of a wing nut, is particularly worthy of note. By this means far more leverage is possible and thus a common difficulty in hand vises is eliminated.

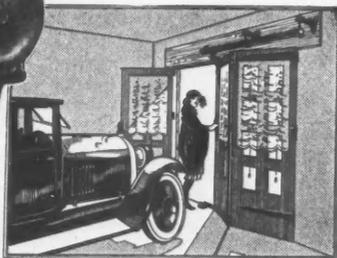
The hand vise is furnished with a clamp permitting its use as a small bench vise on benches or shelves having an approximate thickness of 1/2 inch to 2 1/4 inches. As shown in the illustration, the change is effected simply by removing the handle and substituting the clamp. When used with the clamp the vise can be adjusted to any point in a complete circle to meet the convenience of the user. The clamp is



**New Combination Hand Vise Will Be Very Useful Around Shop or Home.**

made purposely large and strong so that it will withstand hard use.

The jaws of this vise are tempered and polished drop forgings, 1 1/2 inches in width. The capacity of the vise is about 1 1/2 inches.



No. 1080 Garage Door Set is admirable for folding-sliding installations up to 6 doors—particularly well adapted for use with our "Electromatic" garage, factory and warehouse door operating equipment.

# CONFIDENCE

Orders now being placed for Allith-Prouty garage door hardware and builders' hardware specialties, anticipate clearly the upward trend of next year's big building activities \* \* \* \* and they likewise indicate a marked degree of faith in A-P hardware, reflected alike in contact with architect, builder, dealer and user.

## ALLITH-PROUTY COMPANY

DANVILLE, ILLINOIS

Write for Garage Door  
Hardware Catalog 91



# ALLITH-PROUTY

*"Satisfaction in Hardware"*



# 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 Architects and Builders

## Troubled with Sidewalk Cracks

To the Editor:

Sea Bright, N. J.

I have been laying quite a number of sidewalks and I have had a lot of trouble with fine cracks. In laying sidewalks, I always excavate to a depth of 5 inches. I then lay enough concrete of a 1-3-5 proportion, well tamped, and a dress coat of 1 inch of a 1-2 proportion to get a 4-inch walk. Will you kindly inform me in any way, and as soon as possible, what seems to be the trouble?

Quite a number of my customers have brick sidewalks, and they seem to think that if I put 1 inch of dressing on the top of the brick that it would make a nice walk, but I don't think very much of the idea, because I think it will show numerous cracks. I also wish to state that all of the ground in this section has a sand bottom. Kindly give me your opinion on what I have asked and oblige.

J. E. TEPRES.



## Let's Have Your Opinion

To the Editor:

Craig, Colo.

Could you give me any facts on stucco cement plaster on brick and wood lath, and also how to mix and make adobe coloring? It is a rough dash finish.

KRUGER & McCoy.



## Ever See a Bigger Hand Saw?

To the Editor:

Philadelphia.

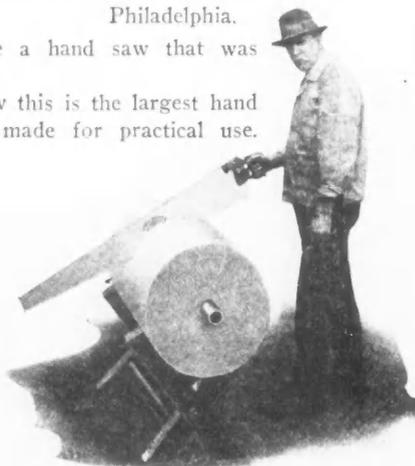
We recently made a hand saw that was 48 inches long.

As far as we know this is the largest hand saw that was ever made for practical use. It was intended for an unusual use: namely, sawing thru rolls of paper.

It occurred to us that this might be interesting matter for the readers of your publication.

HENRY DISSTON & SONS, Inc.

K. L. Zimmerman,  
Advertising Manager.



Said to be Largest Hand Saw Ever Made for Practical Use, Is 48 Inches Long. Used to saw rolls of paper.

## A Hearty Enthusiast for Cement Block Houses

To the Editor:

Elliott, Iowa.

In your correspondence department Mr. Earl R. Gambrel asks if a house can be built out of cement blocks and be all O. K. in every respect. We say, yes, if he uses good judgment, it can be done better than with any other material.

To build a house that is permanent we must first find a material that is permanent unit. It has been proven that cement products that are made right defy the ravages of time.

In the construction details for such houses we must first provide a substantial footing. Then we must select our blocks. We find in getting good cement blocks, tile, or brick, that we are getting a material that is waterproof, fireproof, decay-proof, and storm-proof.

We are asked if this house will be too damp. No, it will not be if properly constructed. As builders, we all know that any house that is to be warm, dry and healthy has to be perfectly insulated. The way to have a perfect insulation is to have two tight walls with a continuous air space. I might add dead air space.

Now if we use cement building tile we can lay a double wall and have this air space. If we use the slab block we can have this air space. If we use cement brick we can still have it, and on all of these plaster on the inside wall, and have the house perfectly insulated. Then if we want to use the common cement block we can build up of these and then fur and lath the inside and still have our air space. Then if we were building a very large house in which we needed walls of much strength, we could use the common building block inside and use a cement brick outside, and have a wall with this same air space. This would not need furring. There are many ways we can use a cement product and make a home a real home. We always make our lintels, sills and caps a two-piece product so we will not have damp spots in these places. A house built of good cement blocks and properly constructed should have no objections. Any objection that might arise from faulty construction can be overcome, for a cement unit can be so placed that it will give more service than any other material.

We find that a block house is from 18 to 25 degrees warmer in winter and that much cooler in summer than a frame construction. This means a saving of fuel for winter and more comfort for summer. Also a heating contractor that knows his business can install a heating job for less money



When the New  
**Asphalt Shingle Roof**  
 wears out and leaks,

as it surely will in a few years, then recommend your customers to cover it with the "last forever"

**Ambler**  
**Asbestos Shingle Roof**

which is  
 "Permanent as the everlasting hills"

Buy your Ambler Asbestos Shingles before the close of this year and take advantage of our present low contracts for cement and asbestos. This will enable you to estimate profitably on covering your customers' old asphalt shingle roofs this winter.

Apply them over the old worn-out Asphalt Shingles and have a fire-proof Asbestos Shingle Roof that will never require painting or repairing and will always retain its original metallic colors which are part of the shingles—Red, Green, Brown and Gray.

The material saving made by reduced insurance rates will also be most gratifying to your customers.

**ASBESTOS**  
**SHINGLE, SLATE & SHEATHING**  
**COMPANY**

Department A

AMBLER, PENNA.

*Branch Offices:*—Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Detroit, Cleveland, Minneapolis, New York, Omaha, Philadelphia, Pittsburgh, Washington, Wilkes-Barre; Montreal, Canada; Toronto, Canada

*Southwestern Distributors:*—R. V. Aycock, Co., Kansas City, St. Louis, Tulsa, Houston

*Western Distributors:*—J. A. Drummond, San Francisco, Los Angeles, Fresno

Other distributors throughout the country

in a building of this kind for he knows it is much easier to heat. After we consider all the savings we can make on a house of this kind is it not the cheaper house in the long run? Lumber prices are such we can build a good cement block house almost as cheap as a frame one. There is not as much maintenance cost to a cement block house as there is to others. A block house properly built never needs any more attention. It is done.

If our experience is of any value to others, it is free for the asking.

ELLIOTT CONSTRUCTION CO.

### Proud of His Baby

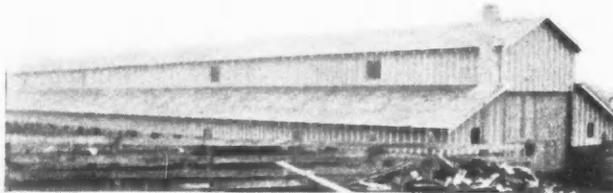
To the Editor: New Canton, Illinois.

In the September BUILDER, I find these lines: "Send the Editor a photo of that building you are so proud of."

I'm proud of all of them.

Am enclosing snap shot of one that may interest some of the rural-builders.

This baby is 28 feet wide, 150 feet long. Has 12-foot drive-way of concrete the full length, which is also used as feeding floor. Contains 41 individual pens (with removable partitions) and a cooker-room. Over the drive-way there are three hopper-bottom grain-bins, and three floored spaces for storage of bedding. The spaces directly under the large



Substantial Hog-house Designed and Built By Raymond Minton, of New Canton, Ill., Contains 41 Individual Pens and a Cooker Room.

windows were left open to admit light to the pens; also each pen is lighted by a window of ventilating type in roof. It is the largest hog-house in Pike County and I think it compares favorably with any in the state.

I designed and built this hog-house last fall for Mr. Forbe Clack, breeder of spotted Poland Chinas near Summerhill, Illinois, a town about twenty miles from home.

I have snap-shots of practically every building that I have erected, and if you don't find this too tiresome, I may come again. Have one in particular that might be of interest, a remodeling job on which magnesite stucco was applied to brick, concrete, bishopric-board, common lath and plain boards studded with nails, all on one house.

I am, yours for better buildings,

RAYMOND MINTON,  
Contracting Carpenter and Builder.

### Fine Cracks in New Plaster Trouble Him

To the Editor: Lancaster, Mo.

I want to ask your readers for some advice on plastering. Thru this section of the country we are using two brands of patent plastering cement, Acme and Agatite, and almost every job calls for floated finish to be painted. Now when this is done on wood construction over wood lath it almost invariably cracks, the nature of the cracks being fine hairline cracks reaching entirely across the ceilings and horizontal and vertical cracks of the same nature in the walls. Your first impression will probably be that it is caused by the building settling. I have made numerous and thoro tests and find that it is not caused by the building settling. I have talked with the plastering contractors about their way of mixing and

applying these cements and find that they are following the directions put out by the companies that make the cement, which says to apply the second coat as soon after the first coat as possible; meaning to let first coat set only long enough so that the clinches will bag down when the second coat is applied. Then apply third or skim coat after first two coats have set thoroly. Now this will give the results I have outlined. The plasterers tell me they do not know of anything to do to their mortar to prevent it. They claim it is due to shrinkage of lumber and lath. I think this is true to a certain extent, but we have no recourse in that respect as we have to use the timber in condition in which it comes from the yards the same as anywhere in the country. This cement does not crack when applied over brick or tile. I have not experimented with these cements only to apply them in all of the possible different ways. Changing their ingredients I think is necessary. I think these cements are too hard and glasslike. I am sure they are not elastic enough to stand the contraction that takes place as the plaster becomes dry. I notice these cracks usually appear from 4 to 12 weeks after the plastering is done, which shows, in my estimation, that they are caused by contraction and lack of elasticity. We use good clean river sand as an aggregate and have as good as the average in the way of plasterers to do the work; yet we cannot get a job that will not crack where it is to be floated finish for paint. This is very discouraging to our clients and is also giving the plasterers trouble. I hope you can offer some suitable solution and possibly suggest a formula or mixture that will overcome these difficulties. I would like very much to hear from some other brother builder. There are other builders in this section of the country who are up against the same proposition and would appreciate suggestions.

ROY F. CROSON.

### Here Is a Brain Teaser from Holland

To the Editor: Rotterdam.

A father divides a lot of dollar coins among his 4 sons as follows:

The first son got  $\frac{1}{4}$  of the lot, after having taken off 1 for the poor.

The second got  $\frac{1}{4}$  of the rest, after having taken off 1 for the poor.

The third got  $\frac{1}{4}$  of the rest, after having taken off 1 for the poor.

The fourth got  $\frac{1}{4}$  of the rest, after having taken off 1 for the poor.

They each got  $\frac{1}{4}$  of the rest, after having taken off 1 for the poor.

How many coins must there have been at least if no coin was to be changed in smaller ones?

P. J. VERMAAS,  
Architect.

### Kerfing Rule Wanted

To the Editor: Beloit, Wis.

I had occasion recently to kerf a board to bend around a curve having a four foot radius. The kerf had to be close so it could be painted over. I had to use the cut and try method. Will some kind reader give me a formula for kerfing different radii.

O. L. PRATT.

### Troubled with Walls Scaling

To the Editor: Union, N. Y.

Will somebody tell me how to treat the wall of a church built of concrete blocks so the interior decorating will not scale off?

S. ARTHUR DOUGLAS.

## We Are Revising Our Agency Lists.

This leaves some very desirable territory open for business getters. **If we have no agent in your section we want one** — Better investigate and see what an interesting proposition we have to offer. **The fuel situation makes our product unusually easy to sell.**

**We have agents making as high as \$13,000 per year net profits.**

The exclusive flexible and removable feature of **Diamond Metal Weatherstrip** appeals to people. **They are willing to pay more for it.**

We established a new agency in a Pennsylvania city and in **2 months and 10 days they closed contracts for \$11,684.00 worth of business** in the face of the fiercest competition and more than **two-thirds** of contracts were taken at **higher prices** than our competitors.

**Building Specialty Men, Screen Makers, Job Carpenters and Weatherstrip Agencies** who want a permanent, money making, year round business should investigate our proposition.

*Write Today—Now, Before You Forget*

### ADDRESS

Sales Department

**The Diamond Metal Weatherstrip Co.**

626 KERR STREET

COLUMBUS, OHIO

#### To Readers of This Advertisement

Being a believer in **Truth in Advertising** I personally assure you that every statement made in this advertisement is absolutely true.

C. J. PARSONS,  
Gen'l Mgr.

*For convenience and quick delivery we have a Western Factory Branch located at Fort Dodge, Iowa, in charge of Mr. J. E. Dunmire.*



## October Construction 14 Per Cent Ahead of Last Year

**B**UILDING contracts awarded during October in the twenty-seven Northeastern States (which include three-fourths of the total construction in the country) amounted to \$253,137,000, according to the F. W. Dodge Company. This figure is 14 per cent ahead of that reported in October of last year. The progress of the seasonal decline in October is shown in the drop of 7 per cent from the previous month. In view of the fuel and car shortage and other restrictive factors, construction activity is continuing at a very satisfactory rate.

Residential construction continues at a very high rate, October contracts for this class having amounted to \$110,776,000, or 44 per cent of the month's total. This was an average over September residential construction. Other important items in the October figures were: \$41,477,000, or 16 per cent, for public works and utilities; \$32,037,000, or 13 per cent, for business buildings; \$27,640,000, or 11 per cent, for industrial buildings; and \$17,437,000, or 7 per cent, for educational buildings.

Construction started during the first 10 months of this year has amounted to \$2,887,446,000. This is 23 per cent greater than the total for the entire year 1921, and 47 per cent greater than the total for the first 10 months of 1921.

The revival of residential construction this year has overshadowed everything else in the building field. But there has also been a revival that is very significant. Industrial construction this year has averaged 27 millions per month, compared with 14 millions per month in 1921. This increase, altho it has not yet assumed large proportions, seems to indicate a substantial revival in this class of building.

Contemplated new work reported in October amounted to \$416,164,000, an increase of 26 per cent over the contemplated work reported in September.



## Make Metal Lath in Zinc and Copper

**M**EMBERS of the building industry will be interested in the recent announcement that the first expanded metal lath and building specialties manufactured of zinc and copper have been placed upon the market.

It is only since the war that builders have used these two metals to any extent in their construction projects. Their desirability for certain types of construction was recognized then and they have since gained steadily in popularity.

The Milwaukee Corrugating Company, Milwaukee, Wis., manufacturers of sheet metal building products, is one of the companies turning out the new zinc and copper specialties. At the present time they are stamping Netmesh expanded diamond metal lath, No. 1 expansion corner bead, expansion casings and expansion flashing in both copper and zinc.

## Prominent Lumberman is Dead

**M**R. J. R. MOOREHEAD, of Lexington, Mo., secretary of the Southwestern Lumbermen's Association, died at Kansas City, Tuesday, October 24, after a short attack of pneumonia and heart failure.

Mr. Moorehead operated a lumber yard in Lexington and was well and favorably known by members of the building industry thruout the country because of his work with the Southwestern Association and thru his speeches at building conventions on home ownership and building and loan associations. Mr. Moorehead staunchly advocated that every family should own its own home and that the building and loan associations were the best means of accomplishing this. He was constantly promoting building activity and was one of the most active members of the industry.



## National Water Systems Week

**T**HE week beginning Monday, Dec. 4, and ending Saturday, Dec. 9, 1922, has been set aside as "National Duro Week" by the Duro Pump & Manufacturing Co., Dayton, Ohio, manufacturers of residence water systems and pumps.

During this period thousands of Duro dealers and the entire Duro selling organization thruout the United States and Canada will make a concerted drive for water supply system business and endeavor to educate and familiarize the people with individual water supply systems.



## Ransome Concrete Machinery Company Will Enlarge Plant Again

**A**N increased volume of business, particularly in the paving and small mixer fields, has necessitated a further enlargement of the plant of the Ransome Concrete Machinery Company, of Dunellen, New Jersey. Something over a year ago this concern practically doubled its floor space and the decision to erect the new building—adding a third as much more space—augurs well for their belief in not only a continuance, but an increase in present building activities. The structure, one story in height with monitor roof, will be concrete and steel and covers a ground area of nearly 10,000 square feet. Its erection will be commenced immediately.



## Paint and Varnish Advertising Men Organize

**O**RGANIZATION of the advertising men of the paint and varnish industries was completed at a meeting at the Ritz Carlton Hotel, Atlantic City, on Nov. 17, thru the formation of what will be known as the Advertising Group of the Paint and Varnish Industry. This linking together of the advertising men of the industry into an organization of their own is the outcome of the conference of advertising managers at Buffalo last June.

Entire lack of formality will prevail in the operations of the new organization. For that reason the term "group" was decided upon, rather than "association." There will be no fixed meeting place nor will there be a list of imposing official titles. A chairman, rather than a president, will direct the activities of the group.

O. C. Harn, of the National Lead Co., New York, was chosen chairman; J. M. Graham, of Lowe Bros., Dayton, O., vice-chairman; W. P. Werheim, of Pratt & Lambert, Buffalo, N. Y., secretary. These gentlemen, together with H. C. Bursley, of the Murphy Varnish Co., Newark, N. J., and C. J. Schumann, of the Hilo Varnish Co., Brooklyn, N. Y., make up the executive committee.

# What Stands Between You and More Money?

## IS IT LACK OF EXPERT TRAINING?

EVERY MAN whose eyes are open realizes that there are bigger opportunities for building experts today than ever before. Everywhere we see construction of all kinds going on and are told of more to be done—houses, office buildings, factories, stores, warehouses—all needing men with the training to plan the work and to direct those who do the manual labor. It is these men, trained to carry responsibilities, who make the most money in the building business. And everywhere we hear the call for them.

Chicago "Tech" Training, became a contractor and writes: "Work in our office has opened up good. Am drawing plans for a \$70,000 school building and have others in view. Some of our large work last year was an \$80,000 church, \$60,000 armory, \$30,000 store and a large number of residences."

Hundreds of other men could tell you experiences similar to these of success following the instruction they received under the Chicago "Tech" experts. The same training they were given is open to you.

### Train by Mail

Chicago "Tech" is ready to give you the same training in Plan Reading, Estimating, Superintending. Our Builder's Course makes building experts—men who know every practical point about planning, figuring costs and directing all classes of construction.

No need to leave your present job to get this training. We will teach you by mail and you can use your spare time for study under the direction of our experts. No special education required.

## FREE 2 Books and Blue Prints

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



Just sign and mail the coupon and these books and blue prints will go to you by return mail.

**Chicago Technical College**  
1236 Chicago Tech Bldg., Chicago, Ill.

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

Name .....

Address .....

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

Occupation .....



## Ability to Read Plans, Estimate Costs, Superintend Work, Is What Puts a Man Ahead Today

As long as a man is willing to drive nails, plane boards, mix mortar, lay brick, chisel stone, string wires, wipe joints or do other manual work he will be limited to the prevailing scale of wages.

As long as a contractor is satisfied with taking on small jobs, he will see the large profits go to men who know how to handle the big jobs. That is why ambitious men are training—getting the knowledge which makes their services worth more. They know that brains always command more money than muscle or skill of hand.

For over twenty years, Chicago Technical College has been helping this kind of men to advance—to get

where they draw the high salaries or make the big profits that are paid to experts.

Hundreds of these ambitious men have stepped into the big pay class while fellow workmen remained at the bench.

Albert S. Ross of Oklahoma is one of the men who have made big money as a result of this training. Mr. Ross writes: "After taking the course my salary was increased \$225 a month. Am now in business for myself (contracting) and my prospect file shows \$220,000 worth of work."

R. T. Henderson of W. Virginia says: "Since I enrolled my income has been increased more than 300%."

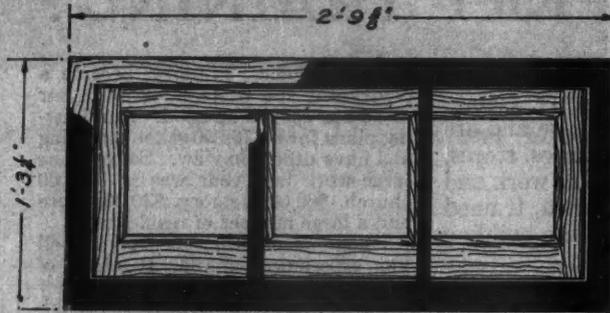
Oscar Rosin of Minnesota also took

*Every hour you put in learning more about your trade or business is going to pay you back in real money*

# Better Basement Windows

By W. A. HARRIS

**T**HAT the popularity of steel basement windows will increase among home builders, as did the use of steel sash among industrial builders, is unquestioned. Ten years ago, steel sash was practically unknown among the building trade. Today, it is used



Relative Size of Glass in Steel and Wood Sash.

in factory buildings, stores, office buildings, schools, banks and even hotels. This increased use of steel sash has been brought about by educating building owners, architects and contractors to its many advantages. In like manner, the home owner, contractor and architect will come to look upon steel basement windows with favor and satisfaction.

Steel basement windows have several important advantages over wood windows that are sure to appeal to the thoughtful home owner and builder.

They admit from 40 per cent to 80 per cent more daylight for the same sized masonry opening. The sash and frame are made from solid, narrow, rolled steel bars, eliminating the wide wooden members and permit the use of larger glass lights.

Steel windows cannot stick or warp. The difficulty experienced by every home owner in trying to open or close his windows, when the sash has swollen and

stuck, is entirely eliminated. Steel is not affected by moisture.

Screens may be attached easily to the outside of the frames. Holes are punched thru the frame so that special screen frames are unnecessary.

Because of their construction, steel windows resist fire and stand up under hard usage. They always have a better appearance than wooden windows, and add to the attractiveness of a house.



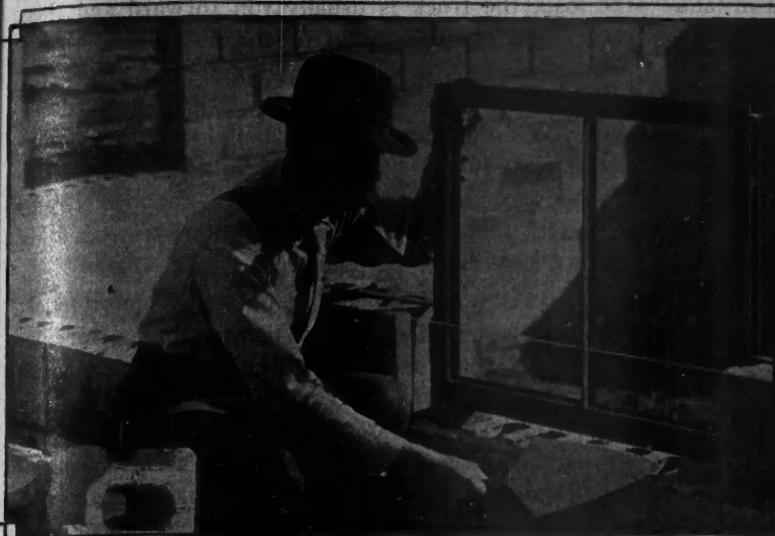
Mason Insets Anchor Clip in Channel Groove.

Here is one fact of interest to contractors and builders. Steel windows with channel frame construction save labor and expense in installing. This type of window will sit upright on the sill without bracing and it has the important additional advantage of serving as a guide to the mason. The channel frame makes it impossible to build the wall so close it will bind the ventilator. The outside leg of the channel frame is somewhat longer than the inside leg. The mason builds the wall snugly against the front leg filling the channel with mortar as he goes up. Anchorage is secured by means of four straight flat pieces of steel about 1 inch by 4 inches long. These are laid in the mortar joints in such a way that the ends extend about  $\frac{1}{2}$  inch into the channels at the jambs.

One advantage of steel basement windows, which appeals to architects, contractors and dealers alike, is the fact that they are standardized and made in only a few popular sizes. This assures the architect or contractor that he will not have the delay, the extra cost and trouble



Steel Window Being Set Without Braces.



1

## He Saved 20 Minutes On Every Window!

This one mason installed Fenestra Steel Basement Windows in twenty minutes per window less than the time required for wood windows. You know what this means in cutting costs!

Let's follow the four simple installation steps and see how this was possible.

- 1 First, he set the window on a couple of brick chips to allow for the sill. After laying the two concrete blocks at the jambs, he inserted an anchor clip on each side.
- 2 After the next two blocks were laid, he plumbed up the window and inserted the last two clips.
- 3 Then the third blocks were set in place.
- 4 Finally, he grouted in the jambs and the sill, troweling the mortar flush with the edges of the blocks.

A wood frame would have had to be set, plumbed, braced, the wall built around it, the sash fitted, the hardware purchased and attached, the job pointed up and the priming coat of paint applied—the work of a mason, a carpenter, and a painter.

You can save time, labor, and money by using these new steel windows. And the best part is that they are priced right in line with wood windows!

Ask your building supply or lumber dealer about them!

**Detroit Steel Products Company**  
2313 East Grand Boulevard      Detroit, Michigan

*"The World's Largest Manufacturers of Steel Windows"*



2



3



4

Detroit Steel Products Co., 2313 E. Grand Blvd., Detroit  
Gentlemen:

Send me your book showing standard types of Fenestra  
Steel Basement Windows. No obligation incurred.

Name .....

Address .....

# Fenestra

Steel Basement Windows

which invariably accompany the purchase and installation of special sized wood windows and also permits the dealer to carry a sufficient stock with only a small investment, and sell at a price commensurate with wood.

Another point in favor of using steel basement windows is that of low initial cost both to the homeowner and building supply dealer. Not only are they quoted at a price that successfully competes with wooden windows, but an additional saving is also effected, by the fact that these steel windows are completely equipped, sash hung, priming coat of paint applied, and all hardware in place.



### Selecting Truck Equipment

By P. L. SNIFFIN

IT has been said that the most important fundamental of successful motor truck operation in the contracting business is the selection of the proper equipment to handle the work most satisfactorily. The contractor should first of all recognize the fact that in no other field of business are motor trucks called upon to render such strenuous service as in this business. To install inferior equipment, therefore, is to seriously handicap profitable results. In loading with steam shovels, as shown in the illustration, a one-ton mass of dirt and rock is dropped from a height of several feet upon the truck. This also applies in loading bulk building materials, such as sand and gravel from overhead hoppers. In discharging

the load, the truck is usually run forward and then backed sharply against an obstruction several times. Such procedure produces a terrific shock upon the body, springs and chassis but usually it is unavoidable since speed in loading and unloading is the determining factor of profit on such work. An additional feature of the service is the fact that poor roadway conditions and sharp inclines are encountered in reaching loading and unloading points.

It is well to remember, in buying a motor truck, that the heart of the truck is the motor, and for that reason the motor should be given the greatest amount of attention. A truck may have an exceptionally good appearance, but if the engine is inferior or faulty the other points are of little value to the user. In maintaining a motor truck fully 80 per cent of the cost of repairs may be traced to the motor. Consequently, the motor is the first determining standard of judgment. "First cost" is far from being the most important cost in the end. The successful truck purchase is one that renders efficient service at the lowest cost per unit mile *over a period of years*.

It is very unwise to base a truck's value on its first year's service. Many trucks that make surprising records in their first year fall down completely after two or three years continuous use.

It is well to particularly avoid the chance of having an "orphan" vehicle on hand. Out of 411 truck manufacturers in business between 1910 and 1917, more than 255 failed some time during that period.



A Steam Shovel Dropping Mass of Dirt and Rock on Truck. This is a great strain on trucks and contractors must select their equipment carefully or their profits will be eaten up.

*Johns*



## The Roof Reliable

WHEN the season of dull days and dreary nights breaks upon us, when the lowering clouds pour forth their burden of snow and slush, when the sting of a winter's wind turns lakes and rivers into an iron of ice—then is the trying time for the roof that covers your home.

Under such conditions is where real value and honest construction become apparent. There the satisfying service of Mule-Hide gives a snug comfort to the home, and the occupants can better appreciate the meaning of the roof reliable.

Mule-Hide Cor-Du-Roy Four Panel Strip Shingles are especially desirable as an over head protection. Combining, as they do, Mule-Hide quality with a new and distinctive appearance, produced by the light and shadow effect peculiar to this shingle alone, they are the choice of home owners and builders everywhere.

THE LEHON COMPANY, Dept. A. B. 44th-45th on Oakley, CHICAGO

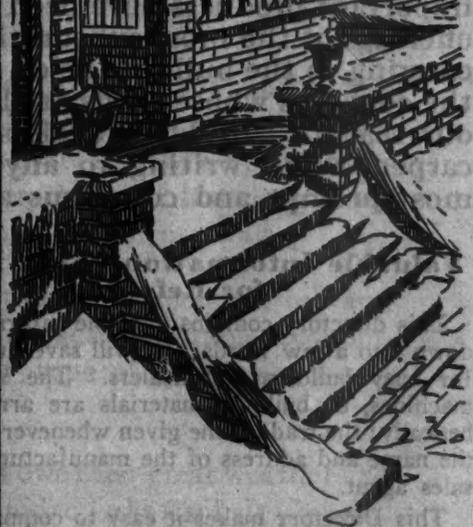
Send me literature and sample of Mule-Hide Cor-Du-Roy Four Panel Strip Shingles.

Check whether—

Dealer     Contractor     Architect

Name.....

Town..... State.....



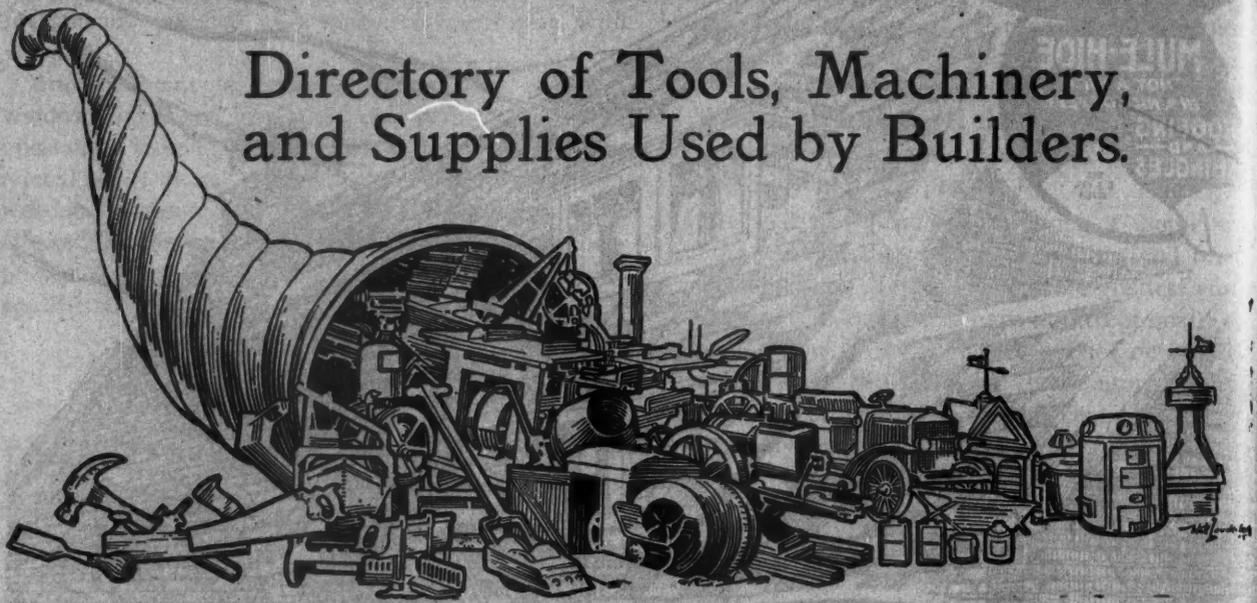
### Cor-Du-Roy Four Panel Strip Shingles

is made in the standard size, 10 in. by 32 in. and weighing 230 pounds to the square, and in the super size, 12 1/2 in. by 32 in. with a weight of 285 pounds to the square. In each square there are 112 shingles, sufficient to lay 4 in. to the weather. The 10 in. shingle gives double thickness over the entire roof, while the 12 1/2 in. shingle gives a triple thickness all over.

Both the Super and the Standard sizes are made of the same all-rag felt base, thoroughly saturated and coated with a genuine Mexican Asphalt and surfaced with a natural color slate in either red, green or the new and popular blue-black shade.

# 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., Newark, N. J. ("Accello").  
General Fireproofing Co., Youngstown, O.

#### ACOUSTICS—ARCHITECTURAL

Samuel Cabot, Inc., Boston, Mass.  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.

#### ADDING MACHINES

Monroe Calculating Machine Co., Woolworth Bldg., New York, N. Y. (A form of equipment that is being extensively used by contractors, builders and architects).

#### ADJUSTERS—CASEMENT WINDOW

Casement Hardware Co., 281 Pelouze Bldg., Chicago, Ill.  
Lyons Mfg. Co., New Haven, Conn.  
Mallory Mfg. Co., Flemington, N. J.  
Sargent & Co., New Haven, Conn.

#### ADDS—CARPENTERS

Mack Tool Co., Rochester, N. Y. ("D. B. Barton").  
L. A. Sayre Co., Newark, N. J.  
L. & I. J. White Co., Buffalo, N. Y.

#### ANCHORS—BUILDING

Anchor Concrete Machinery Co., Columbus, O.  
Ankyra Mfg. Co., Philadelphia, Pa. ("Ankyra").  
International Steel & Iron Co., Evansville, Ind.

#### ANCHORS—JOIST

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.  
Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
Paine Co., 1742 W. Van Buren St., Chicago.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
U. S. Expansion Bolt Co., 189 Franklin St., New York, N. Y.

#### ANCHORS—WALL

Abram Cement Tool Co., Detroit, Mich. ("Abram").  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.

Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
Concrete Engineering Co., Omaha, Neb.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.

#### ANDIRONS

Colonial Fireplace Co., 4611 Roosevelt Road, Chicago, Ill.

#### ANEMOMETERS

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

#### ANGLES—IRON AND STEEL

Donley Bros. Co., Cleveland, O.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Truseon Steel Co., Detroit, Mich.  
Youngstown Pressed Steel Co., Warren, O. ("Sharon").

#### APPARATUS—MOTOR CONTROL

General Electric Co., Schenectady, N. Y.

#### ARBORS—SAW

American Saw Mill Machinery Co., Hackettstown, N. J.  
E. O. Atkins & Co., Indianapolis, Ind. ("Atkins").

Buyers' Guide continued on page 128



# What do people say about your roofing jobs?

Any roofing you now use—no matter what its quality—may look good and even give satisfactory service *for a time*.

But the important thing is—what will the owner—what will his neighbors—say about it two, three, or four years later?

If it's a roofing that stands punishment—stays waterproof and lasts—you don't have to worry. A good roofing job means a satisfied customer—the best advertisement you can have.

That's why more and more builders are concentrating on roofings of the Genasco Line. They know Genasco Roofings are **QUALITY** products—that they stay waterproof and last long after ordinary roofings crumble and rot away.

They know, too, that Genasco roofings, roll and shingles, provide an attractive, durable, economical covering for any type of building—home, industrial and farm.

All Genasco Roofings owe their great weather and wear resistance to Trinidad Lake Asphalt Cement, reinforced by tough-fibred asphalt felt.

*Write for Illustrated Folders*

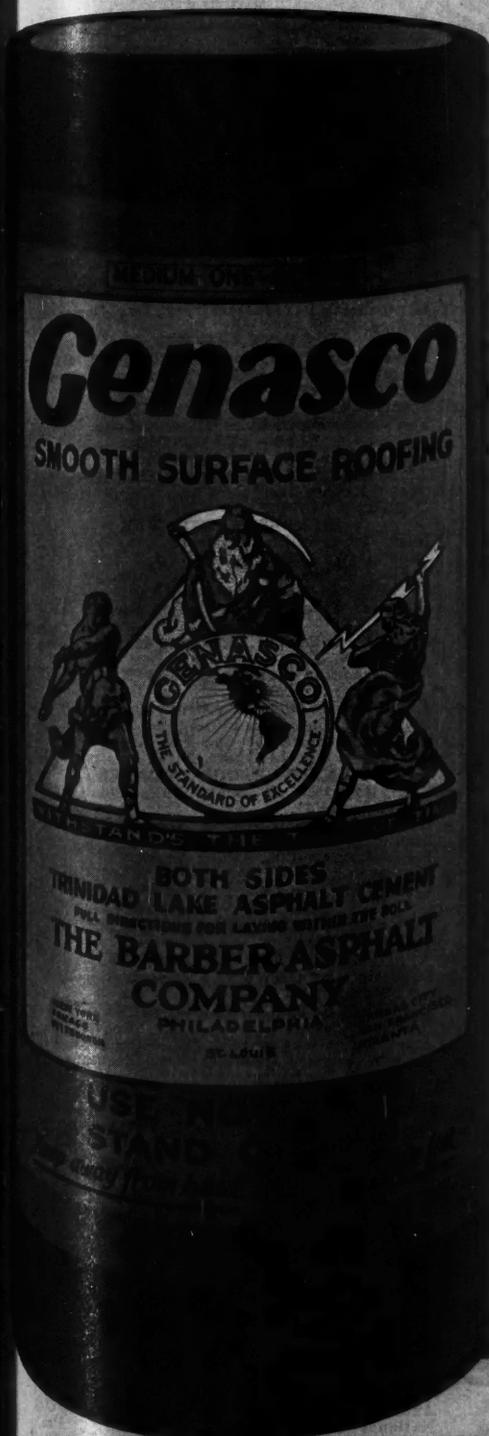
New York  
Chicago  
Pittsburgh

**THE BARBER ASPHALT  
COMPANY**  
PHILADELPHIA

St. Louis  
Kansas City  
San Francisco  
Atlanta

# Genasco

*Asphaltic Roofing, Flooring, Paints and Allied Protective Products*



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

- Henry Dieston & Sons, Philadelphia, Pa. ("Dieston").  
Huther Bros. Saw Mfg. Co., Rochester, N. Y.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
Whisler Mfg. Co., Gibson, Ia.
- ARCHES—CORRUGATED**  
Concrete Engineering Co., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.
- ASBESTOS**  
Spelden-Whitfield Co., 150 Nassau St., New York, N. Y.
- ATTACHMENTS—POLISHING**  
R. E. DeWalt, Bridgeton, N. J.
- AUGERS—BORING MACHINE**  
Forest City Bit & Tool Co., Rockford, Ill.  
James Swan Co., Seymour, Conn.
- AUGERS—HOLLOW**  
James Swan Co., Seymour, Conn.
- AUGERS—POSTHOLE**  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.
- AWLS—BRAD AND SCRATCH**  
Buck Bros. Millbury, Mass.  
Mack Tool Co., Rochester, N. Y.  
Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.
- AWNINGS—COPPER**  
Zouri Drawn Metals Co., Chicago Heights, 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.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- AWNINGS—STEEL AND IRON**  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
Willis Mfg. Co., Galesburg, Ill.
- AXES—BROAD**  
Mack Tool Co., Rochester, N. Y. ("D. R. Barton").  
L. & I. J. White Co., Buffalo, N. Y.
- AXES—HAND**  
Griffith Tool Works, 518 Commerce St., Philadelphia, Pa.  
Mack & Co., Rochester, N. Y. ("D. R. Barton").  
L. A. Sayre Co., Newark, N. J.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B." supersteel).  
L. & I. J. White Co., Buffalo, N. Y.
- BACKFILLERS**  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
Construction Machinery Co., Waterloo, Ia.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").
- BAGS—TOOL**  
John Boyle & Co., 112 Duane St., New York, N. Y.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- BALANCES—SASH**  
Caldwell Mfg. Co., Rochester, N. Y.  
Pullman Mfg. Co., Rochester, N. Y. ("Pullman Unit").
- BALLS—FULLER**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BALLS—TANK**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BANDSAW MACHINERY**  
American Sawmill Machinery Co., Hackettstown, N. J.  
Crescent Machine Co., Leontonia, O. ("Crescent").  
Heston & Anderson, Fairfield, Ia.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
Parks Ball Bearing Machinery Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson boul., Chicago, Ill.  
Silver Mfg. Co., Salem, O.
- BARB—CARPENTERS PEY**  
Stanley Works, New Britain, Conn.
- BARB—REINFORCING**  
Concrete Engineering Co., Omaha, Neb.  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Truscon Steel Co., Detroit, Mich.
- BASE—INSULATING**  
Asbestos Shingle, Slate & Sheathing Corp., Ambler, Pa.
- Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").
- BASE—SANITARY**  
Bostwick Steel Lath Co., Niles, O.  
Everlastbestos Flooring Co., Rochester, N. Y. ("Everlastbestos").  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
F. C. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa.
- BASE—STUCCO**  
Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").
- BASEBOARDS—SLATE**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
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).  
Structural Slate Co., Pen Argyl, Pa.
- BASES—COLUMN**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.  
Pacific Lumber Co. of Illinois, McCormick Bldg., Chicago, Ill.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).
- BASES—KITCHEN**  
Wasnuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").
- BASES—PORCH**  
Pacific Lumber Co. of Illinois, McCormick Bldg., Chicago, Ill.
- BASES—POST**  
International Steel & Iron Co., Evansville, Ind.  
Majestic Co., Huntington, Ind.  
Pacific Lumber Co. of Illinois, McCormick Bldg., Chicago, Ill.  
Slatington Slate Co., Slatington, Pa.
- BATHS—BUILT-IN**  
James B. Clow & Sons, 534 Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BATHS—FOOT**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BATHS—SHOWEE**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BATHS—SITZ**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- BATTENS—METAL**  
Concrete Engineering Co., Omaha, Neb.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Milcor").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.  
Shrauger & Johnson, Atlantic, Ia.  
Willis Mfg. Co., Galesburg, Ill.
- BEADS—CORNER (METAL)**  
Bostwick Steel Lath Co., Niles, O.  
Concrete Engineering Co., Omaha, Neb.  
General Fireproofing Co., Youngstown, O. ("GF").  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Superior").  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago ("Nemco").  
Shrauger & Johnson, Atlantic, Ia.  
Sykes Metal Lath & Roofing Co., Niles, O.  
Truscon Steel Co., Detroit, Mich.  
Victor Parting Bead Co., Reading, Pa.  
Youngstown Pressed Steel Co., Warren, O. ("Parker," "Youngstown").
- BEAMS—STEEL (PRESSED)**  
Central Steel Co., Massillon, O. ("National").  
General Fireproofing Co., Youngstown, O. ("GF").  
International Steel & Iron Co., Evansville, Ind.  
Truscon Steel Co., Detroit, Mich.
- BEDS—DOOR**  
Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill. ("Murphy In-a-Door" recess beds, roller beds, cabinet pivot beds).
- BEDS—DISAPPEARING**  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill. ("White" door beds).
- BEDS—SPACE-SAVING**  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- BENCHES—MANUAL TRAINING**  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
R. E. DeWalt, Bridgeton, N. J.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
- BENCHES—SAW**  
W. F. & Jno. Barnes Co., Rockford, Ill.  
Crescent Machine Co., Leontonia, O.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
- BENDERS—BAR**  
American Cement Machine Co., Keokuk, Ia.  
Kochring Co., Milwaukee, Wis. ("Kochring").  
Ransome Concrete Machinery Co., Dunellen, N. J.  
T. L. Smith Co., Milwaukee, Wis.
- BEVELS**  
Henry Dieston & Sons, Philadelphia, Pa.  
Southington Hardware Co., Southington, Conn.  
Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.
- BINS—GRAIN**  
National Fireproofing Co., Pittsburgh, Pa. ("Nateco" hollow tile).
- BINS—STORAGE**  
Atlas Engineering Co., Milwaukee, Wis.  
Frank E. Bets Co., Hammond, Ind. ("Betsco").  
General Fireproofing Co., Youngstown, O. ("Allsteel").  
Hart & Hutchinson Co., New Britain, Conn.  
National Fireproofing Co., Pittsburgh, Pa. ("Nateco" Hollow Tile).  
Ransome Concrete Machinery Co., Dunellen, N. J.
- BITS—AUGER**  
Forest City Bit & Tool Co., Rockford, Ill.  
Progressive Mfg. Co., Torrington, Conn. ("Foratner").  
Stanley Works, New Britain, Conn.  
The James Swan Co., Seymour, Conn.
- BITS—EXPANSIVE**  
James Swan Co., Seymour, Conn.
- BITS—BASE PULLEY MORTISING**  
Grand Rapids Hardware Co., Grand Rapids, Mich.
- BITS—SCREWDRIVER**  
Buck Bros., Millbury, Mass.  
R. E. DeWalt, Bridgeton, N. J.  
Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.  
Syracuse Twist Drill Co., Syracuse, N. Y.
- BLACKBOARDS**  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.  
Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
F. C. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa.  
The Structural Slate Co., Pen Argyl, Pa.  
The Upson Co., Lockport, N. Y. ("Upson").
- BLADES—FLOOR SCRAPER**  
Henry Dieston & Sons, Philadelphia, Pa. ("Dieston").  
Fox Supply Co., Brooklyn, Wis. ("Fox").  
Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").
- BLINDS—VENETIAN**  
Victor Parting Bead Co., Reading, Pa. ("Victor").
- BLOCK MACHINES—CLAY**  
Republic Iron Works, Tecumseh, Mich. ("Brewer").
- BLOCK MACHINES—CONCRETE**  
American Cement Machine Co., Keokuk, Ia.  
American Router & Mfg. Co., Pittsburgh, Pa.  
Anchor Concrete Machinery Co., Columbus, O.  
Concrete Equipment Co., Holland, Mich. ("Utility").  
Construction Machinery Co., Waterloo, Ia.  
J. B. Foot Foundry Co., Fredericktown, O.  
Helm Brick Machine Co., Cadillac, Mich. ("Helm").  
The Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").  
Lansing Co., Lansing, Mich.  
Pullman Mfg. Co., Rochester, N. Y.  
Republic Iron Works, Tecumseh, Mich. ("Monarch").  
Stewart Mfg. Co., Waterloo, Ia.  
The Willises Works, Rochester, N. Y. ("Hercules").
- BLOCKS—CORE CRIBS**  
Anchor Concrete Machinery Co., Columbus, O.
- BLOCKS—CRESTING**  
Milwaukee Corrugating Co., Milwaukee, Wis.
- BLOCKS—HOLLOW BUILDING**  
Anchor Concrete Machinery Co., Columbus, O.  
National Fireproofing Co., Pittsburgh, Pa. ("Nateco").
- BLOCKS—HOLLOW BUILDING (GYPSUM)**  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill.

# Ankyra Ankor Bolts



AS ADOPTED TO

## Wall Board Construction

The illustrations show cross sections of "ANKYRA" Bolts supporting Bathroom Fixtures on Sheetrock as well as other Wall Board construction. Notice how the wing nuts spread over a large area, distributing the weight thus holding the fixtures securely in place.

The "ANKYRA" Bolts have no equal for PERMANENCY—ECONOMY and GENERAL USEFULNESS in this class of Wall construction.

## HOLDS IN ANY WALL

Glazed or Hollow Tile, Stucco, Concrete, Lath and Plaster, Expanded or Hollow Sheet Metal.

By using "ANKYRA" the location of fixtures do not have to be PREDETERMINED—as they adapt themselves to any finished wall.

They are being specified by our more prominent Architects and are standard equipment with many of our large Contractors.

*Every jobs needs some  
Many can't do without them  
For once you choose them  
You'll always use them*

ASK QUESTIONS

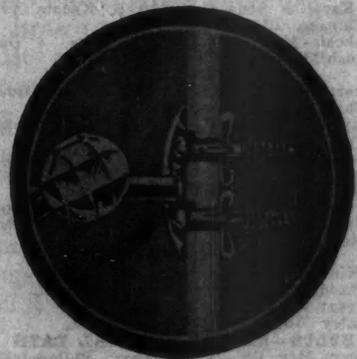
## Ankyra Manufacturing Co.

WAYNE JUNCTION

PHILADELPHIA



These Bath Room  
Fixtures Held Secure  
With ANKOR BOLTS



"WHERE NOTHING ELSE

WILL REALLY WORK"



TRADE MARK

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Buyers Guide continued on page 122

**BLOCKS—SILO**

Anchor Concrete Machinery Co., Columbus, O.  
National Fireproofing Co., Pittsburgh, Pa.  
("Natco").

**BLOCKS AND TACKLE**

Lane Bros. Co., Poughkeepsie, N. Y.  
Ney Mfg. Co., Canton, O. ("Monarch" hoist).  
Richards-Wilcox Mfg. Co., Aurora, Ill.

**BLOCKS—WIRE ROPE**

La Plant-Choate Mfg. Co., Cedar Rapids, Ia.  
Ney Mfg. Co., Canton, O.

**BLUE PRINT MACHINES**

Eugene Dietzgen Co., 166 W. Monroe St.,  
Chicago, Ill.  
Keuffel & Esser Co., Hoboken, N. J.  
C. F. Pease & Co., 831 N. Franklin St.,  
Chicago, Ill.  
Warren-Knight Co., Philadelphia, Pa. ("Sterling").

F. Weber Co., Philadelphia, Pa.  
**BOARDS—DRAIN**  
James B. Clow & Sons, 534 S. Franklin St.,  
Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Ave., Chi-  
cago, Ill.

**BOARDS—DRAWING**

A. S. Aloe Co., St. Louis, Mo.  
Geier & Blumh, Troy, N. Y.  
International Correspondence Schools, Scrant-  
on, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
C. F. Pease & Co., 831 N. Franklin St., Chi-  
cago, Ill.  
F. Weber Co., Philadelphia, Pa.

**BOARDS—SHEATHING**

Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").  
Celotex Co., 111 W. Washington St., Chicago,  
Ill. ("Celotex").  
Cornell Wood Products Co., 190 N. State St.,  
Chicago, Ill.  
The Pacific Lumber Co. of Illinois, 2066  
McCormick Bldg., Chicago, Ill.

**BOARDS—STUCCO**

The Bishopric Mfg. Co., Cincinnati, O.  
Celotex Co., 111 W. Washington St., Chicago,  
Ill. ("Celotex").  
Edwards Mfg. Co., Cincinnati, O.

**BODIES—MOTOR TRUCK (STEEL DUMP)**  
Archer Iron Works, 2438 W. 34th Pl., Chi-  
cago, Ill.

Hercules Corp., Evansville, Ind. ("Her-  
cules" for Fords and Overlands).  
Winther Motor Truck Co., Kenosha, Wis.

**BOILERS—HEATING PLANT**

Andrews Heating Co., Minneapolis, Minn.  
("Andrews").  
James B. Clow & Sons, 534 S. Franklin St.,  
Chicago, Ill.  
The Hardin-Lavin Co., 4522 Cottage Grove  
Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.

**BOILERS—RANGE**

Detroit Range Boiler & Steel Barrel Co.,  
Detroit, Mich. ("Star," "Naco").

**BOILERS—STEAM (INDUSTRIAL)**

B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Osh-  
kosh").

**BOLTS—ANCHOR**

Ackerman-Johnson Co., 625 Jackson Boul.,  
Chicago, Ill.  
Ankya Mfg. Co., Wayne Junc., Philadelphia,  
Pa. ("Ankya").  
International Steel & Iron Co., Evansville,  
Ind.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Savage Expansion Bolt Corp., 9 Desbrosses St.,  
New York, N. Y. ("Savage" pressed  
steel).

**BOLTS—DOOR AND WINDOW**

McKinney Mfg. Co., Pittsburgh, Pa.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, 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., Brooklyn, N. Y.  
International Steel & Iron Co., Evansville,  
Ind.  
Paine Co., 1742 W. Van Buren St., Chicago,  
Ill.

Richards-Wilcox Mfg. Co., Aurora, Ill.  
Savage Expansion Bolt Co., 9 Desbrosses St.,  
New York, N. Y. ("Savage" pressed  
steel).  
U. S. Expansion Bolt Co., 189 Franklin St.,  
New York, N. Y. ("U.S.E.")

**BOLTS—HOLLOW TILE**

Ankya Mfg. Co., Wayne Junc., Philadelphia,  
Pa. ("Ankya").

**BOLTS AND NUTS**

International Steel & Iron Co., Evansville,  
Ind.

**BOLTS—ROOFING**

Ankya Mfg. Co., Wayne Junc., Philadelphia,  
Pa. ("Ankya").

**BOLTS—SIAMESE TWIN**

Savage Expansion Bolt Co., 9 Desbrosses St.,  
New York, N. Y.

**BOLTS—TOGGLE**

Ankya Mfg. Co., Wayne Junc., Philadelphia,  
Pa. ("Ankya").  
International Steel & Iron Co., Evansville,  
Ind.

The Paine Co., 1742 W. Van Buren St.,  
Chicago, Ill. ("Paine").  
Savage Expansion Bolt Co., 9 Desbrosses St.,  
New York, N. Y. ("Savage").  
U. S. Expansion Bolt Co., 189 Franklin St.,  
New York, N. Y. ("U.S.E.")

**BOLTS—WALLBOARD**

Ankya Mfg. Co., Wayne Junc., Philadelphia,  
Pa. ("Ankya").  
Paine Co., 1742 W. Van Buren St., Chicago,  
Ill.

**BOND—CONCRETE**

The Living Stone Co., Baltimore, Md.  
("Living-Stone").

**BOOKS—BUILDING**

American Technical Society, 58 St. & Drexel  
Ave., Chicago, Ill.  
Common Brick Mfrs. Assn., Cleveland, O.  
("Your Next Home").  
Radford Architectural Co., 1827 Prairie Ave.,  
Chicago, Ill. ("Cyclopedia of Construc-  
tion," 12 volumes; "Estimating," "Architectural  
Details," "How to Read Plans," "Homes  
for Everyone," "Homes Plan Sugges-  
tions," "Bungalows for Any Climate,"  
and many other building and plan books.)  
E. W. Stillwell & Co., Los Angeles, Cal.  
(Publishers of books of house plans.)  
Frank E. Walker Co., 536 Lake Shore Drive,  
Chicago, Ill. (Contractors accounting and  
bookkeeping systems, estimating books,  
contractors stationery, estimate sheets,  
etc.)

**BOOTHS—MOVING PICTURE**

Asbestos Shingle, Slate & Sheathing Co.,  
Ambler, Pa. ("Amblar").  
Frank S. Bets Co., Hammond, Ind. ("Bets-  
co" steel).  
Johns-Manville, Inc., Madison and 41st, New  
York, N. Y.

Milwaukee Corrugating Co., Milwaukee, Wis.

**BOBERS—INCREMENT**

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

**BOBERS—TAP**

James Swan Co., Seymour, Conn.

**BOBERS—VERTICAL**

American Sawmill Machinery Co., Hacketts-  
town, N. J.

The Crescent Machine Co., Leetonia, Ohio  
("Crescent").

Sidney Machine Tool Co., Sidney, O.

**BORING MACHINES**

American Sawmill Machinery Co., Hacketts-  
town, N. J.  
Crescent Machine Co., Leetonia, O. ("Cres-  
cent").  
R. E. DeWalt, Bridgeton, N. J.  
Grand Rapids Hardware Co., Grand Rapids,  
Mich. ("Post").  
The Parks Ball Bearing Machine Co., Cin-  
cinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
The James Swan Co., Seymour, Conn.  
J. D. Wallace & Co., 1401 Jackson Boul.,  
Chicago, Ill.  
Witte Engine Works, Kansas City, Mo.  
("Witte Power").

**BOTTOMS—RADIATOR**

Art Stone Co., Waynesboro, Pa. (Art marble).  
B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.  
Structural Slate Co., Pen Argyl, Pa. (Slate).

**BOWLS—CLOSET**

James B. Clow & Sons, 534 S. Franklin St.,  
Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave.,  
Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.

**BOXES—METER**

Donley Bros. Co., Cleveland, O. ("Donley"  
electric meter box).  
Union Metal Mfg. Co., Canton, O. (Pressed  
steel).  
James B. Clow & Sons, 534 S. Franklin St.,  
Chicago, Ill.

**BOXES—MITER**

E. C. Atkins & Co., Indianapolis, Ind.  
("Atkins").  
Parks Ball Bearing Machine Co., Cincin-  
nati, O.  
Rockford Mtr. Box Co., Rockford, Ill.  
("Rockford Honeycomb").  
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**

Stanley Works, New Britain, Conn.

**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.  
McKinney Mfg. Co., Pittsburgh, Pa.  
Ney Mfg. Co., Canton, O.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**BRACKETS—ROOFING**

Ajax Bracket & Outlet Co., Cleveland Heights,  
O. ("Ajax" folding metal).  
Elite Mfg. Co., Ashland, O. ("Reliable").  
Neville Mfg. Co., Kewanee, Ill. ("Neville")  
Steel Scaffolding Co., Evansville, Ind.  
Wagner Mfg. Co., Cedar Falls, Ia.

**BRACKETS—SCAFFOLD**

Ajax Bracket & Outlet Mfg. Co. Cleveland  
Heights, O. ("Reliable").  
Elite Mfg. Co., Ashland, O. ("Reliable").  
Metal Forms Corp., Milwaukee, Wis. ("Meta-  
form").

Richards-Wilcox Mfg. Co., Aurora, Ill.  
("R-W").  
The Steel Scaffolding Co., Evansville, Ind.  
("Trouble Saver").  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wag-  
ner").

**BRACKETS—SHELF**

McKinney Mfg. Co., Pittsburgh, Pa.

Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.

**BRACKETS—SHINGLING**

Ajax Bracket & Outlet Mfg. Co., Cleveland  
Heights, O. ("Ajax").  
Elite Mfg. Co., Ashland, O.  
Neville Mfg. Co., Kewanee, Ill. ("Neville").  
The Steel Scaffolding Co., Evansville, Ind.  
("Trouble Saver").

**BRACKETS—WALL**

James B. Clow & Sons, 534 S. Franklin St.,  
Chicago, Ill.  
Elite Mfg. Co., Ashland, O.  
Neville Mfg. Co., Kewanee, Ill. ("Neville").  
Union Metal Mfg. Co., Canton, O. ("Union  
Metal" pressed steel).

Wm. F. Wagner, Washington, D. C. ("Com-  
pact" clothes hanger brackets).

**BREAKFAST CABINETS**

Murphy Door Bed Co., 22 W. Monroe St.,  
Chicago, Ill.

**BREAKFAST NOOKS**

Wasmuth-Endicott Co., Andrews, Ind.  
("Kitchen Maid" built-in).

**BRICK—COMMON**

Common Brick Mfrs. Assn., Cleveland, O.  
(Free information service).

**BRICK—CORE**

Armstrong Cork Co., Linoleum Division, Lan-  
caster, Pa.

**BRICK—ENAMELED**

The American Face Brick Assn., Chamber  
of Commerce Bldg., Chicago, Ill.

**BRICK—FACE**

The American Face Brick Assn., Chamber  
of Commerce Bldg., Chicago, Ill.

**BRICK MACHINES—CLAY**

Republic Iron Works, Tecumseh, Mich.  
("Brewer").

**BRICK MACHINES—CEMENT**

Anchor Concrete Machinery Co., Columbus, O.  
Concrete Equipment Co., Holland, Mich.  
("Utility").  
Construction Machinery Co., Waterloo, Ia.  
J. B. Foote Foundry Co., Fredericktown, O.  
Helm Brick Machine Co., Cadillac, Mich.  
("Helm").  
Ideal Concrete Machinery Co., Cincinnati,  
O. ("Ideal").

**BRUSHES—AIR**

DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss  
Spray Painting System").  
Pasache Air Brush Co., 1230 Washington  
Boul., Chicago, Ill.

J. D. Wallace & Co., 1401 Jackson Boul.,  
Chicago, Ill.

F. Weber Co., Philadelphia, Pa.

**BRUSHES—POLISHING**

Frank S. Bets Co., Hammond, Ind.  
S. C. Johnson & Co., Racine, Wis. (Weighted  
brushes for polishing floors).

Wood Mosaic Co., New Albany, Ind. (Floor).

**BUCKETS—CONCRETE HOIST**

American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2440 W. 34th Place,  
Chicago, Ill.  
Metal Forms Corp., Milwaukee, Wis. ("Meta-  
form").

Inley Mfg. Co., Indianapolis, Ind.

Ransome Concrete Machinery Co., Danellen,  
N. J.

**BUCKETS—HOISTING AND DUMPING**  
Archer Iron Works, 2438 W. 34th Place,  
Chicago, Ill.

Inley Mfg. Co., Indianapolis, Ind.

Ransome Concrete Machinery Co., Danellen,  
N. J.

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

**BUILDING—PORTABLE**

Celotex Co., 111 W. Washington St., Chicago,  
Ill. ("Celotex").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville,  
Ind.  
Johns-Manville, Inc., Madison and 41st, New  
York, N. Y.



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- Milwaukee Corrugating Co., Milwaukee, Wis.  
Truscon Steel Co., Detroit, Mich.
- BUILDINGS—STEEL**  
Clinton Bridge Co., Clinton, Ia.  
Edwards Mfg. Co., Cincinnati, O.  
Federal Bridge & Structural Co., Waukesha, Wis.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Truscon Steel Co., Detroit, Mich.
- BURNERS—GARBAGE**  
Frank S. Bets Co., Hammond, Ind.  
The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- BURNERS—RUBBISH**  
Donley Bros. Co., Cleveland, O. ("Donley").  
Majestic Co., Huntington, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.
- BURNISHERS**  
Buck Bros., Millbury, Mass.  
Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
Fox Supply Co., Brooklyn, Wis. ("Fox").
- BUTTS—DOOR**  
Bommer Spring Hinge Co., 263 Clason Ave., Brooklyn, N. Y.  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago," "Triplex").  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- CABINETS—BATHROOM**  
Frank S. Bets Co., Hammond, Ind. ("Betsco").  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Curtis Service Bureau, Clinton, Ia.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill. ("Hess" white enameled).  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
Paine Lumber Co., Oshkosh, Wis.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- CABINETS—FILING**  
A. S. Aloe Co., St. Louis, Mo.  
General Fireproofing Co., Youngstown, O.  
Hart & Hutchinson Co., New Britain, Conn.  
Warren-Knight Co., Philadelphia, Pa.
- CABINETS—KITCHEN**  
Frank S. Bets Co., Hammond, Ind. ("Betsco Kitchunits").  
Curtis Service Bureau, Clinton, Ia.  
Paine Lumber Co., Oshkosh, Wis.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
Wasnuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").
- CABINETS—STORAGE**  
Hart & Hutchinson Co., New Britain, Conn. (Steel key storage).
- CABINETS—WALL TELEPHONE**  
Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill.
- CABLES—COPPER**  
Burkett Lightning Rod Co., Fremont, O.
- CABLES—STEEL**  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.
- CALIPERS**  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
Kenfel & Esser Co., Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.  
Smith & Egge Mfg. Co., Bridgeport, Conn.  
L. S. Starrett Co., Athol, Mass.
- CALCULATING MACHINES**  
Monroe Calculating Machine Co., Woolworth Bldg., New York, N. Y. (A form of equipment that is being extensively used by builders, contractors and architects.)
- CANVAS**  
Wm. L. Barrell Co., 8 Thomas St., New York, N. Y.  
John Boyle & Co., 112 Duane St., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- CAPITALS—COMPOSITION**  
Union Metal Mfg. Co., Canton, O.
- CAPS—CHIMNEY**  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
F. O. Sheldon-Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa.  
Sterling Foundry Co., Sterling, Ill. ("Best").
- CAPS—POST**  
International Steel & Iron Co., Evansville, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Slatington Slate Co., Slatington, Pa.  
Union Metal Mfg. Co., Canton, O. (Pressed steel).
- CAPSTANS—HOUSE MOVING**  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia. ("Invincible").
- CARPETS—CORK**  
Armstrong Cork Co., Linoleum Division, Lancaster, Pa.
- CARRIERS—CLAMP**  
Black Bros. Co., Mendota, Ill. (Hand operated).  
James L. Taylor Mfg. Co., Poughkeepsie, N. Y.
- CARRIERS—FEED**  
Mast, Foss & Co., Springfield, O. ("Buck-eye").  
Silver Mfg. Co., Salem, O.
- CARRIERS—HAY**  
F. E. Myers & Bro. Co., Ashland, O. ("Myers," "O. K.," "Sure Lock," "Clover Leaf").  
Ney Mfg. Co., Canton, O. ("Ney").
- CARRIERS—LITTER**  
Mast, Foss & Co., Springfield, O. ("Buck-eye").  
Ney Mfg. Co., Canton, O. ("Ney").
- CARS—ELEVATOR**  
Fred J. Meyers Mfg. Co., Hamilton, O.  
J. G. Speidel, Reading, Pa.
- CARS—INDUSTRIAL**  
Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Lansing Co., Lansing, Mich.  
Stewart Mfg. Co., Waterloo, Ia.
- CARTS—CONCRETE**  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
Abram Cement Tool Co., Detroit, Mich. ("Abram").  
Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
Gray Iron Foundry Co., Reading, Pa.  
Helm Brick Machine Co., Cadillac, Mich.  
Insley Mfg. Co., Indianapolis, Ind.  
Lansing Co., Lansing, Mich.  
Ransome Concrete Machine Co., Dunellen, N. J.  
Sterling Wheelbarrow Co., Milwaukee, Wis.
- CARTS—DUMP**  
American Cement Machine Co., Keokuk, Ia.  
Insley Mfg. Co., Indianapolis, Ind.  
Lansing Co., Lansing, Mich.
- CARTS—HAND**  
Gray Iron Foundry Co., Reading, Pa.  
Lansing Co., Lansing, Mich.  
Ransome Concrete Machinery Co., Dunellen, N. J.  
Sterling Wheelbarrow Co., Milwaukee, Wis.
- CARTS—LUMBER**  
Lansing Co., Lansing, Mich.
- CARVINGS—WOOD**  
Bertelsen Adjustable Grille Co., 2119 S. Troy St., Chicago, Ill.
- CASES—TOOL**  
Wedell & Boers, Detroit, Mich.
- CASINGS—WINDOW (SHEET METAL)**  
Edwards Mfg. Co., Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Mfg. Co., Cincinnati, O.
- CASINGS—WINDOW (WOOD)**  
Andersen Lumber Co., South Stillwater, Minn. ("Andersen Genuine White Pine").  
Curtis Service Bureau, Clinton, Ia.  
International Steel & Iron Co., Evansville, Ind.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
Pacific Lumber Co. of Illinois, McCormick Bldg., Chicago, Ill.  
Paine Lumber Co., Oshkosh, Wis.  
Shrauger & Johnson, Atlantic, Ia. (Sheet metal).
- CASTINGS TO ORDER**  
Allith-Prouty Co., Danville, Ill. (Malleable iron).  
Gray Iron Foundry Co., Reading, Pa.  
Silver Mfg. Co., Salem, O.  
J. G. Speidel, Reading, Pa. (Gray iron).  
Sterling Foundry Co., Sterling, Ill.  
Union Metal Mfg. Co., Canton, O.  
Willsea Works, Rochester, N. Y. (Gray iron).
- CATCHES—DOOR AND WINDOW**  
Allith-Prouty Co., Danville, Ill.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- CEILINGS—METAL**  
Concrete Engineering Co., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O. ("Perfect Fit").  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Invisible Joint").  
Moeschl-Edwards Mfg. Co., Cincinnati, O.  
Willis Mfg. Co., Galesburg, Ill.
- CEILINGS—SUSPENDED**  
Concrete Engineering Co., Omaha, Neb.  
International Steel & Iron Co., Evansville, Ind.  
U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.  
Youngtown Pressed Steel Co., Warren, O. (Channels).
- CEILINGS—WOOD**  
Curtis Service Bureau, Clinton, Ia.  
Exchange Saw Mills Sales Co., Kansas City, Mo. ("Esco").
- CEMENT—ASPHALT**  
Barber Asphalt Co., Philadelphia, Pa.  
Richardson Co., Melrose Park, Ill. ("Flex-a-Tile").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- CEMENT—BRICKLAYING**  
Carney Cement Co., Mankato, Minn.
- CEMENT—INSULATING**  
Johns-Manville, Inc., 41st and Madison, New York, N. Y. (Refractory, high temperature).
- CEMENT—KEENE'S**  
U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.
- CEMENT—LINEOLEUM**  
Armstrong Cork Co., Lancaster, Pa.
- CEMENT—PORTLAND**  
Atlas Portland Cement Co., 25 Broadway, New York, N. Y. (non-staining).  
Portland Cement Assn., 111 W. Washington St., Chicago, Ill. (A national organization to improve and extend the uses of concrete).  
Sandusky Cement Co., Cleveland, O. ("Medusa").
- CEMENT—PORTLAND (WHITE)**  
Atlas Portland Cement Co., 25 Broadway, New York, N. Y.  
Sandusky Cement Co., Cleveland, O. ("Medusa").
- CEMENT—ROOFING**  
American Magnestone Corp., Springfield, Ill.  
Barber Asphalt Co., Philadelphia, Pa.  
Barrett Co., 40 Rector St., New York, N. Y. (Plastic "Elastigum").  
Philip Carey Co., Cincinnati, O.  
Lehon Co., 44th and Oakley, Chicago, Ill.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Richardson Co., Melrose Park, Ill. ("Flex-a-Tile").  
Knickerbocker Slate Corp., 158 E. 38th St., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- CHAIN—HOISTING**  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.  
J. G. Speidel, Reading, Pa.  
Yale & Towne Mfg. Co., Stamford, Conn.
- CHAINS—SASH**  
Sargent & Co., New Haven, Conn.  
Smith & Egge Mfg. Co., Bridgeport, Conn.
- CHAINS—TRANSOM**  
Sargent & Co., New Haven, Conn.  
Smith & Egge Mfg. Co., Bridgeport, Conn.  
Stanley Works, New Britain, Conn.
- CHANNELS—STEEL**  
Central Steel Co., Massillon, O. ("National").  
Concrete Engineering Co., Omaha, Neb. ("Esco" cold-rolled).  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Monarch Metal Products Co., St. Louis, Mo. ("Monarch").  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Nemco" cold-formed).  
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.  
Pullman Mfg. Co., Rochester, N. Y. ("Pullman").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Yale & Towne Mfg. Co., Stamford, Conn.
- CHESTS—ICE**  
Herrick Refrigerator Co., Waterloo, Ia.  
McCray Refrigerator Co., Kendallville, Ind.
- CHESTS—TOOL**  
Stanley Works, New Britain, Conn.
- CHISELS—CARPENTERS**  
Buck Bros., Millbury, Mass.  
Henry Disston & Sons, Philadelphia, Pa.  
Mack Tool Co., Rochester, N. Y. ("D. E. Barton").  
Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").  
L. & J. White Co., Buffalo, N. Y.
- CHISELS—FLOOR**  
Buck Bros., Millbury, Mass.  
Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
Mack Tool Co., Rochester, N. Y. ("D. E. Barton").  
Stanley Works, New Britain, Conn.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").
- CHISELS—HOLLOW MORTISING**  
Crescent Machine Co., Leontia, O.  
Forest City Bit & Tool Co., Rockford, Ill.  
Mack Tool Co., Rochester, N. Y. ("D. E. Barton").  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

# REMEMBER THE FABLE-



*how the different parts of the human body—the hand, the mouth, the heart—each felt it was the one essential. But when one refused to work they all perished.*

**A**TLAS Portland Cement is a complex product. First the raw stone from which it is made must have exactly the right ingredients. These must then be so proportioned that, coming from the giant crushers in a dust-like powder, they fuse into a perfect chemical and physical union.

Thousands of tons of coal daily are used in this fusing process alone. The tremendous wear of grinding and regrinding Atlas in its various stages makes necessary frequent replacement of costly equipment. The most exacting chemical tests are required at every stage—of raw material, of material in process of manufacture, of finished product.

For over a quarter century Atlas Portland Cement has been tested in every type of construction. That a complex product such as Atlas can be maintained at highest quality is proved by the fact it is today called "the Standard by which all other makes are measured."

## THE ATLAS PORTLAND CEMENT COMPANY

NEW YORK

BIRMINGHAM

CHICAGO

Boston

Philadelphia

St. Louis

Dayton

Des Moines



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

**CHISELS—TURNING**

L. & I. J. White Co., Buffalo, N. Y.  
**CHUTES—COAL**  
 Abram Cement Tool Co., Detroit, Mich.  
 Atlas Engineering Co., Milwaukee, Wis.  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.  
 Donley Bros. Co., Cleveland, O. ("Donley").  
 International Steel & Iron Co., Evansville, Ind.  
 Kewanee Mfg. Co., Kewanee, Ill. ("Kewanee Armor Plate").  
 Lansing Co., Lansing, Mich.  
 Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").  
 Majestic Co., Huntington, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 Sterling Foundry Co., Sterling, Ill. ("Best").  
 Willis Mfg. Co., Galesburg, Ill.

**CHUTES—CONCRETE**

Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
 Atlas Engineering Co., Milwaukee, Wis.  
 Insley Mfg. Co., Indianapolis, Ind.  
 Lansing Co., Lansing, Mich.  
 Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
 Ransome Concrete Machinery Co., Dunellen, N. J.  
 T. L. Smith Co., Milwaukee, Wis.

**CHUTES—FOUNDATION WALL**

Abram Cement Tool Co., Detroit, Mich. ("Abram").  
 Atlas Engineering Co., Milwaukee, Wis.  
 Donley Bros. Co., Cleveland, O. ("Donley").  
 International Steel & Iron Co., Evansville, Ind.  
 Kewanee Mfg. Co., Kewanee, Ill.  
 Majestic Co., Huntington, Ind.  
 Ransome Concrete Machinery Co., Dunellen, N. J.  
 Sterling Foundry Co., Sterling, Ill.  
 Sykes Metal Lath & Roofing Co., Niles, O.  
 Willis Mfg. Co., Galesburg, Ill.

**CLAMPS—BRICK**

Abram Cement Tool Co., Detroit, Mich.  
 Donley Bros. Co., Cleveland, O. ("Donley" carriers).

**CLAMPS—CARPENTERS**

E. C. Atkins & Co., Indianapolis, Ind.  
 Black Bros. Co., Mendota, Ill.  
 Rockford Mitre Box Co., Rockford, Ill. ("Rockford" clamp fixtures).  
 Sargent & Co., New Haven, Conn.  
 L. S. Starrett & Co., Athol, Mass.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**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.  
 Truscon Steel Co., Detroit, Mich.

**CLAMPS—CONCRETE CONSTRUCTION**  
 Detroit Steel Products Co., Detroit, Mich.  
 Insley Mfg. Co., Indianapolis, Ind.  
 Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

**CLAMPS—DOOR**

Black Bros. Co., Mendota, Ill.  
 Sargent & Co., New Haven, Conn.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

**CLAMPS—FORM**

Black Bros. Co., Mendota, Ill.  
 Insley Mfg. Co., Indianapolis, Ind.  
 Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
 Sterling Wheelbarrow Co., Milwaukee, Wis.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

**CLAMPS—FURNITURE MAKING**

Black Bros. Co., Mendota, Ill.  
 Rockford Mitre Box Co., Rockford, Ill.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**CLAMPS—HAY RACK**

Noy Mfg. Co., Canton, O.

**CLAMPS—MEASURING**

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

**CLAMPS—MITRE**

Black Bros. Co., Mendota, Ill.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**CLAMPS—FILING**

Black Bros. Co., Mendota, Ill.

**CLAMPS—ROOFING**

Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.

**CLAMPS—SAW**

E. C. Atkins & Co., Indianapolis, Ind.  
 Crescent Machine Co., Leetonia, O. ("Crescent").  
 Henry Diston & Sons, Philadelphia, Pa. ("Diston").

Parks Ball Bearing Machine Co., Cincinnati, O.

**CLAY—FIRE**

National Fireproofing Co., Pittsburgh, Pa. ("Nateco").

**CLEANERS—CEMENT BAG**

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

**CLEANERS—CLOSET**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**CLIPS—GALVANIZED**

Milwaukee Corrugating Co., Milwaukee, Wis.

**CLIPS—SIDING (METAL)**

International Steel & Iron Co., Evansville, Ind.  
 F. D. Kees Mfg. Co., Beatrice, Neb.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.  
 Truscon Steel Co., Detroit, Mich.

**CLOCKS**

American Clock Co., 1648 Ruffner St., Philadelphia, Pa. (Blue prints, finishing materials, works and instructions how to build grandfather's clocks.)

**CLOSES—DOOR**

Sargent & Co., New Haven, Conn.  
 Wasmuth-Endibott Co., Andrews, Ind. ("Kitchen Maid").

**CLOSES—CHEMICAL**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Robinson Household Mfg. Co., Toledo, O.  
 Superior Churn & Mfg. Co., Northville, Mich.

**CLOSES—WATER**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**CLOTH—TRACING**

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.  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**CLOTH—WIRE**

Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.  
 Fred J. Meyers Mfg. Co., Hamilton, O.

**CLUTCHES—FRICTION**

W. E. Caldwell Co., Louisville, Ky.  
**COAL HANDLING MACHINERY**  
 Atlas Engineering Co., Milwaukee, Wis.

**COATINGS—CEMENT (COLORS)**

Samuel Cabot, Inc., Boston, Mass.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.

**COATINGS—ROOF**

Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Barrett Co., 40 Rector St., New York, N. Y.  
 Philip Carey Co., Cincinnati, O. (Black asphalt paint, magnesia coating, fibre coating).

Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Richardson Co., Melrose Park, Ill. ("Vikal" roofing compound).

Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.

**COLONNADES**

Bertelsen Adjustable Grille Co., 2119 S. Troy St., Chicago, Ill.  
 Curtis Service Bureau, Clinton, Ia.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis.  
**COLORS—MINERAL**  
 Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.

**COLUMNS—METAL**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.

Union Metal Mfg. Co., Canton, O. (Ornamental pressed steel).  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**COLUMNS—WOOD**

Curtis Service Bureau, Clinton, Ia.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
 Pacific Lumber Co. of Illinois, McCormick Bldg., Chicago, Ill.

**COMPOUNDS—ANTI-FREEZE**

Anti-Hydro Waterproofing Co., Newark, N. J. ("Accello," "Anti-Hydro").  
 Frank S. Bets Co., Hammond, Ind. ("Betsco").

**COMPRESSORS—AIR**

DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.  
 Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.  
 T. L. Smith Co., Milwaukee, Wis.  
 Wayne Tank & Pump Co., Fort Wayne, Ind.  
 F. Weber Co., Philadelphia, Pa.

**CONCRETE—ACID-RESISTING**

Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro").

**CONDUITS AND FITTINGS**

General Electric Co., Schenectady, N. Y.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 National Fireproofing Co., Pittsburgh, Pa. ("Nateco").

**CONSTRUCTORS—FIREPROOF**

Concrete Engineering Co., Omaha, Neb.  
 National Fireproofing Co., Pittsburgh, Pa. ("Nateco").

**CONVEYING MACHINERY**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
 Republic Iron Works, Tecumseh, Mich. ("Brewer").  
 Ney Mfg. Co., Canton, O. ("Ney" overhead).  
 T. L. Smith Co., Milwaukee, Wis.

**CONVEYORS—BELT**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
 Republic Iron Works, Tecumseh, Mich. ("Brewer").

**CONVEYORS—CLAMP**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
 Black Bros. Co., Mendota, Ill.  
 James L. Taylor Mfg. Co., Poughkeepsie, N. Y.

**CONVEYORS—PORTABLE**

Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
 Richards-Wilcox Mfg. Co., Aurora, Ill.

**COPINGS—WALL**

National Fireproofing Co., Pittsburgh, Pa. ("Nateco" hollow tile).  
 Sterling Foundry Co., Sterling, Ill.

**COPPER—SHEET AND ROLL**

American Brass Co., Waterbury, Conn. ("Anaconda").  
 Edwards Mfg. Co., Cincinnati, O.  
 C. G. Hussey & Co., Pittsburgh, Pa.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**COPPER—STRIP**

American Brass Co., Waterbury, Conn. ("Economy" strip for valleys, flashings, etc.).  
 C. G. Hussey & Co., Pittsburgh, Pa.

**CORD—AWNING**

John Boyle & Co., 112 Duane St., New York.  
 Silver Lake Co., Newtonville, Mass. ("Silver Lake").

**CORD—DUMBWATER**

Samson Cordage Works, Boston, Mass. ("Samson Solid Braided").  
 Silver Lake Co., Newtonville, Mass. ("Silver Lake").

**CORD—SASH**

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

**CORD—SHADE**

Samson Cordage Works, Boston, Mass. ("Samson Solid Braided").  
 Silver Lake Co., Newtonville, Mass. ("Silver Lake").

**CORES—CONTRACTIBLE**

Concrete Equipment Co., Holland, Mich.

**CORNICES—METAL**

Concrete Engineering Co., Omaha, Neb. ("Ceco" economy wire).  
 Edwards Mfg. Co., Cincinnati, O.

**CORNERS—BUILDING (METAL)**

Concrete Engineering Co., Omaha, Neb. ("Ceco").  
 Edwards Mfg. Co., Cincinnati, O.  
 F. D. Kees Mfg. Co., Beatrice, Neb.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Shrauger & Johnson, Atlantic, Iowa.

**CORNICES—SHEET METAL**

Willis Mfg. Co., Galesburg, Ill.  
 Concrete Engineering Co., Omaha, Neb.  
 International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 National Sheet Metal Roofing Co., Jersey City, N. J.

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

**COUNTERSINKS**

Buck Bros., Millbury, Mass.  
 Forest City Bit & Tool Co., Rockford, Ill.  
 Mack Tool Co., Rochester, N. Y.  
 L. S. Starrett Co., Athol, Mass.  
 James Swan Co., Seymour, Conn.  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").  
 Syracuse Twist Drill Co., Syracuse, N. Y.

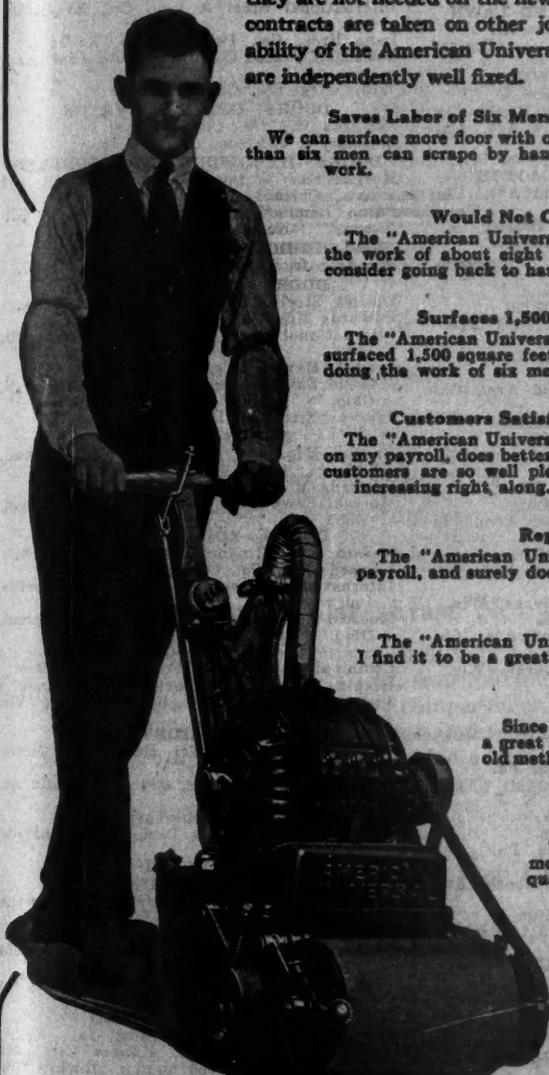
# Be A Floor Surfacing Contractor

## MAKE \$5,000 to \$15,000 OR MORE YEARLY

The American Universal Floor Surfacing Machine is the best money maker the contractor can own. It is practically "fool proof" and can be operated by any man of ordinary ability and do only the best grade of work, for its operation is automatic. When your building is about ready to turn over to the owner, it does the last big job, the floors, when every one is anxious, quickly and perfectly, leaving every one feeling satisfied. One man and one American Universal does the work of six men and does it perfectly.

### Old Floors Made Like New—New Floors Made Perfect

Contractors owning American Floor Surfacing Machines keep them going all the time at big profits on old floors when they are not needed on the new work—this is an excellent source of profits. Often, too, floor surfacing contracts are taken on other jobs. Just read what users say about the labor-saving, money-making ability of the American Universal. Hundreds of others have gone into the floor surfacing business and are independently well fixed.



**Saves Labor of Six Men and Does Better Work**  
We can surface more floor with our "American Universal" machine than six men can scrape by hand, considering the quality of the work.  
Schneider & Hein, Nebr.

**Would Not Go Back to Old Way**  
The "American Universal" is a great labor saver, doing the work of about eight men so naturally I would never consider going back to hand scraping again.  
M. E. Warner, Colo.

**Surfaces 1,500 Square Feet Per Day**  
The "American Universal" does all you claim, for it has surfaced 1,500 square feet of flooring per day for me and is doing the work of six men.  
L. F. Walls, Va.

**Customers Satisfied—Business Increases**  
The "American Universal" has replaced five men at least on my payroll, does better work than before, and so as my customers are so well pleased, I have found my business increasing right along.  
A. G. Thompson, Ark.

**Replaces 10 Men**  
The "American Universal" replaces 10 men on my payroll, and surely does excellent work.  
J. O. Fetter, Pa.

**Saves Six Men**  
The "American Universal" replaces six men on my payroll and I find it to be a great labor saver.  
E. A. Bittner, Pa.

**Afraid to Go Back to Hand Work**  
Since the "American Universal" has proven such a great labor saver, would not dare to go back to the old method of hand scraping.  
C. E. Andrews, Pa.

**Machine Does Better Work Than Hand-Scraping**  
The "American Universal" has replaced five men on my payroll, and I can do a better quality of work with my machine than by hand scraping.  
L. L. Howard, Kans.

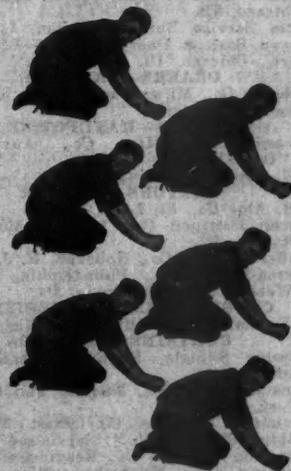
**Quality of Work Only Advertisement Necessary to Secure More Work**  
I want to tell you that the "American Universal" is some labor saver—it replaces at least five men on my payroll, and the quality of work it turns out is all the advertisement I need for my business.  
Hugh A. Cox, Fla.

**Light and Easy to Handle**  
In the first place the "American Universal" machine is light and easy to handle and does lots more work than the other sander of a different make which I have.  
Krofigans & Frank, Mont.

**No Kicks—Replaces Six Men**  
Want to tell you that I've never had a kick about unsatisfactory work from any of my customers ever since I bought the "American Universal" and it replaces six men on my payroll, too.  
A. F. Grow Bros., Nebr.

**Saves 10 Men**  
Your "American Universal" floor surfacing machine is a labor saver. It will do the work of 10 men in much better shape.  
M. B. Battien, S. D.

**1 Man with an American Universal—BIG PROFIT.**  
**Six Men Surfacing by Hand—SMALL PROFIT.**  
How are you running your business?



**THE AMERICAN FLOOR SURFACING MACHINE COMPANY**  
515 South St. Clair Street      Originators of Floor Surfacing Machines      Toledo, Ohio

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

Gentlemen: Please send me without obligation to me complete information and literature on your proposition. The following information will no doubt assist you in advising me:

- I want to become a Floor Surfacing Contractor.
- I am not now a contractor of any kind, but was in the following business.....
- I am a Building Contractor and want to use it on my own contracts.

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

**COVERINGS—BOILER AND PIPE**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

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

**COVERINGS—COLUMN AND GIRDER**  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**COVERINGS—FLOOR**  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").  
Albert Piek & Co., 208 W. Randolph St., Chicago.

**COVERINGS—PORCH**  
Wm. L. Barrell Co., 8 Thomas St., New York, N. Y. (Canvas).

**COVERINGS—WATERPROOF**  
Barber Asphalt Co., Philadelphia, Pa.  
General Fireproofing Co., Youngstown, O. ("GF").

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

**COVERS—CISTERN**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Leavitt Mfg. Co., Urbana, Ill. ("Safety").  
Majestic Co., Huntington, Ind.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Sterling Foundry Co., Sterling, Ill. ("Best").

**COVERS—COALHOLE**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

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

Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Willcox Works, Rochester, N. Y.

**COVERS—MANHOLE**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley" manhole covers and rings).

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.

Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Sterling Foundry Co., Sterling, Ill.  
Willcox Works, Rochester, N. Y.

**COVERS—RADIATOR**  
Frank S. Betz Co., Hammond, Ind. ("De Luxe").

James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan" wood).

**CRANES—GASOLINE**  
Koehring Co., Milwaukee, Wis. ("Koehring" cranes excavator).

**CRANES—HANDPOWER**  
Richard-Wilcox Mfg. Co., Aurora, Ill. ("Over-R-Way").  
J. G. Spidel, Reading, Pa.

**CRATONS—LUMBER**  
A. S. Aloe Co., St. Louis, Mo.  
Eugene Distagon Co., 106 W. Monroe St., Chicago, Ill.

Keuffel & Esser Co., Hoboken, N. J.  
Warren-Knight Co., Philadelphia, Pa.  
P. Weber Co., Philadelphia, Pa.

**CRUSHERS AND PULVERIZERS**  
T. L. Smith Co., Milwaukee, Wis.

**CURTAINS—ASBESTOS**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.

Johns-Manville, Inc., Madison and 41st, New York, N. Y.

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

Gray Iron Products Co., Reading, Pa.  
Koehring Co., Milwaukee, Wis. ("Koehring").

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

**CUTTERS—BAR**  
Gray Iron Foundry Co., Reading, Pa.  
Koehring Co., Milwaukee, Wis. ("Koehring").

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

**DAMPERS—FIREPLACE**  
Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Hornet Metal Co., St. Louis, Mo.

International Steel & Iron Co., Evansville, Ind.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

Majestic Co., Huntington, Ind.

**DAMP-PROOFING**  
Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro").  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco," "Positive," "Ideal").

Barrett Co., 40 Rector St., New York, N. Y. ("Hydronex," dampproofing paint).

Samuel Cabot, Inc., Boston, Mass.  
Donley Bros. Co., Cleveland, O.  
General Fireproofing Co., Youngstown, O. ("GF").

Johns-Manville, Inc., Madison and 41st, New York, N. Y.

Lehon Co., 44th and Oakley, Chicago, Ill.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

**DEADENERS—SOUND**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco" deadening felts).

Bishopric Mfg. Co., Cincinnati, O.  
Samuel Cabot, Inc., Boston, Mass. ("Cabot's Quilt").

Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").

Johns-Manville, Inc., Madison and 41st, New York, N. Y.

Richardson Co., Melrose Park, Ill. ("Viskote" sanitary sound-deadening and insulating material).

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

**DECORATIONS—GARDEN AND LAWN**  
F. O. Sheldon Slate Co., Granville, N. Y.  
Union Metal Mfg. Co., Canton, O. (Pressed steel).

**DERRICKS—CIRCLE SWING**  
Insley Mfg. Co., Indianapolis, Ind.  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.

Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

Winther Motor Truck Co., Kenosha, Wis.

**DERRICKS—ELECTRIC MOTOR**  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICKS—GASOLINE HOIST**  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICKS—GUY**  
Insley Mfg. Co., Indianapolis, Ind.

**DERRICKS—HANDPOWER**  
Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.

LaPlant-Choate Mfg. Co., Cedar Rapids, Ia. ("LaPlant-Choate").

Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICKS—LUMBERYARD**  
Insley Mfg. Co., Indianapolis, Ind.

Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICKS—STIFFLEG**  
Insley Mfg. Co., Indianapolis, Ind.

Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICKS—TRIPOD**  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

**DERRICK—TRUCK**  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.

Winther Motor Truck Co., Kenosha, Wis.

**DIALS—SUN**  
A. S. Aloe Co., St. Louis, Mo.  
Geier & Blumh, Troy, N. Y.

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

Warren-Knight Co., Philadelphia, Pa.

**DIVIDERS**  
Keuffel & Esser Co., Hoboken, N. J.  
Lufkin Rule Co., Saginaw, Mich.

L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.

**DOORS—BRONZE**  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

**DOORS—CELLAR (METAL)**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Shrauger & Johnson, Atlantic, Ia.

**DOORS—CLEANOUT**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").

Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Hornet Metal Co., St. Louis, Mo.

Leavitt Mfg. Co., Urbana, Ill. ("Leavitt").  
Sterling Foundry Co., Sterling, Ill.

**DOORS—ELEVATOR**  
Edwards Mfg. Co., Cincinnati, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Shrauger & Johnson, Atlantic, Ia.

**DOORS—FIRE**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Johns-Manville, Inc., Madison and 41st, New York, N. Y.

Lane Bros. Co., Poughkeepsie, N. Y.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

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

Willis Mfg. Co., Galesburg, Ill.

**DOORS—FIREPROOF (HOLLOW METAL)**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Richards-Wilcox Mfg. Co., Aurora, Ill.

**DOORS—FIREPROOF (METAL COVERED)**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Lane Bros. Co., Poughkeepsie, N. Y.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Willis Mfg. Co., Galesburg, Ill.

**DOORS—GRAIN ELEVATOR**  
Edwards Mfg. Co., Cincinnati, O.  
Shrauger & Johnson, Atlantic, Ia.

**DOORS—HARDWOOD AND VENEERED**  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis. ("Kl-max," "Korelock," "Miracle").

**DOORS—HOGHOUSE**  
Shrauger & Johnson, Atlantic, Ia. (Iron).

**DOORS—IRON AND STEEL**  
Detroit Steel Products Co., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Truscon Steel Co., Detroit, Mich.

**DOORS—KALAMINE**  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

**DOORS—ROLLING (STEEL)**  
Detroit Steel Products Co., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

**DOORS—SCREEN**  
Combination Door Co., Fond du Lac, Wis.  
Higgin Mfg. Co., Newport, Ky. ("Higgin").  
Victor Parting Bead Co., Reading, Pa. ("Victor").

**DOORS—SIDEWALK**  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").

James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**DOORS—SILO**  
Anchor Concrete Machinery Co., Columbus, Ohio.

Edwards Mfg. Co., Cincinnati, O.  
National Fireproofing Co., Pittsburgh, Pa. ("Nateo").

The Pacific Lumber Co. of Illinois, 2086 McCormick Bldg., Chicago, Ill.

**DOORS—SOFTWOOD**  
Curtis Service Bureau, Clinton, Ia.  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" Weed quality all-white pine panel doors).

Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis.

**DOORS—STORM**  
Combination Door Co., Fond du Lac, Wis.  
Curtis Service Bureau, Clinton, Ia.

Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis.

**DOORS—TINCLAD**  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

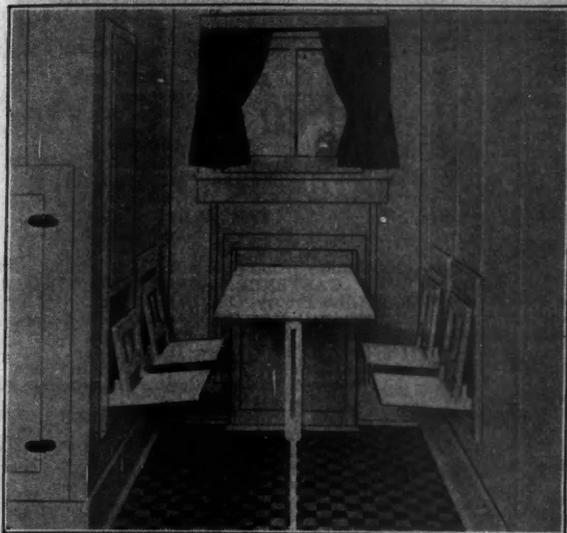
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Richards-Wilcox Mfg. Co., Aurora, Ill.  
Willis Mfg. Co., Galesburg, Ill.

**DRAINERS—CELLAR**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Donley Bros. Co., Cleveland, O.

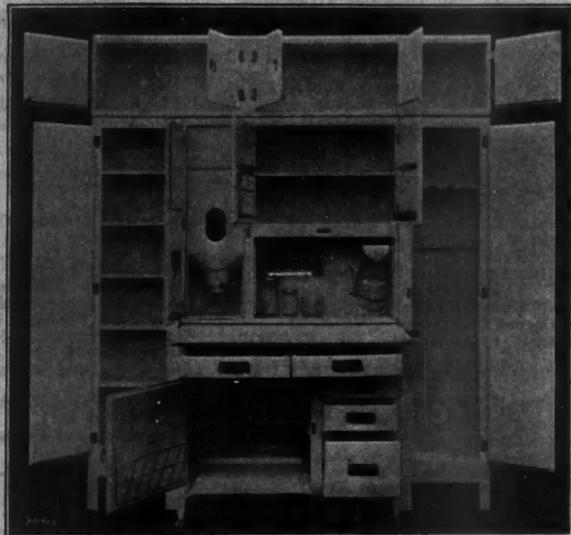
# Make Kitchens More Modern With These Ready-Built Units

Put a good kitchen in a house and whether you're selling or renting, you'll get more for it because you're appealing to the women. The Kitchen Maid units shown below cost no more than ordinary cupboards, but they add a lot to the attractiveness and mean money for you.



**"Disappearing" Breakfast Nook**

Four people can eat in comfort in this cozy kitchen nook—and when breakfast is over, seats fold into wall and table into compact containing compartment. Also used with table and two seats in corner instead of nook. Ironing board unfolds from above one seat. Comes complete in beautiful white enamel. Any carpenter can easily install.



**"Combination 1X" Three-In-One**

Consists of Kitchen Maid cabinet with a generous dish compartment unit and broom closet. All with same beautiful white enamel finish. Compact—74 1-2 inches wide—85 7-8 inches high, maximum extension out from wall, 23 1-4 inches. Also furnished with white undercoat only, to be finished after installation.

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Write for 12-page catalog containing photographic and dimensional illustrations of Kitchen Maid Standard Unit Systems. Besides the above equipment, kitchen tables, cereal warmers, plate warmers and other useful units are shown, which will be appreciated in any apartment or private home which you build.

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 Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.  
 Sterling Foundry Co., Sterling, Ill.
- DEAINE-FLOOR**  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Donley Bros. Co., Cleveland, O. ("Donley").  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Sterling Foundry Co., Sterling, Ill.
- DRIERS-CLOTHES**  
 Eller Mfg. Co., Canton, O.
- DRILLS-BENCH**  
 North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee").  
 Silver Mfg. Co., Salem, O.
- DRILLS-BEAST AND HAND**  
 North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee" automatic push).  
 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.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Portable, electric).
- DRILLS-TWIST**  
 Forest City Bit & Tool Co., Rockford, Ill. (For Wood).  
 Sidney Machine Tool Co., Sidney, O.  
 James Swan Co., Seymour, Conn.  
 Syracuse Twist Drill Co., Syracuse, N. Y.
- DRIP EDGE**  
 Miller & Gleason, Olean, N. Y. (For roofs.)
- 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., Closter, N. J. ("Highwood").  
 International Steel & Iron Co., Evansville, Ind.  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball").  
 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick") Hospital, residence, restaurant.  
 Sidney Elevator Co., Sidney, O.  
 J. G. Speidel, Reading, Pa.  
 The Storm Mfg. Co., Newark, N. J. (Hand and Electric).  
 York Automatic Dumbwaiter Works, York, Pa. (Disappearing floor).
- DUMPS-ASH**  
 Donley Bros. Co., Cleveland, O. ("Donley").  
 Hornet Mantel Co., St. Louis, Mo.  
 International Steel & Iron Co., Evansville, Ind.  
 Majestic Co., Huntington, Ind.  
 Sterling Foundry Co., Sterling, Ill. ("Best").
- EDGERS-DOUBLE**  
 American Saw Mill Machinery Co., Hackensack, N. J.  
 E. O. Atkins & Co., Indianapolis, Ind. ("Atkins").  
 Sidney Machine Tool Co., Sidney, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
- EDGERS-GANGSAW**  
 American Saw Mill Machinery Co., Hackensack, N. J.  
 E. O. Atkins & Co., Indianapolis, Ind. ("Atkins").  
 Henry Disston & Sons, Philadelphia, Pa.  
 Sidney Machine Tool Co., Sidney, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").
- EDGES-STRAIGHT**  
 International Correspondence Schools, Scranton, Pa.  
 Keuffel & Esser Co., Hoboken, N. J.  
 J. Sands & Sons, Detroit, Mich. ("Sands" level straight edges).  
 L. S. Starrett Co., Athol, Mass.  
 Warren-Knight Co., Philadelphia, Pa.  
 Wisler Instrument Co., St. Louis, Mo.
- ELEVATING MACHINERY**  
 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.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Lumber lifts).
- ELEVATORS-BUILDING MATERIAL**  
 American Cement Machine Co., Keokuk, Ia. ("Boss").  
 Archer Iron Works, 2438 W. 34th St., Chicago, Ill.  
 Sasgon Derrick Co., 3101 Grand Ave., Chicago, Ill.  
 Sidney Elevator Mfg. Co., Sidney, O.  
 T. L. Smith Co., Milwaukee, Wis.
- ELEVATORS-FREIGHT**  
 Highwood Dumbwaiter Co., Closter, N. J.  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball"). (Also automobile).  
 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick").  
 Sidney Elevator Mfg. Co., Sidney, O.  
 J. G. Speidel, Reading, Pa.  
 The Storm Mfg. Co., Newark, N. J. (Hand and Electric).
- ELEVATORS-GRAIN-BUILT-IN**  
 Shrauger & Johnson, Atlantic, Ia.
- ELEVATORS-HAND**  
 Highwood Dumbwaiter Co., Closter, N. J.  
 International Steel & Iron Co., Evansville, Ind.  
 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y.  
 J. G. Speidel, Reading, Pa. (Also with attachments for power).
- ELEVATORS-PASSENGER**  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball"). (Also push-out hospital elevators and dumbwaiters).
- ELEVATORS-SIDEWALK**  
 Highwood Dumbwaiter Co., Closter, N. J.  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball").  
 Sedgwick Machine Works, 150 W. 15th St., New York, N. Y. ("Sedgwick"). (Also automobile and invalid elevators).  
 Sidney Elevator Co., Sidney, O. ("Sidney").  
 J. G. Speidel, Reading, Pa.  
 The Storm Mfg. Co., Newark, N. J. (Hand and Electric).
- ENCLOSURES-ELEVATOR**  
 Kimball Bros. Co., Council Bluffs, Ia. ("Kimball").  
 Fred J. Meyers Mfg. Co., Hamilton, O.
- ENGINES-GASOLINE**  
 American Saw Mill Machinery Co., Hackensack, N. J.  
 Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").  
 Construction Machinery Co., Waterloo, Ia.  
 Fuller & Johnson Mfg. Co., Madison, Wis.  
 Gray Iron Foundry Co., Reading, Pa.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Hercules Corp., Evansville, Ind. ("Hercules").  
 Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.  
 New Way Motor Co., Lansing, Mich. ("New Way" air-cooled).  
 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
 Ottawa Mfg. Co., Ottawa, Kan.  
 Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.  
 T. L. Smith Co., Milwaukee, Wis.  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").  
 Witte Engine Works, Kansas City, Mo. ("Witte").  
 Worthington Pump & Machinery Corp., Cudahy, Wis.
- ENGINES-KEROSENE**  
 Fuller & Johnson Mfg. Co., Madison, Wis.  
 Hercules Corp., Evansville, Ind. ("Hercules").  
 Milwaukee Air Power Pump Co., Milwaukee, Wis.  
 New Way Motor Co., Lansing, Mich. ("New Way" air cooled).  
 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
 Ottawa Mfg. Co., Ottawa, Kan.  
 Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.  
 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").  
 Witte Engine Works, Kansas City, Mo. ("Witte").  
 Worthington Pump & Machinery Corp., Cudahy, Wis.
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 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").
- EQUIPMENT-AIR PAINTING**  
 DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
- EQUIPMENT-BARN**  
 Mast, Pecs & Co., Springfield, O. ("Buckeye").  
 Ney Mfg. Co., Canton, O. ("Ney").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Shrauger & Johnson, Atlantic, Ia.  
 Wagner Mfg. Co., Cedar Falls, Ia.
- EQUIPMENT-HOGHOUSE (STEEL)**  
 Concrete Engineering Co., Omaha, Neb.  
 Shrauger & Johnson, Atlantic, Ia.
- EQUIPMENT-HOTEL**  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
 Hart & Hutchinson Co., New Britain, Conn.
- EQUIPMENT-LUNCHEON**  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- EQUIPMENT-POWER PLANT**  
 General Electric Co., Schenectady, N. Y.
- EQUIPMENT-RESTAURANT**  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- EQUIPMENT-SCHOOL ROOM**  
 Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
 Frank S. Bets Co., Hammond, Ind. (Physical examination and first-aid outfits).  
 Keuffel & Esser Co., Hoboken, N. J.  
 Mack & Co., Rochester, N. Y.  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
 Hart & Hutchinson Co., New Britain, Conn.
- EQUIPMENT-SPRAY PAINTING**  
 DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
 Passche Air Brush Co., 1230 Washington Boul., Chicago, Ill.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
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 Construction Machinery Co., Waterloo, Ia.  
 Koehring Co., Milwaukee, Wis. ("Koehring" crane excavator).  
 T. L. Smith Co., Milwaukee, Wis.
- EXTINGUISHERS-FIRE**  
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 Johns-Manville, Inc., Madison and 41st, New York, N. Y.
- FACING-CONCRETE**  
 Art Stone Co., Waynesboro, Pa.  
 Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.
- FANS-ELECTRIC**  
 General Electric Co., Schenectady, N. Y.
- FANS-VENTILATING**  
 General Electric Co., Schenectady, N. Y.
- FASTENERS-BLIND**  
 Mallory Mfg. Co., Flemington, N. J.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.
- FASTENERS-CASEMENT WINDOW**  
 Allith-Prouty Co., Danville, Ill. ("Allith").  
 Caldwell Mfg. Co., Rochester, N. Y.  
 Mallory Mfg. Co., Flemington, N. J.  
 Sargent & Co., New Haven, Conn.  
 The Stanley Works, New Britain, Conn.  
 Whitney Window Corp., Minneapolis, Minn. ("Whitney").
- FASTENERS-SCREEN**  
 Allith-Prouty Co., Danville, Ill. ("Allith").  
 Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
 F. D. Kees Mfg. Co., Beatrice, Neb.  
 National Mfg. Co., Sterling, Ill.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.
- FASTENERS-STORM SASH**  
 Allith-Prouty Co., Danville, Ill. ("Allith").  
 F. D. Kees Mfg. Co., Beatrice, Neb.  
 National Mfg. Co., Sterling, Ill.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.
- FASTENERS-WALLBOARD**  
 The Upon Co., Lockport, N. Y. ("Upon" self-clinching).
- FELTS-ASPHALT**  
 Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Barrett Co., 40 Rector St., New York, N. Y.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Ruberoid Co., 95 Madison Ave., New York, N. Y.
- FELTS-DEADENING**  
 Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Barrett Co., 40 Rector St., New York, N. Y.  
 Samuel Cabot, Inc., Boston, Mass.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FELT-INSULATING**  
 Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Black Shield," "Barrett Black Knight").  
 Samuel Cabot, Inc., Boston, Mass.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FELTS-SATURATED ASPHALT**  
 Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.
- FENCE POST MACHINES-CEMENT**  
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 Concrete Equipment Co., Holland, Mich.  
 Holm Brick Machine Co., Cadillac, Mich.  
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Manufacturers of Higgin All-Metal Weatherstrips and Higgin All-Metal Screens

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Fred J. Meyers Mfg. Co., Hamilton, O.
- FENCES—LATTICE**  
Edwards Mfg. Co., Cincinnati, O.
- FENCES—WOVEN WIRE**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.  
Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.
- FILES AND RASPS**  
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Henry Diaston & Sons, Philadelphia, Pa. ("Diaston").
- FILLERS—TRENCH**  
Construction Machinery Co., Waterloo, Ia.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").
- FILLERS—WOOD**  
S. O. Johnson & Son, Racine, Wis. (Johnson's Paste Wood Filler).
- FILLETS—STEEL RAIL**  
Paine Lumber Co., Oshkosh, Wis.
- FINISH—FLOOR**  
Anti-Hydro Waterproofing Co., 89 Cortlandt St., New York, N. Y. ("Anti-Hydro").  
S. O. Johnson & Son, Racine, Wis. ("Johnson's").
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S. O. Johnson & Son, Racine, Wis. ("Johnson's Permacote").  
Simmons, Gardner Co., Boston, Mass. ("Craftex," "Lacquerize," "Craftcoat" interior wall finish).
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International Steel & Iron Co., Evansville, Ind.
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Hornet Mantel Co., St. Louis, Mo.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
Strait & Richards, Newark, N. J. (Gas and electric).
- FIREPROOFING—GYPSUM TILE**  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill.
- FIREPROOFING—HOLLOW TILE**  
National Fireproofing Co., Pittsburgh, Pa. ("Natco").
- FIXTURES—BANK**  
Fred J. Meyers Mfg. Co., Hamilton, O.
- FIXTURES—BATHROOM**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
Frank S. Bets Co., Hammond, Ind.  
Gray Iron Foundry Co., Reading, Pa.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.
- FIXTURES—ELEVATOR**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("Ideal," "R-W").  
J. G. Speidel, Reading, Pa.
- FIXTURES—GARDEN**  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).  
Victor Parting Bead Co., Reading, Pa.
- FIXTURES—LIGHTING**  
Eric Fixture & Supply Co., Erie, Pa. (Wired).  
General Electric Co., Schenectady, N. Y.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
Edward N. Riddle Co., Toledo, O.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).
- FIXTURES—PLUMBING**  
Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
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., 1st Nat. Bank Bldg., Chicago, Ill.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Noy Mfg. Co., Canton, O. ("Noy").
- FIXTURES—STORE**  
Detroit Show Case Co., Detroit, Mich.  
F. H. Myers & Bro. Co., Ashland, O. ("Myers").
- FIXTURES—WARDROBE**  
Lawson Mfg. Co., 230 W. Superior St., Chicago, Ill. ("Bitway").
- FLOORING—CANVAS**  
Wm. L. Barrall Co., 8 Thomas St., New York, N. Y.  
John Boyle & Co., 112 Duane St., New York, N. Y. ("Bayonne" roof and deck cloth).
- Lehon Co., 44th and Oakley, Chicago, Ill.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FLOORING—COMPOSITION**  
American Magnestone Corp., Springfield, Ill.  
Art Stone Co., Waynesboro, Pa.  
Philip Carey Co., Cincinnati, O.  
Everlastbestos Flooring Co., Rochester, N. Y. ("Everlastbestos").  
Flint Rock Corp., Incomar, O.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
Franklyn R. Muller Co., Waukegan, Ill. ("Asbestone").  
National Kellastone Co., 155 E. Superior St., Chicago, Ill. ("Kellastone").  
The Robbond Co., Van Wert, O. ("Robbond").  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.  
Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.
- FLOORING—FACTORY**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco" mastic).  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.
- FLOORING—FIREPROOF**  
Central Steel Co., Massillon, O.  
Concrete Engineering Co., Omaha, Neb.  
International Steel & Iron Co., Evansville, Ind.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
National Fireproofing Co., Pittsburgh, Pa. ("Natco").
- FLOORING—HARDWOOD**  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" trade-marked oak flooring).
- FLOORING—HOLLOW TILE**  
National Fireproofing Co., Pittsburgh, Pa. ("Natco").
- FLOORING—LINOLEUM**  
Armstrong Cork Co., Linoleum Division, Lancaster, Pa.
- FLOORING—PARQUETRY**  
Oak Flooring Advertising Bureau, 1088 Ashland Block, Chicago, Ill. (Oak).  
Wood-Mosaic Co., New Albany, Ind. ("Wood Mosaic").
- FLOORING—SANITARY**  
American Magnestone Corp., Springfield, Ill.  
Art Stone Co., Waynesboro, Pa.  
Everlastbestos Flooring Co., Rochester, N. Y. ("Everlastbestos").  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
The Structural Slate Co., Pen Argyl, Pa.
- FLOORING—SUB-FLOOR**  
Bishopric Mfg. Co., Cincinnati, O. ("Bishopric").
- FLOORING—WOOD**  
Curtis Service Bureau, Clinton, Ia.  
Exchange Sawmills Sales Co., Kansas City, Mo. ("Esco" all-heart premium brand Southern pine flooring).  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" yellow pine).  
Oak Flooring Advertising Bureau, 1088 Ashland Block, Chicago, Ill. (Oak).  
Wood-Mosaic Co., New Albany, Ind.
- FLOORING—WOOD BLOCK**  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" crossoted wood blocks).  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FORMS—BAY**  
Ney Mfg. Co., Canton, O. ("Ney").
- FORMS—COLUMN**  
Concrete Engineering Co., Omaha, Neb. (Round, for forming reinforced concrete columns).  
Metal Forms Corp., Milwaukee, Wis. ("Metaform").
- FORMS—CONCRETE CONSTRUCTION**  
Concrete Engineering Co., Omaha, Neb.  
Concrete Equipment Co., Holland, Mich.  
Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
Ransome Concrete Machinery Co., Dunellen, N. J.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FORMS—CURB AND SIDEWALK**  
Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
Ransome Concrete Machinery Co., Dunellen, N. J.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- FORMS—SEWER MANHOLE**  
Concrete Equipment Co., Holland, Mich.  
Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
Truscon Steel Co., Detroit, Mich.
- FORMS—WALL**  
Metal Forms Corp., Milwaukee, Wis. ("Metaform").  
Universal Cement Mold Co., North Milwaukee, Wis. (Metal forms for concrete walls).
- FOUNTAINS—BUBBLING**  
Frank S. Bets Co., Hammond, Ind.  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Shrauger & Johnson, Atlantic, Ia.  
Union Metal Mfg. Co., Canton, O. ("Union Metal" steel).
- FRAMES—BARN**  
Andersen Lumber Co., South Stillwater, Minn.
- FRAMES—BLUEPRINT**  
Keuffel & Esser Co., Hoboken, N. J.
- FRAMES—BUILDING**  
Andersen Lumber Co., South Stillwater, Minn.  
Central Steel Co., Massillon, O.
- FRAMES—CELLAR SASH**  
Andersen Lumber Co., South Stillwater, Minn.  
Curtis Service Bureau, Clinton, Ia.  
International Steel & Iron Co., Evansville, Ind.
- FRAMES—DOOR**  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Victor Parting Bead Co., Reading, Pa.  
Willis Mfg. Co., Galesburg, Ill. (Metal).
- FRAMES—SASH**  
Andersen Lumber Co., South Stillwater, Minn.  
Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Victor Parting Bead Co., Reading, Pa.
- FRAMES—WINDOW**  
Andersen Lumber Co., South Stillwater, Minn.  
Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Victor Parting Bead Co., Reading, Pa.  
Whitney Window Corp., Minneapolis, Minn. ("Whitney").
- FRONTS—STORE**  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill. (Metal and copper).  
The J. W. Coulson & Co., Columbus, O. ("Coulson Patent Store Front Construction").  
Detroit Show Case Co., Detroit, Mich. ("Desco").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Kawneer Co., Niles, Mich. ("Kawneer" all-metal store front construction).  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Zouri Drawn Metals Co., Chicago Heights, Ill. ("Zouri") (Copper).
- FURNISHINGS—APARTMENT HOTEL**  
Frank S. Bets Co., Hammond, Ind.  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
Wasmuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").
- FURNISHINGS—FIREPLACE**  
Hornet Mantel Co., St. Louis, Mo.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.  
Fred J. Meyers Mfg. Co., Hamilton, O.
- 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—DRAFTING ROOM**  
C. F. Pease & Co., 331 N. Franklin St., Chicago, Ill.
- FURNITURE—GARDEN**  
Fred J. Meyers Mfg. Co., Hamilton, O. (Wire and iron).
- FURNITURE—HOSPITAL (STEEL)**  
Frank S. Bets Co., Hammond, Ind.
- FURRING—WALL**  
Concrete Engineering Co., Omaha, Neb.  
General Fireproofing Co., Youngstown, O. ("GF").  
National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
Truscon Steel Co., Detroit, Mich.  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. (Gypsum block).
- GARAGES—PUBLIC AND PRIVATE**  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

# Build a Roof as Lasting as the Foundation



Send for Our Dealer Proposition

Chicago, Ill.  
Beckman-Dawson Roofing Company  
19 S. La Salle Street, Dept. No. B-26

Detroit, Mich.  
Peck Asphalt Shingle Co.  
125 W. Jefferson Ave., Dept. No. B-28

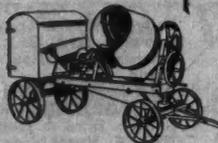
Brantford, Ont., Canada  
Brantford Roofing Co., Ltd., Dept. No. B-26

Lockport, New York  
Lockport Paper Co., Dept. No. B-26

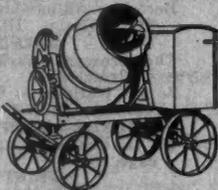
Windsor, Ont., Canada  
Canadian Roofing Mfg. Co., Limited,  
Dept. No. B-26

# Winthrop Tapered Asphalt Shingles

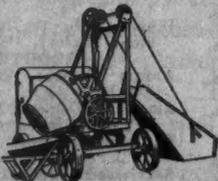
# Kwik-Mix



**Kwik-Mix No. 22**  
Capacity 4 1/4 cu. ft. Complete with Builder's Hoist. This model is also furnished in the 5 1/2 cu. ft. size and can be had on trucks, without engine.



**Kwik-Mix No. 30**  
Capacity 5 1/4 cu. ft. Equipped with Builder's Hoist. Comes also in 4 1/2 and 3 1/2 ft. sizes. Can be had on trucks, without engine.



**Kwik-Mix No. 33**  
Capacity 5 1/4 cu. ft. Also furnished in 4 1/2 cu. ft. size. Shipped complete with Engine and Housing with Trucks and Loader, all ready to run.

## A Mighty Mixer of Small Size That Does a Good Day's Work

A great, big mixer isn't always the thing by a long shot. For all the smaller jobs, for detail work on larger work, often on bigger jobs, too,—a Kwik-Mix will prove much more economical, faster and easier to handle than a big mixer.

# Kwik-Mix CONCRETE MIXER

is so speedy that it will keep a good-sized crew on the run to keep up with it. It has every modern improvement. And many of them like the Special Gilson Clutch, are not found in other mixers at all.

The Kwik-Mix is so simply and sturdily made as to astonish experienced mixer men by its performance. It doesn't tie up a lot of your capital and it saves your time because it can be so quickly moved from job to job. Before you buy, Get The Real Facts—Send For Our Valuable Kwik-Mix Booklet giving you full and complete information.

Just fill out and mail the coupon.

Badger Wire & Iron Works,  
1016 Cleveland Ave., Milwaukee, Wis.

Without any obligation to me please mail me your Valuable New Kwik-Mix Booklet.

Name .....

Address .....

City .....

Milwaukee Corrugating Co., Milwaukee, Wis. (Metal).  
Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

**GATES—BIN**

Archer Iron Works, 2488 W. 34th Place, Chicago, Ill.  
Insley Mfg. Co., Indianapolis, Ind.  
Ransome Concrete Machinery Co., Dunellen, N. J.

**GATES—DRIVE**

Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—ELEVATOR**

Highwood Dumbwaiter Co., Closter, N. J.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Sidney Elevator Mfg. Co., Sidney, O.  
J. G. Speidel, Reading, Pa.  
Storm Mfg. Co., Newark, N. J.

**GATES—FOLDING**

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—IRON**

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GATES—WALK**

Fred J. Meyers Mfg. Co., Hamilton, O.

**GAUGES—AUGER BIT**

Stanley Works, New Britain, Conn.  
James Swan Co., Seymour, Conn.  
Syracuse Twist Drill Co., Syracuse, N. Y.

**GAUGES—BUTT**

Stanley Works, New Britain, Conn.

**GAUGES—HATCHET**

L. A. Sayre Co., Newark, N. J.  
Henry Disston & Sons, Philadelphia, Pa. ("Disston").

**GAUGES—SAW**

American Saw Mill Machinery Co., Hacketts-town, N. J.

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

Henry Disston & Sons, Philadelphia, Pa. ("Disston").

Sidney Machine Tool Co., Sidney, O.

J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**GAUGES—SCRATCH**

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

**GAUGES—SHINGLING**

L. A. Sayre Co., Newark, N. J.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

Wagner Mfg. Co., Cedar Falls, Ia.

**GAUGES—STAIR**

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

**GLASS—ART**

Edwards Mfg. Co., Cincinnati, O.

**GLASS—LEADED**

American 3 Way-Luxfer Prism Co., Cicero, Ill.

Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**GLASS—PLATE**

American Window Glass Co., Pittsburgh, Pa.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**GLASS—SHEET PRISM**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer," plain and wired).  
International Steel & Iron Co., Evansville, Ind.

**GLASS—SIDEWALK**

American 3 Way-Luxfer Prism Co., Cicero, Ill. ("LasaLite").

American Window Glass Co., Pittsburgh, Pa.  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**GLASS—WIRE**

Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

**GLASSES—LEVEL**

Henry Disston & Sons, Philadelphia, Pa. ("Disston").

Geler & Blumh, Troy, N. Y. ("G. & B.").  
Kenffel & Esser Co., Hoboken, N. J.  
J. Sand & Sons, Detroit, Mich.  
David White Co., Milwaukee, Wis. ("White's Improved").

Warren-Knight Co., Philadelphia, Pa.  
Wissler Instrument Co., St. Louis, Mo.

**GOUGES—WOOD**

Buck Bros., Millbury, Mass.  
Mack Tool Co., Rochester, N. Y.  
The James Swan Co., Seymour, Conn.  
L. & I. J. White Co., Buffalo, N. Y.

**GRANITE—ARTIFICIAL**

Art Stone Co., Waynesboro, Pa.  
Flint Rock Corp., Ingomar, O. (Stucco dash sand).

Tritschler & Sons, Inc., 320 W. 42d St., New York, N. Y.

**GRANULES—SLATE**

F. C. Sheldon Slate Co., Granville, N. Y.  
Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.

Structural Slate Co., Pen Argyl, Pa.  
Tritschler & Sons, Inc., 320 W. 42d St., New York, N. Y.

**GRATES—FIREPLACE**

Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Hornet Mantel Co., St. Louis, Mo.

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

Strait & Richards, Inc., Newark, N. J.  
Willsea Works, Rochester, N. Y. (Patterns).

**GRATINGS—IRON**

Badger Wire & Iron Works, Milwaukee, Wis.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Sterling Foundry Co., Sterling, Ill. (Foundation).

Willsea Works, Rochester, N. Y. (Patterns).

**GRATINGS—STEEL**

Badger Iron & Wire Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.

Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill. ("Hess" interlocked steel).

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GRATINGS—WIRE**

Badger Wire & Iron Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Willis Mfg. Co., Galesburg, Ill.

**GRILLES—WOOD**

Bertelsen Adjustable Grille Co., 2119 S. Troy St., Chicago, Ill.

**GRINDERS—DISK**

The Crescent Machine Co., Leetonia, Ohio. ("Crescent").

J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Wood).

GRINDERS—STONE FLOOR (ELECTRIC)  
M. L. Schluster, 225 W. Illinois St., Chicago, Ill.

**GRINDERS—TOOL**

American Saw Mill Machinery Co., Hacketts-town, N. J.

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. (Power grindstone shafts). "Samson," "Little Fairy."

**GROUTERS—CEMENT**

Abram Cement Tool Co., Detroit, Mich. ("Abram").

American Cement Machine Co., Keokuk, Ia. ("Boss" for streets and alleys).

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

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

**GUARDS—DOOR**

Allith-Prouty Co., Danville, Ill. ("Allith").  
Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—RADIATOR**

James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—SAFETY**

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

Badger Wire & Iron Works, Milwaukee, Wis.  
The Crescent Machine Co., Leetonia, O.

Edwards Mfg. Co., Cincinnati, O.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**GUARDS—SAW**

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

**GUARDS—SKYLIGHT**

Badger Wire & Iron Works, Milwaukee, Wis.  
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.

**GUARDS—SLATE**

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

**GUARDS—STAIR**

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

**GUARDS—WHEEL**

Fred J. Meyers Mfg. Co., Hamilton, O.  
Donley Bros. Co., Cleveland, O. ("Donley").  
Edwards Mfg. Co., Cincinnati, O.  
Fred J. Meyers Mfg. Co., Hamilton, O.

**GUARDS—WINDOW**

Badger Wire & Iron Works, Milwaukee, Wis.  
Edwards Mfg. Co., Cincinnati, O.

Gilbert & Bennett Mfg. Co., First Nat. Bank Bldg., Chicago, Ill.

Higgin Mfg. Co., Newport, Ky. ("Higgin").  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
Willis Mfg. Co., Galesburg, Ill.

**GUM—ART**

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

**HAMMERS**

Abram Cement Tool Co., Detroit, Mich. ("Abram").

Henry Disston & Sons, Philadelphia, Pa. ("Disston").

Griffith Tool Works, Philadelphia, Pa.  
Stanley Works, New Britain, Conn.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.

**HANGERS—ACCORDION DOOR**

Allith-Prouty Co., Danville, Ill.  
Lane Bros. Co., Poughkeepsie, N. Y.  
McKinney Mfg. Co., Pittsburgh, Pa.

Ney Mfg. Co., Canton, O. ("Ney").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—BARN DOOR**

Allith-Prouty Co., Danville, Ill. ("Reliable").  
Lane Bros. Co., Poughkeepsie, N. Y.  
McKinney Mfg. Co., Pittsburgh, Pa.

F. E. Myers & Bro. Co., Ashland, O. ("Myers," "Sure Grip," "New Way," "Giant," "Faultless," "O. K.").

National Mfg. Co., Sterling, Ill.  
Ney Mfg. Co., Canton, O. ("Ney").  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").

Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia. ("Close-tite").

**HANGERS—EAVES TROUGH**

Concrete Engineering Co., Omaha, Neb.  
Eller Mfg. Co., Canton, O.

Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincinnati, O.

Schrauger & Johnson, Atlantic, Ia.

**HANGERS—ELEVATOR DOOR**

Richards-Wilcox Mfg. Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—GARAGE DOOR**

Allith-Prouty Co., Danville, Ill. ("Ten Eighty").

Lane Bros. Co., Poughkeepsie, N. Y.  
McKinney Mfg. Co., Pittsburgh, Pa.

F. E. Myers & Bro. Co., Ashland, Ohio. ("Myers," "Right Angle," "Simplex").

National Mfg. Co., Sterling, Ill.  
Ney Mfg. Co., Canton, O. ("Ney").  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("Slidette," "R-W").

The Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HANGERS—GARMENT**

Compact Clothes Hanger Bracket Co., Washington, D. C.

Lawson Mfg. Co., 280 W. Superior St., Chicago, Ill. ("Riteway").

**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").

**HANGERS—JOIST**

International Steel & Iron Co., Evansville, Ind.

Lane Bros. Co., Poughkeepsie, N. Y.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Truscoon Steel Co., Detroit, Mich.

**HANGERS—PARTITION (SLIDING)**

Allith-Prouty Co., Danville, Ill.  
Lane Bros. Co., Poughkeepsie, N. Y.

National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.

**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.  
Paine Co., 1742 W. Van Buren St., Chicago, Ill.

U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U. S. E.").

**HANGERS—SCREEN**

Allith-Prouty Co., Danville, Ill.  
Paine Co., 1742 W. Van Buren St., Chicago, Ill.

National Mfg. Co., Sterling, 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").

U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y.



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WHEN you think of a phonograph, a tooth paste, an adding machine—certain names leap instantly into your mind. You have come to know these products by certain well known trade-marks. They have become the guides to certain qualities that are at once associated with these names.

You should know the lumber, timbers, and lumber products manufactured by The Long-Bell Lumber Company. They maintain a reputation for uniform high quality. The Long-Bell trade-mark has become the guide to lumber that is dependable and of uniform high quality.

Ask Your Lumberman for  
Long-Bell Trade-Marked  
Lumber

**The Long-Bell Lumber Company**  
SALON BUILDING KANSAS CITY, MO.

Southern Pine Lumber and Timbers, Creosoted Lumber, Timbers, Posts, Poles, Ties, Piling and Wood Blocks; California White Pine Lumber, Sash and Doors, Standardized Wood-work; Southern Hardwood, Oak Flooring

Know  
the  
Lumber

**Long-Bell**  
Trade-Marked  
**LUMBER**



### NEW WALLS -decorate them With MURALITE

THE increasing desire for soft, velvety, quietly beautiful walls and ceilings is answered by using *Muralite*.

Decorating or redecorating with *Muralite* is simple, easy, and inexpensive. You can finish an entire room for only a dollar or two.

*Muralite* is easy to mix and any one can apply it successfully. It can be used on any surface—plaster, wall board or tightly pasted plain paper. It may be recoated or washed off and the wall done over.

*Muralite* is not affected by the setting of plaster. It may be used on new walls with perfect satisfaction.

*Muralite* is sanitary, odorless, and will not rub or chip off. It is made in white and in fourteen standard colors—from which an endless variety of shades may be obtained by intermixing.

Write for our Color Card and let us tell you more about *MURALITE*—the best wall and ceiling finish made.

**M. EWING FOX COMPANY**  
NEW YORK CHICAGO

A PAIL · A BRUSH · HOT WATER · AND  
**MURALITE**  
MAKES A PERFECT WALL FINISH

- HANGERS—STORM SASH**  
Allith-Prouty Co., Danville, Ill.  
National Mfg. Co., Sterling, Ill.  
The Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine")  
The Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- HARDENERS—CEMENT**  
Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro," "Armortop")  
General Fireproofing Co., Youngstown, O. ("GF")  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")
- HARDENERS—FLOOR**  
Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro," "Armortop")  
General Fireproofing Co., Youngstown, O. ("GF")  
Living-Stone Co., Baltimore, Md. ("Lithotex")  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")
- HARDWARE—CASEMENT WINDOW**  
Allith-Prouty Co., Danville, Ill.  
Andrew Hoffman Mfg. Co., 28 E. Jackson Boul., Chicago, Ill. ("Hoffman Casement Fixtures")  
Casement Hardware Co., 231 Pelouse Bldg., Chicago, Ill.  
Mallory Mfg. Co., Flemington, N. J.  
Monarch Metal Products Co., St. Louis, Mo. ("Monarch")  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("Air-Way")  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Whitney Window Corp., Minneapolis, Minn. ("Whitney")
- HARDWARE—DOOR**  
Allith-Prouty Co., Danville, Ill.  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer")  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Ney Mfg. Co., Canton, O. ("Ney")  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.  
Yale & Towne Mfg. Co., Stamford, Conn.
- HARDWARE—FIREDOOR**  
Allith-Prouty Co., Danville, Ill. ("Allith" "A")  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Lane Bros. Co., Poughkeepsie, N. Y.  
McKinney Mfg. Co., Pittsburgh, Pa.  
Moeschl-Edwards Oorrugating Co., Cincinnati, O.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.  
Willis Mfg. Co., Galesburg, Ill.
- HARDWARE—GARAGE**  
Allith-Prouty Co., Danville, Ill. ("Ten-Eighty")  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Lane Bros. Co., Poughkeepsie, N. Y.  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Ney Mfg. Co., Canton, O. ("Ney")  
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., Brooklyn, N. Y.  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago")  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Lawson Mfg. Co., 228 W. Superior St., Chicago, Ill. ("Lawson")  
Sargent & Co., New Haven, Conn.
- HARDWARE—SCREEN**  
Allith-Prouty Co., Danville, Ill. ("King")  
Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya")  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Higgin Mfg. Co., Newport, Ky. ("Higgin")  
McKinney Mfg. Co., Pittsburgh, Pa.  
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, Philadelphia, Pa.  
L. A. Sayre Co., Newark, N. J.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.
- HATCHETS—SHINGLING**  
Griffith Tool Works, Philadelphia, Pa.  
L. A. Sayre Co., Newark, N. J.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised")  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill.
- HEADS—CUTTER**  
Huther Bros. Saw Mfg. Co., Rochester, N. Y.
- HEADS—DADO**  
E. C. Atkins & Co., Indianapolis, Ind. ("Atkins")  
Crescent Machine Co., Leetonia, O.  
E. E. DeWalt, Bridgeton, N. J.
- Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.
- HEADS—JOINTER**  
The Crescent Machine Co., Leetonia, Ohio. ("Crescent")  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Silver Mfg. Co., Salem, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
Whisler Mfg. Co., Ottumwa, Ia. ("Woodworkers' Friend")  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")
- HEADS—SHAPER**  
The Crescent Machine Co., Leetonia, O.  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")
- HEATERS—GARAGE**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
The Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
National Oil Heater Co., 15 E. Van Buren St., Chicago, Ill. ("Meteor" oil fuel).
- HEATERS—ROOM**  
Fox Furnace Co., Elyria, O.  
National Oil Heater Co., 15 E. Van Buren St., Chicago, Ill. ("Meteor" oil fuel).  
Strait & Richards, Inc., Newark, N. J.  
Zimmerman Stove Heater Corp., Jamaica, N. Y. ("Thrift" house heating range for heating and cooking).
- HEATERS—TANK**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
W. E. Caldwell Co., Louisville, Ky.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
National Oil Heater Co., 15 E. Van Buren St., Chicago, Ill. ("Meteor" oil fuel).
- HEATERS—WATER**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
National Oil Heater Co., 15 E. Van Buren St., Chicago, Ill. ("Meteor" oil fuel).
- HEATING PLANTS—HOT WATER**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- HEATING PLANTS—OIL FUEL**  
Combustion Co., 728 S. Michigan Ave., Chicago, Ill.  
National Oil Heater Co., 15 E. Van Buren St., Chicago, Ill. ("Meteor" oil fuel).
- HEATING PLANTS—PIPELESS FURNACE**  
American Bell & Foundry Co., Northville, Mich.  
Andrews Heating Co., Minneapolis, Minn. ("Boiler Plate")  
Boyer Furnace Works, Waterloo, Ia. ("Boyer")  
Fox Furnace Co., Elyria, O.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hero Furnace Co., Sycamore, Ill.  
Hess Warming & Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill. ("Hess" steel).  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Majestic Co., Huntington, Ind.  
Rybolt Heater Co., Ashland, O. ("Rybolt")
- HEATING PLANTS—STEAM (DIRECT RADIATION)**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- HEATING PLANTS—VAPOUR STEAM**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- HEATING PLANTS—WARM AIR FURNACE**  
American Bell & Foundry Co., Northville, Mich.  
Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
Boyer Furnace Works, Waterloo, Ia. ("Boyer")  
Fox Furnace Co., Elyria, O.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hero Furnace Co., Sycamore, Ill.  
Hess Warming & Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill. ("Hess" steel).  
Holland Furnace Co., Holland, Mich. ("The Holland")  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Majestic Co., Huntington, Ind.  
Rybolt Heater Co., Ashland, O. ("Rybolt")
- HINGES—BLIND AND SHUTTER**  
McKinney Mfg. Co., Pittsburgh, Pa.  
Sargent & Co., New Haven, Conn.
- HINGES—BUTT**  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago," "Triplex")  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
The Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- HINGES—DOOR**  
W. L. Evans, Washington, Ind. ("Evans Vanishing Door")
- HINGES—FLOOR**  
Allith-Prouty Co., Danville, Ill. ("Squaw")  
Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer")  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago," "Relax," "Premier," "Ajax")  
Lawson Mfg. Co., 228 W. Superior St., Chicago, Ill. ("Lawson")  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.
- HINGES—GATE**  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Sagless")  
Lawson Mfg. Co., 228 W. Superior St., Chicago, Ill.  
McKinney Mfg. Co., Pittsburgh, Pa.  
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).  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer")  
Lawson Mfg. Co., 228 W. Superior St., Chicago, Ill. ("Lawson")  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven, Conn.  
The Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- HINGES—SPRING**  
Allith-Prouty Co., Danville, Ill.  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer")  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago," "Relax," "Sagless")  
Lawson Mfg. Co., 228 W. Superior St., Chicago, Ill. ("Lawson")  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.
- HINGES—STRAP AND T**  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
The Stanley Works, New Britain, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- HINGES—SURFACE**  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer")  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
The Stanley Works, New Britain, Conn.
- HOES—MORTAR MIXING**  
Abram Cement Tool Co., Detroit, Mich. ("Abram")
- HOISTS—ASH**  
Insley Mfg. Co., Indianapolis, Ind.
- HOISTS—BARNDOOR**  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Shrauger & Johnson, Atlantic, Ia.
- HOISTS—CELLAR**  
Highwood Dumbwaiter Co., Closter, N. J.  
J. G. Speidel, Reading, Pa.
- HOISTS—CHAIN**  
Allith-Prouty Co., Danville, Ill. ("A-P Wright")  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
J. G. Speidel, Reading, Pa. ("Simpler"), also stationary chain hoists.  
Yale & Towne Mfg. Co., Stamford, Conn.



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**HOISTS—ELECTRIC**  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").

Construction Machinery Co., Waterloo, Ia.  
Highwood Dumbwaiter Co., Closter, N. J.  
Kimball Bros. Co., Council Bluffs, Ia. (Ash).  
Lansing Co., Lansing, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").

Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.  
Sidney Elevator Mfg. Co., Sidney, O.  
Yale & Towne Mfg. Co., Stamford, Conn.  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOISTS—FRICTION**  
American Cement Machine Co., Keokuk, Ia.  
Highwood Dumbwaiter Co., Closter, N. J.  
Lansing Co., Lansing, Mich.  
Republic Iron Works, Tecumseh, Mich. ("Brewer").

**HOISTS—FUEL**  
Highwood Dumbwaiter Co., Closter, N. J.  
Sidney Elevator Mfg. Co., Sidney, O. (hand-power).

**HOISTS—GASOLINE**  
American Cement Machine Co., Keokuk, Ia. ("Boss").  
American Sawmill Machinery Co., Hacketts-town, N. J.

C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.").  
Construction Machinery Co., Waterloo, Ia.  
Jaeger Machine Co., Columbus, O.  
The Knickerbocker Co., Jackson, Mich. ("Knickerbocker").

Lansing Co., Lansing, Mich.  
Oshkosh Mfg. Co., Oshkosh, Wis.  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.  
T. L. Smith Co., Milwaukee, Wis.

**HOISTS—HAND**  
Allith-Prouty Co., Danville, Ill. ("A-P Wright").

Archer Iron Works, 2438 W. 84th Place, Chicago, Ill. (For Motor Trucks).  
Highwood Dumbwaiter Co., Closter, N. J.  
Lane Bros. Co., Poughkeepsie, N. Y.  
Ney Mfg. Co., Canton, O. ("Monarch").

Richards-Wilcox Mfg. Co., Aurora, Ill.  
Saugen Derrick Co., 3101 Grand Ave., Chicago, Ill.  
Sidney Elevator Mfg. Co., Sidney, O.  
J. G. Speidel, Reading, Pa.

Yale & Towne Mfg. Co., Stamford, Conn.  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOISTS—INVALID**  
Highwood Dumbwaiter Co., Closter, N. J.  
International Steel & Iron Co., Evansville, Ind.  
Sidney Elevator Mfg. Co., Sidney, O.

**HOISTS—MAST**  
Inaley Mfg. Co., Indianapolis, Ind.

**HOISTS—ROPE**  
American Sawmill Machinery Co., Hacketts-town, N. J.  
Highwood Dumbwaiter Co., Closter, N. J.  
Lane Bros. Co., Poughkeepsie, N. Y.  
Ney Mfg. Co., Canton, O. ("Ney").

Sidney Elevator Mfg. Co., Sidney, O.  
**HOISTS—STEAM**  
Utility Hoist & Mfg. Co., Milwaukee, Wis.

**HOLDERS—DOOR**  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer").  
Caldwell Mfg. Co., Rochester, N. Y. ("Empire", "Caldwell" vertical, "Caldwell Junior").

McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Richards-Wilcox Mfg. Co., Aurora, 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" sash holders).  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.

**HOOKS—TILE**  
Donley Bros. Co., Cleveland, O. (For handling back-up tile "Donley").

**HOPPER—CONCRETE**  
Archer Iron Works, 2438 W. 84th Place, Chicago, Ill.  
Inaley Mfg. Co., Indianapolis, Ind.  
Ransome Concrete Machinery Co., Dunellen, N. J.

**INKS—DRAWING**  
A. S. Aloe Co., St. Louis, Mo.  
Keuffel & Esser Co., Hoboken, N. J.  
Warren-Knight Co., Philadelphia, Pa.

**INSERTS—CONCRETE**  
Ackerman-Johnson Co., 625 Jackson Boul., Chicago, Ill.  
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., St. Louis, Mo.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
Geier & Bluhm, Troy, N. Y.

Keuffel & Esser Co., Hoboken, N. J.  
O. F. Pease & Co., 331 N. Franklin St., L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").

Wissler Instrument Co., St. Louis, Mo.  
**INSTRUMENTS—ENGINEERING AND SURVEYING**

A. S. Aloe Co., St. Louis, Mo.  
L. Beckman Co., Toledo, O.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

Geier & Bluhm, Troy, N. Y.  
International Correspondence Schools, Scranton, Pa.

Keuffel & Esser Co., Hoboken, N. J.  
O. F. Pease & Co., 331 N. Franklin St., L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").

Wissler Instrument Co., St. Louis, Mo.  
**INSULATING MATERIALS**  
General Electric Co., Schenectady, N. Y.

**INSULATION—COLD STORAGE**  
Asbestor Shingle, Slate & Sheathing Co., Ambler, Pa.

Samuel Cabot, Inc., Boston, Mass.  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex," also house, ceiling, roof, partition insulating).

Cornell Wood Products Co., 190 N. State St., Chicago, Ill.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

Lehon Co., 44th and Oakley, Chicago, Ill.  
**INSULATION—PIPES, BOILERS, ETC.**  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

**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.  
**IRONING BOARDS**  
Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill. (Cabinet).

Wasmuth-Endicott Co., Andrews, Ind. ("Kitchen Maid" built-in).

**IRONS—ANGLE**  
Donley Bros. Co., Cleveland, O.  
International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.  
The Youngstown Pressed Steel Co., Youngstown, O.

**IRONS—CORNER**  
National Mfg. Co., Sterling, Ill.

**IRONS—FLARE**  
Buck Bros., Millbury, Mass.  
Sargent & Co., New Haven, Conn.  
Stanley Works, New Britain, Conn.  
Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B").

L. & I. J. White Co., Buffalo, N. Y.  
**JACKS—HOUSE MOVING**  
LaPlant-Choate Mfg. Co., Cedar Rapids, Ia. ("LaPlant-Choate").

**JACKS—LADDER**  
Neville Mfg. Co., Kewanee, Ill. ("Neville").  
Steel Scaffolding Co., Evansville, Ind.

**JAMES—DOOR**  
International Steel & Iron Co., Evansville, Ind.

**JOINTERS—MASON AND CEMENT WORKERS**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").

**JOINTERS—WOODWORKING**  
The Crescent Machine Co., Leontonia, O. ("Crescent").  
Heston & Anderson, Fairfield, Ia.  
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.

J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
Woodworker Mfg. Co., Detroit, Mich. ("Master").

**JOISTS—CONTRACTION**  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").  
Truscon Steel Co., Detroit, Mich.

**JOISTS—EXPANSION**  
James B. Olow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised") Type B.  
Truscon Steel Co., Detroit, Mich.

**JOISTS—PRESSED STEEL**  
Central Steel Co., Massillon, O. ("National").  
International Steel & Iron Co., Evansville, Ind.

Truscon Steel Co., Detroit, Mich.

**KALSOMINE**  
M. Ewing Fox Co., 136th St. and Rider Ave., New York, N. Y. ("Muralite," "Calcitrine").

**KITCHENETTES**  
Frank S. Betz Co., Hammond, Ind. ("Betzco").  
Albert Pick & Co., 203 W. Randolph St., Chicago, Ill.

Wasmuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").

**KITCHENS—STEEL**  
Frank S. Betz Co., Hammond, Ind. ("Betzco").  
Murphy Door Bed Co., 22 W. Monroe St., Chicago, Ill.

Albert Pick & Co., 203 W. Randolph St., Chicago, Ill.

**KNIVES—DRAW**  
Buck Bros., Millbury, Mass.  
Mack Tool 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").  
Crescent Machine Co., Leontonia, O.  
Henry Disston & Sons, Philadelphia, Pa. ("Disston").

Mack Tool Co., Rochester, N. Y. ("D. R. Barton").  
The Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

L. & I. J. White Co., Buffalo, N. Y.  
Woodworker Mfg. Co., Detroit, Mich. ("Master").

**KNIVES—PLANE**  
E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
The Crescent Machine Co., Leontonia, O. ("Crescent").

Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
Mack Tool Co., Rochester, N. Y. ("D. R. Barton").

The Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

The L. & I. J. White Co., Buffalo, N. Y.  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**KNIVES—WOODWORKING**  
L. & I. J. White Co., Buffalo, N. Y.

**KNOOKERS—DOOR**  
Sargent & Co., New Haven, Conn.

**LADDERS**  
Allith-Prouty Co., Danville, Ill. ("Reliable" rolling store).  
Fred J. Meyers Mfg. Co., Hamilton, O.  
F. E. Myers & Bro. Co., Ashland, O. ("Myers" store ladders).  
Richards-Wilcox Mfg. Co., Aurora, Ill. (Store).

**LAMPS—ELECTRIC**  
General Electric Co., Schenectady, N. Y.  
Edward N. Biddle Co., Toledo, O.

**LATCHES**  
Bommer Spring Hinge Co., Brooklyn, N. Y.  
Allith-Prouty Co., Danville, Ill. ("Alligator", "Drawtite").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Stanley Works, New Britain, Conn.

**LATH—EXPANDED METAL**  
Bestwick Steel Lath Co., Niles, O. ("Bestwick").  
Central Steel Co., Massillon, O. ("Univer sal").

Concrete Engineering Co., Omaha, Neb. ("Coco").  
Edwards Mfg. Co., Cincinnati, O.

General Fireproofing Co., Youngstown, O. ("GF Herringbone").  
International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis. ("Netmesh").  
North Western Expanded Metal Co., 407 B Dearborn St., Chicago, Ill. ("Kno-Burr", "Eureka", "XXth Century", "Corrugated", "Kno-Fur", "Long-Span").

The Sykes Metal Lath & Roofing Co., Niles, Ohio.  
Truscon Steel Co., Detroit, Mich.

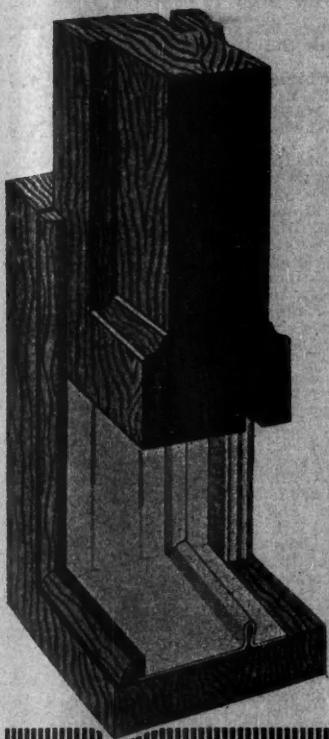
Willis Mfg. Co., Galesburg, Ill.  
Youngstown Pressed Steel Co., Warren, O. ("Mahoning", "Warren", "Ideal").

**LATH—METAL**  
American Sheet & Tin Plate Co., Pittsburgh, Pa. ("Cambridge", "Rigid", "Reversible").  
Bestwick Steel Lath Co., Niles, O. ("Bestwick", "Truss-Loop").

Central Steel Co., Massillon, O. ("National").  
Concrete Engineering Co., Omaha, Neb. ("Coco").

Edwards Mfg. Co., Cincinnati, O.  
General Fireproofing Co., Youngstown, O. ("GF Herringbone").

International Steel & Iron Co., Evansville, Ind.



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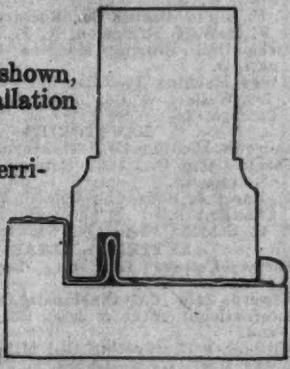
SHOGREN Strips are going big this winter. Wherever shown, their superiority is so apparent that landing the installation job is remarkably easy.

We have not sufficient representation in various good territories. Write to us about it today.

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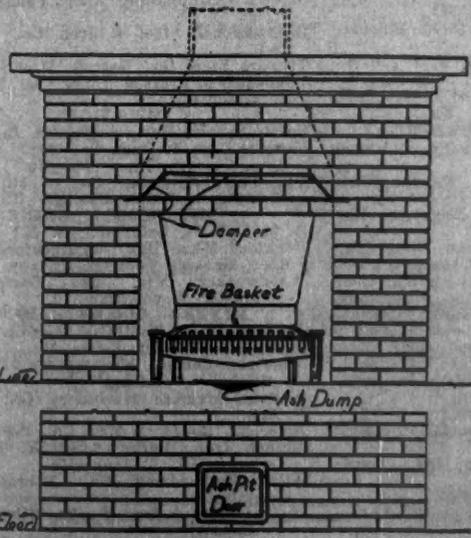
CHICAGO



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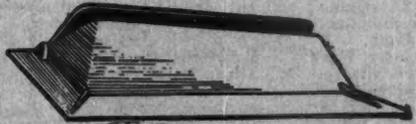
MAKE sure of a clean, warm, smokeless fireplace by standardizing on Donley designs and Donley Fireplace Devices that fit the designs. The addition of the new Donley Fire Basket completes the Donley line. It is interchangeable for coal or wood, beautiful in design and simple enough to harmonize with any general decorative

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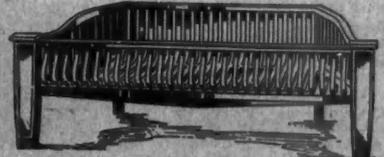
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give a smooth chimney throat and correct draft control.



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burn coal or wood and are shaped for maximum radiation.



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The Sykes Metal Lath & Roofing Co., Niles, O.  
Truscon Steel Co., Detroit, Mich.  
Youngstown Pressed Steel Co., Youngstown, O. ("Mahoning," "Ideal," "Zee").

**LATH-SHEATHING**  
Bishopric Mfg. Co., Cincinnati, O.  
Concrete Engineering Co., Omaha, Neb.  
General Fireproofing Co., Youngstown, O. ("GF Herringbone").  
M. J. MacAdams Corp., 111 W. Washington St., Chicago, Ill. ("E-Cod Fabric").  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Econo").

**LATH-WIRE**  
Edwards Mfg. Co., Cincinnati, O.  
Gilbert & Bennett Mfg. Co., 1st Nat. Bank Bldg., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.  
M. J. MacAdams Corp., 111 W. Washington St., Chicago, Ill. ("E-Cod Fabric").

**LATH-WOOD**  
Exchange Sawmills Sales Co., Kansas City, Mo. ("Esco").  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.

**LATHES-WOODWORKING**  
American Sawmill Machinery Co., Hacketts-town, N. J.  
W. F. & Jno. Barnes Co., Rockford, Ill.  
E. E. DeWalt, Bridgeton, N. J.  
Parks Ball Bearing Machine Co., Cincinnati, O.  
Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**LAVATORIES**  
Andrews Heating Co., Minneapolis, Minn.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
F. C. Sheldon Slate Co., Granville, N. Y.

**LETTERS-METAL**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Willis Mfg. Co., Galesburg, Ill.

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Abram Cement Tool Co., Detroit, Mich. (Builders and Masons.)  
A. S. Aloe Co., St. Louis, Mo.  
L. Beckman Co., Toledo, O.  
Eugene Dietzen Co., 166 W. Monroe St., Chicago, Ill.  
Geier & Blum, Troy, N. Y. ("G. & B.").  
Keuffel & Esser Co., Hoboken, N. J.  
J. Sand & Sons, Detroit, Mich. ("Sands").  
L. S. Starratt Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa. ("Sterling").  
F. Weber Co., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").

**LEVELS-CARPENTERS**  
Wissler Instrument Co., St. Louis, Mo.  
Abram Cement Tool Co., Detroit, Mich.  
Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
Keuffel & Esser Co., Hoboken, N. J.  
J. Sand & Sons, Detroit, Mich. ("Sands"). (Aluminum, straight-edge and mechanics.)  
Southington Hardware Co., Southington, Conn.

Stanley Works, New Britain, Conn.  
L. S. Starratt Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").

**LEVELS-CONVERTIBLE**  
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David White Co., Milwaukee, Wis. ("White's Improved").

**LEVELS-FARM**  
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L. Beckman Co., Toledo, O.  
Geier & Blum, Troy, N. Y.  
Keuffel & Esser Co., Hoboken, N. J.  
L. S. Starratt Co., Athol, Mass.  
David White Co., Milwaukee, Wis. ("White's Improved").

Wissler Instrument Co., St. Louis, Mo.

**LIFTS-LOG**  
Highwood Dumbwaiter Co., Clonster, N. J.

**LIFTS-LUMBER**  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. ("Leitelt").

**LIFTS-SASH**  
Allith-Prouty Co., Danville, Ill.  
McKinney Mfg. Co., Pittsburgh, Pa.  
Sargent & Co., New Haven, Conn. ("Sargent").

**LIFTS-TRANSOM**  
Stanley Works, New Britain, Conn.

**LIGHTING SYSTEMS-ELECTRIC**  
Andrews Heating Co., Minneapolis, Minn.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").  
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. ("Union").  
Witte Engine Works, Kansas City, Mo. ("Power Lite").

**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.

**LIGHTS-SIDEWALK**  
Fred J. Meyers Mfg. Co., Hamilton, O.  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").

**LIGHTS-VAULT**  
Fred J. Meyers Mfg. Co., Hamilton, O.  
American 3 Way-Luxfer Prism Co., Cicero, Ill. ("3 Way-Luxfer").

**LIME-HYDRATED**  
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Fred J. Meyers Mfg. Co., Hamilton, O.

**LIME-HYDRATED**  
Ohio Hydrate & Supply Co., Woodville, O. (Also finishing and masons lime and lime in lump and barrels.)  
United States Gypsum Co., 205 W. Monroe St., Chicago, Ill.

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Abram Cement Tool Co., Detroit, Mich.  
Samson Cordage Works, Boston, Mass. ("Samson").

**LINES-MASONS**  
Silver Lake Co., Newtonville, Mass.  
Abram Cement Tool Co., Detroit, Mich. ("Abram").

**LINOLEUM**  
Samson Cordage Works, 88 Broad St., Boston, Mass. ("Samson").  
Armstrong Cork Co., Lincoln Division, Lancaster, Pa.

**LOADERS-CAR**  
American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2438 W. 84th Place, Chicago, Ill.

**LOADERS-WAGON**  
Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
T. L. Smith Co., Milwaukee, Wis.

**LOCKERS-METAL**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Frank S. Betz Co., Hammond, Ind. ("Betzco").

**LOCKS-DOOR**  
Hart & Hutchinson Co., New Britain, Conn.  
Allith-Prouty Co., Danville, Ill.

**LOCKS-SASH**  
Richardson-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Yale & Towne Mfg. Co., Stamford, Conn.

**LOGS-GAS**  
McKinney Mfg. Co., Pittsburgh, Pa.  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven Conn. ("Sargent").

**LOGS-GAS**  
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Hornet Mantel Co., St. Louis, Mo.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**LUGS-SILO**  
Strait & Richards, Inc., Newark, N. J. (Driftwood gas logs, electric logs, "Gloglogs").  
W. E. Caldwell Co., Louisville, Ky.

**LUMBER MANUFACTURERS**  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").  
Exchange Sawmills Sales Co., Kansas City, Mo. ("Esco").

**LUMBER MANUFACTURERS**  
Great Southern Lumber Co., Bogalusa, La. ("Bogalusa").  
Long-Bell Lumber Co., Kansas City, Mo. ("Southern Pine lumber and timbers, creosoted lumber, timber, posts, poles, ties, piling, wood blocks; California white pine lumber; sash and doors, standardized wood-work; gum and oak lumber, oak flooring).  
Oak Flooring Advertising Bureau, 1088 Ashland Block, Chicago, Ill.

**LUMBER MANUFACTURERS**  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Paine Lumber Co., Oshkosh, Wis.  
Southern Cypress Mfrs. Association, New Orleans, La.

**LUMBER MANUFACTURERS**  
Wood-Mosaic Co., New Albany, Ind. (Hardwood).

**LUMBER-ASBESTOS**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

**LUMBER-ASBESTOS**  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**LUMBER-ASBESTOS**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

**LUMBER-ASBESTOS**  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").

**LUMBER-CREOSOTED**  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" fence posts, poles, piling, timbers).

**LUMBER-STEEL**  
Central Steel Co., Massillon, O. ("National").  
Federal Bridge & Structural Co., Waukesha, Wis.

**LUMBER-STEEL**  
General Fireproofing Co., Youngstown, O. ("GF").  
International Steel & Iron Co., Evansville, Ind.

**LUMBER-STEEL**  
Northwestern Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Presteel").

**MAGNESITE**  
Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.

**MAGNESIUM CHLORIDE**  
Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.

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Grand Rapids Marble & Fireplace Co., Grand Rapids, Mich.  
Chas. F. Lorenzen & Co., 521 W. Monroe St., Chicago, Ill.

**MANTELS-MARBLE**  
Art Stone Co., Waynesboro, Pa.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

**MANTELS-MARBLE**  
Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

**MANTELS-SLATE**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.

**MANTELS-SLATE**  
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Slatington Slate Co., Slatington, Pa.

**MANTELS-TILE**  
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**MANTELS-TILE**  
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Hornet Mantel Co., St. Louis, Mo.  
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**MARBLE-ARTIFICIAL**  
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**MARQUEES**  
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Eller Mfg. Co., Canton, O.

**MARQUEES**  
International Steel & Iron Co., Evansville, Ind.

**MARQUEES**  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Milwaukee Corrugating Co., Milwaukee, Wis. ("Milcor").

**MARQUEES**  
Moeschl-Edwards Corrugating Co., Cincinnati, O.  
Willis Mfg. Co., Galesburg, Ill.

**METAL-EXPANDED**  
Bostwick Steel Lath Co., Niles, O.  
Concrete Engineering Co., Omaha, Neb. ("Ceco").

**METAL-EXPANDED**  
Edwards Mfg. Co., Cincinnati, O.  
General Fireproofing Co., Youngstown, O. ("GF").

**METAL-EXPANDED**  
International Steel & Iron Co., Evansville, Ind.  
Truscon Steel Co., Detroit, Mich.  
Youngstown Pressed Steel Co., Warren, O. ("Youngstown").

**MILLWORK**  
Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 3287 Blue Island Ave., Chicago, Ill. ("Morgan").

**MILLWORK**  
The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.

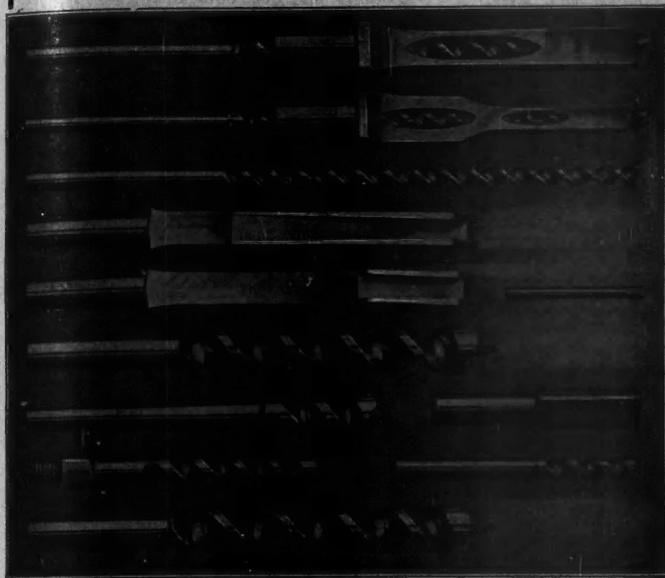
**MITRING MACHINES**  
R. E. DeWalt, Bridgeton, N. J.  
Rockford Mitre Box Co., Rockford, Ill.  
Sidney Machine Tool Co., Sidney, O.

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**MIXERS-CEMENT (BATCH)**  
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A. S. Aloe Co., St. Louis, Mo.  
American Cement Machine Co., Keokuk, Ia. ("Boss," "Bulldog").  
Anchor Concrete Machinery Co., Columbus, Ohio.  
American Router & Mfg. Co., Pittsburgh, Pa.  
Archer Iron Works, 2438 W. 84th Place, Chicago, Ill. ("Archer").  
Atlas Engineering Co., Milwaukee, Wis. ("Atlas").  
Badger Wire & Iron Works, Milwaukee, Wis. ("Atlas").  
Blystone Mfg. Co., Cambridge Springs, Pa. ("Blystone").  
Concrete Equipment Co., Holland, Mich. ("Utility").

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Ohio.  
Frank Mfg. Co., Des Moines, Ia. ("Frank").  
Gray Iron Foundry Co., Reading, Pa. ("Key-  
stone").  
Helm Brick Machine Co., Cadillac, Mich.  
("Helm").  
Ideal Concrete Machinery Co., Cincinnati, O.  
Jaeger Machine Co., Columbus, O.  
Knickerbocker Co., Jackson, Mich. ("Knick-  
erbocker," "Wolverine").  
Kochring Co., Milwaukee, Wis. ("Heavy  
Duty," "Dandie").  
Lansing Co., Lansing, Mich.  
Little Whirlwind Mixer Co., La Crosse, Wis.  
("Little Whirlwind").  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Osh-  
kosh").  
Ransome Concrete Machinery Co., Dunellen,  
N. J. ("Ransome").  
Republic Iron Works, Tecumseh, Mich.  
("Republic").  
T. L. Smith Co., Milwaukee, Wis.  
Sheldon Mfg. Co., Nehawka, Neb.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").  
Universal Cement Mold Co., North Milwaukee,  
Wis.
- MIXERS—CEMENT (CONTINUOUS)**  
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Ideal Concrete Machinery Co., Cincinnati, O.  
Knickerbocker Co., Jackson, Mich. ("Col-  
trin").  
Lansing Co., Lansing, Mich.
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American Cement Machine Co., Kookuk, Ia.  
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American Router & Mfg. Co., Pittsburgh, Pa.  
Archer Iron Works, 2438 W. 34th Place,  
Chicago, Ill.  
Badger Wire & Iron Works, Milwaukee, Wis.  
Blystone Mfg. Co., Cambridge Springs, Pa.  
("Blystone").  
C. H. & E. Mfg. Co., Milwaukee, Wis.  
("O. 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.  
Ideal Concrete Machinery Co., Cincinnati,  
O. ("Ideal").  
Jaeger Machine Co., Columbus, O.  
Knickerbocker Co., Jackson, Mich. ("Knick-  
erbocker").  
Lansing Co., Lansing, Mich.  
Ransome Concrete Machinery Co., Dunellen,  
N. J. ("Ransome," "Bantam").  
Republic Iron Works, Tecumseh, Mich.  
("Republic").  
Sheldon Mfg. Co., Nehawka, Neb.  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").
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terlocking").  
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Concrete Equipment Co., Holland, Mich.  
Flexo-Concrete Mold Co., Cedar Rapids, Ia.  
("Flexo-Crete" wet process).  
Helm Brick Machine Co., Cadillac, Mich.  
Republic Iron Works, Tecumseh, Mich.  
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Willsea Works, Rochester, N. Y. ("Her-  
cules").
- MOLDS—CEMENT BRICK**  
Abram Cement Tool Co., Detroit, Mich.  
("Abram").  
Anchor Concrete Machinery Co., Columbus, O.  
Helm Brick Machine Co., Cadillac, Mich.  
Ideal Concrete Machinery Co., Cincinnati, O.  
("Ideal").
- MOLDS—CEMENT CHIMNEY**  
Abram Cement Tool Co., Detroit, Mich.  
("Abram").  
Anchor Concrete Machinery Co., Columbus, O.  
Concrete Equipment Co., Holland, Mich.  
("Utility").  
Ideal Concrete Machinery Co., Cincinnati,  
O. ("Ideal").  
Stewart Mfg. Co., Waterloo, Ia. ("Stewart").  
Willsea Works, Rochester, N. Y. ("Her-  
cules").
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Concrete Equipment Co., Holland, Mich.  
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W. E. Dunn Mfg. Co., Holland, Mich.  
("Dunn").  
Ideal Concrete Machinery Co., Cincinnati, O.  
("Ideal").
- MOLDS—CEMENT FENCE POST**  
Concrete Equipment Co., Holland, Mich.  
("Utility").  
Helm Brick Machine Co., Cadillac, Mich.  
Ideal Concrete Machinery Co., Cincinnati, O.  
Metal Forms Corp., Milwaukee, Wis. ("Meta-  
form").
- 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").  
Metal Forms Corp., Milwaukee, Wis. ("Meta-  
form").
- MOLDS—CEMENT SILEO**  
Anchor Concrete Machinery Co., Columbus, O.  
W. E. Dunn Mfg. Co., Holland, Mich.  
("Dunn").  
Helm Brick Machine Co., Cadillac, Mich.  
Ideal Concrete Machinery Co., Cincinnati, O.  
Republic Iron Works, Tecumseh, Mich.  
("Monarch").  
Willsea Works, Rochester, N. Y. ("Her-  
cules").
- MOLDS—CEMENT STEP**  
Concrete Equipment Co., Holland, Mich.  
Anchor Concrete Machinery Co., Columbus, O.  
Helm Brick Machine Co., Cadillac, Mich.  
("Helm" adjustable sill, step and cap).  
Ideal Concrete Machinery Co., Cincinnati, O.  
Anchor Concrete Machinery Co., Columbus, O.  
Concrete Equipment Co., Holland, Mich.  
("Utility").  
J. B. Foote Foundry Co., Fredericktown, O.  
Helm Brick Machine Co., Cadillac, Mich.  
Ideal Concrete Machinery Co., Cincinnati, O.  
Willsea Works, Rochester, N. Y. ("Her-  
cules").
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Carney Cement Co., Mankato, Minn.
- MORTISES—DOOR LOCK**  
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Sargent & Co., New Haven, Conn.
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Black Bros. Co., Mendota, Ill.  
Colgan Machinery & Supply Co., Columbus,  
O. ("Champion").  
Crescent Machine Co., Leontia, O. ("Cres-  
cent").  
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Mich. (Sash pulley).  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Osh-  
kosh").  
Parks Ball Bearing Machine Co., Cincin-  
nati, O.  
Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson Boul.,  
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Milwaukee Air Power Pump Co., Milwaukee,  
Wis.  
Rooney Pump & Transmission Co., 42 Mur-  
ray St., New York, N. Y.
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Edwards Mfg. Co., Cincinnati, O.  
Zouri Drawn Metals Co., Chicago Heights, Ill.
- MOULDINGS—BASE (WOOD)**  
Concrete Engineering Co., Omaha, Neb.  
Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 2287 Blue Island  
Ave., Chicago, Ill. ("Morgan").  
Pacific Lumber Co., McCormick Bldg., Chi-  
cago, Ill.  
Paine Lumber Co., Oshkosh, Wis.
- MOULDINGS—COMPOSITION**  
Art Stone Co., Waynesboro, Pa.
- MOULDINGS—METAL**  
Brasco Mfg. Co., 5025 Wabash Ave., Chi-  
cago, Ill. ("Brasco").  
Concrete Engineering Co., Omaha, Neb.  
Detroit Show Case Co., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
("Picture").  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
Zouri Drawn Metals Co., Chicago Heights, Ill.
- MOULDINGS—WOOD**  
Bertelsen Adjustable Grille Co., 2119 S.  
Troy St., Chicago, Ill. (Embossed).  
Curtis Service Bureau, Clinton, Ia.  
Exchange Sawmills Sales Co., Kansas City,  
Mo. ("Esco").  
Morgan Sash & Door Co., 2287 Blue Island  
Ave., Chicago, Ill.  
Pacific Lumber Co. of Illinois, McCormick  
Bldg., Chicago, Ill.  
Paine Lumber Co., Oshkosh, Wis.
- NAILERS—ROOF**  
Pearson Mfg. Co., Robbinsdale, Minn.
- NAILERS—SHINGLE**  
Pearson Mfg. Co., Robbinsdale, Minn.
- NAILING MACHINES**  
Pearson Mfg. Co., Robbinsdale, Minn.
- NAILS—GALVANIZED**  
Bishopric Mfg. Co., Cincinnati, O.  
Edwards Mfg. Co., Cincinnati, O.  
W. H. Mase Co., Peru, Ill.
- NAILS—ROOFING AND SLATING**  
Edwards Mfg. Co., Cincinnati, O.  
Knickerbocker Slate Corp., 153 E. 36th St.,  
New York, N. Y.  
W. H. Mase Co., Peru, Ill.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Slatington Slate Co., Slatington, Pa.  
Taunton-New Bedford Copper Co., 35 Howard  
St., New York, N. Y. ("Eagle" brand  
cut brass nails).
- NAILS—SHINGLE**  
Cree-Dipt Co., North Tonawanda, N. Y.  
("Cree-Dipt" zinc-coated hot-dipped).  
Edwards Mfg. Co., Cincinnati, O.  
W. H. Mase Co., Peru, Ill.  
Servicised Products Co., First Nat. Bank  
Bldg., Chicago, Ill.
- NAILS—ZINC**  
W. H. Mase Co., Peru, Ill. ("Zincal").
- NEWELS—METAL**  
Edwards Mfg. Co., Cincinnati, O.  
Union Metal Mfg. Co., Canton, O. ("Union").
- NEWELS—FORGE (WOOD)**  
Morgan Sash & Door Co., 2287 Blue Island  
Ave., Chicago, Ill.
- NEWELS—STAIR (WOOD)**  
Morgan Sash & Door Co., 2287 Blue Island  
Ave., Chicago, Ill. ("Morgan").
- OPENERS—DOOR (ELECTRIC)**  
Allith-Prouty Co., Danville, Ill. ("Electro-  
matic" for garages).  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
("R.-W.").  
Sargent & Co., New Haven, Conn.
- OPERATORS—BASH**  
Detroit Steel Products Co., Detroit, Mich.  
International Steel & Iron Co., Evansville,  
Ind.
- ORNAMENTS—BRONZE**  
Union Metal Mfg. Co., Canton, O. ("Union").
- ORNAMENTS—COMPOSITION**  
Art Stone Co., Waynesboro, Pa.
- ORNAMENTS—SHEET METAL**  
Concrete Engineering Co., Omaha, Neb.  
Eller Mfg. Co., Canton, O.  
Moeschl-Edwards Mfg. Co., Cincinnati, O.  
Union Metal Mfg. Co., Canton, O. ("Union").
- ORNAMENTS—ZINC**  
Burkett Lightning Rod Co., Fremont, O.
- OUTFITS—BATHROOM**  
Andrews Heating Co., Minneapolis, Minn.  
James B. Olow & Sons, 534 S. Franklin St.,  
Chicago, Ill.  
Hardin-Lavin Co., 4523 Cottage Grove Ave.,  
Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.
- OUTLETS—HAVES TROUGH**  
Concrete Engineering Co., Omaha, Neb.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Moeschl-Edwards Corrugating Co., Cincin-  
nati, O.  
Willis Mfg. Co., Galesburg, Ill.
- PAINTS**  
Barber Asphalt Co., Philadelphia, Pa. ("Gen-  
asco" protective).  
Barrett Co., 40 Rector St., New York, N. Y.  
("Hydronen" damp-proofing paints;  
"Everjet" elastic paint for metal and  
wood).  
M. Ewing Fox Co., 186th and Rider, New  
York, N. Y. ("Permanite" cold water).  
S. O. Johnson & Son, Racine, Wis. ("John-  
son's Permacote," "Perfectone," "Un-  
dercoat").  
Ruberoid Co., 95 Madison Ave., New York,  
N. Y.  
Sandusky Cement Co., Cleveland, O. ("Me-  
dusa" cement paints).  
Servicised Products Co., First National Bank  
Bldg., Chicago, Ill. ("Servicised").
- PAINT SPRAYING MACHINES**  
DeVillbias Mfg. Co., Toledo, O. ("DeVillbias  
Spray Painting System").  
M. Ewing Fox Co., 186th and Rider, New  
York, N. Y.  
Pasche Air Brush Co., 1919 Diversay Park-  
way, Chicago, Ill. ("Pasche" Superior  
Portable Painting Equipment).
- PANTOGRAPHES**  
F. Weber Co., Philadelphia, Pa.
- PAPER—ASBESTOS**  
Asbestos Shingle, Slate & Sheathing Co.,  
Ambler, Pa.  
Hardin-Lavin Co., 4523 Cottage Grove Ave.,  
Chicago, Ill.  
Johns-Manville, Inc., Madison and 41st, New  
York, N. Y.  
B. Karol & Sons Co., 800 S. Kedzie Ave.,  
Chicago, Ill.
- PAPER—BLUE PRINT**  
A. S. Aloe Co., St. Louis, Mo.  
Eugene Dietgen Co., 166 W. Monroe St.,  
Chicago, Ill.  
International Correspondence Schools, Scrat-  
ton, Pa.  
Kuffel & Esser Co., Hoboken, N. J.  
O. F. Pease & Co., 351 N. Franklin St., Chi-  
cago, Ill.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.
- PAPER—BUILDING**  
Asbestos Shingle, Slate & Sheathing Co.,  
Ambler, Pa.  
Barber Asphalt Co., Philadelphia, Pa. ("Gen-  
asco").

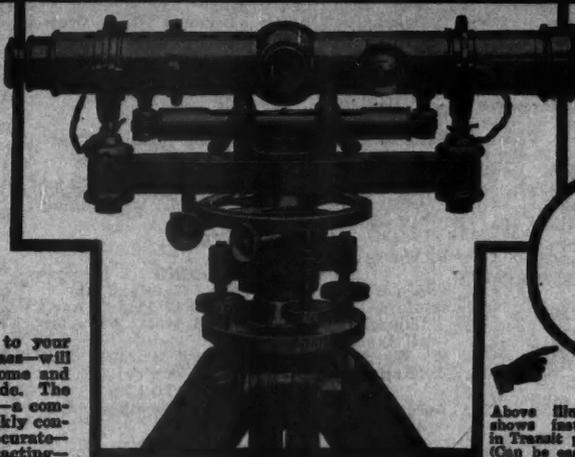
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Order the Aloe—try it for 10 days—put it to the most rigid tests. If you are not pleased, return it at our expense and your \$5.00 will be refunded.



Above illustration shows instrument in Transit position. (Can be easily and quickly converted.)

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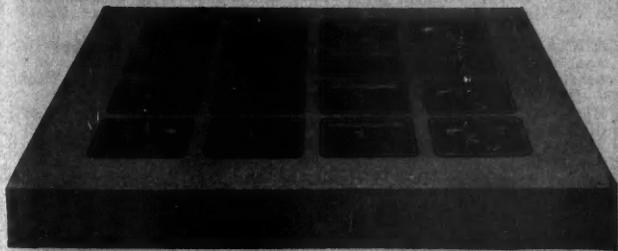
# ARMORED 3-WAY GLASS

**A New and Improved Construction**

*for*

## SIDEWALK LIGHTS

Every lens, either round or square is caulked into a cast iron ring, and this is embedded in the cement. Square Fresnel Lenses give over 54% glass area.



**Absolute Protection to Glass Against Expansion Pressure.**

**Instant and Easy Replacement of Broken Lenses.**

**Great Glass Area and Great Strength.**

**Supplied in Ready-to-Set Slabs or Built on the Job. Write for Details of This New and Better Construction.**

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1307 S. 55th Court, CICERO, ILL.

139 Spring St., NEW YORK CITY

- Barrett Co., 40 Rector St., New York, N. Y. ("Jack Frost" sheathing; "Barrett" house sheathing).
- Johns-Manville, Inc., Madison and 41st, New York, N. Y.
- Lehon Co., 44th and Oakley, Chicago, Ill.
- Buberoff Co., 95 Madison Ave., New York, N. Y.
- Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- PAPER—GARNET**
- Wausau Abrasives Co., Wausau, Wis.
- PAPER—ROOFING AND SHEATHING**
- Phillip Carey Co., Cincinnati, O. (Fibrowave insulating paper).
- Richardson Co., Melrose Park, Ill. ("Flex-a-Tile" felts).
- Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- PARTITIONS—ASBESTOS**
- Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.
- PARTITIONS—GYPSUM BLOCK**
- U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.
- PARTITIONS—HOLLOW TILE**
- Edwards Mfg. Co., Cincinnati, O.
- National Fireproofing Co., Pittsburgh, Pa. ("Nateco").
- PARTITIONS—MARBLE**
- James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.
- PARTITIONS—METAL**
- Frank S. Bets Co., Hammond, Ind. ("Betroco" toilet).
- Central Steel Co., Massillon, O. ("National").
- Detroit Steel Products Co., Detroit, Mich. ("Fenestra").
- Edwards Mfg. Co., Cincinnati, O.
- Hart & Hutchinson Co., New Britain, Conn. (Steel toilet and dressing room).
- Truscon Steel Co., Detroit, Mich.
- PARTITIONS—ROLLING AND FOLDING**
- Edwards Mfg. Co., Cincinnati, O.
- Richards-Wilcox Mfg. Co., Aurora, Ill.
- PARTITIONS—SLATE**
- James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.
- Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.
- F. C. Sheldon Slate Co., Granville, N. Y.
- Slatington Slate Co., Slatington, Pa.
- Structural Slate Co., Pen Argyl, Pa.
- PARTITIONS—WIRE**
- International Steel & Iron Co., Evansville, Ind.
- Fred J. Meyers Mfg. Co., Hamilton, O.
- PARTITIONS—WOOD**
- Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").
- Exchange Sawmills Sales Co., Kansas City, Mo. ("Esaco").
- PAVERS—STREET AND ROAD**
- American Cement Machine Co., Keokuk, Ia. Atlas Engineering Co., Milwaukee, Wis. ("Atlas").
- Construction Machinery Co., Waterloo, Ia.
- Ideal Concrete Machinery Co., Cincinnati, O.
- Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").
- Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").
- PEBBLEDASH**
- Bishopric Mfg. Co., Cincinnati, O.
- Reobond Co., Van Wert, O.
- Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.
- Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.
- FEDS**
- General Fireproofing Co., Youngstown, O. ("GF").
- PENCILS—CARPENTERS**
- A. S. Aloe Co., St. Louis, Mo.
- Warren-Knight Co., Philadelphia, Pa.
- PENCILS—DRAFTING**
- A. S. Aloe Co., St. Louis, Mo.
- Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.
- Kouffel & Esser Co., Hoboken, N. J.
- Warren-Knight Co., Philadelphia, Pa.
- PERGOLAS**
- Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).
- PIPE—FUENACE**
- Andrews Heating Co., Minneapolis, Minn.
- Farquhar Furnace Co., Wilmington, O. (Galvanised).
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill.
- B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- Milwaukee Corrugating Co., Galesburg, Ill.
- PIPE—SEWER**
- James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- PIPE—WATER SERVICE (BRASS)**
- American Brass Co., Waterbury, Conn. ("Anaconda").
- Bridgeport Brass Co., Bridgeport, Conn. ("Plumrite").
- PLANERS—WOOD (POWER)**
- American Saw Mill Machinery Co., Hackettstown, N. J.
- Crescent Machine Co., Leontonia, O. ("Crescent").
- Parks Ball Bearing Machine Co., Cincinnati, O.
- Woodworker Mfg. Co., Detroit, Mich. ("Master").
- PLANES—CARPENTERS**
- Sargent & Co., New Haven, Conn. ("Sargent").
- Stanley Works, New Britain, Conn.
- Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B." vanadium, "V. & B." Lincoln").
- PLANIMETERS**
- F. Weber Co., Philadelphia, Pa.
- PLANS—BUILDING**
- Common Brick Mfrs. Assn., Cleveland, O.
- Radford Architectural Co., 1827 Prairie Ave., Chicago, Ill. (Special and stock plans for all types of buildings).
- E. W. Stillwell & Co., Los Angeles, Cal. (National house-planning service).
- PLASTER—ASBESTOS**
- Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.
- PLASTER—INTERIOR**
- American Cement Plaster Division, Beaver Products Co., Buffalo, N. Y.
- American Magnestone Corp., Springfield, Ill.
- Art Stone Co., Waynesboro, Pa.
- Flint Rock Corp., Ingomar, O. (Magnesite).
- National Kellastone Co., 155 E. Superior St., Chicago, Ill. ("Kellastone").
- Reobond Co., Van Wert, O. ("Reobond" magnesite).
- Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.
- U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.
- PLASTERBOARD**
- American Cement Plaster Division, Beaver Products Co., Buffalo, N. Y.
- Bishopric Mfg. Co., Cincinnati, O.
- Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").
- U. S. Gypsum Co., 205 W. Monroe St., Chicago, Ill.
- PLATES—DOOR**
- Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill. (Brass or copper kick plates, "push" or "pull").
- Detroit Show Case Co., Detroit, Mich.
- Fred J. Meyers Mfg. Co., Hamilton, O.
- Sargent & Co., New Haven, Conn. ("Sargent").
- Yale & Towne Mfg. Co., Stamford, Conn.
- Zouri Drawn Metals Co., Chicago Heights, Ill. (Brass kick and push plates).
- PLUGS—SCREW**
- Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- PLUGS—WALL**
- Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").
- Bostwick Steel Lath Co., Niles, O. ("Bostwick").
- Donley Bros. Co., Cleveland, O. ("Donley").
- F. D. Kees Mfg. Co., Beatrice, Neb.
- PLUMBS**
- J. Sand & Sons, Detroit, Mich. ("Sands").
- L. S. Starrett Co., Athol, Mass.
- Warren-Knight Co., Philadelphia, Pa.
- Wissler Instrument Co., St. Louis, Mo.
- POLISHING MACHINES—FLOOR**
- Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill.
- Higgin Mfg. Co., Newport, Ky. ("Higgin").
- M. L. Schleiter, 222 W. Illinois St., Chicago, Ill.
- POST MACHINES—CEMENT**
- American Cement Machine Co., Keokuk, Ia.
- Ideal Concrete Machinery Co., Cincinnati, O.
- POSTS—CLOTHES**
- Frank S. Bets Co., Hammond, Ind.
- Donley Bros. Co., Cleveland, O. ("Donley" iron).
- POSTS—CORNER**
- Fred J. Meyers Mfg. Co., Hamilton, O.
- Shranger & Johnson, Atlantic, Ia.
- Zouri Drawn Metals Co., Chicago Heights, Ill. (Copper).
- POSTS—FENCE**
- Fred J. Meyers Mfg. Co., Hamilton, O.
- Shranger & Johnson, Atlantic, Ia.
- PRESERVATIVES—WOOD**
- Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Carbosol").
- Samuel Cabot, Inc., Boston, Mass.
- General Fireproofing Co., Youngstown, O. ("GF 550").
- Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- PRESSES—VENEER**
- Black Bros. Co., Mendota, Ill. (All sizes).
- PROTRACTORS**
- A. S. Aloe Co., St. Louis, Mo.
- Geier & Blumh, Troy, N. Y.
- Kouffel & Esser Co., Hoboken, N. J.
- L. S. Starrett Co., Athol, Mass.
- Warren-Knight Co., Philadelphia, Pa.
- PULLERS—NAIL**
- Chas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill," "Aper").
- PULLERS—STUMP**
- LaPlant-Choate Mfg. Co., Cedar Rapids, Ia.
- PULLEYS—CEILING**
- American Pulley Co., Philadelphia, Pa. ("American").
- Sargent & Co., New Haven, Conn.
- PULLEYS—SASH**
- American Pulley Co., Philadelphia, Pa.
- Grand Rapids Hardware Co., Grand Rapids, Mich.
- Sargent & Co., New Haven, Conn. ("Sargent").
- PULLEYS—SCREW**
- American Pulley Co., Philadelphia, Pa. ("American").
- Ney Mfg. Co., Canton, O.
- Sargent & Co., New Haven, Conn.
- PULLEYS—DOOR**
- Allith-Prouty Co., Danville, Ill. (Malleable iron).
- Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill.
- National Mfg. Co., Sterling, Ill.
- Ney Mfg. Co., Canton, O.
- Richards-Wilcox Mfg. Co., Aurora, Ill.
- Sargent & Co., New Haven, Conn.
- Wagner Mfg. Co., Cedar Falls, Ia.
- Yale & Towne Mfg. Co., Stamford, Conn.
- PUMPS—CONTRACTORS**
- American Cement Machine Co., Keokuk, Ia. ("Boss").
- C. H. & E. Mfg. Co., Milwaukee, Wis. ("O. H. & E." triplex and diaphragm).
- Construction Machinery Co., Waterloo, Ia.
- Fuller & Johnson Mfg. Co., Madison, Wis. ("Fuller & Johnson").
- Goulds Mfg. Co., Seneca Falls, N. Y. ("Goulds").
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- Mast, Foss & Co., Springfield, O. ("Buckeye").
- F. E. Meyers & Bro. Co., Ashland, O.
- Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").
- Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- T. L. Smith Co., Milwaukee, Wis.
- PUMPS—DRAIN**
- Goulds Mfg. Co., Seneca Falls, N. Y. ("Goulds").
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- F. E. Meyers & Bro. Co., Ashland, O.
- Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- PUMPS—ELECTRIC-DRIVEN**
- Goulds Mfg. Co., Seneca Falls, N. Y. ("Goulds").
- 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").
- Mast, Foss & Co., Springfield, O. ("Buckeye").
- Milwaukee Air Power Pump Co., Milwaukee, Wis.
- F. E. Meyers & Bro. Co., Ashland, O.
- Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- PUMPS—FORCE**
- American Cement Machine Co., Keokuk, Ia.
- C. H. & E. Mfg. Co., Milwaukee, Wis. ("O. H. & E.").
- Fuller & Johnson Mfg. Co., Madison, Wis.
- Goulds Mfg. Co., Seneca Falls, N. Y. ("Goulds").
- 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").
- Mast, Foss & Co., Springfield, O. ("Buckeye").
- Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- PUMPS—HOUSE**
- Goulds Mfg. Co., Seneca Falls, N. Y. ("Goulds").
- Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- B. Karol & Sons Co., 800 S. Kedzie Ave., Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").
- Mast, Foss & Co., Springfield, O. ("Buckeye").
- F. E. Meyers & Bro. Co., Ashland, O.
- Milwaukee Air Power Pump Co., Milwaukee, Wis.
- Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.

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FOR real economy there is nothing that equals Copper, for

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It has a century's reputation for reliability.

Prompt deliveries. An up-and-coming service.

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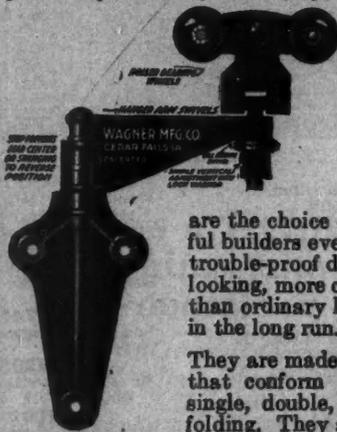
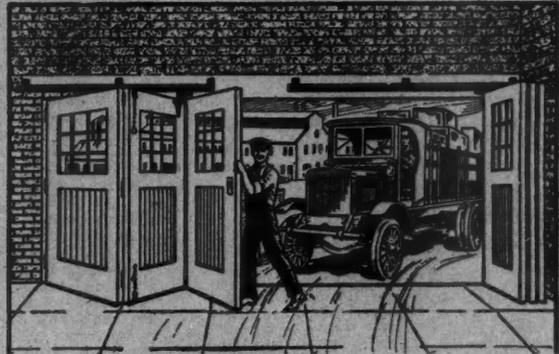
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# Trouble Proof Door Hangers



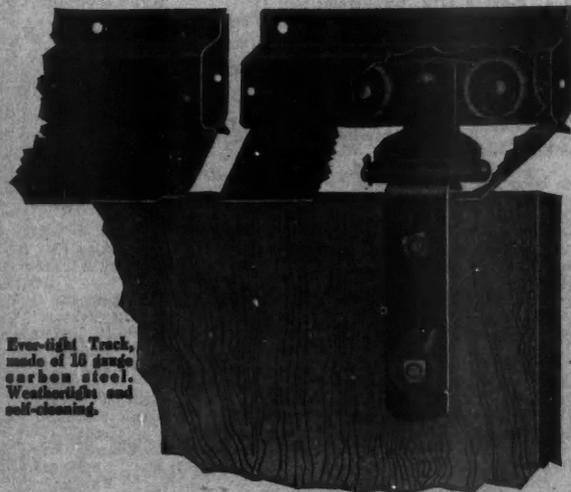
## Wagner Hangers

are the choice of discerning and careful builders everywhere. They make trouble-proof doors, are much better looking, more convenient and durable than ordinary hangers, and cost less in the long run.

They are made in a variety of styles that conform to any type of door, single, double, swinging, sliding and folding. They are simple and easy to attach—actually make the carpenter's work easier.

You will find enthusiastic users of Wagner Hangers the country over. A few of the many types are shown on this page—Write for complete catalogue.

Above is Glonite Hanger for sliding or folding doors. Strong, easy to put on. Prevents sagging and makes opening weatherproof.



Ever-tight Track, made of 16 gauge carbon steel. Weather-tight and self-cleaning.

# WAGNER

Door Hangers and Trolley Tracks

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Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- PUTTY—ROOFING**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
Phillip Carey Co., Cincinnati, O. ("Noah's Pitch").  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.
- RADIATORS—GAS**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.
- RADIATORS—HOT AIR**  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- RADIATORS—HOT WATER**  
Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Zimmerman Stove Heater Corp., Jamaica, N. Y.
- RADIATORS—STEAM**  
Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
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.  
Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.
- RAILINGS—IRON**  
Badger Wire & Iron Works, Milwaukee, Wis.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.
- RAILINGS—ALTAZ**  
Fred J. Meyers Mfg. Co., Hamilton, O.
- RAILINGS—BAERDOOR**  
Lane Bros. Co., Poughkeepsie, N. Y. ("Lane").  
National Mfg. Co., Sterling, Ill. ("Braced," "Storm Proof").  
Ney Mfg. Co., Canton, O. ("Ney").  
Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia. ("Ever-tite" and "Leader").
- RAILS—PORCH**  
Curtis Service Bureau, Clinton, Ia.  
Fred J. Meyers Mfg. Co., Hamilton, O.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").
- RAILS—STAIR**  
Morgan Sash & Door Co., 2287 Blue Island Chicago, Ill.
- RANGES—COAL AND GAS**  
Zimmerman Stove Heater Corp., Jamaica, N. Y. ("Thrifty" house-heating range for cooking and heating).
- REAMERS**  
Buck Bros., Millbury, Mass.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.
- RECEIVERS—GARBAGE**  
Frank S. Betts Co., Hammond, Ind.  
Donley Bros. Co., Cleveland, O. ("Donley").  
International Steel & Iron Co., Evansville, Ind.  
Majestic Co., Huntington, Ind.  
Willis Mfg. Co., Galesburg, Ill.
- RECEIVERS—PACKAGE**  
Frank S. Betts Co., Hammond, Ind. ("Betsoo De Luxe").  
Donley Bros. Co., Cleveland, O. ("Donley").  
International Steel & Iron Co., Evansville, Ind.  
Majestic Co., Huntington, Ind.
- REFRIGERATORS**  
Celotex Co., 111 W. Washington St., Chicago, Ill.  
Herrick Refrigerator Co., Waterloo, Ia.  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.  
McCray Refrigerator Co., Kendallville, Ind. ("McCray").  
Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
Willis Mfg. Co., Galesburg, Ill. (Iceless).
- REFRIGERATORS—OUTSIDE ICING**  
Herrick Refrigerator Co., Waterloo, Ia. ("Herrick").  
McCray Refrigerator Co., Kendallville, Ind. ("McCray").
- REFRIGERATING MACHINERY**  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.
- REGISTERS—HOT AIR FURNACE**  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Hess Warming & Ventilating Co., Tacoma Bldg., Chicago, Ill.  
International Steel & Iron Co., Evansville, Ind.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Majestic Co., Huntington, Ind.
- REGULATORS—FURNACE**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews Hired Man").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
F. D. Kees Mfg. Co., Beatrice, Neb.
- REGULATORS—HEAT**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews Hired Man").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
F. D. Kees Mfg. Co., Beatrice, Neb.
- REGULATORS—PRESSURE**  
Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.
- REINFORCING**  
Concrete Engineering Co., Omaha, Neb. (Bars, triangle mesh, column spirals, expanded metal).  
International Steel & Iron Co., Evansville, Ind.  
National Steel Fabric Co., Pittsburgh, Pa. (Galvanized Steel reinforcing fabric for plaster and stucco "National Fabric").  
North Western Expanded Metal Co., 407 S. Dearborn St., Chicago, Ill. ("Econo" expanded metal).  
Trusco Steel Co., Detroit, Mich.
- REMOVERS—PAINT AND VARNISH**  
S. C. Johnson & Son, Racine, Wis. ("Johnson's Electric Solvo").
- RESAW MACHINES**  
Sidney Machine Tool Co., Sidney, O.  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").
- RESISTANTS—ACID (FOR CONCRETE)**  
Anti-Hydro Waterproofing Co., 81 Cortland St., New York, N. Y. ("Anti-Hydro").  
General Fireproofing Co., Youngstown, Ohio. ("GF").
- RETAIERS—CEMENT**  
Sandusky Cement Co., Cleveland, O. ("Medusa").
- RIBBONS—TYPEWRITER**  
Royal Typewriter Co., 32 S. Wabash Ave., Chicago, Ill. ("Royal").
- RIDGING—VENTILATED**  
Milwaukee Corrugated Co., Milwaukee, Wis.
- RIGS—SAW**  
Abram Cement Tool Co., Detroit, Mich.  
American Saw Mill Machinery Co., Hackettstown, N. J.  
C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E." portable).  
Fuller & Johnson Mfg. Co., Madison, Wis.  
Knickerbocker Co., Jackson, Mich. ("Knickerbocker").  
Mandt Corp., Keokuk, Ia.  
Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").
- RIVETS**  
International Steel & Iron Co., Evansville, Ind.
- RODS—LEVELING**  
A. S. Aloe Co., St. Louis, Mo.  
Kenfelf & Esser Co., Hoboken, N. J.
- RODS—LIGHTNING**  
Jos. Barnett & Co., Cedar Rapids, Ia. (Barnett System).  
Burkett Lightning Rod Co., Fremont, O.  
L. F. Diddle Co., Marshfield, Wis. ("Diddle-Biltzen").
- ROLLERS—BAERDOOR**  
Allith-Prouty Co., Danville, Ill.  
Lane Bros. Co., Poughkeepsie, N. Y. ("Lane").  
McKinney Mfg. Co., Pittsburgh, Pa.  
F. E. Myers & Bro. Co., Ashland, O. ("Myers," "Sure Grip," "O. K.," "New Way," "Giant," "Faultless").  
National Mfg. Co., Sterling, Ill. ("Big 4," "Storm Proof," "National").  
Ney Mfg. Co., Canton, O. ("Ney").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner").
- ROLLERS—HOUSE DOOR**  
Allith-Prouty Co., Danville, Ill.  
Lane Bros. Co., Poughkeepsie, N. Y. ("Lane").  
National Mfg. Co., Sterling, Ill. ("82 Silent").  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Wagner Mfg. Co., Cedar Falls, Ia.
- ROLLERS—HOUSE MOVING**  
LaPlant-Cheate Mfg. Co., Cedar Rapids, Ia. ("LaPlant-Cheate").
- Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
Richards-Wilcox Mfg. Co., Aurora, Ill.
- ROOFING—ASBESTOS**  
Phillip Carey Co., Cincinnati, O.  
Edwards Mfg. Co., Cincinnati, O.  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.
- ROOFING—ASBESTOS SHINGLES**  
Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
Edwards Mfg. Co., Cincinnati, O.  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- ROOFING—ASPHALT (READY)**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Everlastic" rubber roofing, mineral-surfaced roofing, multi-shingles, octagonal-strip shingles, single shingles, giant shingles, "Vitex" rubber roofing, "Panamoid" rubber roofing).  
Phillip Carey Co., Cincinnati, O. ("Philco," "Sterling," "Manhattan," "Lastile," "Micakote," "Premium," "Surety").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Johns-Manville, Inc., 41st and Madison, New York, N. Y.  
Lehon Co., 44th and Oakley, Chicago, Ill. ("Mule Hide").  
Miller & Gleason, Olean, N. Y. ("Drip-Edge").  
Richardson Co., Melrose Park, Ill. ("Flex-a-tile" prepared roofings).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.  
Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.  
Vulcanite Roofing Division, Beaver Products Co., Buffalo, N. Y.
- ROOFING—ASPHALT SHINGLES**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
Phillip Carey Co., Cincinnati, O. ("Asfalt-slate," "Junior," "Firester").  
Edwards Mfg. Co., Cincinnati, O.  
International Steel & Iron Co., Evansville, Ind.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
Lehon Co., 44th and Oakley, Chicago, Ill.  
Richardson Co., Melrose Park, Ill. ("Flex-a-tile").  
Ruberoid Co., 95 Madison Ave., New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.  
Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y.  
Vulcanite Roofing Division, Beaver Products Co., Buffalo, N. Y.  
Winthrop Asphalt Shingle Co., Argo, Ill.
- ROOFING—BUILT-UP**  
Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
Phillip Carey Co., Cincinnati, O. ("Carey Contract Roofing Styles B, C, D, F," "Carey Roof Specifications 2, 3, 4").  
Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").  
Edwards Mfg. Co., Cincinnati, O.  
Johns-Manville, Inc., New York, N. Y.  
Lehon Co., 44th and Oakley, Chicago, Ill.  
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.  
Vulcanite Roofing Division, Beaver Products Co., Buffalo, N. Y.
- ROOFING—CANVAS**  
Wm. L. Barrel Co., 8 Thomas St., New York, N. Y.  
John Boyle & Co., 112 Duane St., New York, N. Y. ("Bayonne" roof and deck cloth).  
Lehon Co., 44th and Oakley, Chicago, Ill.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- ROOFING—DRIP-EDGE**  
Miller & Gleason, Olean, N. Y.
- ROOFING—MASTIC**  
Barber Asphalt Co., Philadelphia, Pa.  
General Fireproofing Co., Youngstown, O.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- ROOFING—METAL (CORRUGATED)**  
American Sheet & Tin Plate Co., Pittsburgh, Pa. ("American," "Apollo," "Apollo-Keystone").  
Concrete Engineering Co., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O. ("Non-Syphon-ing").  
Illinois Zinc Co., 280 Broadway, New York, N. Y. ("Illinois" zinc corrugated sheets).



# UNION

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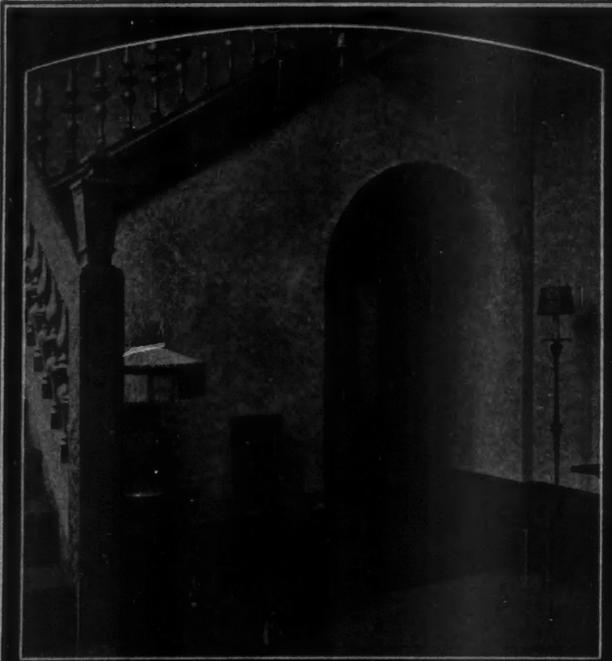
**A**N OWNER considers his home the safest investment in the world, and wants construction materials that will give him lifetime service.

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If you want the everlasting gratitude of every home owner, you can obtain it by installing Union Metal Pressed Steel Columns that will not split, rot or open at joints.

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CANTON, OHIO



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*It Will Interest the Home Owner—and May Help You Secure the Contract*

For less than \$100.00 additional the plaster-base of walls and ceilings of the average home (costing in the neighborhood of \$5,000) can be Bostwick Truss-Loop throughout.

One thousand wood lath equals 60 sq. yds. of wall surface and costs \$12.00. Wood lath, properly spaced, takes almost exactly the same amount of plaster as Bostwick Truss-Loop. Truss-Loop, therefore, costs only the margin between 1st cost of wood lath and first cost of Truss-Loop. This works out to from \$65.00 to \$100.00 more for the usual types of moderate-priced homes. Just this small margin secures lasting wall beauty and fire-protection.

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

THE BOSTWICK STEEL  
LATH COMPANY  
Niles, Ohio



International Steel & Iron Co., Evansville, Ind.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
 National Sheet Metal Roofing Co., 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," Apollo-Keystone").  
 Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
 National Sheet Metal Roofing Co., Jersey City, N. J.

**ROOFING—METAL SHINGLES**

Concrete Engineering Co., Omaha, Neb.  
 Cortright Metal Roofing Co., Philadelphia, Pa. ("Cortright").  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 Illinois Zinc Co., 280 Broadway, New York, N. Y. ("Illinois" zinc shingles).  
 International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., Milwaukee, Wis. (Copper, zinc, terne plate).  
 Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
 National Sheet Metal Roofing Co., Jersey City, N. J.  
 Shrauger & Johnson, Atlantic, Ia. (Continuous hip shingles).

**ROOFING—ROLL**

Barber Asphalt Co., Philadelphia, Pa. ("Genasco").  
 Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Everlastic" rubber roofing, mineral-surfaced roofing, "Vitex" rubber roofing, "Panamoid" rubber roofing).  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O. (Metal). ("Dux-bac").  
 International Steel & Iron Co., Evansville, Ind.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Richardson Co., Melrose Park, Ill. ("Flex-a-tile" roll roofings).  
 Ruberoid Co., 95 Madison Ave., New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.  
 Vulcanite Roofing Division, Beaver Products Co., Buffalo, N. Y.

**ROOFING—RUBBER**

Barber Asphalt Co., Philadelphia, Pa.  
 Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Everlastic" rubber roofing, "Vitex" rubber roofing).  
 Philip Carey Co., Lockland, Cincinnati, O. ("Philio," "Sterling," "Manhattan," "Lastile," "Micakote," "Premium," "Surety").  
 Edwards Mfg. Co., Cincinnati, O.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Richardson Co., Melrose Park, Ill. ("Flex-a-tile" roll roofings).  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Everstick").

**ROOFING—SLATE**

Edwards Mfg. Co., Cincinnati, O.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Knickerbocker Slate Corp., 153 East 38th St., New York, N. Y.  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Everstick").  
 F. C. Sheldon Slate Co., Granville, N. Y.  
 Slatington Slate Co., Slatington, Pa. ("Genuine Franklin Tunnel").  
 Structural Slate Co., Fen Argy, Pa.  
 Vendor Slate Co., Bangor, Pa. ("Vendor").  
**ROOFING—TILE (CEMENT)**  
 Serviced 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.

**ROOFING—TILE (METAL)**

Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O. ("Dux-bac").  
 General Fireproofing Co., Youngstown, O. ("GF").  
 Milwaukee Corrugating Co., Milwaukee, Wis. ("Titelock").

Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
 National Sheet Metal Roofing Co., Jersey City, N. J.

**ROOFING—TIN**

American Sheet & Tin Plate Co., Pittsburgh, Pa. ("MF," "U. S. Eagle," "American," "Fire Door," "Numethod").  
 Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Willis Mfg. Co., Galesburg, Ill.

**ROOFING—WOOD SHINGLES**

Creo-Dipt Co., North Tonawanda, N. Y. ("Creo-Dipt," stained).  
 The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
 Serviced Products Co., First Nat. Bank Bldg. ("Everstick").

**ROOFING AND SIDING—ASBESTOS**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler" corrugated).  
 Edwards Mfg. Co., Cincinnati, O.  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Serviced Products Co., First Nat. Bank Bldg. ("Everstick").

**ROOFING AND SIDING—IRON AND STEEL**

American Sheet & Tin Plate Co., Pittsburgh, Pa. ("American," "Apollo" galvanized, "Apollo-Keystone" galvanized).  
 Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 International Steel & Iron Co., Evansville, Ind.  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.  
 Willis Mfg. Co., Galesburg, Ill.

**ROOFING AND SIDING—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.  
 Vendor Slate Co., Easton, Pa.

**ROOFS—SILO**

Edwards Mfg. Co., Cincinnati, O.  
**ROOFS—THATCHED**  
 Bishopps Mfg. Co., Cincinnati, O.  
 Creo-Dipt Co., North Tonawanda, N. Y. ("Creo-Dipt" stained shingles).  
 Serviced Products Co., First Nat. Bank Bldg. ("Everstick").

**ROPE**

Plymouth Cordage Co., North Plymouth, Mass.  
 Samson Cordage Works, Boston, Mass. ("Samson" cotton rope, braided).  
**ROPE—TRANSMISSION**  
 W. E. Caldwell Co., Louisville, Ky.  
 Plymouth Cordage Co., North Plymouth, Mass.

**ROTARY MACHINES—ELECTRIC**

Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill. (For surfacing and polishing marble, etc., and sandpapering and refinishing wood floors).

**ROUTERS**

American Router & Mfg. Co., Pittsburgh, Pa.  
 R. E. DeWalt, Bridgeton, N. J.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Air-driven).  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**RULES—BOXWOOD**

A. S. Aloe Co., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 Kenffel & Esser Co., Hoboken, N. J.  
 Lufkin Rule Co., Saginaw, Mich.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.  
 Stanley Works, New Britain, Conn.  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**RULES—CALIPEE**

Lufkin Rule Co., Saginaw, Mich.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 Master Rule Mfg. Co., 641 E. 126th St., New York, N. Y. ("Interlox" Master Slide).  
 Stanley Works, New Britain, Conn.  
 L. S. Starratt Co., Athol, Mass.  
 F. Weber Co., Philadelphia, Pa.

**RULES—EXTENSION**

A. S. Aloe Co., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 International Correspondence Schools, Scranton, Pa.  
 Kenffel & Esser Co., Hoboken, N. J.  
 Lufkin Rule Co., Saginaw, Mich.  
 Master Rule Mfg. Co., 641 E. 126th St., New York, N. Y. ("Interlox Master Slide").  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.  
 Stanley Works, New Britain, Conn.  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**RULES—LUMBERMEN'S**

A. S. Aloe Co., St. Louis, Mo.  
 Lufkin Rule Co., Saginaw, Mich.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill.  
 Stanley Works, New Britain, Conn.  
 F. Weber Co., Philadelphia, Pa.

**RULES—SPRING JOINT**

A. S. Aloe Co., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 Kenffel & Esser Co., Hoboken, N. J.  
 Lufkin Rule Co., Saginaw, Mich.  
 Master Rule Mfg. Co., 841 E. 126th St., New York, N. Y. ("Master" folding).  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**RULES—SLIDE SCALE**

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

**RULES—STEEL**

Kenffel & Esser Co., Hoboken, N. J.  
 A. S. Aloe Co., St. Louis, Mo.  
 Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 International Correspondence Schools, Scranton, Pa.  
 Kenffel & Esser Co., Hoboken, N. J.  
 Lufkin Rule Co., Saginaw, Mich.  
 Southington Hardware Co., Southington, Conn.  
 Stanley Works, New Britain, Conn.  
 L. S. Starratt Co., Athol, Mass.  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**SALAMANDERS**

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

**SANDERS—POWER**

Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master").

**SANDPAPER**

Black Bros. Co., Mendota, Ill.  
 Sidney Machine Tool Co., Sidney, O.  
 Wausau Abrasives Co., Wausau, Wis.

**SANDPAPERING MACHINES**

Black Bros. Co., Mendota, Ill. (For wood mouldings only).  
 Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill. (Electric floor).  
 Parks Ball Bearing Machine Co., Cincinnati, Ohio.  
 Shrauger & Johnson, Atlantic, Ia.  
 Triple A Machine Co., 4601 Ravenwood Ave., Chicago, Ill.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**SASH—BASEMENT (STEEL)**

Detroit Steel Products Co., Detroit, Mich. ("Fenestra").

Edwards Mfg. Co., Cincinnati, O.

Federal Bridge & Structural Co., Waukesha, Wis.

International Steel & Iron Co., Evansville, Ind.

Truscon Steel Co., Detroit, Mich. ("Truscon").

**SASH—CASEMENT**

Whitney Window Corp., Minneapolis, Minn. ("Whitney").

**SASH—HOLLOW METAL**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.

International Steel & Iron Co., Evansville, Ind.

Moeschl-Edwards Corrugating Co., Cincinnati, Ohio.

Willis Mfg. Co., Galesburg, Ill.

Zoury Drawn Metals Co., Chicago Heights, Ill.

**SASH—IRON AND STEEL**

Detroit Steel Products Co., Detroit, Mich.

Federal Bridge & Structural Co., Waukesha, Wis.

Truscon Steel Co., Detroit, Mich.

**SASH—STORM**

Curtis Service Bureau, Clinton, Ia.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis.

Truscon Steel Co., Detroit, Mich.

Victor Parting Bead Co., Reading, Pa.

Wagner Mfg. Co., Cedar Falls, Ia.

**SAWMILL MACHINERY**

American Saw Mill Machinery Co., Hackettstown, N. J.  
 Sidney Machine Tool Co., Sidney, O.

J. D. Wallace & Co., 1401 Jackson Boul.

Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**SAWS—BAND**

American Saw Mill Machinery Co., Hackettstown, N. J.

B. C. Atkins & Co., Indianapolis, Ind.

Crescent Machine Co., Leontonia, O. ("Crescent").

Henry Disston & Sons, Philadelphia, Pa. ("Disston").

Heston & Anderson, Fairfield, Ia.

Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

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Here's a proven plan to increase your business, profits and reputation. Furnish the plans and you get the job, and at a fair price. Others do it, why not you? You know plans. With the right instructions and material you can draw them as well as any man. You get everything at once—no long drawn out correspondence course. And the price is astonishingly low. Let this advertisement mean a new start and a greater prosperity for you.

### A Practical Outfit

Our proposition is so fair, straightforward and easy that you cannot refuse to investigate it in justice to yourself. Everything you need is in this outfit. Don't confuse this fine, practical drawing outfit with the small and cheap students' outfits often advertised. It is the most useful, simple, practical outfit for contractors and builders ever offered.

### Begin Work At Once

The two special instruction books, "How to Draw Plans" by Dale and the Kidder-Nolan "Builders' and Architects' Handbook", included free, tell you how, simply and plainly, step by step. Enables you to begin at once to make plans and drawings and thereby to increase your business, reputation and income.

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Brings You  
**The Outfit Complete**  
**A YEAR TO PAY**

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Mail the coupon to-day—it will bring you full particulars of this extraordinary offer—tell you about the outfit in detail—explain our easy payment plan—and show you how you can easily increase your business and profits. Be wide-awake. Act—Investigate—Write today.

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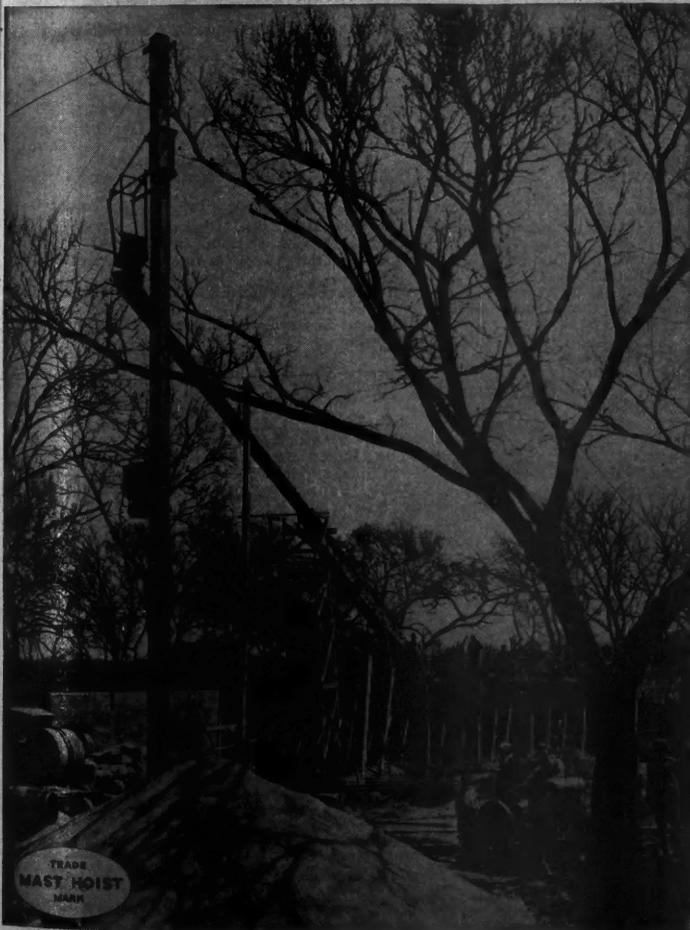


**FREE TRIAL**

HOW TO DRAW PLANS

### Outfit consists of

- 1 Complete Set of Drawing Instruments.
- 1 Portable Set-Table with: 1 Drawing Board.
- 1 Book: "How to Draw Plans"
- 1 Kidder-Nolan "Builders' Guide"
- 1 Ebony T-Square.
- 1 30x50 Celluloid 3 inch Triangle.
- 1 6x6-inch Triangle.
- 1 Celluloid Curve.
- 1 12-inch Triangular Scale.
- 1 Roll 36-in. Tracing Paper.
- 1 Roll 24-in. Detail Paper.
- 1 Four-foot Folding Rule.
- 1 Brass Protractor.
- 1 Doz. Gillott Special Pens
- 1 Doz. Drawing Pencils.
- 1 Doz. Thumb Tacks.
- 1 Pencil Eraser.
- 1 Ink Eraser.
- 1 Pencil Pointer.
- 1 Bottle Red Ink.
- 1 Bottle Black Ink.
- 1 Gillott Pen Holder.
- 1 Piece Artgum.
- 1 Dixon's White Penell.



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THIS is the manner in which a contractor who had placed 800 cu. yds. of concrete in 9 working days described his INSLEY MAST HOIST plant. His experience is typical of the experiences of many other successful contractors.

If your work is such that you have occasion to handle from 40 to 100 cu. yds. of concrete per day, this simple and inexpensive concrete handling plant will make money for you.

Write for illustrated circular

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Engineers and Manufacturers  
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 Silver Mfg. Co., Salem, O.  
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American Saw Mill Machinery Co., Hackettstown, N. J.  
 E. C. Atkins & Co., Indianapolis, Ind.  
 W. F. & Jno. Barnes Co., Rockford, Ill.  
 Crescent Machine Co., Leetonia, O.  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Fuller & Johnson Mfg. Co., Madison, Wis. ("Fuller & Johnson").  
 Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.  
 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").  
 The Parks Ball Bearing Machine Co., Cincinnati, O.  
 Ransome Concrete Machinery Co., Dunellen, N. J.  
 R. E. DeWalt, Bridgeton, N. J. ("Dew-All").  
 Sidney Machine Tool Co., Sidney, O.  
 Silver Mfg. Co., Salem, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**SAWS—DRAG**

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 E. C. Atkins & Co., Indianapolis, Ind.  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Witte Engine Works, Kansas City, Mo. ("Witte" log saws).

**SAWS—GANG**

E. C. Atkins & Co., Indianapolis, Ind. ("Atkins").  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Sidney Machine Tool Co., Sidney, O.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

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 R. E. DeWalt, Bridgeton, N. J. ("Dew-All").  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Huther Bros. Saw Mfg. Co., Inc., Rochester, N. Y.  
 The Parks Ball Bearing Machine Co., Cincinnati, O.  
 Sidney Machine Tool Co., Sidney, O.

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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).

**SAWS—JIG**

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 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Sidney Machine Tool Co., Sidney, O.  
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**SAWS—SWING**

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 E. C. Atkins & Co., Indianapolis, Ind.  
 The Crescent Machine Co., Leetonia, O. ("Crescent").  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Knickerbocker Co., Jackson, Mich. ("Knickerbocker").  
 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. ("Silver's").  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**SCAFFOLDS—STEEL**

Elite Mfg. Co., Ashland, O.  
 Neville Mfg. Co., Kewanee, Ill. (Adjustable).  
 Richards-Wilcox Mfg. Co., Aurora, Ill.  
 The Steel Scaffolding Co., Evansville, Ind. ("Trouble Savers").

**SCALES—DRAFTSMEN'S**

Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.  
 Koufel & Esser Co., Hoboken, N. J.  
 L. S. Starrett Co., Athol, Mass.  
 Warren-Knight Co., Philadelphia, Pa.  
 F. Weber Co., Philadelphia, Pa.

**SCALES—MEASURING**

Lufkin Rule Co., Saginaw, Mich.  
**SCALES—WEIGHING**  
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**SCHOOLS—CORRESPONDENCE**

Chicago Technical College, 2771 S. Michigan Ave., Chicago, Ill. (Home study courses for builders, plan reading courses, estimating courses, architectural courses, drafting courses, correspondence courses for builders).  
 International Correspondence Schools, Scranton, Pa.

**SCRAPERS—CABINET**

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 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Fox Supply Co., Brooklyn, Wis. ("Fox").  
 L. S. Starrett Co., Athol, Mass.

**SCRAPERS—DRAG**

Lansing Co., Lansing, Mich.  
**SCRAPERS—FLOOE (HAND)**  
 E. C. Atkins & Co., Indianapolis, Ind.  
 Fox Supply Co., Brooklyn, Wis. ("Fox").  
 Stanley Works, New Britain, Conn.  
 L. S. Starrett Co., Athol, Mass.  
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 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").

**SCRAPERS—FOOT**

National Mfg. Co., Sterling, Ill. ("Upright," "Self-Cleaner").  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W").  
 Stanley Works, New Britain, Conn.  
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**SCRAPERS—PAINT**

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 E. C. Atkins & Co., Indianapolis, Ind.  
**SCRAPERS—WHEEL**  
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 Truscon Steel Co., Detroit, Mich.  
 Youngstown Pressed Steel Co., Warren, O. ("Sharon").

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 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

**SCREENS—ROLLING**

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**SCREENS—SAND AND GRAVEL**  
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 Ideal Concrete Machinery Co., Cincinnati, O.  
 Lansing Co., Lansing, Mich.

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 Stewart Mfg. Co., Waterloo, Ia. ("Stewart").

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 Higgin Mfg. Co., Newport, Ky. ("Higgin").  
 Lansing Co., Lansing, Mich.  
 Victor Parting Bead Co., Reading, Pa. ("Victor").

Whitney Window Corp., Minneapolis, Minn. ("Whitney" casement).

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 Sargent & Co., New Haven, Conn. ("Sargent").  
 Stanley Works, New Britain, Conn.

L. S. Starrett Co., Athol, Mass.  
 James Swan Co., Seymour, Conn. ("Swan").  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Electric).

**SCREWS—WOOD**

Southington Hardware Co., Southington, Conn.

**SCRIBERS**

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

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 Yale & Towne Mfg. Co., Stamford, Conn.  
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 National Mfg. Co., Sterling, Ill.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.

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 Stanley Works, New Britain, Conn.  
 L. S. Starrett Co., Athol, Mass.  
 James Swan Co., Seymour, Conn.  
 Syracuse Twist Drill Co., Syracuse, N. Y. ("Syracuse").

Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.").

**SETS—SAW**

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 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Chas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill," "Apex").  
 Parks Ball Bearing Machine Co., Cincinnati, Ohio  
 Sidney Machine Tool Co., Sidney, O.  
 Stanley Works, New Britain, Conn.

**SETS—SCREEN DOOR**

Allith-Prouty Co., Danville, Ill. ("King").  
 The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer").  
 National Mfg. Co., Sterling, Ill.  
 Sargent & Co., New Haven, Conn.  
 Stanley Works, New Britain, Conn.  
 Wagner Mfg. Co., Cedar Falls, Ia.

**SEWAGE DISPOSAL PLANTS**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
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 Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").

**SEWER PIPE MACHINES—CEMENT**

Ideal Concrete Machinery Co., Cincinnati, O.

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 Sidney Machine Tool Co., Sidney, O.

**SHAPING MACHINES**

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 R. E. DeWalt, Bridgeton, N. J.

Sidney Machine Tool Co., Sidney, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill. (Wood).

**SHAVES—SPOKE**

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

James Swan Co., Seymour, Conn. ("Swan").  
 L. & I. J. White Co., Buffalo, N. Y.

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Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. ("Ambler").  
 Johns-Manville, Inc., Madison and 41st New York, N. Y.

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

**SHEAVES—WIRE ROPE**

LaPlant-Ochoate Mfg. Co., Cedar Rapids, Ia.  
 Ransome Concrete Machinery Co., Dunellen, N. J.

**SHEETS—GALVANIZED**

American Sheet & Tin Plate Co., Pittsburgh, Pa.  
 Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.

International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Willis Mfg. Co., Galesburg, Ill.

**SHEETS—INSULATING**

Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex").

**SHEETS—IRON AND STEEL**

American Sheet & Tin Plate Co., Pittsburgh, Pa. ("American," "Apollo," galvanized, "Apollo-Keystone" galvanized).  
 Central Steel Co., Massillon, O. ("Central").

Concrete Engineering Co., Omaha, Neb.  
 Edwards Mfg. Co., Cincinnati, O.  
 Eller Mfg. Co., Canton, O.  
 International Steel & Iron Co., Evansville, Ind.

Milwaukee Corrugating Co., Milwaukee, Wis. ("Milcor").  
 Moeschl-Edwards Corrugating Co., Cincinnati, Ohio

**SHEETS—ZINC**

Illinois Zinc Co., 280 Broadway, New York, N. Y. ("Isco," zinc sheets).

**SHELLS—EXPANSION**

Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").  
 The Paine Co., 1742 W. Van Buren St., Chicago, Ill. ("Paine").  
 U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U. S. E.").

**SHELVING—STEEL**

Frank S. Bets Co., Hammond, Ind. ("Betsco").  
 General Fireproofing Co., Youngstown, O. ("All-Steel").  
 Hart & Hutchinson Co., New Britain, Conn. (Steel library).

**SHIELDS—EXPANSION**

Ankya Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankya").  
 Paine Co., 1742 W. Van Buren St., Chicago, Ill.

Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Savage Expansion Bolt Co., 9 Desbrosses St., New York, N. Y.

U. S. Expansion Bolt Co., 139 Franklin St., New York, N. Y. ("U.S.E.')

**SHIELDS—RADIATOR**

Asbestos Shingle, Slate & Sheathing Co., Amber, Pa.  
 Frank S. Bets Co., Hammond, Ind. ("Betsco DeLux").  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

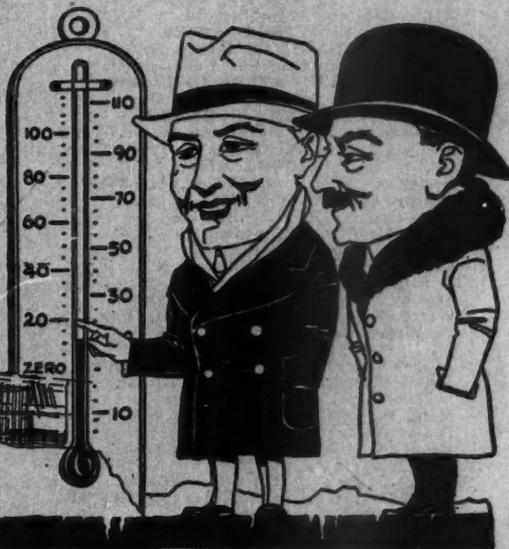
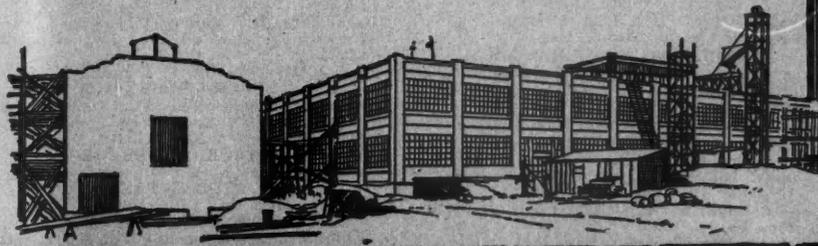
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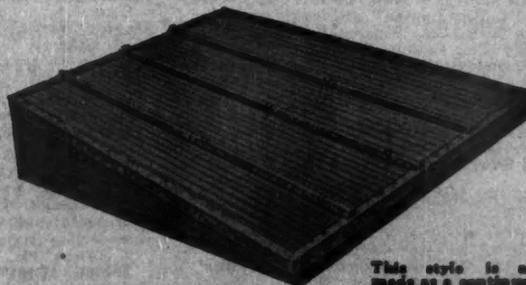
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We construct skylights of this style such as is used for lighting hotel lobbies, etc.

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Eouri Drawn Metals Co., Chicago Heights, Ill.
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Lane Bros. Co., Poughkeepsie, N. Y.  
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Mooschl-Edwards Corrugating Co., Cincinnati, Ohio
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Edwards Mfg. Co., Cincinnati, O.  
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J. Sand & Sons, Detroit, Mich.  
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Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.
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Anchor Concrete Machinery Co., Columbus, O.  
Heim Brick Machine Co., Cadillac, Mich. (Blocks).  
Metal Forms Corp., Milwaukee, Wis. ("Met-forms").  
Republic Iron Works, Tecumseh, Mich. ("Monarch").  
T. L. Smith Co., Milwaukee, Wis.  
The Wilcox Works, Rochester, N. Y. ("Her-cules").
- SILOS—CEMENT**  
Metal Forms Corp., Milwaukee, Wis. ("Met-forms").  
Universal Cement Mold Co., North Milwaukee, Wis.
- SILOS—TILE**  
W. E. Dunn Mfg. Co., Holland, Mich. ("Dun-tille").  
National Fireproofing Co., Pittsburgh, Pa. ("Nateco").
- SILOS—WOOD**  
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James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- SINKS—KITCHEN**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
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Structural Slate Co., Pen Argy, Pa. (Slate).
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Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
International Steel & Iron Co., Evansville, Ind.  
McKeown Bros. Co., 112 W. Adams St., Chicago, Ill.  
Milwaukee Corrugating Co., Milwaukee, Wis. (Puttyless and Standard).  
Mooschl-Edwards Corrugating Co., Cincinnati, Ohio  
National Sheet Metal Roofing Co., 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.
- SLABS—REINFORCED CONCRETE**  
American & Way-Luxfer Prism Co., Cicero, Ill.  
Concrete Engineering Co., Omaha, Neb.  
Truscon Steel Co., Detroit, Mich.
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Slatington Slate Co., Slatington, Pa.
- SLATE—STRUCTURAL**  
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Knickerbocker Slate Corp., 153 E. 38th St., New York, N. Y.  
P. O. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa. (Clear black).  
Structural Slate Co., Pen Argy, Pa.
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James Swan Co., Seymour, Conn.  
L. & I. J. White Co., Buffalo, N. Y.
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Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
Sterling Foundry Co., Sterling, Ill. ("Beast").  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner").
- SPROUTING—CONCRETE**  
Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
Atlas Engineering Co., 8009 Lisbon Ave., Milwaukee, Wis. ("Atlas").  
Insley Mfg. Co., Indianapolis, Ind.  
Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").
- SPRAY PAINTING OUTFITS**  
DeVilbiss Mfg. Co., Toledo, O. ("DeVilbiss Spray Painting System").  
Paasche Air Brush Co., 1913 Diversey Parkway, Chicago, Ill.
- SPRINGS—DOOR**  
Allith-Prouty Co., Danville, Ill. ("Perfection Coil").  
The Bommer Spring Hinge Co., Brooklyn, N. Y. ("Bommer").  
Chicago Spring Butt Co., 1500 Carroll Ave., Chicago, Ill. ("Chicago," "Reliance").  
National Mfg. Co., Sterling, Ill.  
Sargent & Co., New Haven, Conn. ("Sargent").  
Wagner Mfg. Co., Cedar Falls, Ia. ("Wagner").
- SQUARES—BEVEL**  
Henry Diston & Sons, Philadelphia, Pa. ("Diston").  
Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.
- SQUARES—COMBINATION**  
Henry Diston & Sons, Philadelphia, Pa. ("Diston").  
Lufkin Rule Co., Saginaw, Mich.  
L. S. Starrett Co., Athol, Mass.
- SQUARES—STEEL**  
A. S. Aloe Co., St. Louis, Mo.  
Eugene Distgen Co., 166 W. Monroe St., Chicago, Ill.  
International Correspondence Schools, Scranton, Pa.  
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.  
F. Weber Co., Philadelphia, Pa.
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Eugene Distgen Co., 166 W. Monroe St., Chicago, Ill.  
International Correspondence Schools, Scranton, Pa.  
Keuffel & Esser Co., Hoboken, N. J.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
Wissler Instrument Co., St. Louis, Mo.
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Southington Hardware Co., Southington, Conn.
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Lufkin Rule Co., Saginaw, Mich.  
Southington Hardware Co., Southington, Conn.  
Stanley Works, New Britain, Conn.  
L. S. Starrett Co., Athol, Mass.
- STAINS—CEMENT**  
Samuel Cabot, Inc., Boston, Mass. (Cabot's waterproof cement stains).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- STAINS—SHINGLE**  
Barrett Co., 40 Rector St., New York, N. Y. ("Barrett Velver" shingle stain).  
Samuel Cabot, Inc., Boston, Mass. (Cabot's creosote stains).  
Cres-Dipt Co., North Tonawanda, N. Y. ("Cres-Dipt" shingle stain and "Dixie White" treatment).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Servicised").
- STAINS—WOOD**  
Samuel Cabot, Inc., Boston, Mass. (Cabot's creosote stains).  
S. C. Johnson & Son, Racine, Wis. (Johnson's Wood Dye).  
Servicised Products Co., First Nat. Bank Bldg., Chicago, Ill.
- STAIRWAYS**  
The Beasler Movable Stairway Co., Akron, O. (Movable).  
Curtis Service Bureau, Clinton, Ia.  
Fred J. Meyers Mfg. Co., Hamilton, O. (Iron).  
Paine Lumber Co., Oshkosh, Wis.  
Slatington Slate Co., Slatington, Pa.
- STALLS—URINAL**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
Slatington Slate Co., Slatington, Pa.  
The Structural Slate Co., Pen Argy, Pa. (Slate).
- STANCHIONS—CATTLE**  
Mast Foss & Co., Springfield, O. ("Buck-eye").  
Ney Mfg. Co., Canton, O. ("Ney").
- STANCHIONS—COLUMN**  
Donley Bros. Co., Cleveland, O. ("Donley").
- STANDARDS—ENTRANCE**  
Union Metal Mfg. Co., Canton, O. ("Union Metal" pressed steel).
- STANDS—BOILER**  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
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.
- STEELS—FABRICATED**  
Edwards Mfg. Co., Cincinnati, O.  
Federal Bridge & Structural Co., Waukesha, Wis.  
Insley Mfg. Co., Indianapolis, Ind.  
International Steel & Iron Co., Evansville, Ind.  
Truscon Steel Co., Detroit, Mich.
- STEEL—STRUCTURAL**  
Central Steel Co., Massillon, O.  
Edwards Mfg. Co., Cincinnati, 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.
- STOCK—DIMENSION**  
Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" trademarked yellow pine).  
Wood Mosaic Co., New Albany, Ind.
- STOCK—FIREDOOR**  
Edwards Mfg. Co., Cincinnati, O.
- STOCK—TANK**  
Edwards Mfg. Co., Cincinnati, O.
- STONE—BACKING**  
Anti-Hydro Waterproofing Co., 39 Cortlandt St., New York, N. Y.  
Samuel Cabot, Inc., Boston, Mass.  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.
- STONE—CRUSHED**  
Ohio Hydrate & Supply Co., Woodville, O. (Also fluxing stone).
- STOPS—BENCH**  
Ohas. Morrill, Inc., 100 Lafayette St., New York, N. Y. ("Morrill," "Apax").  
Sargent & Co., New Haven, Conn.
- STOPS—DOOR**  
Curtis Service Bureau, Clinton, Ia.  
Paine Lumber Co., Oshkosh, Wis.  
Richards-Wilcox Mfg. Co., Aurora, Ill.  
Sargent & Co., New Haven, Conn.  
Wagner Mfg. Co., Cedar Falls, Ia.
- STRAINERS—SEWER PIPE**  
Donley Bros. Co., Cleveland, O. (Perforated and bar. "Donley").  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.
- STUCCO**  
American Magnestone Corp., Springfield, Ill.  
Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro").  
Bishopric Mfg. Co., Cincinnati, O.  
Flint Rock Corp., Ingomar, O. (Magnesite).  
Franklyn E. Muller Co., Waukegan, Ill. ("Asbestone Everlasting").  
National Kellastone Co., 155 E. Superior St., Chicago, Ill. ("Kellastone").  
The Robend Co., Van Wert, O. ("Rob-bond").  
Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.  
Tritschler & Sons, Inc., 220 W. 42d St., New York, N. Y. (Magnesite).  
U. S. Materials Co., Conway Bldg., Chicago, Ill. ("Elastics" magnesite).
- STUCCO MACHINES**  
Goodrich-Morris Co., Cincinnati, O.  
Master Rule Mfg. Co., 841 E. 136th St., New York, N. Y. ("Master").
- STUDS—FIREPROOF**  
Concrete Engineering Co., Omaha, Neb.  
Truscon Steel Co., Detroit, Mich.
- SURFACES**  
The Crescent Machine Co., Leestonia, O. ("Crescent").  
Sidney Machine Tool Co., Sidney, O.  
J. D. Wallace & Co., 1401 Jackson Bldg., Chicago, Ill. (Wood planers).
- SURFACING MACHINES—DESK AND TABLE**  
American Floor Surfacing Machine Co., Toledo, O. ("American," "Electric," "Sanderplane").  
Wayvell, Chappell & Co., Waukegan, Ill.

**Winter Time is Spray-painting Time**

the same as any other time of year. Put an outfit to work on your "cold weather" jobs and start increasing your profits now. The

***DeVilbiss  
Spray-painting System***

calls for less effort and makes possible faster and cleaner work of best quality.

Two or more jobs can be done in the time and with the men now required for one. Increased profits soon pay for complete equipment.

*Be the year round painter of your section—illustrated folder of new and improved DeVilbiss Spray-painting Outfits gladly mailed.*

The DeVilbiss Mfg. Co., 3676 Detroit Ave., Toledo, O.



**IMPORTANT CHANGE IN SELLING POLICY**

***The Combustion  
Fuel Oil Burner***

which has heretofore been sold exclusively thru the distributor, will now be sold directly thru the *Fitter* and the *Contractor*.

Write us on your letterhead and we will send you full data and prices on our *ten sizes* of equipment for heating the home, the store, or the factory.

**As Safe and Simple As Your Electric Light  
Absolutely Automatic**



Every installation a satisfied customer.

Every installation sold under iron clad, money back guarantee.

**THE COMBUSTION CO.**

General Sales Office: 728 So. Michigan Ave.  
Factory: 4256 North Western Ave.

CHICAGO, ILL.



**SURFACING MACHINES—FLOOR (ELECTRIC)**

American Floor Surfacing Machine Co., Toledo, O. ("American", "Universal").  
Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill.  
M. L. Schleuter, 225 W. Illinois St., Chicago, Ill. ("Improved" "Schleuter" ball-bearing).  
Wayvell, Chappell & Co., Waukegan, Ill.

**SURFACING MACHINES—FLOOR (HAND)**  
Fox Supply Co., Brooklyn, Wis. ("Fox").  
Sidney Machine Tool Co., Sidney, O.  
Triple A Machine Co., 4061 Ravenswood Ave., Chicago, Ill.

**SUPPORTS—SASH**

Smith & Egge Mfg. Co., Bridgeport, Conn.

**SWAGES—SAW**

E. C. Atkins & Co., Indianapolis, Ind.  
Henry Diaston & Sons, Philadelphia, Pa. ("Diaston").  
Parks Ball Bearing Machine Co., Cincinnati, Ohio  
Sidney Machine Tool Co., Sidney, O.

**TABLES—DRAFTING**

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.  
O. F. Pease & Co., 831 N. Franklin St., Chicago, Ill.

Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.

**TABLES—KITCHEN**

Wasmuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").

**TABLES—SAW**

American Cement Machine Co., Keokuk, Ia.  
American Saw Mill Machinery Co., Hackettstown, N. J.  
W. F. & Jno. Barnes Co., Rockford, Ill.  
C. H. & E. Mfg. Co., Inc., Milwaukee, Wis. ("C. H. & E.").  
Crescent Machine Co., Leontonia, O. ("Crescent").

Henry Diaston & Sons, Philadelphia, Pa.  
Knickerbocker Co., Jackson, Mich. ("Knickerbocker").

Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh").

The Parks Ball Bearing Machine Co., Cincinnati, O.

Ransome Concrete Machinery Co., Dunellen, N. J.

Sidney Machine Tool Co., Sidney, O.  
Silver Mfg. Co., Salem, O.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**TAMPERS—CONCRETE**

Abram Cement Tool Co., Detroit, Mich. ("Abram").  
Anchor Concrete Machinery Co., Columbus, O.  
Concrete Equipment Co., Holland, Mich.  
Construction Machinery Co., Waterloo, Ia.  
Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").

Metal Forms Corp., Milwaukee, Wis. ("Metaform" concrete road tamping template).  
Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").

**TANKS—CEMENT STAVE**

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

**TANKS—CLOSET**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
Detroit Range Boiler & Steel Barrel Co., Detroit, Mich.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**TANKS—EXPANSION**

Detroit Range Boiler & Steel Barrel Co., Detroit, Mich. ("Star").

**TANKS—PNEUMATIC WATER**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

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").

Milwaukee Air Power Pump Co., Milwaukee, Wis.

Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.

**TANKS—SEPTIC**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").

Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro").

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
Kewanee Private Utilities Co., Kewanee, Ill. ("Kewanee").

**TANKS—SLATE**

F. O. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa.  
Structural Slate Co., Pen Argyl, Pa.

**TANKS—STEEL & IRON**

Andrews Heating Co., Minneapolis, Minn. ("Andrews").  
W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

Detroit Range Boiler & Steel Barrel Co., Detroit, Mich.

Farquhar Furnace Co., Wilmington, O. (Electrically welded).

Milwaukee Air Power Pump Co., Milwaukee, Wis.

Milwaukee Corrugating Co., Milwaukee, Wis.

Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.

Wayne Tank & Pump Co., Ft. Wayne, Ind.

**TANKS—WOOD**

Baltimore Coöperage Co., Baltimore, Md.  
W. E. Caldwell Co., Louisville, Ky. ("Caldwell").

**TAPES—MEASURING (STEEL)**

A. S. Aloe Co., St. Louis, Mo.  
Crogan Mfg. Co., Belfast, Me. ("One-Man," "One Man Junior," "Bangor").

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

International Correspondence Schools, Scranton, Pa.

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

Lufkin Rule Co., Saginaw, Mich.

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

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

Warren-Knight Co., Philadelphia, Pa.

F. Weber Co., Philadelphia, Pa.

David White Co., Milwaukee, Wis. ("White's Improved").

Wissler Instrument Co., St. Louis, Mo.

**TENONERS**

American Saw Mill Machinery Co., Hackettstown, N. J.

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

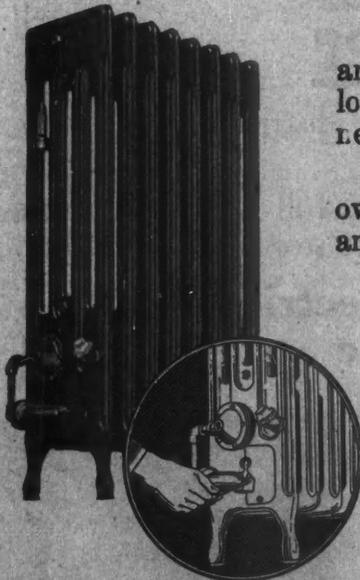
H. E. DeWalt, Hridgeton, N. J. ("Dew-All").

The Parks Ball Bearing Machine Co., Cincinnati, O.

Sidney Machine Tool Co., Sidney, O.

Buyers' Guide continued on page 164

# PART-TIME BUILDINGS



Most commercial buildings—stores, offices, factories—are in use only part of the time. The same is true of lodge halls, schools and churches. It follows that they need heat only part of the time.

By heating them with CLOW GASTeam radiators the owner does not waste heat. He saves the cost of boiler and chimney—even cellar excavation. He has no fuel to store, no ashes to remove. And his heating plant needs no attention.

Send for more information about CLOW GASTeam—gas fired radiators, generating *Steam* heat.

**JAMES B. CLOW & SONS**

General Offices: 534-546 S. Franklin St., Chicago  
Sales offices in the principal cities

# CLOW

James B. Clow & Sons  
534-546 S. Franklin Street, Chicago  
Send me details of CLOW GASTeam.

Name \_\_\_\_\_

Address \_\_\_\_\_



# Efficiency Products

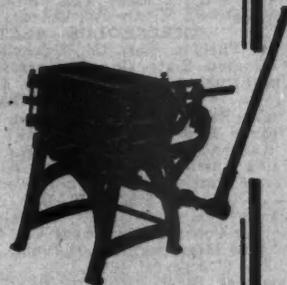
*Recommend Themselves to You*

**B**ECAUSE they are the latest and best achievements of a company that points to a successful history concerning a period of more than twenty years—a company that has kept up with the times and is today producing the premier machines of its career. These machines are used everywhere—in this country and abroad—and never fail to please. They save time and money and pave the way for a greater profit. Every one guaranteed absolutely.

## Our Building Tile Machine

has made good with a bound and is now favored everywhere for its efficiency. It delivers three tile on a single wooden pallet, with no stopping or delays for off-bearing of tile.

(LEARN ABOUT THE ENTIRE IDEAL LINE; LET US SEND CATALOG 35)



## Our Hand Block Machines

produce fine, square blocks that make good. They are uniform, true and perfectly balanced. This efficient little hand machine will get you the business to such a satisfactory extent that you will shortly install a Tamper, Core Actuator, Conveyor and Feeder.

**The Ideal Concrete Machinery Company**

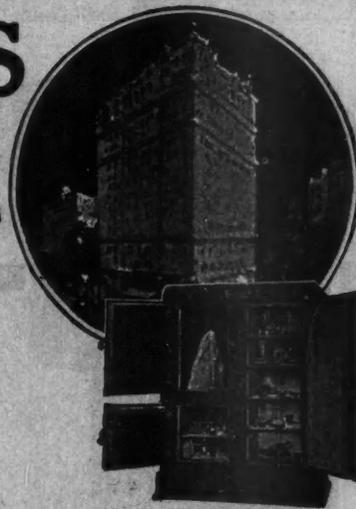
1308 Monmouth Street, CINCINNATI, OHIO

# FREE BLUE PRINTS of HERRICK *Outside Icing*

**J**UST stick these plans in your vest pocket—they are the handiest size imaginable for a man to carry—and it will be easy for you on short notice to plan, recommend or install Herrick Outside Icing, the big feature that makes refrigerator satisfaction.

Sooner or later, every home owner will hear of the many advantages of Outside Icing, and then he will wonder why his builder did not at least recommend this system. Play safe for future satisfaction in the home you plan or build. Speak to the owner, tell him of the comforts and the conveniences that follow the installation of a Herrick, especially *with outside icing attachment*, and you will build a reputation for care and thoroughness that will build your business.

**Herrick Refrigerator & Cold Storage Co.**  
105 River Street, Waterloo, Iowa



**Do it NOW!**

**REQUEST FOR BLUE PRINTS**

Herrick Refrigerator and Cold Storage Co.,  
105 River Street, Waterloo, Iowa.  
Please send me free a set of Blue Prints, in the handy vest pocket size, showing dimensions and various openings necessary for HERRICK Outside Icing.

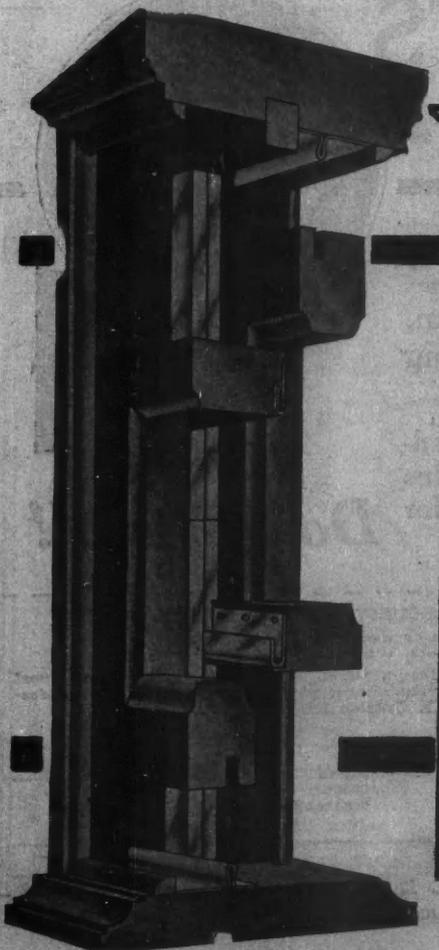
Name of Firm.....  
Address.....  
Contractor or Builder  
(Scratch out one)  
Name of Individual.....  
City.....

J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").  
**TERRAZZO**  
 Tritschler & Sons, Inc., 220 W. 42nd St., New York, N. Y. (Chips).  
**THRESHOLDS—METAL**  
 Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill. ("Brasco").  
 Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.  
 Concrete Engineering Co., Omaha, Neb.  
 Detroit Show Case Co., Detroit, Mich.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Fred J. Meyers Mfg. Co., Hamilton, O.  
 Victor Parting Bead Co., Reading, Pa.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.  
**THRESHOLDS—SLATE**  
 F. C. Sheldon Slate Co., Granville, N. Y.  
 Slatington Slate Co., Slatington, Pa.  
 The Structural Slate Co., Pen Argyl, Pa.  
**THRESHOLDS—WOOD**  
 Curtis Service Bureau, Clinton, Ia.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").  
 Paine Lumber Co., Oshkosh, Wis.  
 Victor Parting Bead Co., Reading, Pa.  
**TIES—WALL**  
 Abram Cement Tool Co., Detroit, Mich.  
 Anchor Concrete Machinery Co., Columbus, O.  
 Ankyra Mfg. Co., Wayne Junc., Philadelphia, Pa. ("Ankyra").  
 Bostwick Steel Lath Co., Niles, O. ("Bostwick").  
 Concrete Engineering Co., Omaha, Neb.  
 Donley Bros. Co., Cleveland, O. ("Donley").  
 Edwards Mfg. Co., Cincinnati, O.  
 Helm Brick Machine Co., Cadillac, Mich.  
 F. D. Kees Mfg. Co., Beatrice, Neb.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Shrauger & Johnson, Atlantic, Ia.  
 Sykes Metal Lath & Roofing Co., Niles, O.  
 Universal Cement Mold Co., North Milwaukee, Wis.  
 Willis Mfg. Co., Galesburg, Ill.  
**TILE—CORK**  
 Armstrong Cork Co., Linolesum Division, Lancaster, Pa.  
**TILE—DRAIN**  
 Hardin-Lavin Co., 4523 Cottage Grove Ave., Chicago, Ill.  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").

**TILE—FIBRE BOARD**  
 The Upson Co., Lockport, N. Y. ("Upson").  
**TILE—FIREPROOF**  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
**TILE—FLOOR AND WALL**  
 Colonial Fireplace Co., 4611 Roosevelt Rd., Chicago, Ill.  
 Grand Rapids Marble & Fireplace Co., Grand Rapids, Mich.  
 Chas. F. Lorensen & Co., 521 W. Monroe St., Chicago, Ill.  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
 The Structural Slate Co., Pen Argyl, Pa.  
 United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. (Gypsum floor tile).  
**TILE—GYPSUM**  
 United States Gypsum Co., 205 W. Monroe St., Chicago, Ill.  
**TILE—HOLLOW BUILDING**  
 Blystone Mfg. Co., Cambridge Springs, Pa. ("Blystone" dry wall).  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Duntile").  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
**TILE—PARTITION**  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Duntile").  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
**TILE—SEWER**  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
**TILE—SILO**  
 National Fireproofing Co., Pittsburgh, Pa. ("Natco").  
**TILE—SLATE**  
 F. C. Sheldon Slate Co., Granville, N. Y.  
 Slatington Slate Co., Slatington, Pa.  
**TILE—STEEL**  
 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  
 Truscon Steel Co., Detroit, Mich.  
**TILE MACHINES—CLAY**  
 Republic Iron Works, Tecumseh, Mich.  
**TILE MACHINES—DRAIN (CEMENT)**  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").  
 J. B. Foote Foundry Co., Fredericktown, O.

Ideal Concrete Machinery Co., Cincinnati, O. ("Ideal").  
**TILE MACHINES—FLOOR AND WALL**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 Helm Brick Machine Co., Cadillac, Mich. (Floor).  
**TILE MACHINES—HOLLOW BUILDING**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 Anchor Concrete Machinery Co., Columbus, O.  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn").  
 Ideal Concrete Machinery Co., Cincinnati, O.  
**TILE MACHINES—ROOFING (CEMENT)**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 Anchor Concrete Machinery Co., Columbus, O.  
**TILE MACHINES—SEWER**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 J. B. Foote Foundry Co., Fredericktown, O.  
 Ideal Concrete Machinery Co., Cincinnati, O.  
**TILE MACHINES—SILO**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 Republic Iron Works, Tecumseh, Mich.  
**TILE PLANTS**  
 American Router & Mfg. Co., Pittsburgh, Pa.  
 Anchor Concrete Machinery Co., Columbus, O.  
 W. E. Dunn Mfg. Co., Holland, Mich. ("Dunn"). Complete equipment for concrete tile plants: Hollow Building, Drain and Hollow Silo Tile).  
 J. B. Foote Foundry Co., Fredericktown, O.  
**TIMBERS**  
 Long-Bell Lumber Co., Kansas City, Mo. ("Long-Bell" long-leaf yellow pine).  
 The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
**TINTS—WALL**  
 M. Ewing Fox Co., 186th St. and Rider Ave., New York, N. Y. ("Muralite," "Calcitrine").  
**TOOLS—CARVING**  
 Buck Bros., Millbury, Mass.  
 R. E. DeWalt, Bridgeton, N. J.  
 Mack Tool Co., Rochester, N. Y. ("D. R. Barton").  
**TOOLS—CEMENT WORKERS**  
 Abram Cement Tool Co., Detroit, Mich. ("Abram" cement finishing trowels, floats, groovers, rollers, grout cutters, edgers, jointers).  
 Archer Iron Works, 2488 W. 84th Place, Chicago, Ill.  
 E. O. Atkins & Co., Indianapolis, Ind.  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston").  
 Gray Iron Foundry Co., Reading, Pa.

Buyers' Guide continued on page 166



## Sager Metal Weatherstrip

The fastest selling weatherstrip of them all. It's sound, apparent real value make it the best strip for the new contractor to begin with. Our fair and square dealers policy make it the all-time favorite of every Sager dealer.

We want a man in every locality who will maintain a selling and installing agency.

Now is the time to begin while the demand is greatest.

The demand was created by the coal shortage.

It is met with Sager Metal Weatherstrips that reduces the coal cost  $\frac{1}{2}$ .

Those far-seeing men who are going to answer this ad will be the ones to benefit by this unusual opportunity.

Write now for full details

**Sager Metal Weatherstrip Co.**  
162 West Austin Ave., Chicago

GET THE EXCLUSIVE MANUFACTURING  
RIGHT FOR THIS

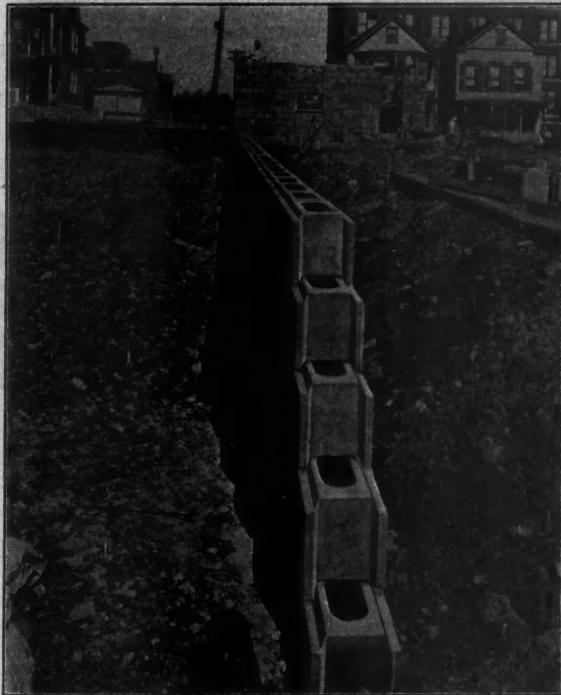
# Patented Interlocking Tile

All Acme Products protected  
by U. S. and Foreign Patents

The Acme System enables you to turn out a perfect poured tile up to any specification of strength. Its interlocking features are revolutionary because of the absolute exclusion of moisture from its joints, which represents a decided advantage over any other building material.



The New Acme All Steel Mould  
with one-piece Collapsible Core,  
equipped with Roller Bearing  
Casters.



Retaining wall in course of construction built  
of Acme Interlocking Tile showing continuation  
of air spaces and interlocking features.

ACME TILE is a poured tremendously strong, synthetic stone which is simple to manufacture. We have a number of territories to offer you exclusively, so you can maintain a steady output without any competition. We will supply all the necessary equipment which is trouble-proof and is a proved success. We have an interesting booklet telling about the extraordinary merits of this tiling block which will further explain the opportunity that is offered you.

Act at once. This means money for you. Call or write

**ACME TILE COMPANY**  
125 Prospect St. PASSAIC, N. J.

# OAK FLOORS

(For Everlasting Economy)

## 35 Years Hence— What?

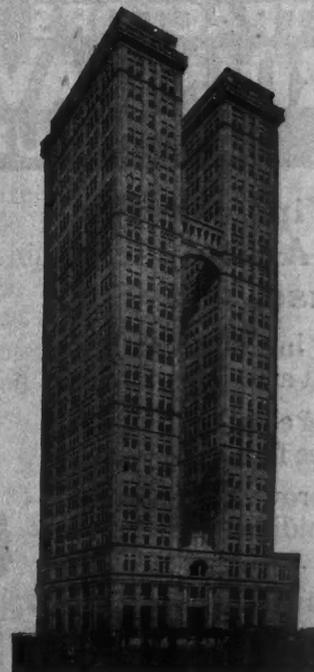
THE real cost of flooring is its purchase price plus its maintenance per year of service.

Oak Flooring one hundred years old is quite common in residences and Oak Flooring fifty years old is not uncommon in factories, warehouses, docks, armories, machine shops, and other structures, requiring "high duty" floors.

As years pass owners appreciate more and more the good judgment of the builder who recommended Oak Flooring. They find it reduces their cleaning bills and increases their sales and rental values 25% or more, besides giving its other satisfactory qualities.

Three booklets, in colors, containing much accurate and valuable information for a builder's files, mailed free on request.

**Oak Flooring Advertising Bureau**  
1038 Ashland Block, Chicago, Ill.



THE MAGNOLIA BUILDING  
Dallas, Texas  
Oak Flooring Used

**TOOLS—MASON'S**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").  
E. O. Atkins & Co., Indianapolis, Ind.  
Henry Diaston & Sons, Philadelphia, Pa. ("Diaston").

**TOOLS—SLATERS**  
Knickerbocker Slate Corp., 158 E. 38th St., New York, N. Y.  
F. C. Sheldon Slate Co., Granville, N. Y.

**TOOLS—WEATHERSTRIP**  
Concrete Engineering Co., Omaha, Neb.  
Victor Parting Bead Co., Reading, Pa.

**TOPS—CHIMNEY**  
Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O. (Steel).  
Slatington Slate Co., Slatington, Pa.  
Sterling Foundry Co., Sterling, Ill. ("Best" revolving).

**TOWERS—CONCRETE PLACING**  
American Cement Machine Co., Keokuk, Ia.  
Archer Iron Works, 2438 W. 84th Place, Chicago, Ill.

Inslay Mfg. Co., Indianapolis, Ind.  
Ransome Concrete Machinery Co., Dunellen, N. J. ("Ransome").

**TOWERS—STEEL**  
Baltimore Coopera Co., Baltimore, Md.  
W. E. Caldwell Co., Louisville, Ky. ("Caldwell") Water, etc.

Clinton Bridge Co., Clinton, Ia.  
Ransome Concrete Machinery Co., Dunellen, N. J.

**TRACK—HAY**  
Key Mfg. Co., Canton, O. ("Key").

**TRACTORS**  
Andrews Heating Co., Minneapolis, Minn. ("Andrews", "Kinkade").  
Lansing Co., Lansing, Mich. (Electric).

**TRAILERS—AUTO, MOTOR TRUCK, ETC.**  
Lansing Co., Lansing, Mich.

**TRANSFORMERS**  
General Electric Co., Schenectady, N. Y.

**TRANSITS AND LEVELS**  
A. S. Aloe Co., St. Louis, Mo.  
The L. Beckman Co., Toledo, O.  
Eugene Dietzgen Co., 166 W. Monroe St., Chicago, Ill.

International Correspondence Schools, Scranton, Pa.

Keuffel & Esser Co., Hoboken, N. J.  
L. S. Starrett Co., Athol, Mass.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
David White Co., Milwaukee, Wis. ("White's Improved").  
Wissler Instrument Co., St. Louis, Mo.

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

**TRANSMISSION MACHINERY**  
W. E. Caldwell Co., Louisville, Ky.  
J. D. Wallace & Co., 1401 Jackson Bldg., Chicago, Ill.

**TRAPS—BATH**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Hardin-Lavin Co., 4523 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**TRAPS—RADIATOR**  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

**TRAPS—REFRIGERATOR**  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Donley Bros. Co., Cleveland, O. ("Donley").  
Hardin-Lavin Co., 4523 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**TRAPS—STEAM**  
Johns-Manville, Inc., Madison and 41st, New York, N. Y.

**TRAYS—LAUNDRY**  
Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 584 S. Franklin St., Chicago, Ill.

Hardin-Lavin Co., 4523 Cottage Grove Ave., Chicago, Ill.  
B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

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

**TREADS—STAIR**  
International Steel & Iron Co., Evansville, Ind.

Knickerbocker Slate Corp., 158 E. 38th St., New York, N. Y.

Paine Lumber Co., Oshkosh, Wis.  
F. C. Sheldon Slate Co., Granville, N. Y.  
Slatington Slate Co., Slatington, Pa.

Structural Steel Co., Pen Argyl, Pa. ("Pyramid").  
Truscon Steel Co., Detroit, Mich.

**TRENCHING MACHINES**  
Construction Machinery Co., Waterloo, Ia.

**TRESTLES**  
Steel Scaffolding Co., Evansville, Ind. (For bricklayers, plasterers, stuccoers.)

**TRIANGLES**  
A. S. Aloe Co., St. Louis, Mo.  
Keuffel & Esser Co., Hoboken, N. J.  
Warren-Knight Co., Philadelphia, Pa.  
F. Weber Co., Philadelphia, Pa.  
Wissler Instrument Co., St. Louis, Mo.

**TRIM—DOOR AND WINDOW**  
Curtis Service Bureau, Clinton, Ia.  
Milwaukee Corrugating Co., Milwaukee, Wis.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

The Pacific Lumber Co. of Illinois, 2066 McCormick Bldg., Chicago, Ill.  
Paine Lumber Co., Oshkosh, Wis.  
Victor Parting Bead Co., Reading, Pa.  
Yale & Towne Mfg. Co., Cincinnati, O.

**TRIM—INTERIOR (HARDWOOD)**  
Curtis Service Bureau, Clinton, Ia.  
Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan").

Paine Lumber Co., Oshkosh, Wis.  
**TRIM—INTERIOR (MARBLE)**  
Art Stone Co., Waynesboro, Pa.

**TRIM—INTERIOR (METAL)**  
Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill.

Concrete Engineering Co., Omaha, Neb.  
Edwards Mfg. Co., Cincinnati, O.  
Milwaukee Corrugating Co., Milwaukee, Wis.

Moeschl-Edwards Corrugating Co., Cincinnati, Ohio  
Wasmuth-Endicott Co., Andrews, Ind. ("Kitchen Maid").

**TRIM—INTERIOR (SLATE)**  
F. C. Sheldon Slate Co., Granville, N. Y.

**TRIMMERS—WOOD**  
Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker").

**TRIPODS—PORTABLE**  
Keuffel & Esser Co., Hoboken, N. J.  
J. G. Speidel, Reading, Pa.

David White Co., Milwaukee, Wis. ("White's Improved").  
Warren-Knight Co., Philadelphia, Pa.

Wissler Instrument Co., St. Louis, Mo.  
**TROLLEYS AND TRAMWAYS**  
Allith-Prouty Co., Danville, Ill.

Richards-Wilcox Mfg. Co., Aurora, Ill.  
J. G. Speidel, Reading, Pa.

Yale & Towne Mfg. Co., Stamford, Conn.  
**TROWELS—CEMENT WORKERS**  
Abram Cement Tool Co., Detroit, Mich. ("Abram").

E. O. Atkins & Co., Indianapolis, Ind.  
Henry Diaston & Sons, Philadelphia, Pa. ("Diaston").

Buyers' Guide continued on page 168

## CONTRACTORS AND BUILDERS — INSTALL A HARDIN-LAVIN PIPELESS FURNACE IN YOUR NEXT BUILDING

**Our Pipeless Furnaces Are Superior Because —**

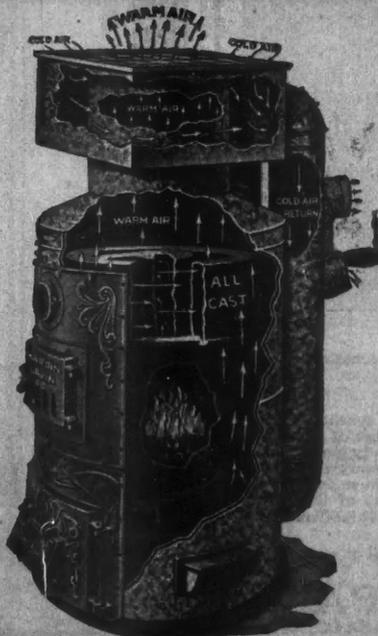
The interior and large front are all heavy cast.

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

5500.000 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



**And for Yourself —**

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Write for Catalog No. 22 "6". Sent free on request.

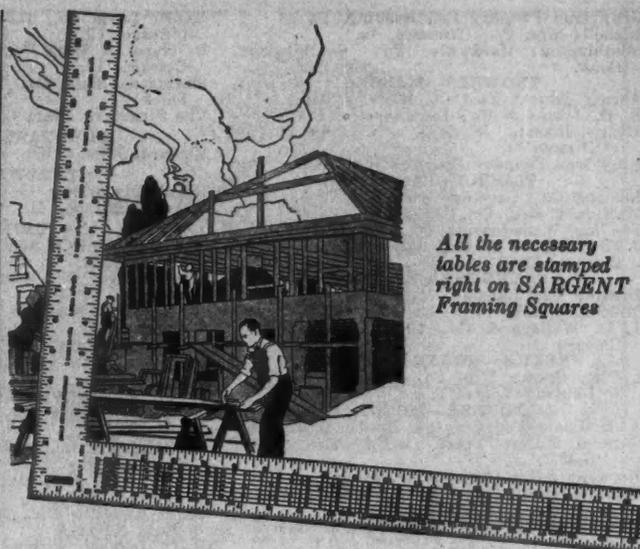
**THE L. S. STARRETT CO.**

*The World's Greatest Toolmakers  
Manufacturers of Hacksaws Unexcelled  
ATHOL, MASS.*

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*All the necessary tables are stamped right on SARGENT Framing Squares*

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You don't have to be a mathematician to use the SARGENT Framing Square. Complete tables of measurements are plainly stamped on it. Even the most inexperienced carpenter can use it with speed and depend upon its accuracy.

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*Manufacturers*

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**SARGENT**

LOCKS AND HARDWARE

Gray Iron Foundry Co., Reading, Pa.  
Nicholls Mfg. Co., Ottumwa, Ia.  
Southington Hardware Co., Southington, Conn.

**TROWELS—MASON'S**

Abram Cement Tool Co., Detroit, Mich.  
E. O. Atkins & Co., Indianapolis, Ind.  
Henry Dison & Sons, Philadelphia, Pa. ("Dison")

Gray Iron Foundry Co., Reading, Pa.

**TRUCKS—FACTORY**

Lansing Co., Lansing, Mich.  
McKinney Mfg. Co., Pittsburgh, Pa.  
Sterling Wheelbarrow Co., Milwaukee, Wis.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**TRUCKS—HAND**

Lansing Co., Lansing, Mich.  
McKinney Mfg. Co., Pittsburgh, Pa.  
J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**TRUCKS—HOUSE MOVING**

LaPlant-Chaste Mfg. Co., Cedar Rapids, Ia. ("LaPlant-Chaste")

**TRUCKS—MOTOR**

J. B. Foote Foundry Co., Fredericktown, O.  
General Motors Truck Co., Pontiac, Mich. ("G.M.C.")

Republic Sales Corp., Alma, Mich.  
Winther Motor Truck Co., Kenosha, Wis.

**TRUSSES—ROOF**

International Steel & Iron Co., Evansville, Ind.

McKeown Bros. Co., 112 W. Adams St., Chicago, Ill.

Fred J. Meyers Mfg. Co., Hamilton, O.

**TRUSSES—STEEL**

Federal Bridge & Structural Co., Waukesha, Wis.

International Steel & Iron Co., Evansville, Ind.

Fred J. Meyers Mfg. Co., Hamilton, O.

**TRUSSES—WOOD**

McKeown Bros. Co., 112 W. Adams St., Chicago, Ill.

**TUBS—BATH**

Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

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

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

**TUBS—LAUNDEY**

Andrews Heating Co., Minneapolis, Minn.  
James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

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., Pen Argy, Pa.

**TURNTABLES—AUTO**

Richards-Wilcox Mfg. Co., Aurora, Ill.

**TYPEWRITERS**

Royal Typewriter Co., Inc., 82 S. Wabash Ave., Chicago, Ill. ("Royal")

**URINALS**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

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

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

Slatington Slate Co., Slatington, Pa.  
Structural Slate Co., Pen Argy, Pa. ("Pyramid")

**VALVES—RADIATOR**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

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

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

Johns-Manville, Inc., Madison and 41st New York, N. Y.

S. O. Johnson & Son, Racine, Wis. ("Johnson's" floor varnish, "Johnson's" sanispar varnish)

Ruberoid Co., 95 Madison Ave., New York, N. Y.

**VENEER TAPING MACHINES**

Black Bros. Co., Mendota, Ill.

J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**VENTILATING SYSTEMS**

Farquhar Furnace Co., Wilmington, O. ("FarQuar")

Milwaukee Corrugating Co., Milwaukee, Wis.

Shrauger & Johnson, Atlantic, Ia.

**VENEERS**

Wood-Mosaic Co., New Albany, Ind. (Hardwood).

**VENTILATORS—CHIMNEY**

Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.  
Globe Ventilator Co., Troy, N. Y. ("Globe")

**VENTILATORS—EKAHAUST**

Globe Ventilator Co., Troy, N. Y. ("Globe")

**VENTILATORS—ROOF**

Edwards Mfg. Co., Cincinnati, O.  
Eller Mfg. Co., Canton, O.

Globe Ventilator Co., Troy, N. Y. ("Globe")  
International Steel & Iron Co., Evansville, Ind.

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

Moeschl-Edwards Corrugating Co., Cincinnati, O.

Shrauger & Johnson, Atlantic, Ia.  
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**

Brasco Mfg. Co., 5025 Wabash Ave., Chicago, Ill.

Detroit Steel Products Co., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.

International Steel & Iron Co., Evansville, Ind.

Shrauger & Johnson, Atlantic, Ia.  
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 Wabash Ave., Chicago, Ill.

Detroit Show Case Co., Detroit, Mich.  
Edwards Mfg. Co., Cincinnati, O.

Globe Ventilator Co., Troy, N. Y. ("Globe")  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**VENTILATORS—TRANSOM**

Brasco Mfg. Co., 5025 S. Wabash Ave., Chicago, Ill.

Edwards Mfg. Co., Cincinnati, O.

**VENTILATORS—WALL**

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

Edwards Mfg. Co., Cincinnati, O.  
Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.

Majestic Co., Huntington, Ind.

**VENTILATORS—WINDOW**

Edwards Mfg. Co., Cincinnati, O.

Higgin Mfg. Co., Newport, Ky. ("Higgin")  
Shrauger & Johnson, Atlantic, Ia.

Victor Parting Bead Co., Reading, Pa.  
Zouri Drawn Metals Co., Chicago Heights, Ill.

**VICES**

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

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

North Bros. Mfg. Co., Philadelphia, Pa. ("Yankee" swivel base and machine).

Buyers' Guide continued on page 170

**"QUALITY"**

thy name is **BOMMER** in all that relates to *Spring Hinges*.

Your door is the entrance to your "Sanctuary" in business and at home; "there's no place like home."

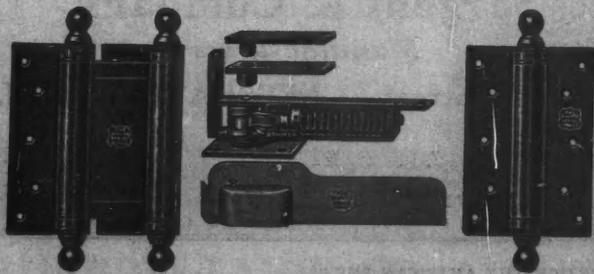
Let **BOMMER Spring Hinges** close your doors.

"They are the best."



**BOMMER SPRING HINGE CO., Brooklyn, N. Y.**

ESTABLISHED 1876



Stained with Cabot's Creosote Stain.  
E. 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

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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.

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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**  
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Cabot's Conserve Wood Preservative, Stucco Stains, Brick Stains, Damp-Proofing



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|----------------------------|--------------------------------|
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| Anchors                    | Ladders—Iron                   |
| Angles—Steel               | Lintels—Steel                  |
| Area Grates                | Lumber—Steel                   |
| Ash Dumps                  | Marqueses—Metal and Glass      |
| Ash Pit Doors              | Office Buildings               |
| Awnings—Metal              | Oil Filling Stations           |
| Balconies                  | Ornamental Iron Works          |
| Bars—Reinforcing           | Pier Blocks—Cast Iron          |
| Beams—Steel                | Pipe Railing                   |
| Bolts                      | Post Bases and Caps            |
| Bridges—Highway            | Railings—Balcony               |
| Canopies—Metal and Glass   | Railings—Pipe                  |
| Ceiling—Metal              | Reinforcing Bars               |
| Cellar Doors               | Roofing—Galvanized             |
| Channels—Steel             | Sash—Steel                     |
| Chutes—Coal                | Sheets—Galvanized              |
| Cleanout Doors             | Shutters—Steel                 |
| Coal Hole Covers           | Shutters—Tin Clad              |
| Columns—Cast Iron          | Sidewalk Lights                |
| Columns—Steel              | Siding—Metal                   |
| Copper Store Front Bars    | Skylights—All Kinds            |
| Cornices—Sheet Metal       | Stairs—Steel and Iron          |
| Culverts—Corrugated        | Steel Lumber                   |
| Dampers—Fireplace          | Steel—Structural               |
| Doors—Sidewalk             | Store Fronts—Complete          |
| Doors—Tin Clad Fire        | Thresholds—Cast Iron and Brass |
| Elevators—Freight          | Tipples—Coal                   |
| Fabricated Steel           | Treads—Safety                  |
| Factory Buildings          | Trusses—Steel                  |
| Fire Doors                 | Ventilators—Roof               |
| Galvanized Steel Products  | Wheel Guards                   |
| Girders—Steel              | Window Guards                  |
| Guards—Steel and Wire      | Windows—Sheet Metal            |
| H-Columns                  | Windows—Steel                  |
| Highway Bridges            | Wire Guards                    |
| Hy-Rib                     | Wrought Iron Work              |
| I-Beams                    | Zee Bars                       |
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Ideal for the builder who wishes to do fast, beautiful work on floors and interior finish.

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**I**N the old days of the West, stray, unbranded calves were called "Mavericks." They were without pedigree—without identity—without known value. They were just *Mavericks*.

Today, unbranded, unadvertised merchandise is plentiful upon the market. Because the manufacturer has not trade-marked his product, you know not whence it comes. Who is responsible for it—who sponsors its quality and vouches for its worth? *Nobody!* It is a *Maverick* among merchandise.

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An established trade-mark name protects you. For safety and economy today—

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B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Richards-Wilcox Mfg. Co., Aurora, Ill. ("R-W")  
 Rockford Mire Box Co., Rockford, Ill. (Improved "Janney")  
 Sargent & Co., New Haven, Conn. (Saw and bench)  
 Stanley Works, New Britain, Conn.

**WALLBOARD**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. (Asbestos).  
 Beaver Board Division, Beaver Products Co., Buffalo, N. Y.  
 Bishopric Mfg. Co., Cincinnati, O. ("Bishopric")  
 Celotex Co., 111 W. Washington St., Chicago, Ill. ("Celotex")  
 Compo-Board Co., Minneapolis, Minn. ("Compo-Board")  
 Cornell Wood Products Co., 190 N. State St., Chicago, Ill. (Cornell Wood Board).  
 Edwards Mfg. Co., Cincinnati, O.  
 Emerson Carey Fibre Products Co., Hutchinson, Kan.  
 Richardson Co., Milrose Park, Ill. ("Richardson")  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced")  
 United States Gypsum Co., 205 W. Monroe St., Chicago, Ill. ("Sheetrock")  
 The Upson Co., Lockport, N. Y. ("Upson")

**WARDROBES**

Frank S. Betz Co., Hammond, Ind. (Steel).  
 W. L. Evans, Washington, Ind. ("Evans Vanishing Door")

**WASHERS—BIBB**

Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.

**WASHSTANDS**

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 Slatington Slate Co., Slatington, Pa.

**WATERERS—STOOK**

Sterling Foundry Co., Sterling, Ill.

**WATERPROOFING—CEMENT**

Anti-Hydro Waterproofing Co., Newark, N. J. ("Anti-Hydro")  
 Barber Asphalt Co., Philadelphia, Pa. ("Genasco" positive seal)  
 Bitu-Mortar Waterproofing Co., 280 Madison Ave., New York, N. Y.  
 Samuel Cabot, Inc., Boston, Mass. ("Cabot's")  
 General Fireproofing Co., Youngstown, O. ("GF")  
 Lehon Co., 44th and Oakley, Chicago, Ill.  
 Richardson Co., Milrose Park, Ill. ("Flex-a-Tile" paints, felts and asphalts)  
 Sandusky Cement Co., Cleveland, O. ("Medusa" white and gray)  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced")  
 Speiden-Whitfield Co., 150 Nassau St., New York, N. Y.

**WATER SUPPLY SYSTEMS**

Andrews Heating Co., Minneapolis, Minn. ("Andrews")  
 Baltimore Coopperage Co., Baltimore, Md. ("Simplex")  
 W. E. Caldwell Co., Louisville, Ky. ("Caldwell")  
 James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.  
 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)  
 F. E. Myers & Bro. Co., Ashland, O.  
 Rooney Pump & Transmission Co., 42 Murray St., New York, N. Y.

**WAX—FLOOR**

S. C. Johnson & Son, Racine, Wis. (Johnson's Prepared Wax, Paste, liquid and powdered).  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced")

**WAXING MACHINES**

Electric Rotary Machine Co., 40 S. Clinton St., Chicago, Ill.  
 S. C. Johnson & Son, Racine, Wis. ("Johnson's")  
 Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

**WEATHERSTRIPS**

Allmetal Weatherstrip Co., 126 W. Kinzie St., Chicago, Ill. ("Allmetal")  
 Concrete Engineering Co., Omaha, Neb. ("Ceco" metal)  
 Diamond Metal Weatherstrip Co., Columbus, O. ("Diamond")  
 Federal Metal Weatherstrip Co., 1240 Fullerton Ave., Chicago, Ill. (Zinc)  
 Higgin Mfg. Co., Newport, Ky. ("Higgin")  
 Monarch Metal Products Co., St. Louis, Mo. ("Monarch" metal)  
 Sager Metal Weatherstrip Co., 162 W. Austin Ave., Chicago, Ill. ("Sager")  
 Shogren & Rasmussen Co., 1926 S. 52d Ave., Chicago, Ill.  
 Taylor, Allen & Co., Morris, Ill. ("Taylor" spring bronze)  
 Victor Parting Bead Co., Reading, Pa. ("Victor")

**WEATHERVANES**

Burkett Lightning Rod Co., Fremont, O.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 National Sheet Metal Roofing Co., Jersey City, N. J.

**WHEELBARROWS**

Abram Cement Tool Co., Detroit, Mich.  
 Archer Iron Works, 2438 W. 34th Place, Chicago, Ill.  
 Lansing Co., Lansing, Mich.  
 Sterling Wheelbarrow Co., Milwaukee, Wis.

**WHEELS—STEEL**

LaPlant-Cheate Mfg. Co., Cedar Rapids, Ia.

**WINCHES—BOOM**

Saagen Derrick Co., 3101 Grand Ave., Chicago, Ill. (Hand and power).

**WINDMILLS**

Baltimore Coopperage Co., Baltimore, Md.  
 W. E. Caldwell Co., Louisville, Ky. ("Caldwell")  
 Mast, Foss & Co., Springfield, O. ("Imperial")

**WINDOWS—BOXHEAD**

Curtis Service Bureau, Clinton, Ia.

**WINDOWS—CASEMENT**

Curtis Service Bureau, Clinton, Ia.  
 Detroit Steel Products Co., Detroit, Mich.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan")  
 Paine Lumber Co., Oshkosh, Wis.  
 Truscon Steel Co., Detroit, Mich.  
 Whitney Window Corp., Minneapolis, Minn. ("Whitney")

**WINDOWS—CELLAR**

Curtis Service Bureau, Clinton, Ia.  
 Detroit Steel Products Co., Detroit, Mich.  
 International Steel & Iron Co., Evansville, Ind.  
 Majestic Co., Huntington, Ind.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan")  
 Paine Lumber Co., Oshkosh, Wis.  
 Shrauger & Johnson, Atlantic, Ia.  
 Truscon Steel Co., Detroit, Mich.

**WINDOWS—COTTAGE**

Curtis Service Bureau, Clinton, Ia.  
 Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan")  
 Paine Lumber Co., Oshkosh, Wis.  
 Victor Parting Bead Co., Reading, Pa.

**WINDOWS—DOUBLE ACTING**

Paine Lumber Co., Oshkosh, Wis.

**WINDOWS—HOGHOUSE**

Detroit Steel Products Co., Detroit, Mich.  
 Eller Mfg. Co., Canton, O.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Paine Lumber Co., Oshkosh, Wis.  
 Shrauger & Johnson, Atlantic, Ia.  
 Willis Mfg. Co., Galesburg, Ill.

**WINDOWS—HOLLOW METAL**

Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 The Kawneer Co., Niles, Mich.  
 Moeschl-Edwards Corrugating Co., Cincinnati, O.  
 Shrauger & Johnson, Atlantic, Ia.  
 Willis Mfg. Co., Galesburg, Ill.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**WINDOWS—PUTTYLESS**

Shrauger & Johnson, Atlantic, Ia.

**WINDOWS—REVERSIBLE**

Detroit Steel Products Co., Detroit, Mich.  
 The Kawneer Co., Niles, Mich.

**WINDOWS—ROOF**

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

**WINDOWS—STEEL**

Detroit Steel Products Co., Detroit, Mich.  
 Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.  
 Milwaukee Corrugating Co., Milwaukee, Wis.  
 Truscon Steel Co., Detroit, Mich.  
 Zouri Drawn Metals Co., Chicago Heights, Ill.

**WINDOWS—WALL**

Detroit Steel Products Co., Detroit, Mich. ("Fenestra")  
 Shrauger & Johnson, Atlantic, Ia.

**WINDOWS—WIRE GLASS**

Edwards Mfg. Co., Cincinnati, O.  
 International Steel & Iron Co., Evansville, Ind.

**WIRE AND CABLE—ELECTRIC**

General Electric Co., Schenectady, N. Y.

**WIRING DEVICES**

General Electric Co., Schenectady, N. Y.

**WOOD—ASBESTOS**

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.  
 Johns-Manville, Inc., Madison and 41st, New York, N. Y.  
 Serviced Products Co., First Nat. Bank Bldg., Chicago, Ill. ("Serviced")

**WOODWORK**

Curtis Service Bureau, Clinton, Ia.  
 International Steel & Iron Co., Evansville, Ind.

Morgan Sash & Door Co., 2287 Blue Island Ave., Chicago, Ill. ("Morgan")  
 Paine Lumber Co., Oshkosh, Wis.

**WOODWORKER—VARIETY**

American Cement Machine Co., Keokuk, Ia.  
 American Saw Mill Machinery Co., Hacketts-town, N. J.  
 Corken Woodworking Machinery Exchange, 110 S. Clinton St., Chicago, Ill.  
 The Crescent Machine Co., Leetonia, O. ("Crescent")  
 R. E. DeWalt, Bridgeton, N. J.  
 Knickerbocker Co., Jackson, Mich.  
 Oshkosh Mfg. Co., Oshkosh, Wis. ("Oshkosh Eveready")  
 The Parks Ball Bearing Machine Co., Cincinnati, O.  
 Sidney Machine Tool Co., Sidney, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")

**WOODWORKING MACHINERY—FOOT AND HAND POWER**

American Saw Mill Machinery Co., Hacketts-town, N. J.  
 W. F. & Jno. Barnes Co., Rockford, Ill.  
 Corken Woodworking Machinery Exchange, 110 S. Clinton St., Chicago, 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")  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.

**WOODWORKING MACHINERY—POWER DRIVEN**

American Router & Mfg. Co., Pittsburgh, Pa.  
 American Saw Mill Machinery Co., Hacketts-town, N. J.  
 Black Bros. Co., Mendota, Ill.  
 C. H. & E. Mfg. Co., Milwaukee, Wis. ("C. H. & E.")  
 Corken Woodworking Machinery Co., 110 S. Clinton St., Chicago, Ill.  
 The Crescent Machine Co., Leetonia, O.  
 Henry Disston & Sons, Philadelphia, Pa. ("Disston")  
 Knickerbocker Co., Jackson, Mich. ("Knickerbocker")  
 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")  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")

**WOODWORKING MACHINERY—SECOND-HAND**

Sidney Machine Tool Co., Sidney, O.  
 J. D. Wallace & Co., 1401 Jackson Boul., Chicago, Ill.  
 Woodworker Mfg. Co., Detroit, Mich. ("Master Woodworker")

**WOOL—MINERAL**

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

**WRENCHES**

Allith-Prouty Co., Danville, Ill. ("Service", "All-Purpose")  
 Hardin-Lavin Co., 4522 Cottage Grove Ave., Chicago, Ill.  
 B. Karol & Sons Co., 800 S. Kedzie Ave., Chicago, Ill.  
 Richards-Wilcox Mfg. Co., Aurora, Ill.  
 Vaughan & Bushnell Mfg. Co., 2114 Carroll Ave., Chicago, Ill. ("V. & B.")



A Typical Magnestone Installation

## This is the Flooring that Contractors and Builders are Buying!

Everywhere, Magnestone Composition Flooring is making a decided impression upon architects and contractors. Everyone who investigates this material agrees that it makes the ideal floor for hospitals, schools, stores and industrial buildings—also for kitchens, dining rooms, corridors, bathrooms and offices. It makes a floor that is at once attractive, sanitary (non-porous and seamless) warm and non-slippery, and easy underfoot. Although light in weight, Magnestone is of great tensile strength—so tough and durable as to eliminate practically all upkeep.

### Magnestone, the Better Plastic Flooring May Be Laid Over New or Old Wood or Cement Base

Magnestone may be laid plain or with borders with cove base and wainscoting in any color or combination of colors. Any competent mechanic can lay Magnestone. Simply laid one-half inch thick and trowel finished. Far more profit per square foot in laying Magnestone than in laying cement. It will mean big profits for you this Fall and Winter.

Write for our Magnestone Flooring Proposition,  
also Free Sample and Descriptive Booklet

Write today for sample of Finished Magnestone Flooring; also for descriptive booklet and our proposition to contractors—which will surely interest you.

**AMERICAN MAGNESTONE CORP.**  
Springfield, Ill.

Division of Floors  
Installations made throughout United States and Canada



# MAGNESTONE FLOORING

## COMPOSITION

## TILES & MOSAICS

Pleasing appearance, clean and wholesome, long life, combined with economic installation, are the reasons why your natural selection for wall and floor covering is tile. There is no more satisfactory floor covering.

### Rich Red Quarry Tile

So long the best selection for Sun Porches, Terraces, Pergolas, Fireplaces, etc., is coming into increased popularity.

Guaranteed to be free from defect—made from shale burned to vitrification, our tile is impervious and cannot absorb stain or dirt.

Colors come in natural reds, ivory and gray.

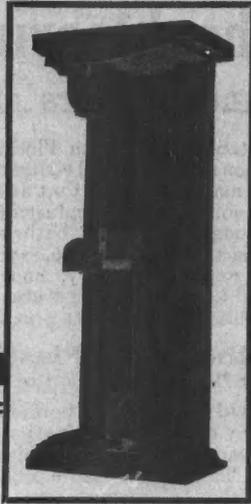
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is found in all well appointed bathroom construction. Builders and contractors have come to know it is the one type of construction that is permanent.

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*You carpenters who want to break away from the hammer and saw— you contractors, too, who want to increase your incomes at least \$5000 yearly—here's your opportunity.*

## you'll sell this— ALLMETAL WEATHERSTRIP

Sell and install Allmetal Weatherstrip. Allmetal contractor-agents are found from coast to coast but there are localities, still, where good live agents are needed.

Building is on the boom. The coal supply is short. Weatherstrip as all big fuel saving equipment is in demand making it easy to sell.

Our co-operative sales plan, advertising assistance, demonstrating models, etc., make contracts easy to land.

Allmetal is the oldest and most improved pattern of metal weatherstrips on the market, well and favorably known. Architects specify it. Building contractors recommend it. Property owners boost it.

*Send for our agency plan. A few dollars sets you up in a profitable business. Clip the coupon and mail. No obligation.*

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Gentlemen:

Without obligation send complete information on your agency plan.

Name.....

Address.....

Town..... State.....

## BOOKS, BOOKLETS and CATALOGS RECEIVED



THE literature and publications listed below are now being distributed and the publishers will be glad to send any of our readers copies who will write and ask for them.

"War Surplus" is a booklet issued by the War Department describing in a general way the methods of sale resorted to in the disposal of its vast stocks of surplus property, and tells what these stocks contain. The loose-leaf insert lists the more important sales scheduled for the near future. For a copy of the book write the Sales Promotion Section of the Office of the Director of Sales, War Department, Washington. It is a handy pocket size,  $3\frac{1}{2}$  by 6 inches and contains 24 pages.

"Switchboard Panels and Supporting Framework" is an informative bulletin issued by the General Electric Co., Schenectady, N. Y. It contains much useful information for prospective buyers of switchboards. In writing mention you wish bulletin 47002. It is 8 by  $10\frac{1}{2}$  inches, contains 12 pages and has numerous illustrations and drawings.

"The Complete Line" is a handbook and catalog describing and illustrating the boilers, radiators, and heating specialties manufactured by the United States Radiator Corp., 133 East Grand River Avenue, Detroit, Mich. There is also a great deal of valuable and useful engineering data and information making a handy reference book for those who design or install heating and ventilating systems. The book is of convenient pocket size, being 4 by  $6\frac{1}{2}$  inches. It contains 270 pages and is bound with a durable leatherette cover.

"Portland Cement Stucco" is a new book published by the Portland Cement Association, 111 West Washington Street, Chicago. It contains instructions recommended for use in the application of this material and drawings of typical construction details for stucco coverings on various types of buildings. There are many photographic illustrations of stucco-finished residences and of various types of finishes possible with stucco. It is  $8\frac{1}{2}$  by 11 inches in size.

Albert Pick & Company, 208-224 West Randolph Street, Chicago, have published an illustrated booklet displaying their hotel, club and institution installations. It contains photographs of lobbies and interiors of leading hotels thruout the country that have been equipped by them. It also offers some excellent ideas for furnishing interiors. It has 32 pages and is 6 by 9 inches in size.

"Shingles and Spanish Tile of Copper" is the name of a new booklet issued jointly by the Edwards Manufacturing Company, Cincinnati, Ohio, and the Detroit Copper & Brass Rolling Mills, Detroit, Mich. It illustrates and describes different styles of copper shingles and copper tile in detail and gives directions for applying this roofing along with photographs of buildings equipped with it.

The Stedman Products Company, South Braintree, Mass., are distributing their new catalog illustrating and describing Stedman Naturized Flooring.

How to Get Best Results from Gypsum Plaster is a valuable little handbook published by the United States Gypsum Company, 205 West Monroe street, Chicago. It discusses plaster problems and tells how to solve them. Has 32 pages and is  $3\frac{3}{4}$  by  $6\frac{3}{4}$  inches in size.



## On the Level

**WHEN** you take your first squint along a Disston level you will realize that Disston levels are different. There are several things that explain this difference, but the most important are

### 1—Lumber

All Disston Plumb and Level lumber is air-seasoned for at least two years, and after that is given a very thorough heat treatment which results in the clearest and best stock that can be obtained. Careful tests throughout every succeeding stage in their manufacture result in levels that are absolutely true and uniform.

### 2—Adjustment

Disston adjustable levels have the easiest and most positive adjustment of any levels on the market. The removal of two small screws gives immediate access to all the working parts.

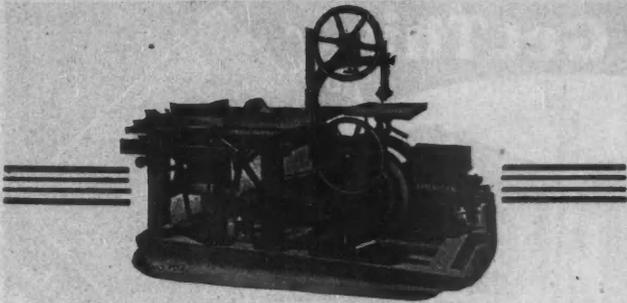
Loosen the flatheaded (lock) screw, true up the bubble by turning the round-headed (adjusting) screw, then tighten the lock screw—the job is done. The adjustment is solid when set and there are no springs to allow inaccuracy. Moreover, this adjustment cannot rust fast, because the screws work directly into the wood.

Write to us for more information about Disston levels or any tool in the complete Disston line.

HENRY DISSTON & SONS, Inc.  
Philadelphia, U. S. A.

# DISSTON

SAWS TOOLS FILES



## “Furnishes All Necessary Mill Work”—

**THAT** is what Frederick Skon, a carpenter and builder of Jersey City, N. J. says about the American Contractors' Variety Woodworker.

His letter is as follows:

“The Contractors' Variety Woodworker has proven very satisfactory in my shop. I cannot say what department the machine has proven most useful in, and the rip-saw cross-cut saw, jointer and mortiser are in constant use by two men in my shop. I think it is sufficient recommendation for the machine to say it furnishes me with all necessary mill work.”

Hundreds of contractors, builders and carpenters, the country over voice the same enthusiasm on the all around utility of the American Contractors' Variety Woodworker.

Put an “American” in your shop and from the start it will prove a dividend paying investment in time and labor saved and volume of work turned out



Write for Bulletin No. 77 that fully describes the “American” Contractors' Variety Woodworker and our line of woodworking machinery.

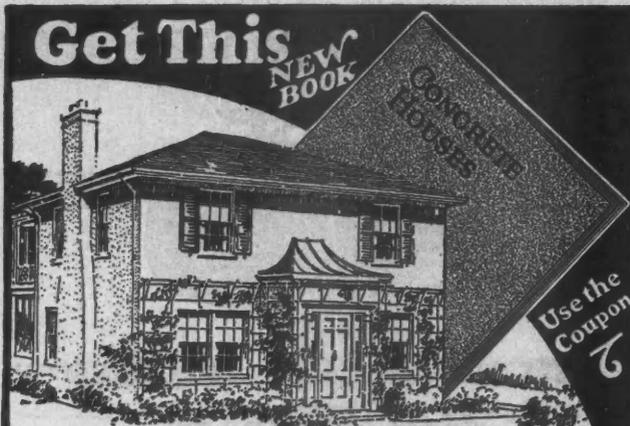


American Saw Mill Machinery Company

Hackettstown, N. J. New York, N. Y.  
60 Main St. 1360 Hudson Terminal Bldg.

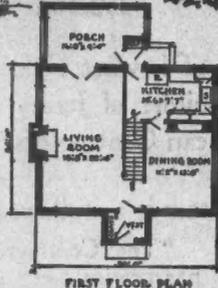
# AMERICAN

## Woodworking Machinery



THE SHALFORD  
From Page 18, "CONCRETE HOUSES"

# Every Builder needs this Book



Show your prospect the plans in **CONCRETE HOUSES** when he asks you to build him a beautiful and comfortable house.

Houses of Concrete Block Stuccoed are easily built. They cost little, *if any*, more than frame construction. They are permanent, fire-safe, and need no paint.

This new volume—**CONCRETE HOUSES**—contains plans of 25 houses of popular types and sizes, designed by good architects. But it is more than simply a book of plans, because there is back of it a

## Complete Building Service

You can secure blueprints, specifications and quantity surveys of every plan shown in the book at a nominal cost. These will save you money, and in addition will enable you to bid intelligently on the job, for you will know just how much work there is to be done and what it will cost.

### Blueprints

The blueprints for each of the 25 plans are complete in every detail. If the building site makes it desirable, reversed blueprints can be furnished.

### Specifications

The specifications are as complete as they can be made, covering plumbing, heating, wiring, and all the usual necessary work.

They give a full understanding between yourself and the house owner as to what the building contract implies.

### Quantity Surveys

In keeping with the other features of this building service, the quantity surveys go into full detail. When the items listed are totaled, you have the exact cost of the job.

Send for "**CONCRETE HOUSES.**" *Every builder needs it!*

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The Link-Belt Company, Nicetown, Philadelphia, Penn., have just issued their new Link-Belt Portable Catalog covering their entire line of portable equipment. Its size is 8½ by 11 inches, consists of 32 pages, and has numerous illustrations and complete specifications of all their standard machines.

**Ten Years Hence** is an interesting booklet published by the American Brass Company, Waterbury, Conn. It points out how copper and brass are used in the building industry today. It contains many illustrations, is 8½ by 11 inches, and has 16 pages.

**The Spout**, the new house organ published monthly by the Atlas Engineering Co., manufacturers of the Atlas concrete mixer, Milwaukee, Wis., contains interesting bits of information for men working with concrete. It is 7 by 10 inches in size, and the October number, the first issue, has four pages.



## THE MAILO-BOX

Built into the walls of any home, apartment, bank or office building.

MAILO Box is burglar-proof, weather-proof, and delivers the mail to you inside.

It is a necessity that will give as great a comfort and convenience as anything you may install and will cost less than any feature

now in use in modern building.

Made in any size to fit your job. Adjustable for any thickness of outside wall.

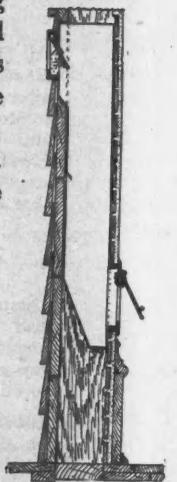
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The **EASY CHANGE**  
Combination  
Storm and Screen Door

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If your dealer can't supply you, write us and send his name.

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# What an Architectural Engineer Says—

—about



The letter reproduced here is typical of the comment of Architects and Engineers after thoroughly investigating FarQuar claims

## Distinctive FarQuar Features

An Automatic Control, actuated by the fire-box itself, which insures a uniform temperature and positively protects against overheat and its consequent dangers, while also making only one firing necessary every twenty-four hours.

A Large Grate Area which insures slow combustion and a Long-Smoke Travel which means fuel economy.

An electrically welded, one piece, Seamless Fire-box which entirely prevents the escape of fire poisons.

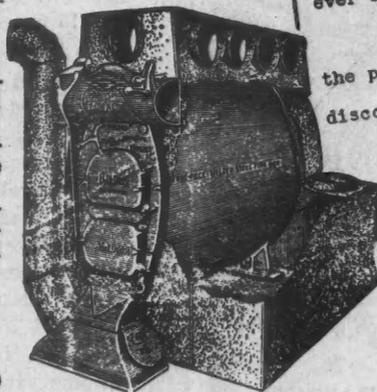
A Vent and Return System which insures distribution of heat to all parts of the house, regardless of the weather, also prevents hot and cold spots in any room.

Write today for full particulars  
Ask for free booklet

**The Farquhar Furnace Company**

312 FarQuar Bldg.

WILMINGTON, OHIO



MOTT X. CORCORAN  
ARCHITECTURAL AND STRUCTURAL ENGINEER  
VALPARAISO, INDIANA

October 25th, 1922.

The Farquhar Furnace Co.,  
Wilmington, Ohio.

Gentlemen:—

I wish to thank you for the literature which you sent me. I have read it through carefully. Yours is the first real furnace that I have ever seen or heard tell of.

Kindly forward to me the prices together with the trade discounts and oblige,

Yours very truly,  
*Mott X. Corcoran*

### High Grade Representatives Wanted

Responsible Dealers are wanted as FarQuar distributors. The many exclusive FarQuar features offer unusual opportunities to those who can qualify.

"BOGALUSA" STENCILED ON YOUR SOUTHERN PINE IS LIKE A CERTIFICATION ON A CHECK."

BOGALUSA'S HISTORY-MAKING REFORESTATION OPERATIONS ASSURE A PERPETUAL SUPPLY TO OUR TRADE.

SPECIAL ITEMS DELIVERED PROMPTLY  
ARE THE BEST PROOF OF UNUSUAL FACILITIES.

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DENSE**

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Our facilities beyond the capacity of any other lumber operation in the U. S. enable every "Bogalusa" dealer to fill any order of ANY SIZE ANY TIME promptly and with exactness.

BIG plus-perfect TIMBERS—for RAILROAD, BRIDGE or other uses, to 1 in. x 1 in. x 12 in.—little sticks for 1002 special uses. (more or less) CRATING LUMBER—BOX lumber—ANYTHING YOU WANT, or think you MAY want, as well as all usual yard and shed stock. Superior standards of manufacturing technique, with strict grading per Factory Mutuals, A. S. T. M. and A. R. E. A., accuracy of count and a simple "good-will policy" are a few among the other factors that have made the trade-mark "BOGALUSA" indeed a synonym for responsibility.

Dealers: Write us for full particulars as to detailed special service on special items. Our response will be personal, candid and prompt.

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Applying scratch coat to E-Cod Fabric

## FOR ALL PLASTERING

Exterior and Interior

E-Cod Fabric builds better for less. It costs less and saves money in every operation. E-Cod Fabric is

**Fire Retardant, Rust-proof, Insulating  
Sound Deadening, Cold and Heat Proof**

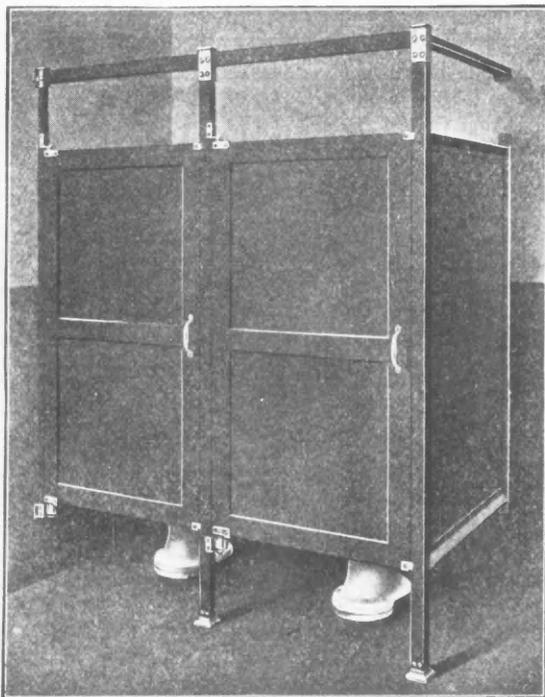
It saves 40% to 60% of the plaster which goes to form the key on any ordinary open mesh lath.

Write for full information to

**M. J. MacADAMS CORPORATION**

Conway Building, CHICAGO 101 Park Avenue, NEW YORK

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**More Enduring Than Wood!—Better and Cheaper Than Marble or Slate**

More sanitary than wood, because they do not absorb odors—more enduring, too. They do not brake or flake like slate or marble.

Shipping costs and labor costs are less. Special rust-resisting filler finish. *Write for drawings and specifications.*

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Corbin Ave.

New Britain, Conn.

BRANCHES: 501 Fifth Ave., New York; 73 East Lake St., Chicago; Real Estate Trust Bldg., Philadelphia; 141 Milk St., Boston, Mass.

"Concrete Work in Cold Weather" is a new booklet published by the Portland Cement Association, 111 West Washington St., Chicago. It will prove practical and of service to contractors who are planning to do any concrete building during the winter. It illustrates and describes successful methods of handling winter concrete work. It contains 12 pages and is 6 by 9 inches in size.

"Kitchen Equipment" is an illustrated catalog issued by Albert Pick & Company, 208-224 West Randolph Street, Chicago. It illustrates and describes their kitchen equipment and contains interesting photographs of kitchens in leading hotels furnished with this equipment, also designs of ideal kitchens. It is 6 by 9 inches in size and has 28 pages.

The Testimony of a Decade is an interesting booklet published by the American Sheet & Tin Plate Company, Pittsburgh, Penn. It describes copper steel alloy for sheet and tin mill products and sets forth the results of service tests made with these products. Its size is 8½ by 11 inches, contains 16 pages with a number of inserts, has a strong cover and is printed on good paper.

The Fred J. Meyers Manufacturing Co., Hamilton, Ohio, have issued a new catalog No. 67 showing their wire, iron, brass and bronze products. It is well edited and illustrated containing tables, weights, etc., and should prove of valuable assistance to contractors and architects. It is printed on high quality paper with 108 pages and is 7¾ by 10¾ inches.

The Detroit Steel Products Company, Detroit, Michigan, are distributing an attractive folder. "The Hows and Whys of Fenestra Steel Basement Windows." It offers important information to contractors and builders, describing various types and sizes of steel windows with details, drawings and instructions on building them into brick walls and concrete blocks.

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