AMERICAN BUILDER

Including "BUILDING DEVELOPER" and "HOME BUILDING"

A SIMMONS-BOARDMAN PUBLICATION

Vol. 48. CONTENTS FOR FEBRUARY, 1930 No. 5.

Published on the first day of each month by the American Builder Publishing Corporation. *President,* Edward A. Simmons; *Vice-Presidents,* Henry Lee and Samuel O. Dunn; *Treasurer,* John T. DeMott; *Secretary,* Elmer T. Howson; *Editors,* Bernard L. Johnson and Charles G. Peker; *Associate Editors,* P. W. Hanna, E. B. Quigley, L. E. Arent; *Business Manager,* Robert H. Morris; *Advertising Staff,* Delbert W. Smith, C. R. W. Edgcumbe, L. H. Reich, O. H. Sutter, Cecil W. Blashill, R. E. Clement, Homer Beach.

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AMERICAN BUILDER

Including "Building Developer" and "Home Building"

BERNARD L. JOHNSON and CHARLES G. PEKER, *Editors*

Competition--Educating the Public--and Substituting Facts for Guess Work

COMPETITION is growing worse. The men of the construction industry are considerably banged up around the pocketbook regions by the relentless and ceaseless shock of the struggle—and what a lot of grief is passed along to the public because it either wilfully or innocently tries to get something for nothing!

Rare marbles may sheathe faulty construction. The secrets built into proud buildings are sometimes nothing for the construction industry to brag about. Inferior stairways whose price was low may be installed in skyscrapers with perfect elevator systems.

The range of poor construction is something which could be written into thick volumes. The unevenly matched struggle between quality and price is without gloves or rules, and it is not a struggle that can be avoided.

The manufacturer of good quality materials or equipment cannot rest his case on quality—He must fight price. The general contractor cannot avoid the struggle. No matter how efficient his operation, he must enter the roustabout struggle whose battle yell is price. The sub-contractor knows the meaning of "bid-peddling" and "shopping." The architect is not free and above the struggle. He is in it. The whole industry suffers.

Conclusions, however, must not be overdrawn. While quality work is prevalent, not all construction needs to be of the most expensive type. There is a place for the cheap material. There is a place for second grade craftsmanship. There is also a place for the very best and a place for the half way in between.

The big point is that today as matters stand, competition is not by grades but slices right through grades putting the poorest in competition with the best. This is true of architectural services, contractors' performances, and of materials and equipment.

This condition is undoubtedly the result of pure ignorance on the part of the man who is the ultimate consumer.

The great majority of people who have construction built for them or who buy completed construction are absolutely helpless in correct determination of proper costs. Competition based on price is the only thing they can rely upon, and they are mighty fearful, and rightfully so, of relying on that.

The most valuable thing we can educate the public to is the importance of dealing with honest, capable, experienced builders. Also we must prepare some better way of showing the public what they will get for their money, and that they are getting fair values. When we can do that, *quality* will come, in part at least, into its own.

Is Quantity Surveying the Answer?

Such a machinery could be worked out through utilization of the services of independent firms of quantity surveyors. Suppose an architect or a builder's drafting department has prepared an acceptable plan and specifications, and this is turned over to a firm of competent surveyors who will take off the quantities or units of materials and labor. Then any firm of contractors could price this job. These prices could be checked, thus giving the owner a very good idea of what the final cost would be.

Of course, the owner would have to pay the cost of the survey, but owners pay the cost of estimating indirectly now. No overhead burden would be added to the industry.

The matter of quantity survey has been given much attention by the industry, but *like the weather,* little has been done about it. There are some independent bureaus in existence and there are some bureaus operated by contracting associations, but absolutely no provision has been made so far for utilizating this machinery to *remove the public's fears by substitution of facts.*

This remedy is proposed in simple fashion. The proposal is set down in few words. But it is a proposal of radical nature. Do we not need something radical to wean us from enmeshing processes of the owner holding a club over an architect, the architect squeezing his fellow citizen the general contractor, the general contractor squeezing his cousin in industry the sub or special contractor? Why not use every effort to acquaint the public with the fact that *it cannot get something for nothing.* On each job, show the owner more facts.

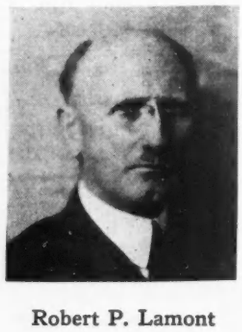
Leaders Look Ahead

1930 FORECASTS

by Men Prominent in the Industry

"A Continuance of Prosperity and Progress"

By ROBERT P. LAMONT,
Secretary of Commerce



Robert P. Lamont

AMERICAN business in 1929 reached higher levels than ever before, notwithstanding recessions in some lines in the later months. Measured by quantities, not value, the output of our manufacturing industries broke all previous records, being 8 per cent higher than in 1928. The mineral production shows precisely the same percentage of gain, and here, too, a new high level was established. Freight carloadings rose by 3 per cent. Employment in manufacturing industry and the amount of wage payments were both considerably greater in 1929 than in the preceding year.

Our domestic trade, as indicated by the sales of stores, attained peaks never before touched. When allowance is made for price changes the latest figures show that in volume, our foreign commerce also reached new high levels, being much greater than even in the abnormal war period.

Commodity prices have been steady, with a slight downward tendency. There has been no undue accumulation of stocks of goods. Dividend payments of industrial and public-utility corporations were about 20 per cent greater than in 1928. There was a decline of 7 per cent in failures among industrial and commercial concerns, as measured by the amount of liabilities; this may be considered a dependable indicator of the general soundness of business.

Broadly speaking, the business history of 1929 recorded the continuation of a movement which has been substantially unbroken for an exceptionally long period.

It is impossible, of course, to forecast what temporary ups and downs in business may occur.

But the nature of the economic development of the United States is such that one may confidently predict, for the long run, a continuance of prosperity and progress.

"A New Era of Intelligent Cooperation"

By T. T. FLAGLER,
President, Associated General Contractors

T. T. Flagler

IT seems to me that the construction business is facing a new era of intelligent cooperation among the various elements in the industry which in the long run will improve the service to the public, and at the same time assure the contributing factors a reasonable return for services rendered.

President Hoover, in his recent conferences, has emphasized the importance of the position which the construction industry holds, in that it can be expanded or contracted to act as a cushion between times when work is plentiful and times of increasing unemployment.

Construction has already been expediated by these conferences in several directions; but the vital home building program so essential to the stabilizing of business and the happiness of the public, has as yet failed to show much progress towards overcoming the fundamental causes which underlie the present stagnation in this branch of the industry.

The Associated General Contractors have been trying to point out what these causes are and to suggest a remedy. The two principle obstacles to be overcome are: First—the lack of recognized financial standards for a prospective home owner giving due weight to his earning capacity, and the amount he should invest in a home. The Federal Reserve Bank and all other financial institutions should, it seems to me, devise a means of financing sound home building projects at reasonable rates. Second—due to unrestricted competition, careless speculative builders and the lack of cooperation between responsible builders and various lumber and material dealers and manufacturers, this class of construction has been so inferior in many cases, that confidence has been largely destroyed among those best able to become home owners.

EVERY INTEREST COVERED

Representing the General Business Public—
ROBERT P. LAMONT

Representing the Contractors and Builders—
T. T. FLAGLER, SAM HOTCHKISS and H. O. BELL

Representing the Architects—
C. HERRICK HAMMOND

Representing the Realtors—
HARRY H. CULVER

Representing the Financing Interests—
A. A. ZINN and WALTER F. McDOWELL

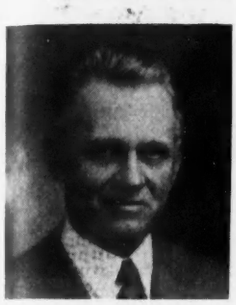
Representing the Dealers
L. P. LEWIN and W. W. CAMPBELL

Representing the Building Owners—
PAUL ROBERTSON

To the extent that these obstacles are overcome, home building will flourish, and as it does, it will stimulate not only other classes of construction but the entire fabric of American business.

"I Suggest Modernizing Old Buildings"

By SAM HOTCHKISS,
President, National Association of Builders Exchanges



Sam Hotchkiss

I SEE the outlook for activities of the building industry for the year 1930 thus: First, if the public will look at the situation as President Hoover looks at it and go ahead with the construction plans they have been contemplating and start the proposed projects for public and municipal work, and let the money get back in the investment channels, it would stimulate construction; particularly the residential construction. Together with the stimulating efforts of the President's conference it would insure all branches of the industry an increased program for 1930.

Second, the most harmful effect that is hurting our industry at this time is the condition of money market for real estate loans, for building purposes; especially a channel to provide a way to obtain second mortgage money at a fair rate of interest and reasonable commission. But for instant relief I would suggest a program of modernizing old buildings; all cities have a lot of buildings and houses on which their owners could realize a return of their investment if they would make them more modern. If small work can get started the larger construction programs would take care of themselves and by the above plan a lot of idle men could be put to work.

"Always a Demand for Well-Built Homes"

By H. O. BELL,
Chairman, National Better Home Builders Association

H. O. Bell.

REGARDING the 1930 construction outlook, I believe we may look forward to a fairly normal year so far as home building is concerned. It is my opinion that mortgage money will be much easier in first class cities by February and in second class cities by mid-spring.

It is basic, I believe that there is always a demand for well built homes, and proof of this is found in the reports from our local chapters. The rapid deflation of stocks will tend to increase the caution exercised by home buyers and make them more careful to select honestly built houses. The "get rich quick" desire and bargain hunting instinct have been checked. Houses carried over the winter and houses erected with the thought that Wall Street profits would be interested in them with not too many questions asked, are going to be viewed with suspicion. Present hysteria and uncertainty will be followed with sober, business-like view of true values, a desire for solid investment, an increased appreciation for real estate, both as a safe place for funds and, more important, as a refuge against the vagaries of life. An animal that has been hurt seeks safety in a secluded den. Countless men and women have been playing a strange game; many have been pinched. They hunger after a safe retreat wherein to readjust themselves and many such families that have been living in expensive apartments and touching only the high spots of life are going to consider the safety the home offers in both financial and psychological terms.

"1930 Will be a Good Year"

By C. HERRICK HAMMOND,
President, The American Institute of Architects

C. Herrick Hammond

THE outlook for 1930 in the Construction Industry is difficult to forecast. However, in all probability, the first quarter of the new year will show an amount of building construction somewhat less than the corresponding quarter of 1929. This loss will, with reasonable certainty, be overcome and the total volume of construction for 1930 should be equal to, if not in excess of 1929.

Reports from leaders of industry gathered together in Washington, at the Chamber of Commerce of the United States, show that the Railroads, Public Utilities, and most of the larger corporations of the country have extensive programs calling for expansion in excess of that for the year just coming to a close, which will contribute largely toward an increase in the volume of new construction for 1930.

The Federal Government will do its share in maintaining the stability of business through an increase of its program for construction—both in the Capitol City, and throughout the country, beyond that originally planned for the coming year.

There is every reason to believe that 1930 will be a good year.

Money formerly diverted through speculation from construction loans, should be available for permanent improvements. There should be a stabilized market for both labor and materials.

The cost of construction work is lower today, than for several years, and those contemplating construction, should be advised by their architect to build now.

"On the Threshold of a New Business Era"

By HARRY H. CULVER,
Immediate Past President, National Association of Real Estate Boards

Harry H. Culver

WHEN we examine the outlook for 1930 from the standpoint of what it means to the business of real estate we realize that our country is right now on the threshold of a new business era.

President Hoover's action in securing from leaders their promises of continued activity has centered our attention on the desirability of greater construction activity. It has vividly called our attention to the fact that residential construction in particular has been abnormally retarded during the past year because it has felt harder than any other branch the abnormal withdrawal of savings funds and investment funds into the call money market.

(Continued to page 78)

The present outlook for construction involves these notably favorable factors:

(1) Possibility of overbuilding is now definitely out of the picture.

(2) We are entering a period of lower interest rates.

(3) The public mind and the whole psychology of our business situation is set toward sound construction activity.

(4) The rising standard of living in America is calling for the rebuilding of American cities to meet modern taste and demands. This applies not only to dwellings but to office structures. This is the present great underlying element of demand which, coupled with the constant increase in urban population, is bound to produce real estate and construction activity.

Undoubtedly the outlook is for an advance over the past year in the field of residential building, particularly in the building of homes for families of moderate means.

There is emphatic need at this time in every city for ascertaining the exact facts of that city's real estate needs. The whole trend now is to base action on known facts. As rapidly as real estate development accepts and acts upon this definite trend of business thought it will find itself on a foundation of a new and sound prosperity.

"An Increased Interest in Home Owning"

By A. A. ZINN,

President, Mortgage Bankers Association of America

A. A. Zinn.

THE adjustment in the stock market over the past few weeks has had the effect of interesting the investing public anew in the desirability of real estate first mortgages and bonds. Already evidences of an increased demand for these securities is being noted by financial institutions. A continuation of this investment tendency is sure to be reflected in a resultant upswing in the volume of building activities.

With an increased demand for real estate mortgage securities a number of large scale building projects that have been delayed on account of the slow bond market in 1929 undoubtedly will be started in the first half of 1930. Small residential and apartment construction should be stimulated to some extent through the application of three factors (1) a greater supply of investment funds available for real estate development; (2) an increased interest in home owning brought about as a reaction to experiences of small speculators in the stock market; (3) the normal year to year spring demand for new homes.

Care should be exercised to assure a normal building program based upon the actual requirements in each locality. The Federal and State Governments in cooperation with the organizations of mortgage bankers, realtors, and others directly concerned can do much to make public accurate information with regard to the real need for new construction. Some communities badly need new structures and their building programs are being unduly retarded through a generally accepted idea that the country as a whole is over-built. Other communities through a lack of local co-operation and a misunderstanding of the facts are apt to initiate construction which in the light of accurate statistics would be found uneconomic. Up-to-date accurate statistics with reference to vacancies are essential to a sound building program in each community.

"Dealers' Stocks Low—Favorable Factor"

By L. P. LEWIN,

President, National Retail Lumber Dealers Association

L. P. Lewin

AT this time it is most difficult to make a forecast of the business outlook for next year in our industry, due to the fact that the situation is beclouded by several unusual factors. The stock market crash has produced a period of depression which was unavoidable. The building industry, already in the throes of a pronounced slump, because of a lack of available funds, was further retarded because of this depression. Some sections of the country are overbuilt and it may require some time to take up this slack.

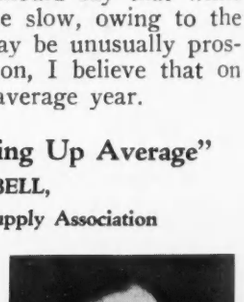
On the other hand, there is still a considerable volume of new business in prospect just as soon as funds are available. It is my belief, however, that it will be several months before institutions which loan money for construction purposes, will have any large sum for that purpose; consequently I do not believe that the volume of business will be very large before late spring. Indications point to a moderate revival at that time. Of course, it is out of the question to expect any boom year, but we should have a steady volume of business. One favorable factor is that the retail lumber and material dealers have not, as a rule, large stocks. This should help manufacturers, particularly those of lumber, to obtain better prices just as soon as there is any pronounced demand.

Summing up the situation, I should say that while business in some sections may be slow, owing to the overbuilt condition, and a few may be unusually prosperous due to some local condition, I believe that on the whole we will have a fairly average year.

"Last Half of 1930 Will Bring Up Average"

By W. W. CAMPBELL,

President, National Builders Supply Association



W. W. Campbell

THE outlook in the building materials field for the year of 1930 as a whole, is favorable. The first four months of the year will fall materially below the corresponding period in 1929.

With large industries, railroads, utilities, cities, counties, states and national government pledged to carry on large constructive programs, the yearly average is assured and will be comparable to 1929. It will require some weeks to complete construction plans and get orders placed with mills and factories. Until that time we shall feel a keen depression in business generally. However, when construction gets under way, mills operating to near capacity, manufacturing plants running close to full time, thus giving employment to many thousands of laborers at present wage levels, or more, we can look for gradually increasing favorable business conditions.

The last six months of the year should excel the corresponding period in 1929—so that business in general for the year 1930 should compare favorably with last year.

Building Owners Will "Carry On"

By PAUL ROBERTSON,
President, National Association of Building Owners and Managers

Paul Robertson

WE will begin the year with an office space vacancy that is slightly in excess of the normal vacancy. The last quarterly survey of the National Association of Building Owners and Managers made in October revealed a vacancy of 11.55 per cent.

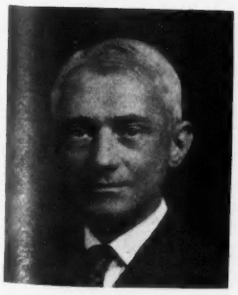
We are convinced that with the addition of many more millions of square feet of office space during 1930, the national average vacancies will be higher than in 1929—in fact higher than at any time since before the World War. There is a tremendous amount of building going on throughout the country and many more projects will begin to assume definite form during 1930. The number of contracts let for office building projects during the first eleven months of 1929 have not only greatly exceeded those of 1928 by millions of dollars but by millions of square feet of floor area as well.

Some of the new construction of office buildings is justified from the standpoint of local market conditions. Some of it is clearly adding to already overbuilt conditions. The National Association of Building Owners and Managers will do all within its power to throw a clear, white light upon actual conditions in order that prospective owners may realize what their new buildings will be faced with in the rental market.

The National Association of Building Owners and Managers has gone on record at the recent business conference held in Washington at the behest of President Hoover, promising to do everything within its command to see to it that our properties are maintained to the highest degree. We hope to assist in the stabilization of business by spending money where justified in redecoration, improvements and in some instances remodeling. We are urging our members to refrain from cutting wages and reducing personnel. Briefly, we who own and manage the places where the business of the nation is quartered, will carry on as we have in the past. That will be the contribution of the building owners and managers to 1930.

A Program for 1930

By WALTER F. McDOWELL,
Immediate Past President of the United States Building and Loan League



Walter F. McDowell

THE disturbed conditions of 1929 are not likely to be entirely cleared up in 1930. Financially, readjustments are not easily and hastily accomplished.

The subnormal home-building activity during the past year had its causes in the overbuilding, speculative and otherwise, of the post-war period, and the excessive flow of money into stock speculation. Both of these manifestations have been partially relieved, but it will take further time to absorb the surplus of homes on the market by effecting a real change of investing habit into those channels which provide funds for building purposes and *by restoring the buying power* of thousands of families who should be acquiring homes of their own.

Expansive building operations will not be profitable to builder or lender as long as

1st. The market is overstocked with idle and depreciated properties.

2nd. Our taxing system puts a penalty on improvement and overlooks hoarded and semi-useless capital.

3rd. "Economy" is practiced in the matter of wages and much unemployment exists.

4th. Centralization of capital and power in the hands of a few jeopardize the status of laborer, wage-earner, clerk and small business man.

5th. The moral responsibilities of business are in a slump as reflected in widespread disrespect for law and the power and supremacy of criminals in our cities.

Is it out of place to suggest to all those interested in the building program—builder, material man, architect, realtor, insurance agent, lender and owner—that in 1930 we pursue the study as to the *causes* of stagnation and if possible determine upon a political, social, moral and business course that will ensure *stability?*

Every question involving business and social progress has embodied within it a moral corollary, and 1930 may be a fit time for American Business, led by the great building industry, to connect in a living, vital chain the fundamental links of wages, employment, taxes, housing, respect for law—a program of bringing into a union of effort all the material, moral and spiritual phases of business, without which the whole structure will, in the future as in the past, be weak and uncertain.

✣

Organize to Aid Building

A PERMANENT committee to encourage building activities, in support of President Hoover's business stability program, is being organized by the construction and allied industries.

This action was authorized at a conference held at Washington the week of Jan. 25, attended by more than one hundred representatives of the various industries interested in the construction field.

Fenton B. Turck, Jr., vice-president of the American Radiator Company, New York, was named chairman of the permanent committee, and Homer S. Sackett, director of the Home Modernization Bureau, Chicago, was appointed secretary. The committee, which it is expected will be completed within thirty days, will be composed of representatives of the key industries. As outlined at the conference, the program of the permanent committee will be:

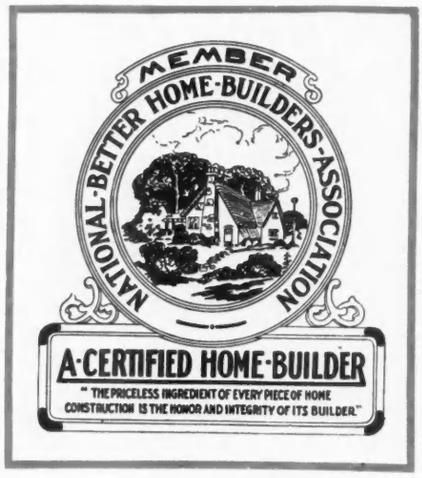
1. To present to the public through the newspapers and other advertising means information showing that conditions are especially favorable now to carry out construction plans.
2. To make a survey of proposed new buildings, remodeling and replacement projects.
3. To facilitate the financing of building projects.

One of the most encouraging developments of the conference was a report by H. F. Cellarius, secretary, the United States Building and Loan League, which showed that while funds available for construction loans were scarce sixty and even thirty days ago, the situation in this regard has materially improved since the first of the year. Added to this were assurances from other sources that money was becoming more readily available for building purposes.

The conference voted to recommend to the various industries represented that a fund of half a million dollars be raised for group advertising and promotion, independent of individual advertising.

Organize for Better Homes

Speculative Builders Increase Public Confidence and Make Quicker Sales by Stressing Quality—Committee of Builders Inspects Each Job and Issues Certificate.



COMING at a time when the home building industry is perplexed by many things, manufacturers, building supply dealers, speculative and contract builders are watching with interest—and hope—the functionings of the National Better Home Builders Association. This organization, which shows builders the wisdom of reaching or surpassing a certain standard of perfection in the materials and construction of their homes and then takes over the sale of these homes, and which has a comprehensive builder financing service, has, in the face of adverse marketing conditions, actually sold, in a limited section of northern New Jersey, in a brief period of time, homes to the amount of $421,800.

Can it duplicate this performance in all residential communities throughout the country as called for by present plans? Is it going to prove a strong right arm to existing methods of distribution and successfully meet the competition of cheap, shoddy construction? Is it going to help stay the tendency toward the suburban apartment by giving home buyers confidence in speculative construction? Is it going to enable honest builders to construct and sell homes year after year, regardless of the condition of mortgage money in a given community at a given time?

These are some of the questions the makers of quality materials, those who distribute them, and the builders who use them, are asking. The reply of the Association executives, reassuring in its conservative tone, is: "We believe so, we do not think for a moment this plan is a cure-all; but we can assert that it has many if not all the fundamentals needed to enable those cooperating in its execution to meet the perplexing conditions before the industry."

In essence, this plan does two things—first, it insures the production of a well designed, well constructed, salable house with a pedigree; second, it applies modern merchandising methods to selling the houses so built. And it is actually doing these things now. It puts merchandising into skilled hands, insuring buyers the kind of homes they seek, yet gives the associated builders supervisory control. It permits the builder to devote all his energies to the production of good houses without the necessity for worrying with advertising, promotion plans, hiring salesmen or dickering with brokers; yet it warns against over-production and helps in the finding of desirable building sites. It assures material dealers a profitable market and offers them a plan whereby they may secure replacement and modernizing business they are now losing because they are not organized to compete with the mail order houses. It assures manufacturers a growing market wherein their products will be used to decreasing extent as "bait" by jerry-builders; a market that will consume in the face of stock market slumps.

In detail, this plan operates as follows: Builders in a given community, or rather those that are honestly striving to construct houses worth the price asked for them, are organized into a local chapter of the National Better Home Builders Association. By means of a code of thics, the members of the chapter pledge fair and honest dealing, good design, good workmanship, the use of quality materials and the assembly of those materials in "certified homes" for lifetime service.

The new element in this promise to buyers is, that the builders in the local chapter give the teeth of enforcement to the code. These teeth are interesting, we'll look at them later. Thus the public is not forced to take the word of the builder on a subject of good construction, a matter few home buyers are competent to judge for themselves.

This organization of better builders invites, as associate members, the cooperation and close association of material dealers, subdividers, sub-contractors, realtors, architects and financial institutions in its efforts to provide the public with homes of good design, good materials, and good workmanship at a fair price.

These local chapters operate under a charter granted by the National Better Home Builders Association, an organization not for profit, dedicated to the improvement of the home building industry.

The presidents of the local chapters constitute the governing board of the national association.

Through a method of inspection and certification of each home built by members who conduct their business according to the code of ethics, the Association is protecting the home buyer and represents the Better Business Bureau idea in the home building field.

To secure for the members of the Association the most effective means of selling Certified Homes, a national sales organization, called National Certified Homes, Inc., has been formed, which organizes, equips and supervises local sales companies to operate in conjunction with the local chapters of builders.

National Certified Homes organizes and furnishes experienced and capable sales managers for the local sales companies, the officers and directors of which are local members of the Association. It equips and finances these local sales offices until they are able to maintain themselves.

Back of Every Certified Home Are Papers Proving Quality.

Two distinct branches of work are carried on by the local sales companies. A staff of salesmen, carefully trained, concentrate on selling Certified Homes and securing business for associate and sub-contractor members through contracts for repainting, reroofing, reflooring and remodeling of all kinds.

Special effort is made by the local sales company to thoroughly inform local realtors of the merits of Certified Homes so that brokers will give them preference when showing houses to prospective buyers. The sales office gladly furnishes any information on Certified Homes to local brokers who receive full brokerage commission on sales they make.

A beautiful theory, all this, if it works. Yes—and it is working, as shown by the experience in northern New Jersey, above mentioned. The record follows: The National Certified Homes Sales Company operating in Essex County, N. J., as the local sales unit of the National Certified Homes, Inc., during the period of four and a half months from May 15th to October 1st, 1929, has made total sales of $421,800.00. With this volume of sales during an extremely dull period, it is fully expected that total sales for the full twelve months periods will exceed $2,000,000.

The plan has been developed, according to the Association, during three years of intensive experimentation in communities of different sizes. During this time opportunity has been offered to test the plan under almost every condition that can occur in the making and selling of homes. The men behind the plan know their houses.

Now for those "teeth." Through organization, the associated builders are able to act as their own policeman, a situation somewhat comparable to the Unfair Competition Bureau of the paint and varnish industry, a body that tends to maintain standards of practice among manufacturers. The certification committee of each chapter, consisting of chapter builder members, inspects the houses built by all chapter members. A builder may fool an uninformed buyer, but he cannot fool another builder. The success of the plan for all depends on adherence to its principles by each builder.

(Continued to page 134)

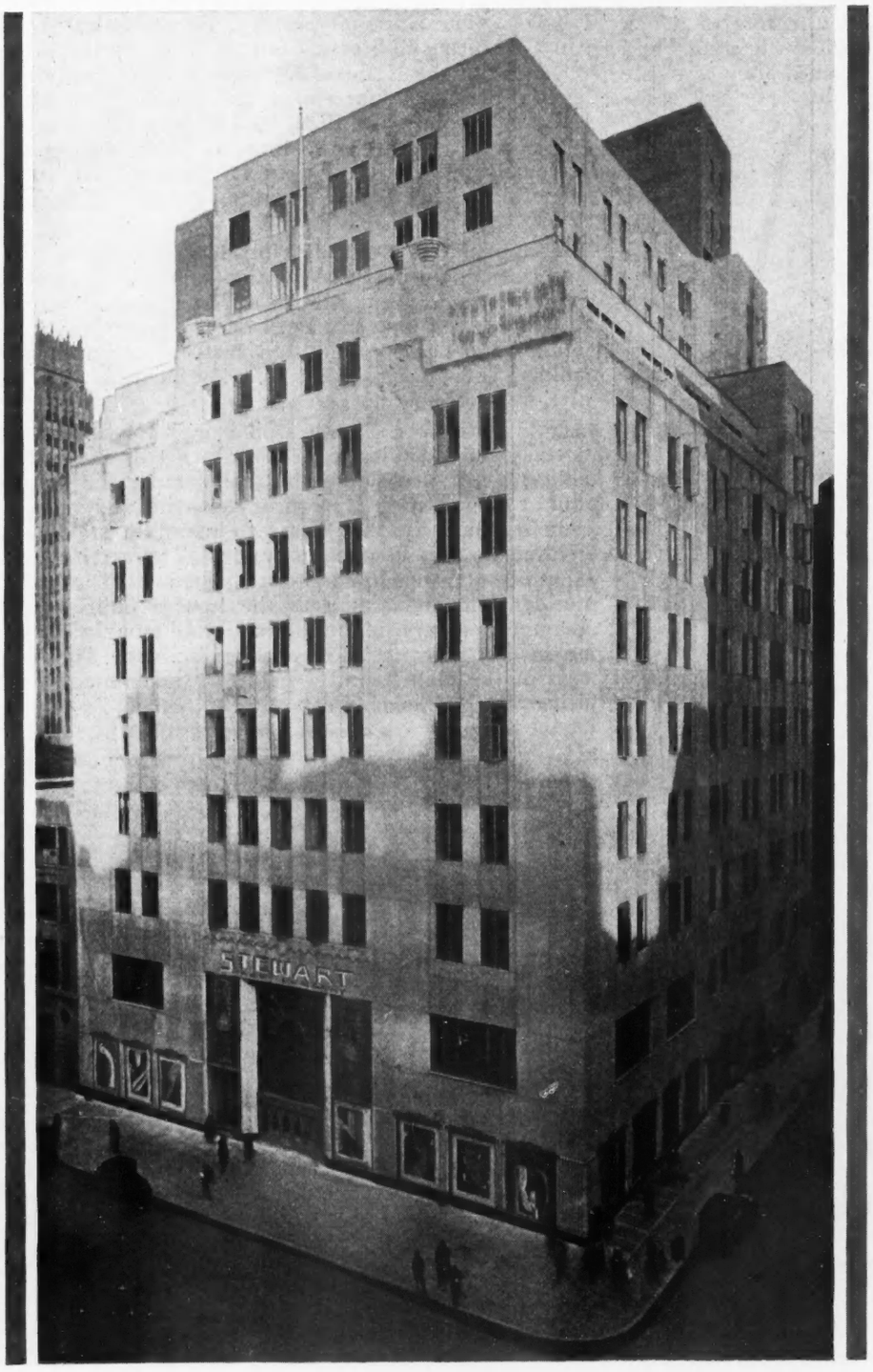
The MODERNISTIC Trend

Reaches the Department Store

RETAIL merchants are quick to discern fashion appeal, and are keenly alive to use everything that will help sell their merchandise for "goods well displayed are half sold."

To provide adequate setting for their merchandise as well as comforts for customers they spare no expense nor effort; the best is none too good.

Several of our larger department stores have remodeled, at least some sections of their stores, along modernistic lines; some of them, where a new building was contemplated, have gone the entire way and produced both exterior and interior in the modern fashion and style.

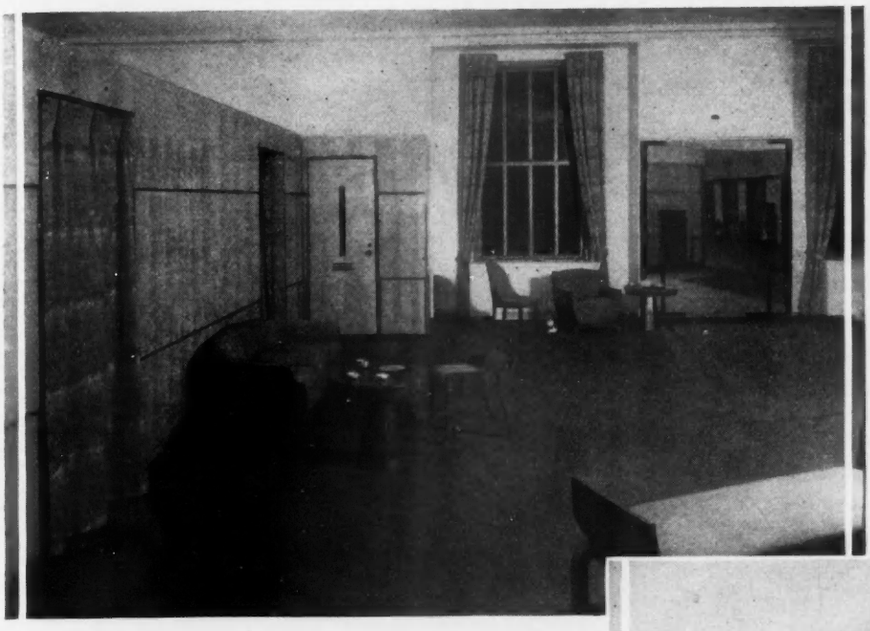


One of the notable examples of this type of mercantile architecture is the new Stewart store, 5th Avenue, Corner 56th Street, New York. The exterior shown on this page is somewhat severely plain in treatment, but combined with a quiet elegance that does attract the passerby.

On the opposite page are three interior views showing how the modern feeling has been carried out in the interior decoration.

Where this modernistic style will lead us we cannot say, but there is no question that building design traditions are being upset. Out of the upheaval let us hope something new in the way of a distinctive American architecture will be evolved.

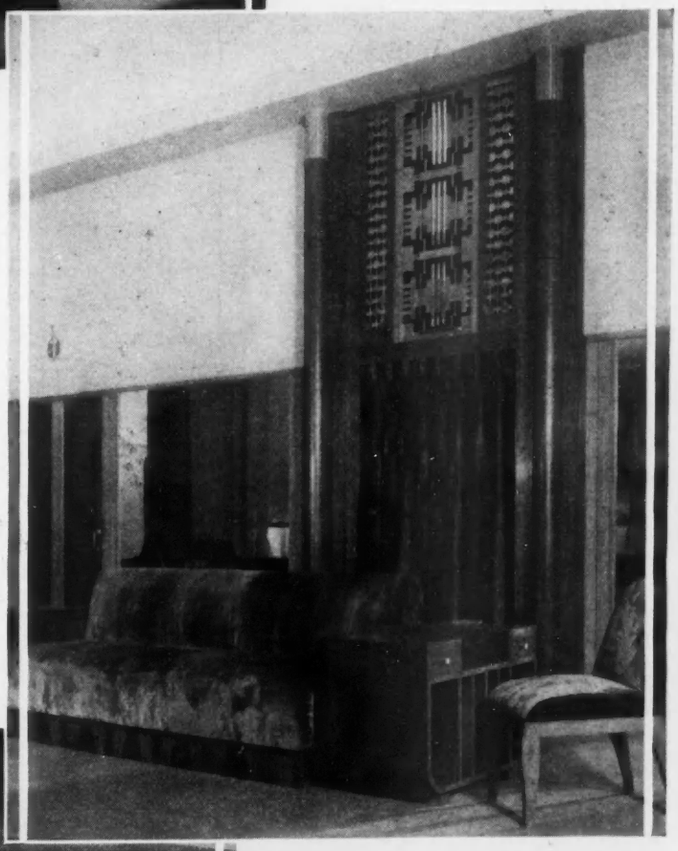
Each new design to be carried out offers some problem of construction which builders must solve.



MODERNISTIC Interiors

A Modern Merchandising Adjunct

Above: Modern Draperies, Richly Panelled Woods and Distinctive Furniture Provide a Background of Contemporary Design in the Young Grown Up's Shop, Designed by Eugene Schoen.



Above: Distinctive Ornamental Metal, Luxurious Panelling and Unique Furniture Give the Stewart and Company Negligee Shop the Air of a Residence in the Modern Mode.

To Left: Long Steel Spans, Two Side Ones of 35 Feet and a Center One of 43 Feet, Give Stewart and Company Larger Merchandising Spaces. Pictured is the eighth floor gift-shop.

PURE Colonial Styles Still Appeal to the Discriminating. This stately entrance with its Corinthian columns and wrought iron work is a model.

1930 TREND of STYLE

A Living Room in the Extreme Modern Style

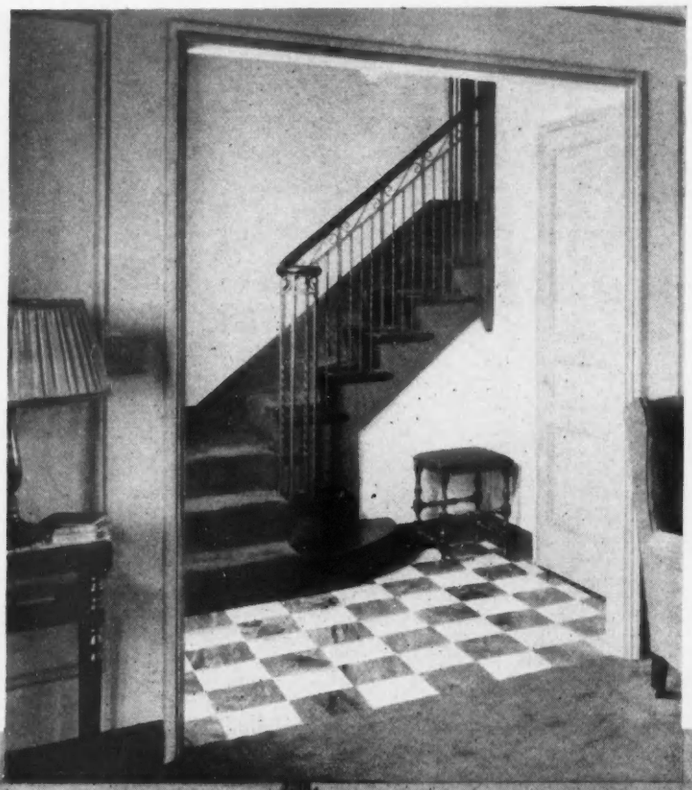
Presenting Eight Picture-Pages, to Show the Modern Home from Front Entrance to Kitchen, in the Best Current Mode

Not only are women's fashions subject to the subtle and far-reaching influence of the motion picture screen. The furniture, the hangings, the knicknacks, windows and wall decorations have all been influenced by what the public sees upon the screen.

The modernistic trend in furniture and house decoration has been an attempt to get away from the standardization of the home, introducing diversity and beauty. The screen has fallen into step with this purpose and has given it a great impetus, the effect of which is only beginning to be felt in the home.

The living room pictured above was designed by Frank Namczy, art director at Warner Bros. Eastern Vitaphone Studios.

WROUGHT IRON BALUSTRADES

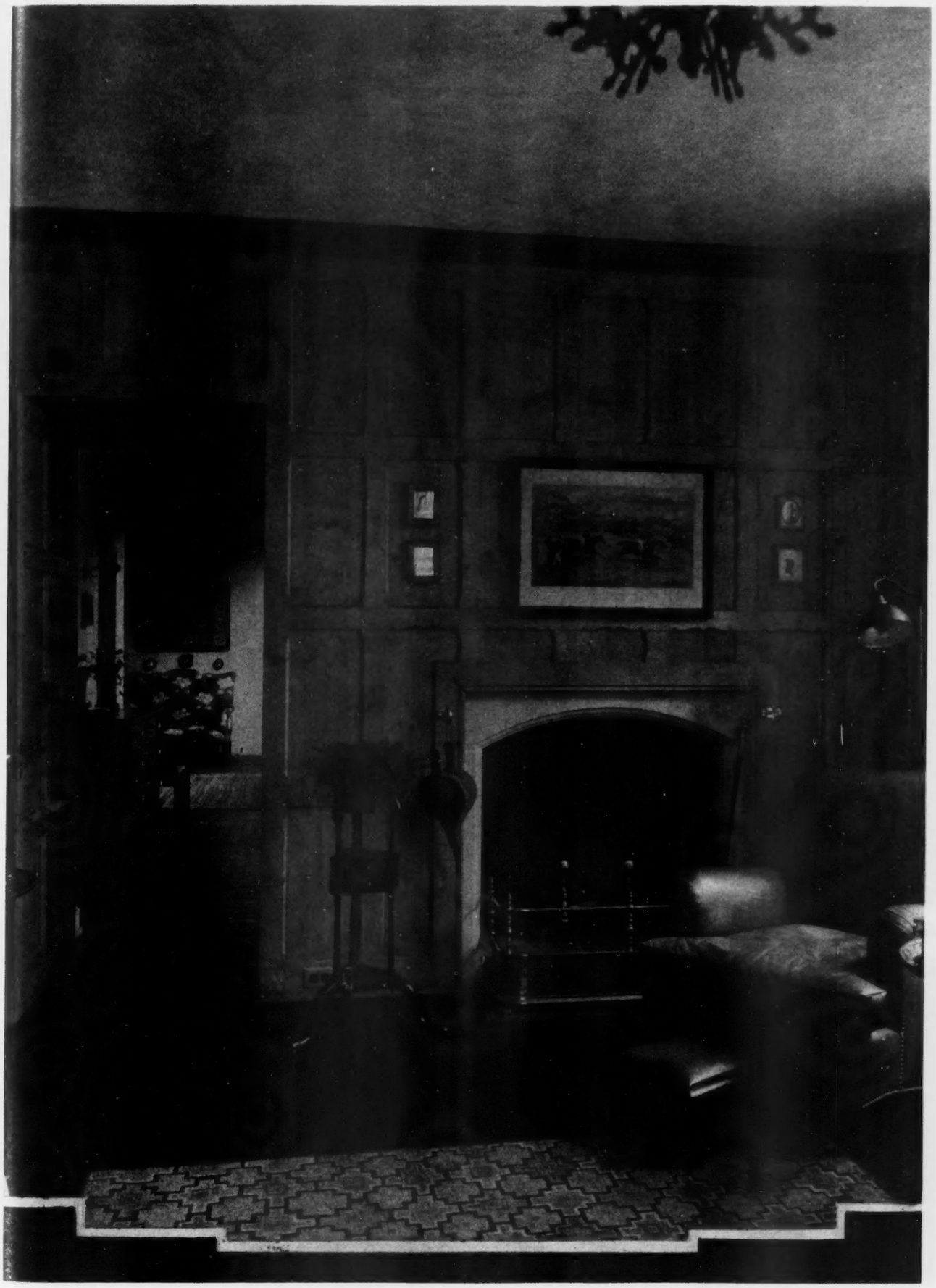


ENTRANCE FLOORS IN COLORS

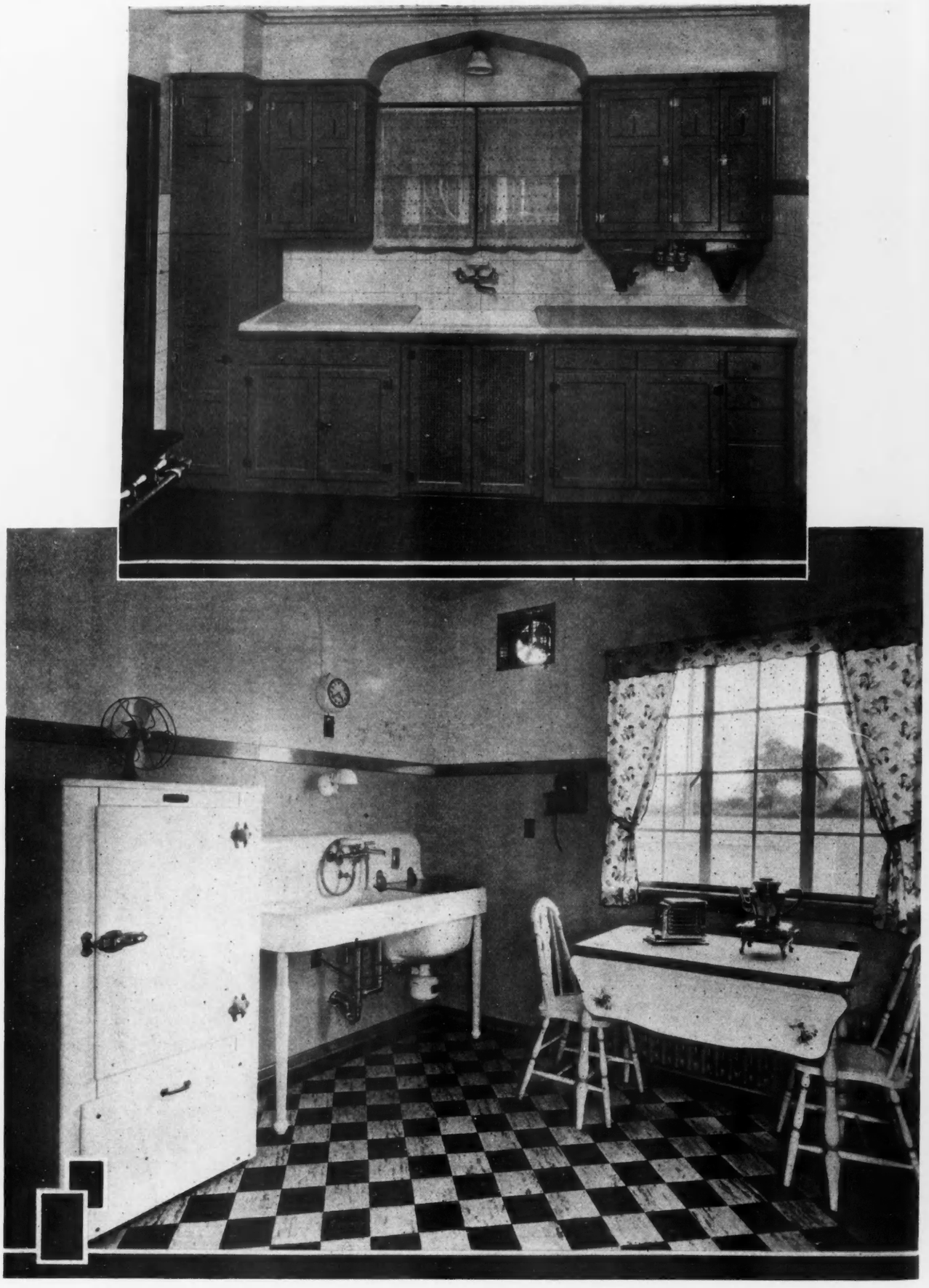
TWO Graceful Stairs in the Newer Spirit of Making This Necessary Structural Feature Serve Also a Decorative Purpose.

Elegance of Mahogany and White-Enamel in the Colonial Stair is Beautifully Exemplified Here. It is a style always good.

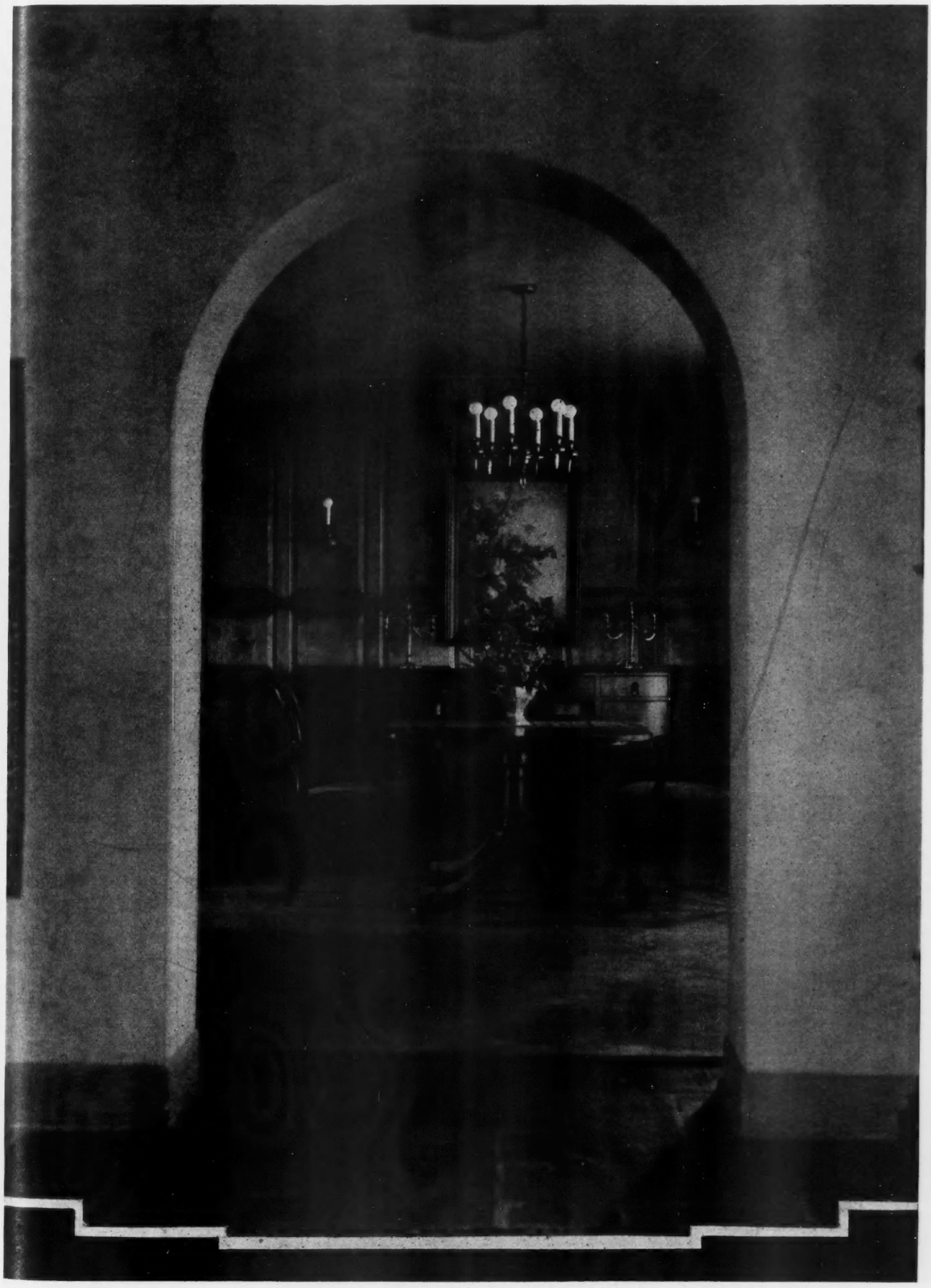
High Ceiling and Beamed Ceiling in the Living Room Pictured Above. Below is a clever entrance semi-inclosure.



WOOD Paneling for the Library Has Come Back and Will Be Much Used for Walls in the Finer Homes.



Color, Electrical Labor Savers, and Built-in Cases and Equipment Characterize the Modern Home Kitchen.



Circle Head and Flattened Arch Door Openings Are Much Used in all Homes and Apartments. Beautiful vistas are created, like this dining room view.

Rev. George J. Russell, Pastor, in His Study.

Combined Apartment and Church—The Second Presbyterian, New York City; Rosario Candela, Architect; M. H. Rothschild, Builder.

A new trend in building finance and management gives

A New Church for an Old One

HOW a New York church replaced its old structure with a new modern edifice without cost, seems like a tale equalling that of Aladdin's offering of "new lamps for old."

The actual facts, however, surpass the Arabian Nights story because the church also receives an income of $27,000 annually besides heat and necessary building repairs, thereby saving the usual expense of upkeep.

In 1893 the Second Presbyterian Church of New York dedicated its then new edifice at 96th Street and Central Park West, New York. It occupied an L shaped plot facing 100 feet on both Central Park West and West 96th Street and extending through to 95th Street on the westerly end 50 feet, giving a total depth of 200 feet from street to street.

In the past 35 years many changes have occurred in the neighborhood, its many one-family residences giving way to what we now call small walk-up apartment houses, these in turn being replaced by the high apartment structures of today.

The church property being at the corner of two extra wide city streets, both overlooking the wide expanse of Central Park, made it an ideal location for a high class apartment.

Noting the trend towards high apartment houses in the neighborhood, Dr. George J. Russell, the pastor of the church, conceived the idea of replacing the old church and manse with a new structure — a combined church and apartment house—the church to occupy the westerly end of the building to a height corresponding to the first four floors of the apartment section.

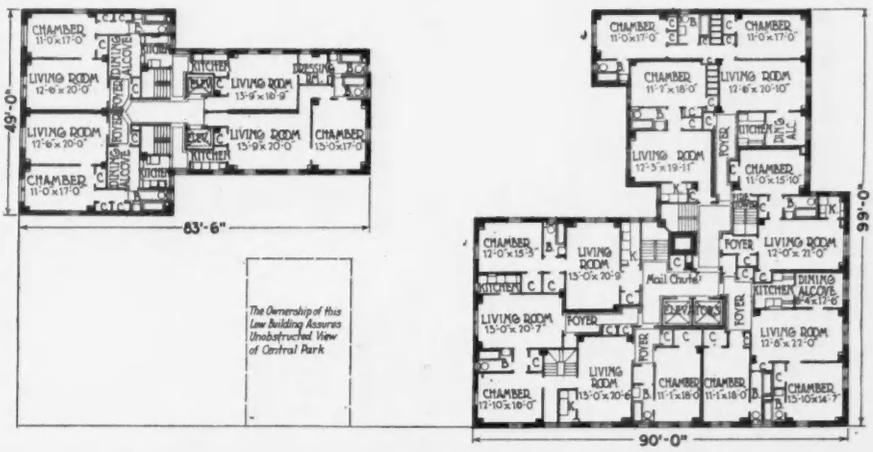
Dr. Russell interested Mr. M. H. Rothschild, an investment builder, in the project and the "Vinross Realties" was incorporated as the builder and owner. Rosario Candela, a New York architect, prepared the plans.

The old Second Presbyterian Church edifice had a seating capacity of 800 in the main auditorium, adjoining was a manse and in the rear (facing on 95th Street) was the old community building.

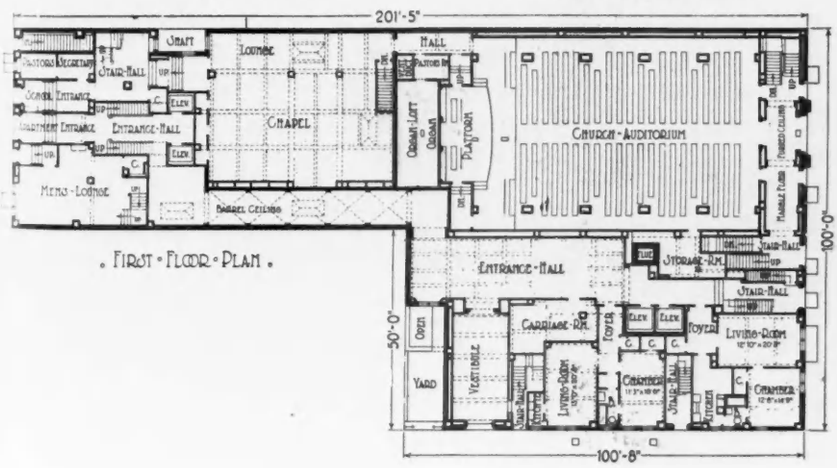
The new church, dedicated December 1, 1929, has the same seating capacity, 500 on the main floor and 300 in the balcony, so the same accommodations have been provided, plus meeting rooms, etc.

The apartment house is known as "360 Central Park West." It is really two separate apartment buildings with a connecting corridor on the ground floor.

The apartments consist of two-, three- and four-

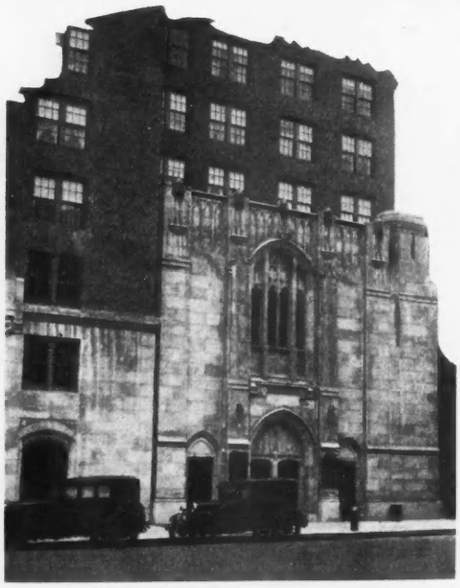


. SECOND · FLOOR · PLAN .



. FIRST · FLOOR · PLAN .

The Church Occupies the First Four Floors of the Right Wing. Above and to the left are small apartment units.



Front View of Completed Church and Apartment House.

room suites with kitchens and dining alcoves.

The method followed in creating this new building was to lease the land (valued around $1,000,000) to the construction and operating company for a period of 80 years. A rental of $27,000 per year is to be paid the church for the first 21 year period. Three additional renewal periods have been provided, each involving an increase in the yearly rental—the last period being at the rate of $40,000 per year.

In addition to rental, the building and operating company supplies heat for the church and its auxiliary rooms, takes care of the taxes and insurance, provides a specially designed seven-room apartment for the pastor and makes all necessary building repairs to the church section.

The exterior of the building gives the appearance of a church set between two apartments, as another high apartment building is being erected to the west. The portion of the apartment above the church is set back 10 feet, so it does not interfere with the churchly appearance of the facade.

On the 95th Street side the apartment house extends from the 4th floor up—the lower floors and basement being occupied by the church for various purposes. The ground floor has separate entrances for the church portion and the apartment portions.

In the basement, under the church (plan not shown) is an assembly hall seating about 400, and equipped with a stage. It also serves as a gymnasium; a bowling alley adjoins this hall. Connecting are toilets, check rooms, locker rooms and a well equipped kitchen.

From the above description it would seem as if the church was getting the entire benefit; but the building company also reaps a large increase in income by the method of financing followed. They were saved the cash outlay necessary to obtain such a desirable piece of property. The building operation, including the demolition of the old structure, cost $2,057,333.

A mortgage for $1,000,000 was obtained; therefore, the cash investment of the building company was not as heavy as usual in a project of such magnitude. The interest saved by the smaller investment pays them a handsome return.

Building operations like this may be possible in many of our cities where ground values are high. This certainly is a most interesting development of the modern trend in financing a building operation.

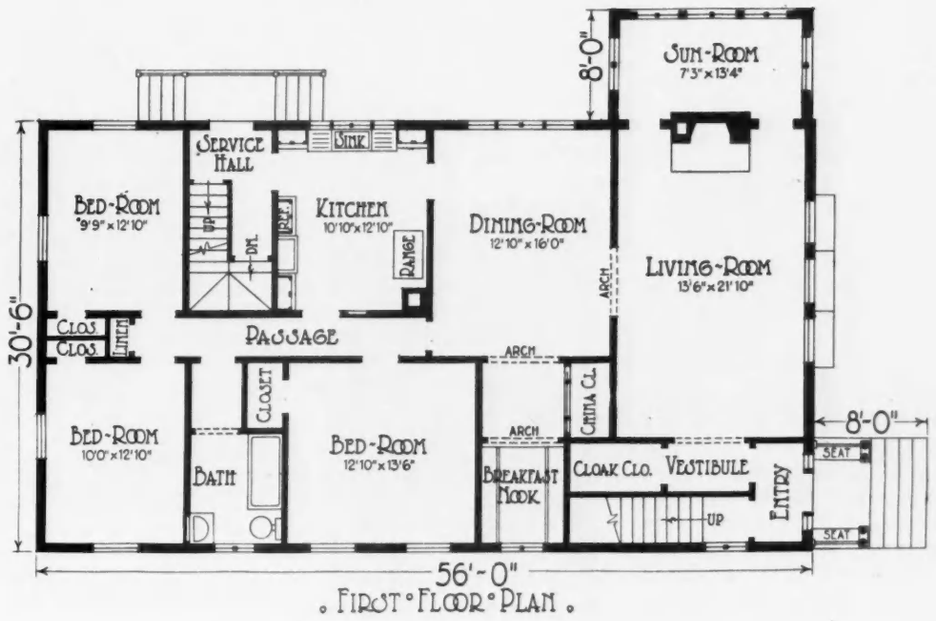
Above: Closeup View of Church Platform Set in Arched Recess. The triple arched organ screen is of ornamental plaster, the lower portion of panelled walnut embellished by carving. Reading desks, pews, etc., of carved walnut.

To Left: A Corner View of the Church Kindergarten.

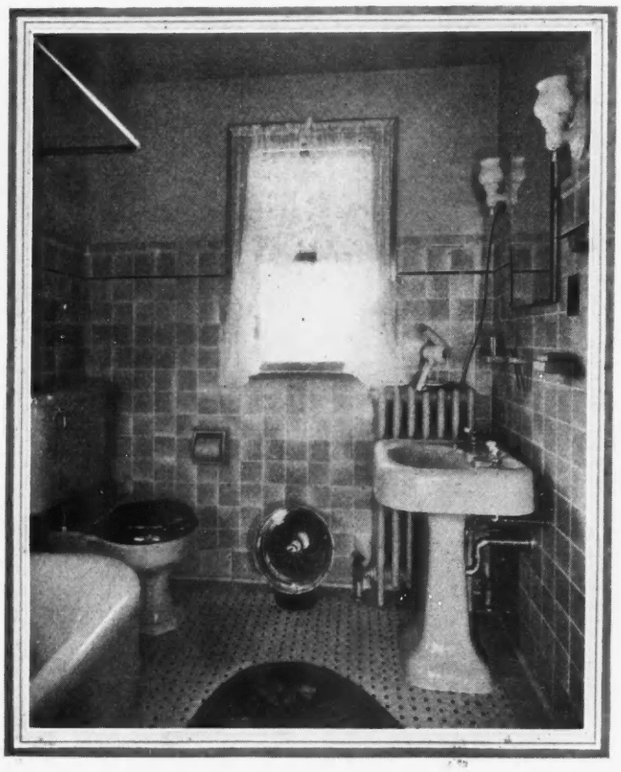
PASQUALE M. TORRACA, *Architect*, West Hartford, Conn.

A RESIDENTIAL DUPLEX

Where Only a Narrow Lot is Available, Special Proportions Are Required to Fit a Double House to Its Site



FIRST FLOOR PLAN



Style in the Bath Room

Plumbing Trends Forecast for Builders

By NORMAN J. RADDER
of the Plumbing & Heating Industries Bureau

TEN years ago it would have been impossible to write an article on the subject of "Style in the Bathroom." There was no style in the bathroom. The typical bathroom of a decade ago was all white. Not only were the fixtures white, but the tile as well was unrelieved by any note of color. The bathroom was small, the tub stood on legs, the lavatory was wall-hung, and the closet was of the wash-down type with a stained wood seat.

What a contrast to the bathroom of 1930! In fact, it is doubtful if ten years have brought about a greater change in any room or any part of the house than in the bathroom.

James S. Taylor of the Division of Housing of the United States Department of Commerce in a recent address before a group of realtors declared: "The bathroom has become the most conspicuous feature of many of the small homes of today." Mr. Taylor's remarks are based on observations which representatives of the Bureau of Housing made in 38 cities last year.

While Mr. Taylor is talking about the bathroom in the small home, his comment applies with even greater force to the bathroom in the larger home, in the millionaire's mansion, in the apartment building, and in the hotel. The plumbing industry has viewed with interest progress in the construction of the new palatial home of William Randolph Hearst at San Simeon, California. There will be no morning rush for the bathroom in the master's house or in any of the various villas which are part of the estate because Mr. Hearst has thoughtfully provided 70 bathrooms.

European observers commenting on the bathroom consciousness of the American home-owner have declared that Americans are erecting temples of cleanliness and calling them bathrooms. And it is true that something like an oriental temple is suggested by a bathroom with vaulted ceilings, a bathtub of onyx, gold plated fittings, and a marble lavatory. Bathrooms costing $30,000 or more have been installed in practically every city of more than 100,000 population.

American leadership in the manufacture of plumbing fixtures and the design of bathrooms is accepted abroad. American exports of bathtubs are increasing. American manufacturers are establishing branch factories in Europe and old English castles and ancient French chateaus are being modernized with colorful American plumbing fixtures.

The revolutionary change that has taken place in the attitude toward the bathroom is due almost entirely to the introduction of color. When colored plumbing fixtures were put on the market three years ago, the American public was ready to accept color. It had previously been educated to an appreciation of color in the bathroom by the brightening effects of colored tiles. Architects and interior decorators welcomed color in fixtures and saw a new opportunity to give individuality and distinction to a room that hitherto had been purely utilitarian in its fittings and arrangement.

Yet the man who is building houses to sell must today take cognizance of other factors besides that of color. The bathroom situation of today may be summarized as follows:

The public is ready for color in the bathroom as indicated by the fact that sales of colored fixtures in the last year have shown an increase of 200 per cent. The "best sellers", (listed in the order of popularity) are light green, orchid, ivory, and light blue.

There is a demand for more bathrooms. While the five-room bungalow with one bathroom is still typical of the demands of the day, the public ex-

pects a two-story house to have either two bathrooms or a downstairs lavatory. This is considered the minimum for a two-story house.

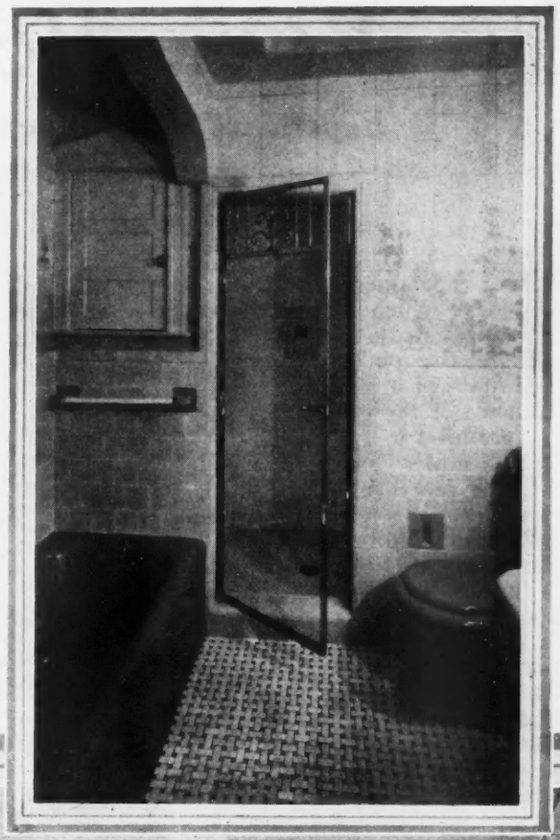
There is a distinct tendency toward larger bathrooms.

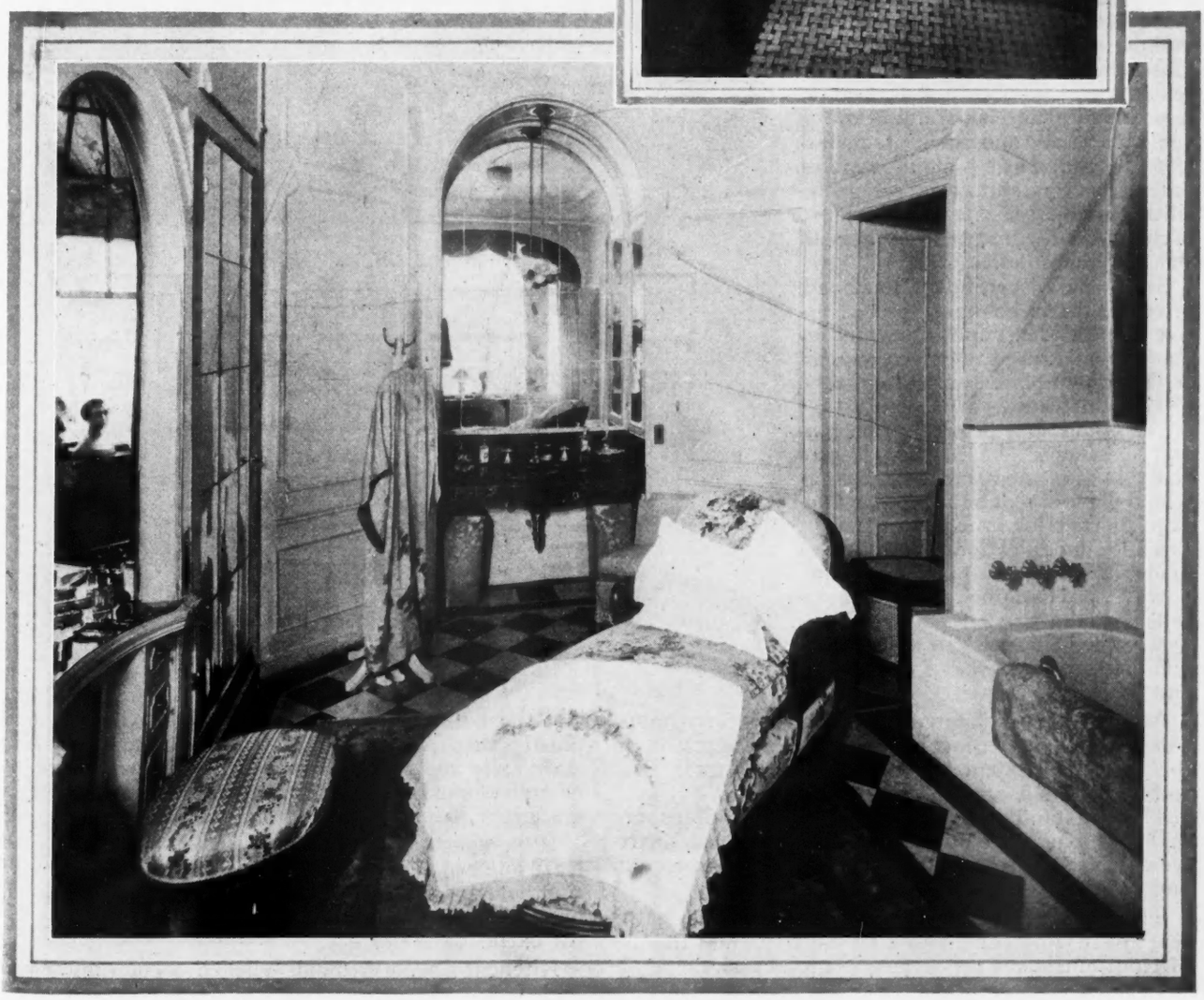
The bathroom today is getting a better location in the house than it did a few years ago.

The public is conscious of the importance of quality in plumbing fixtures. The woman looking at a kitchen sink will inquire if it has acid resisting enamel. She will ask if the lavatory is vitreous china. Chromium plating, swing-spout faucets, venetian mirrors in the medicine cabinets—all these and many other important features are noted in this day when the buyer dominates the market.

So much for general tendencies. Now let us examine for a moment the style tendencies in individual fixtures. Take, for instance, the toilet. Extensive changes in the design of the toilet bowl have been made in recent years by manufacturers, who, working in co-operation with the medical authorities, studied the posture of the human body. The modern toilet with its elongated bowl has a pleasing, streamlike appearance. It is practically noiseless. Nor

(*Continued to page 132*)





Larger Bath Rooms and Combined Bath-and-Dressing Rooms Are Coming In. Rubber tiling is one of the features of the palatial room illustrated. Inset above shows use of plate glass shower door installation in a Philadelphia development of homes to sell at $6,155 each.

The Look Before the Leap

Experience and Prudence, Survey and Analysis Assure Profitable Apartments

By WM. G. KRIEG, *Architect*

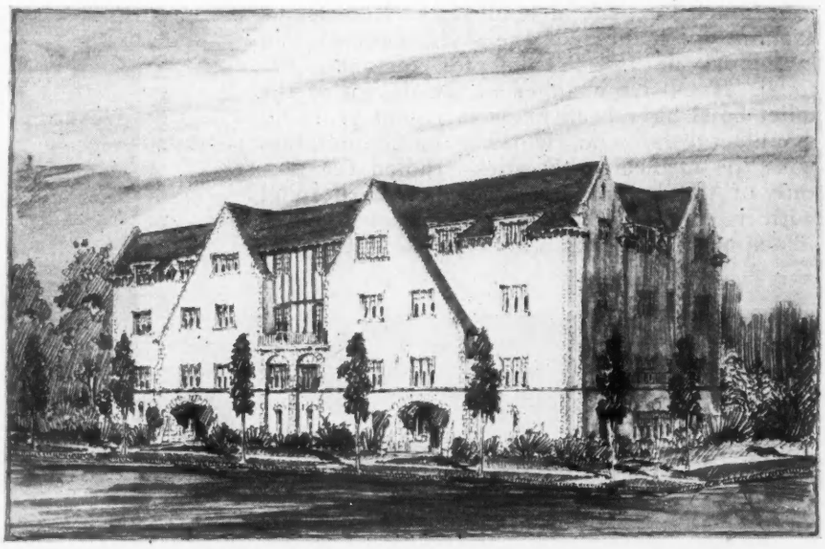
MANY apartment structures are being built today, which are not bringing in a proper return on the investment. The modern tendency of "get the job" crowds out the necessary old fashioned ideas of preliminary studies, which we of the gray hair generation were used to.

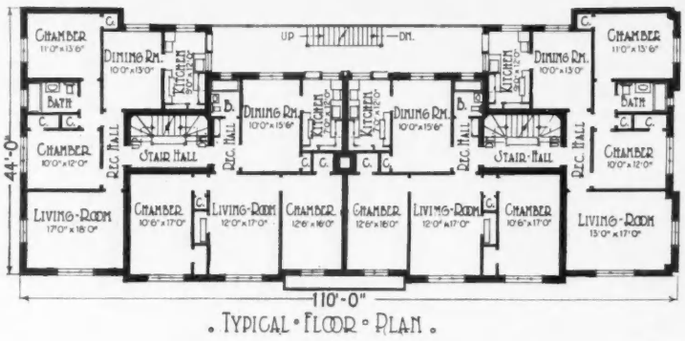
Working under an established policy, firmly rooted into this office, "not to make plans for anyone unless the building will be a reasonable paying investment," it becomes necessary, for us, before developing a sketch or preliminary drawing, to make a survey of the premises and immediate vicinity. Building restrictions of record and zoning ordinances must be checked and a tabulated list of apartments now in the vicinity of the proposed structure be made, checking the number and kind of apartments, the actual rentals, approximate age and condition of the structures and such items as: schools, churches, shopping centers, parks, theatres and auto storage facilities, within reasonable reach; also a check on the future prospects of the neighborhood.

Such data carefully analyzed, often results in changing a prospective client's ideas, and in several instances has caused the abandonment of the contemplated project entirely.

The illustrations with this article are reproductions of original preliminary studies based on above analysis for apartment buildings which have been built in the Chicago district for different owners.

Some modifications have been made in the actual plans without, however, changing the general scheme; and special features have been added in some, to suit the individual requirements of the owners and the locations.





. TYPICAL · FLOOR · PLAN .

Twelve 5-Room Apartments Designed for a Corner Lot.

All of these buildings are investment propositions. They produce a net income of approximately 10% on the total investment of building and grounds over and above the operating and fixed expenses.

The outstanding features of these buildings are that all rooms have outside light and air, each apartment has masonry dividing walls for fire protection and free access to front and rear stairways.

Service and deliveries to all apartments is via the rear court which opens to a public alley, and the use of front entrances for service is prohibited.

In the basement, provision is made for the janitor's living quarters, boiler and fuel rooms, laundries, storage rooms for each tenant and for screens, meter rooms, work shop, a recreation or children's playroom, etc.

The apartments have oak floors except the kitchens, which have inlaid linoleum, cork or rubber tile and the bath rooms of tile or mosaic. The trim is mostly birch, stained in walnut or mahogany for stair halls and living rooms and white enameled in chambers and baths. All plastered walls and ceilings are either painted, papered or decorated.

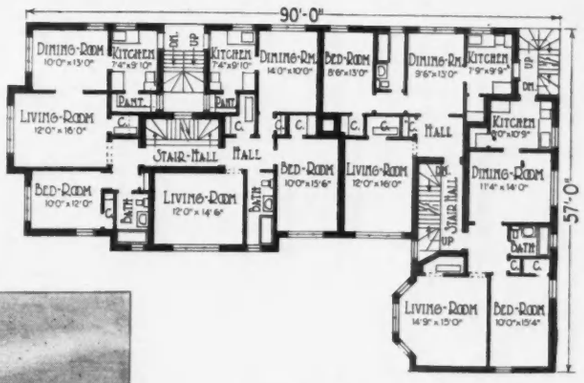
Each apartment has ample closet space with at least one cedar closet; and the guest closet in reception hall has a full length plate glass mirror. Rolling or wall beds are provided for the smaller apartments for extra room efficiency.

Kitchens are painted and relieved in color and have built-in cases, electric refrigerators, gas ranges, electric ventilating fans, ironing boards, pot and broom closets.

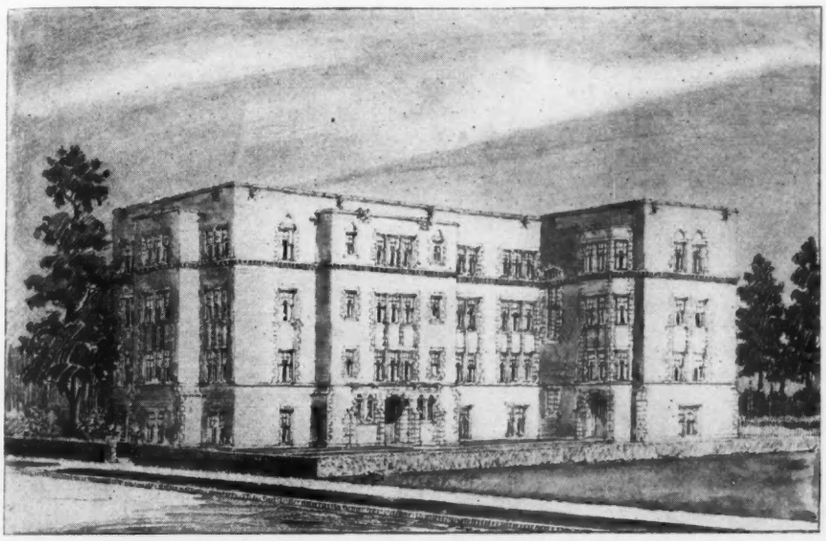
The bath rooms have colored tile wainscotings with built-in tile bath room fittings, metal bath cabinets with plate mirrors, pedestal lavatories, syphon closets with flushing valves and recessed baths with showers.

The stair halls are carpeted and have window hangings. Front entrances are finished in marble, tile or imitation travertine stone with tile or brick floors and ceilings in craft finish.

Speaking tubes or telephone systems with call bells



Above and to Left: An Ell-Shaped English Basement Building Lets in the Daylight.



On completion of the construction the premises are rough graded and all rubbish removed, then the landscape architect provides the shrubbery and other planting, without which no building is really complete.

According to our records, the average cost of these buildings was 33.7c per cubic foot, based on the actual cubic contents from bottom of basement floor to average height of roof, allowing one-half for open porches. This cost includes architect's fee but not financing costs or interest charges during construction.

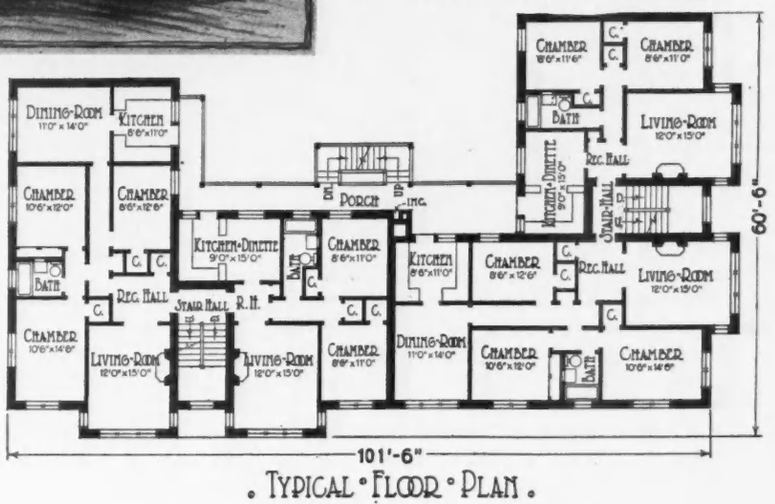
We believe that these buildings could easily be built from one to one and one-half cents per cubic foot lower at this time.

As the costs we give are based on Chicago prices and conditions, one must not overlook to adjust the same to his or her particular locality and the existing costs there of labor and material.

Below and to Left: Two Sixes and Two Fours to Each Floor Give Variety to This Corner Building.

connect each apartment with the janitor's apartment and the vestibule. Here are located mail boxes for each tenant. To secure privacy, the inner hall door is operated by push buttons from each apartment.

All of the buildings are heated with steam, using the narrow or slim type of radiation throughout. Standard equipment such as garbage incinerators, screens for windows and doors, metal weather strips, window shades and curtain rods are provided. Mantels, bookcases, wall safes and other special features are added to suit individual requirements.



. TYPICAL • FLOOR • PLAN .

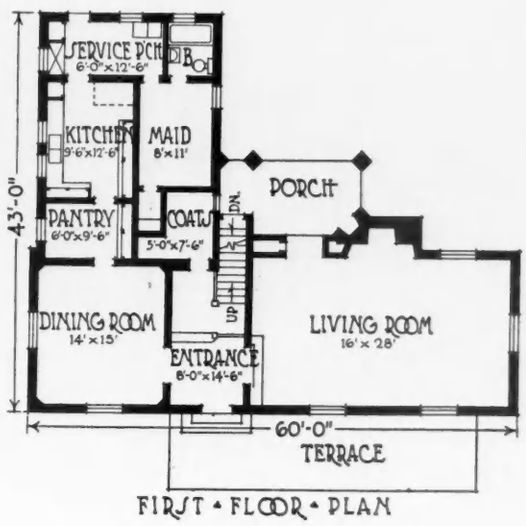
HOMES STYLED TO SELL IN 1930

Beautiful Residential Architecture May Be Greatly Enhanced by Skillful Planting. Note the vista along the front of the home designed by Marshall P. Wilkinson, Architect, which is illustrated on the opposite page.

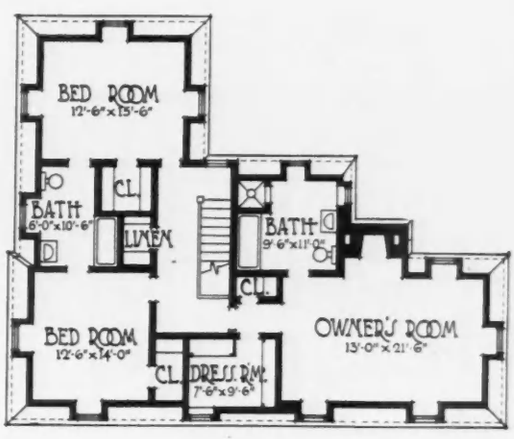
MARSHALL P. WILKINSON, *Architect*, Los Angeles, Cal.

FRENCH WITH A MANSARD ROOF

The Builder Who Desires Something Just a Bit Out of the Ordinary Will Find in This Design a Model Well Worth Following



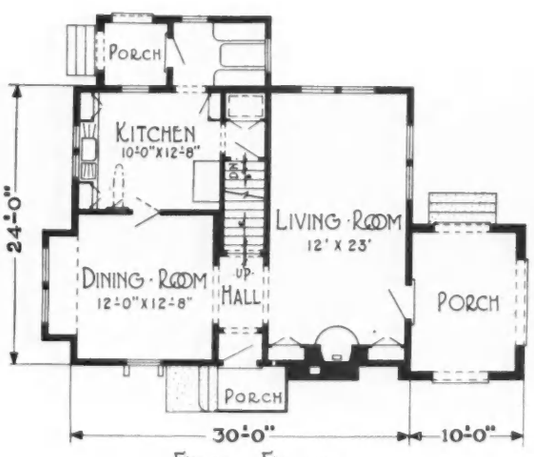
FIRST • FLOOR • PLAN



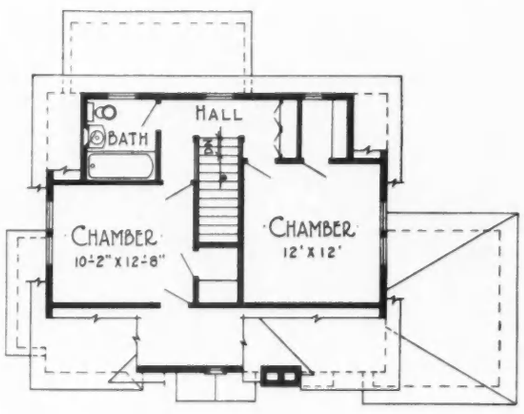
SECOND • FLOOR • PLAN

GOOD DESIGN IN THE SMALL HOME

A Small Home But None the Less Good Architecturally, a Type of Design for Which There Is a Real Need



FIRST FLOOR

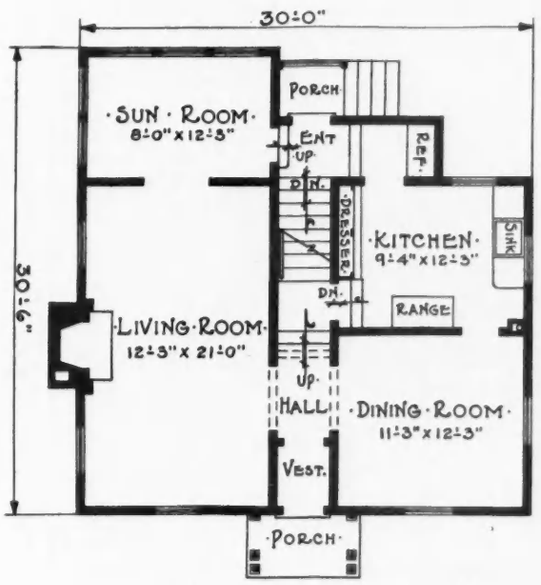


SECOND FLOOR

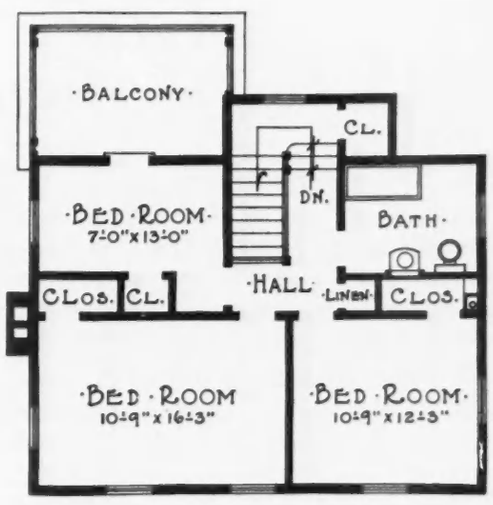
HAROLD S. STAURM, *Architect*

GENUINE NEW ENGLAND COLONIAL

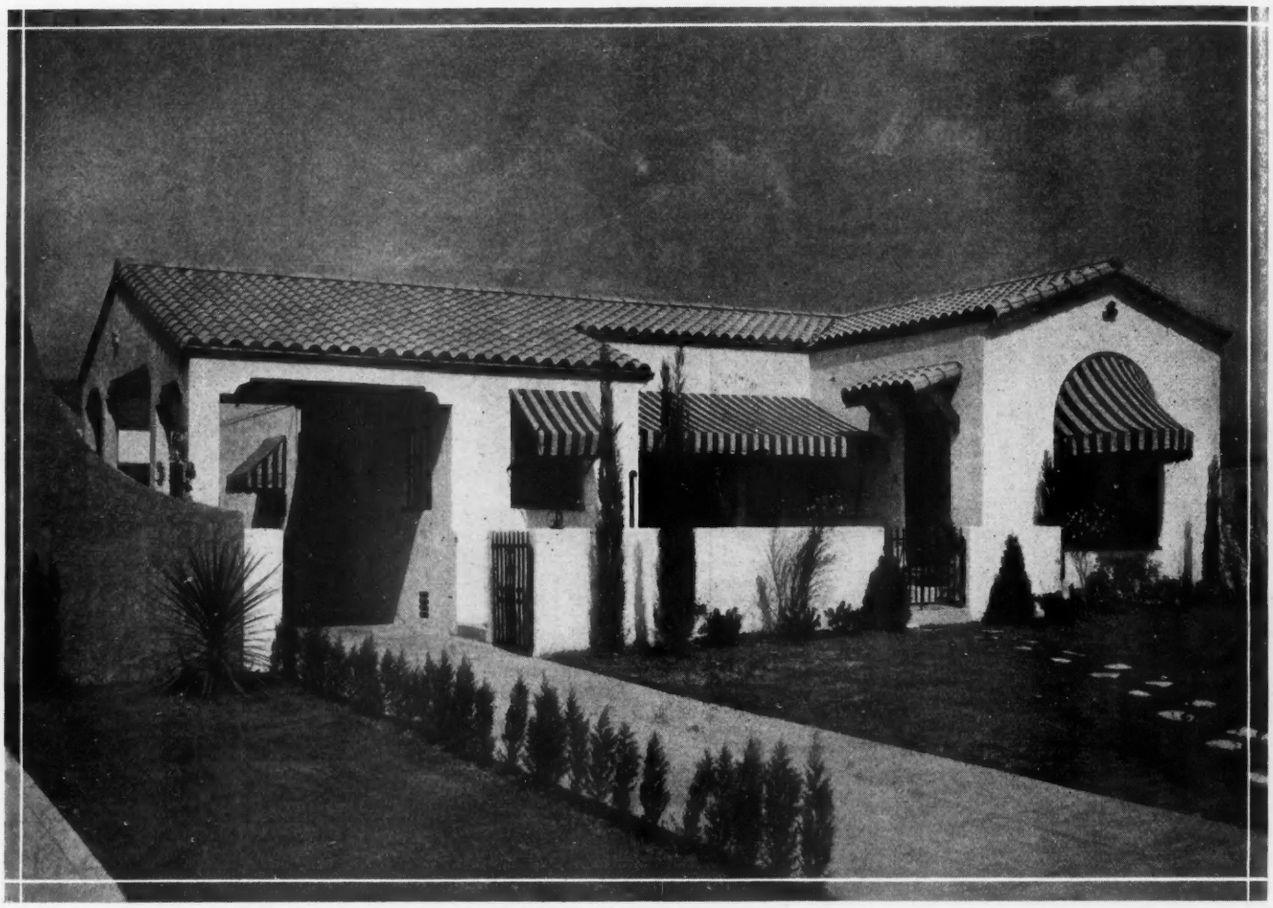
There Is Something About the New England Colonial Home That Never Loses Its Appeal



FIRST FLOOR PLAN



SECOND FLOOR PLAN



ADVANCE PROPERTIES CO., *Architects and Builders,* Los Angeles, Cal.

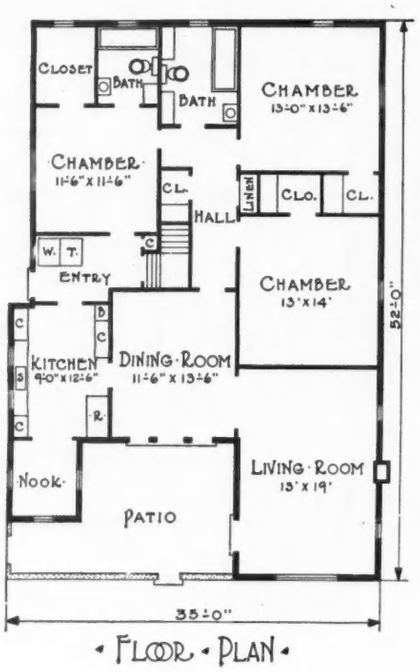
CALIFORNIA SPANISH BUNGALOW

Vivid Roof Tile and Awnings Against Pastel Stucco Walls Speak of a Setting Under Cloudless Skies and Brilliant Sunshine

SERVICE TO HOME BUILDERS

Throughout this magazine we present many building designs. A variety of home plans are included, selected from many parts of the United States and designed by various architects of standing.

The "American Builder" will gladly serve its readers by bringing them together with these architects if any further information or plans are desired for any of these designs. Address the American Builder Home Planning Service, 105 West Adams Street, Chicago, or 30 Church Street, New York City.



FLOOR PLAN

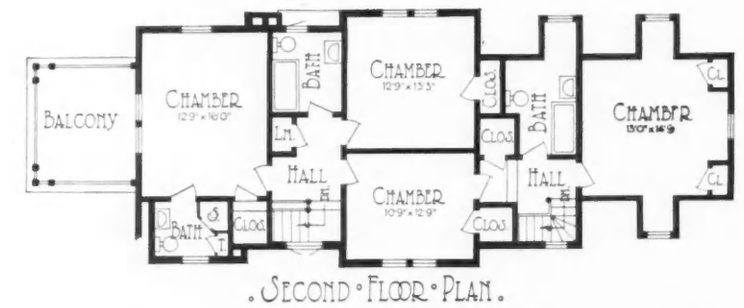
MODERN BUNGALOW AND GARAGE

A Convenient Arrangement in This Motor Age, the Owner Can Reach His Car Without Going Outside His House

W. PERCIVAL JOHNSON, *Architect and Builder*, Gladstone Manor, Pa.

BRICK AND SHINGLE COMBINATION

Suggestive of the Colonial But in Reality a Clever Blending of Styles in a Manner Typically American



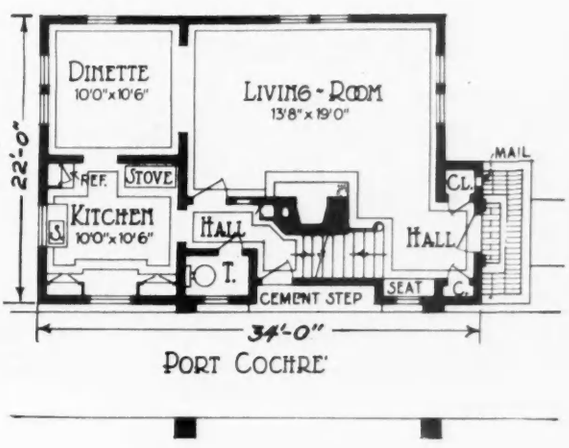
. SECOND · FLOOR · PLAN .

. FIRST · FLOOR · PLAN .

ROBERT S. CHASE, *Architect*, Janesville, Wis.

ATTRACTIVE FIVE ROOM COTTAGE

A Modest Home Yet One of Which the Owner Can Well Feel Proud: for It Possesses Real Character



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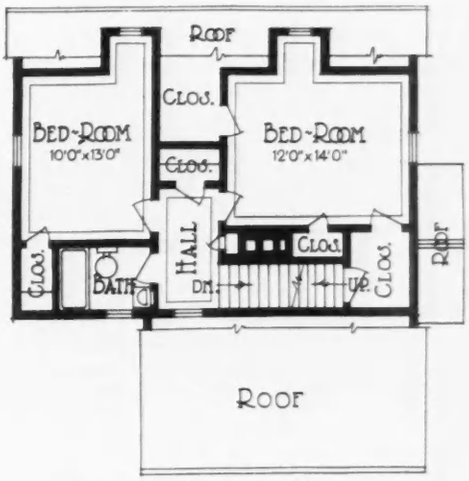

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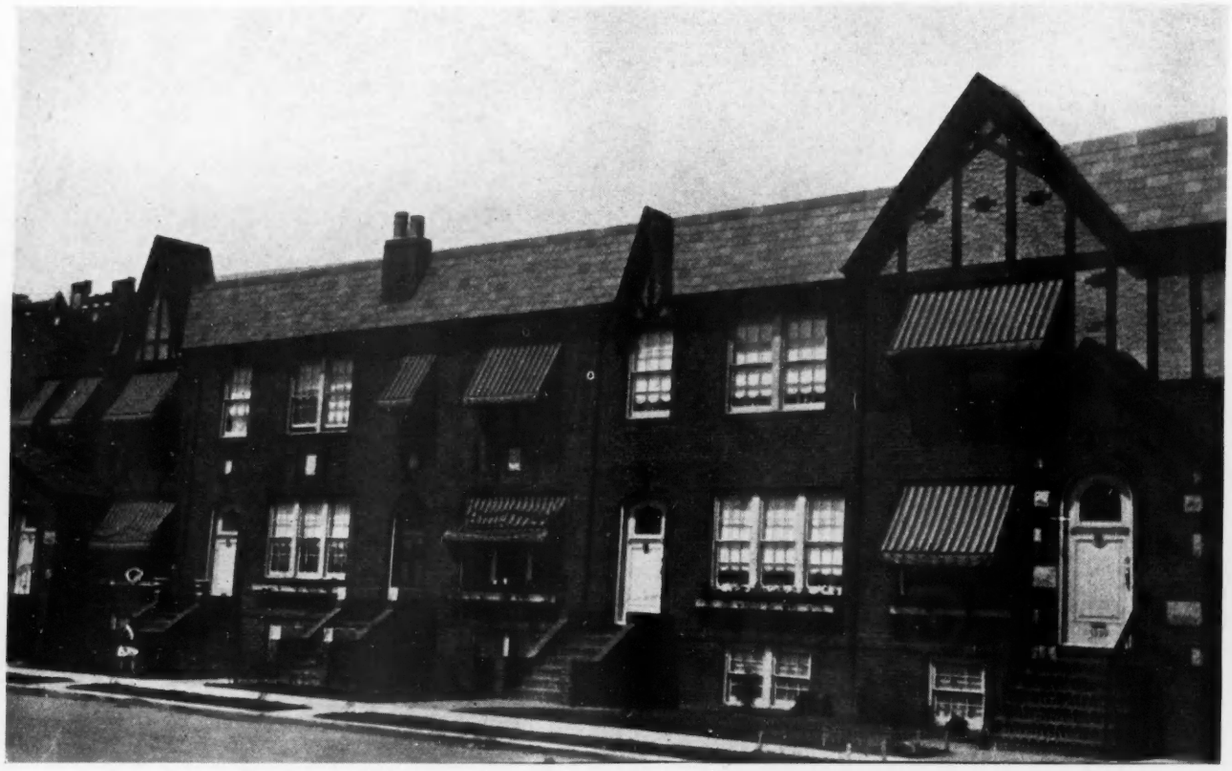
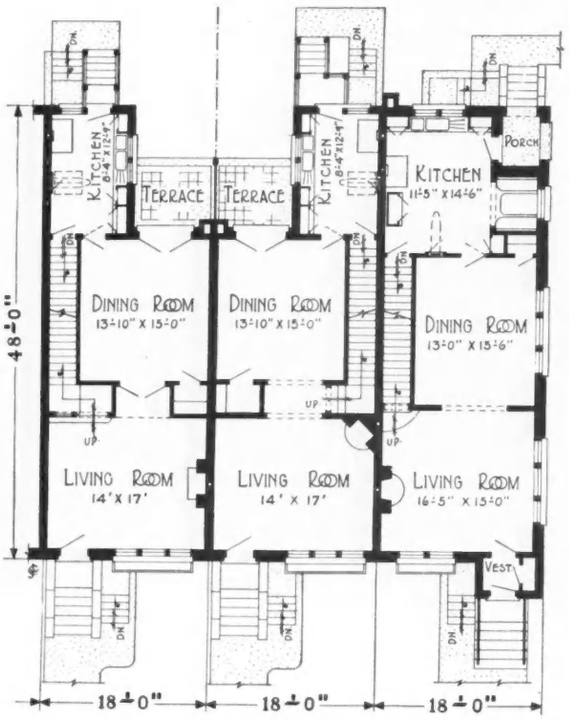
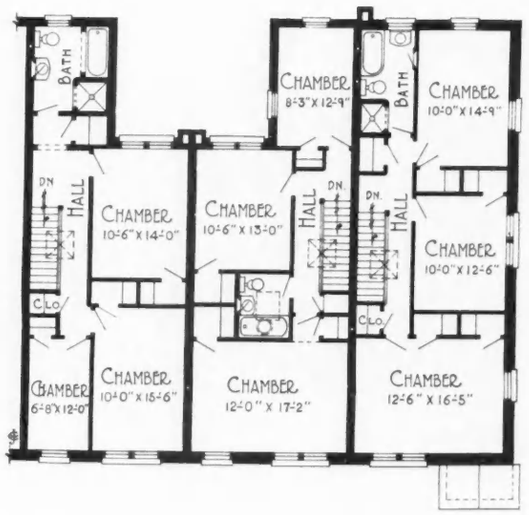


ROW HOUSES FROM THE EAST

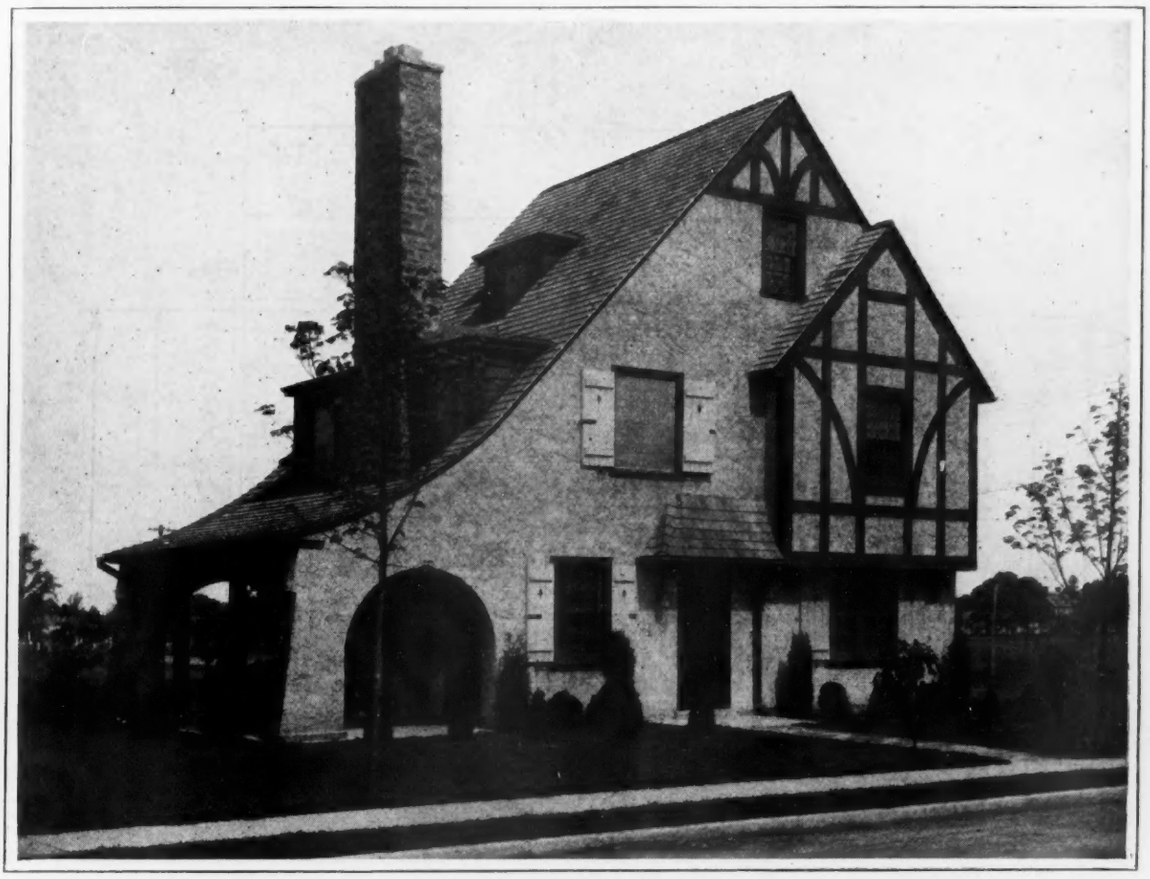
In Certain Eastern Cities, Row Houses Provide Excellent Homes at a Cost Far Below Single Houses of Equal Quality



FIRST FLOOR



SECOND FLOOR



THE AMERICAN BUILDER ALL-FEATURE HOME

Complete Working Plans

A Handsome Six Room Residence Presented in One-Eighth-Inch Scale Drawings

ADOPTING some of the general characteristics of the English style of architecture, the architects have produced in this All-Feature Home, a six room residence which is at once impressive in appearance and homelike in atmosphere. It is admirably suited to the needs of the average American family and can be built at a cost which is low when the results obtained are considered.

The finish is of stucco with half timbered gables but brick could be used just as effectively and appropriately adapting the design to the demands of various prospective home owners. One interesting feature of this house is the open porch at the left, with graceful arches.

It has been prophesied that the open porch will return again to general popularity, after its several years of neglect. Whether or not this proves true, there still are and always will be many families which appreciate the advantages and pleasures of the open porch, especially for suburban homes, and will welcome such a one as this graceful design affords.

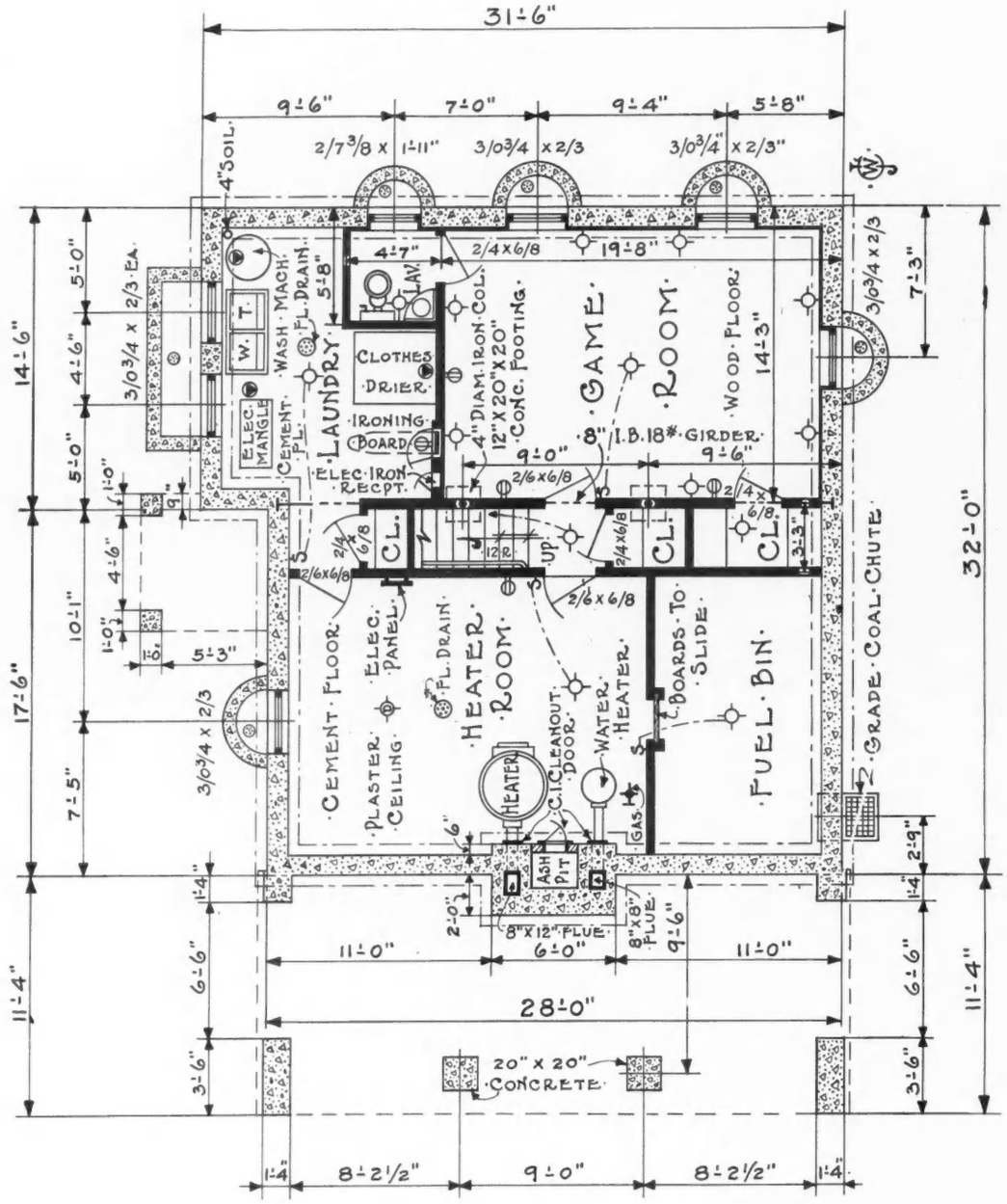
Probably the most outstanding demand on the part of present day home buyers is the demand for equipment. Any house, to be readily salable, must be equipped to simplify and make easy the routine of everday life and afford a maximum of comfort. Not only is this true for the larger and more expensive homes, but also for the typical small home.

Equipment manufacturers have recognized this demand and there is on the market today an ample variety of equipment of every type, offered at prices adapted to homes in every price range. Complete equipment is no longer a luxury for the wealthy. It is a necessity for everyone.

In this All-Feature Home the equipment possibilities have been fully developed. Reference to the plans and elevations reproduced on the four pages following will most clearly demonstrate what can be done along this line. Close study of these plans will pay you well.

NEXT MONTH

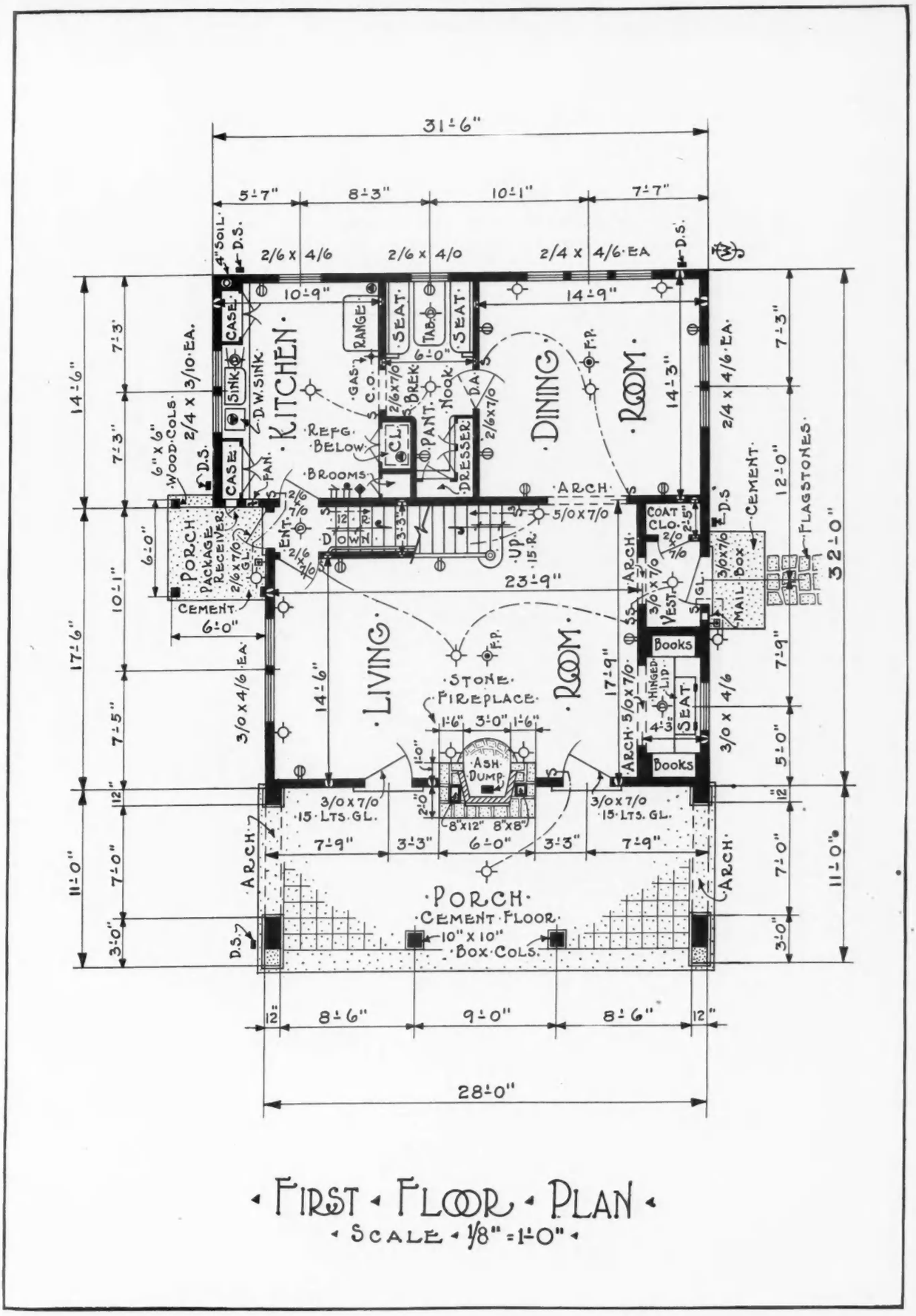
Complete Plans of a Perfect Shing'ed Colonial Home of Popular Size



BASEMENT PLAN

SCALE 1/8" = 1'-0"

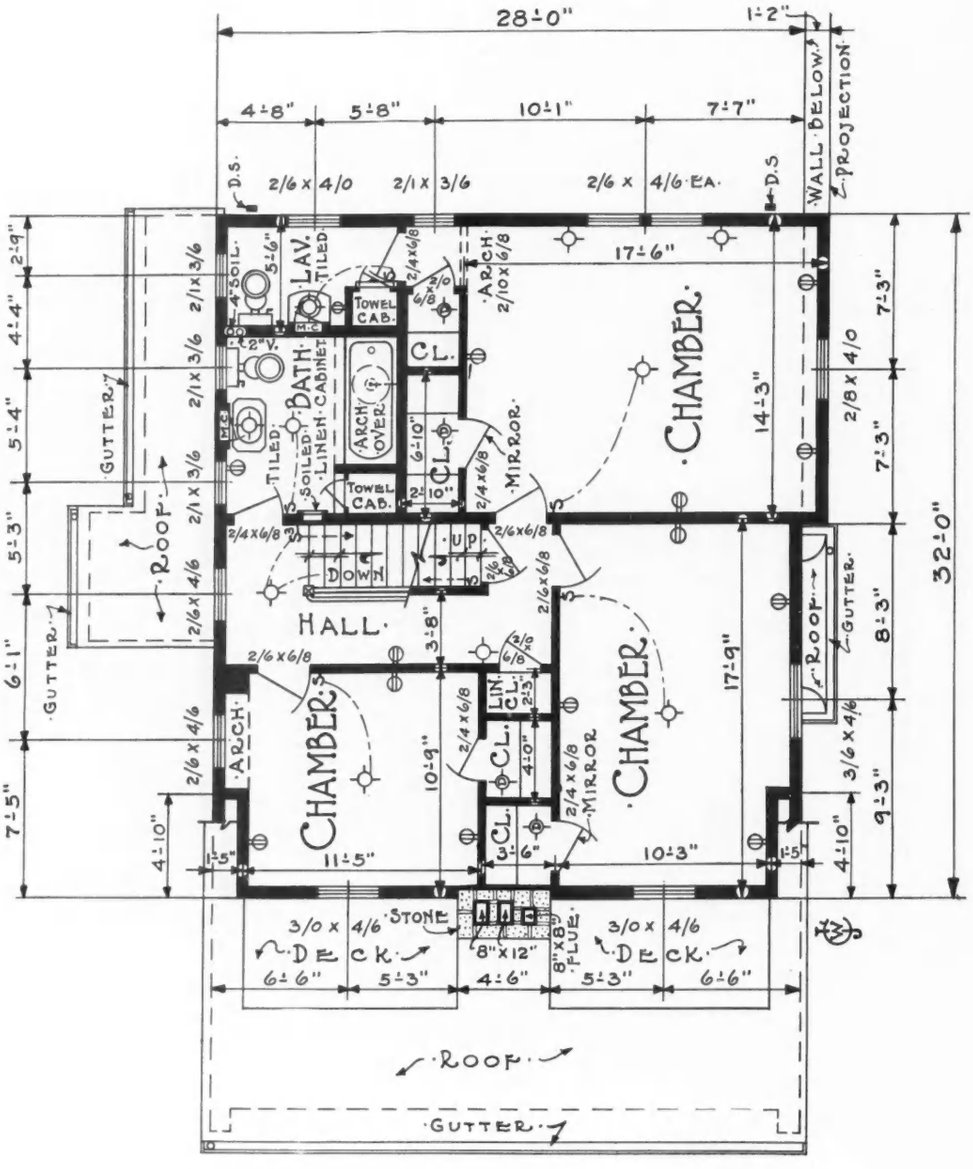
The Basement of the All-Feature Home Contains a Most Completely Equipped Laundry and Also a Game Room for the Children.



FIRST FLOOR PLAN

SCALE 1/8" = 1'-0"

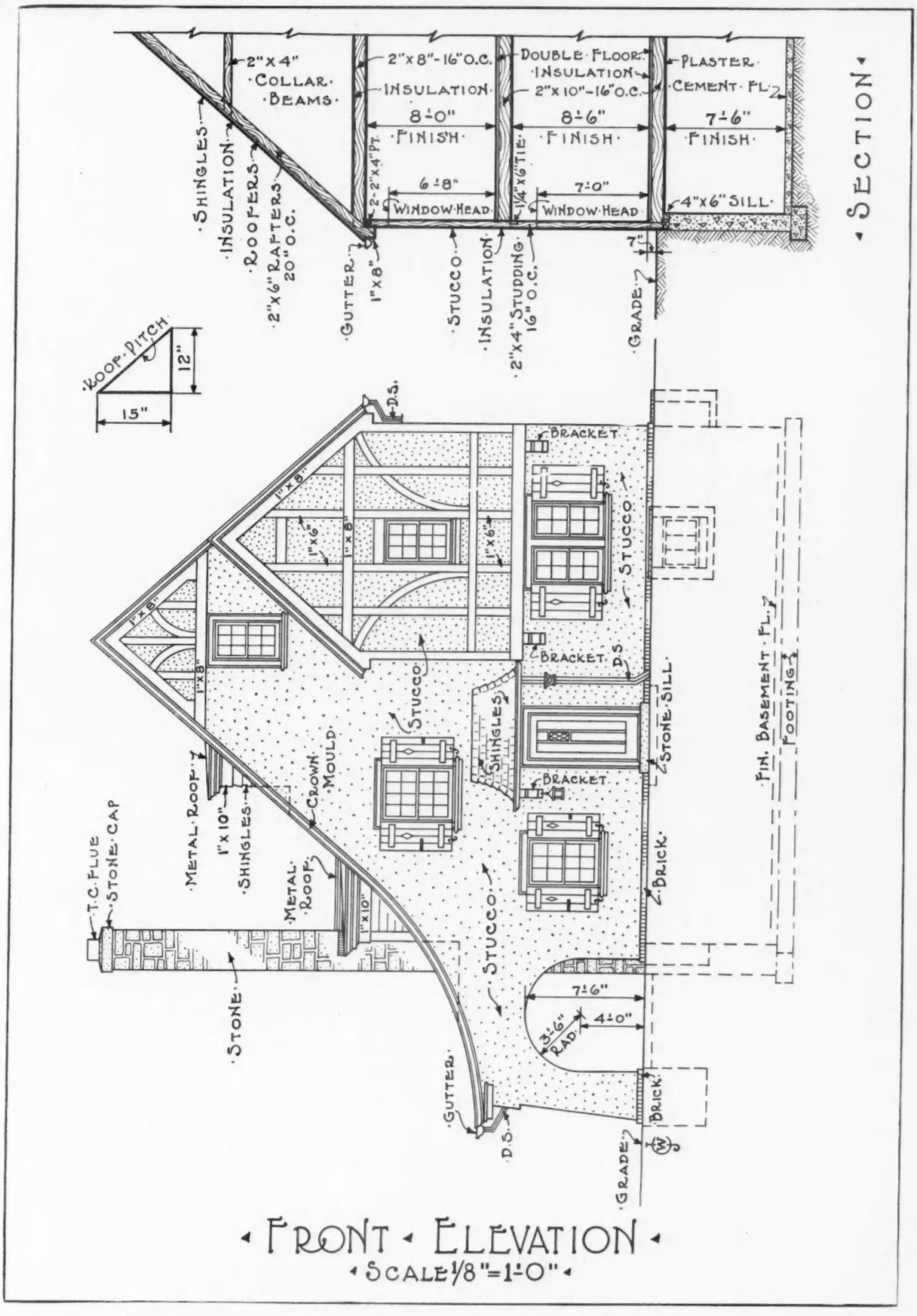
Equipment Is Again Conspicuous in the First Floor Plan of the All-Feature Home, the Important Items Being Indicated.



SECOND FLOOR PLAN

SCALE 1/8"=1'-0"

On the Second Floor Not Only a Bathroom But Also an Extra Lavatory Is Provided in Accordance with Modern Ideas.



Here a Front Elevation and Section Are Shown to Explain the Construction of the All-Feature Home.

Soda Grill, Tea Room, Gibson Hotel, Cincinnati

Modern Restaurants

Their Designing and Building Requirements

By J. O. DAHL

THE industry that owed its success to liquor, travelers, and the homeless has shaken off its past and grown to the point where it is acknowledged as one of the leading businesses in America.

Fifteen years ago, there were, in the United States, approximately 40,000 commercial restaurants. They served less than three percent of the food consumed in the country. Cafeterias, dairy lunches and chop houses led in favor. A first class restaurant seldom existed without the patronage of wine and liquor sales.

Today the industry is made up of about 110,000 restaurants that serve from 18 to 20 per cent of the food consumed by the urban population of the country. An investigation proves that in many cities it averages from 25 to 35 per cent.

Chop houses have gone with liquor. Dairy lunches and cafeterias are not increasing as rapidly as coffee shops, tea rooms, sandwich shops and specialty restaurants—due in part to the great changes in eating habits. With nibbles taking the place of bites and "keep slender" fads sweeping the country, it is easy to understand the switch from old-fashioned to modern style eating places. Then, too, these changes have been in demand because restaurants are feeding people who never before ate in restaurants. Thirty per cent of restaurant business is made up of patronage from women; from fifteen to twenty per cent is family business.

And with these new departures and constant growth (9,000 new restaurants each year) has come a radical change in management manpower. Schools by the score are educating young women to take their place in the industry (30 per cent of the restaurants are owned or managed by women). Big business has stepped in with result that there are now several hundred chain restaurant companies—six of which will be or now are listed in the stock exchange. Twenty-five thousand of the 110,000 restaurants have a credit rating of over $5,000. These restaurants serve an average of over 500 meals a day each.

The modern rated restaurant gives food service comparable to that found in hotels. Ninety-five per cent of these restaurants do much of their own baking. Many have a bakery and delicatessen department, which sells products to be eaten off the premises. Of the rated restaurants, 32 per cent have soda fountains, and many more have been compelled by competition to make such an

RESTAURANT HIGHLIGHTS

Total number of restaurants	*110,000*
Average "rated" restaurant	*25,000*
Average check	*$0.52*
Average cost of equipment (per seat)	*$100.00*
Average turnover per day per seat	*8*
Meals served in restaurants—percentage of all meals eaten in the United States	*17%*
Number of different kinds of restaurants	*3*
Percentage operated by women	*30%*
New restaurants each year	*9,000*
Cost of furnishing new restaurants	*$42,300,000.00*

installation. Ninety thousand of the 110,000 restaurants sell candy bar goods, gum, cigars, cigarettes and specialty confections. Twenty-nine per cent make their own ice cream. A box lunch business is carried on by many of the city restaurants and several thousand tea rooms sell gifts and novelties.

When the writer entered the restaurant business, back in 1911, the success of a restaurant was almost entirely dependent upon good food and a well stocked cellar. What the modern restaurant calls success is indicated by the following returns from a questionnaire asking for the factors that make a 20th century restaurant successful:

Good food	25%
Good location	15%
Reasonable prices	15%
Unique decorations	15%
Intelligent advertising	10%
Speedy service	5%
Modern sanitation	5%
Quiet atmosphere	5%
Adequate ventilation	5%

This, plus the fact that about 12 per cent of the restaurants are owned or managed by college men and women, is an excellent indication of the "new business of feeding folks."

Unfortunately, a large percentage of the new restaurants fail or change hands before they celebrate their first birthday. The business of feeding people has been a lure to every good cook in the country.

Today, the industry has entered the stage of scientific operation. Food cost accounting, turnover, appealing decorations and attractive fronts to increase sales are all factors of intense interest to successful operators.

Good food is no longer the only requisite for restaurant success, as is evidenced from the tabulation in this article, decorations are becoming of increased importance. A study of eleven of the most profitable shops proves that decorations bring the people into the store. Once inside, the experienced manager knows how to serve people in a satisfactory manner.

Restaurant men seldom understand architecture, decoration or building. To my knowledge most successful eating establishments in the country owe their success to architecture or structural features. Good food is so common today that it offers very little advertising or merchandising value.

The style factor is important in restaurants, too. Who doesn't remember the dairy lunch, old fashioned cafeterias and chain restaurants of ten years ago? Now they are rapidly disappearing to be replaced with coffee shops, soda grills and sandwich shops. Cafeterias that still succeed must be beautiful beyond all former conception of a dining establishment. And the serv-

To Right—Sandwich Shop Counter Arranged to Get More Customer Space in a Given Area.

To Left—Knotty Pine Paneling to Produce a Homey Effect in a Thompson Restaurant, Chicago.

ice restaurant needs unusual atmosphere to draw profitable patronage.

From all indications, the trend for several years to come is apt to be toward the bizarre; Spanish, Moorish and Italian architecture is spreading from larger centers of population to smaller communities. Next in popularity is trick atmosphere—tents, log cabins, jail cells, cow barns, deserts, tree tops, sea bottom, ship interior, beach scene, pullman interior, Zulu hut, doll house, crazy house—in fact many restaurants of today look like anything but places to eat.

As a result, modern builders of specialty restaurants must be prepared to create and execute ideas in an unusual manner.

Coffee shops, sandwich shops and soda bars conform to accepted standard, but they offer problems providing for speed in mass feeding. Such restaurants are always located in crowded sections of cities and seldom seat more than a hundred people.

Ventilation is the greatest single mechanical problem in most restaurants. Smoke and cooking odors cost a great deal in loss of business. Next is the all-important subject of sanitation. With this is included building to protect food against insects.

Fire protection and accident prevention are paramount in the restauranteur's life. Carelessness and accidents cost him thousands of dollars each year in breakage and injuries. With all these factors in mind, successful operators have adopted fairly uniform standards of construction. Some of them are:

Elaborate Elegance of Decorations and Furnishings Marks Many Eating Places.

EXTERIOR. Colorful, attention compelling, clean appearance, awnings in color, windows large and with high quality plate glass. Double or large front doors which swing easily. Colorful sign placed at angle to give greatest visibility. Entrance without a step up or down is preferred.

WINDOW INTERIOR. Display lights, floor of display to be table height from outside walk, window floor of cork, rubber, composition, formica, vitrotile or linoleum, in well blended colors. Most operators prefer to use windows that give an unobstructed view of the dining room.

FLOORS. Cork, rubber, tile, linoleum and terrazzo for dining rooms.

KITCHENS. Walls of tile half way to ceiling, or walls should be finished in dull finish surface that can be washed easily. Floor of concrete or red quarry tile stones set on concrete base. Floors inclined slightly to drains. Eighteen foot ceilings, double doors to dining room. Kitchens usually require twenty-five per cent of the space available for the entire restaurant. Doors from kitchen to dining room should have glass peek holes. Factory type of casement windows are preferable. Rounded corners guarantee greater sanitation. Equipment is usually planned to sit off the floor to permit easy cleaning. Much attention is now being paid to noise reduction in both kitchens and dining rooms. This has brought about the use of softer floor coverings, sound deadening material on walls and ceilings, and rubber, cork or linoleum counter tops.

Many states and municipalities have laws governing the construction of restaurants. In a group of typical states, the following are goverened by these regulations: Ventilation of kitchens; screening of fan openings; screens for outside doors; opening of door outward; push and pull signs on doors; where glass panels shall be used; ventilation of garbage chutes; construction and ventilation of water closets; chimney construction; hoods for ranges; construction of flue connections; construction of wall shields; construction of range and oven base; construction of refrigerators; provision for garbage construction; construction of washrooms.

IDEAS FOR EFFICIENT PLANS

1. *Adequate wrap checking facilities.*
2. *Space for public telephone (pay).*
3. *Toilet rooms for patrons and employees.*
4. *Locker room for large restaurants.*
5. *Greater demand for refrigerating space.*
6. *Garbage burning facilities.*
7. *Space for cashier's desk at entrance.*
8. *Beware of excessive building and furnishing costs in restaurants with short leases.*
9. *Heavy duty electric cooking and preparation equipment requires special wiring.*
10. *Equipment must be built off floor so cleanliness is simplified.*
11. *In cold climates it is advisable to use revolving or double doors.*
12. *Place food storage rooms close to merchandise entrance.*
13. *A daylight kitchen is most efficient.*
14. *Electric dumb waiters or a conveyor system is advisable where kitchens and serving rooms are on different floors.*
15. *If window display space is available, it should be refrigerated.*
16. *Steel storage shelves are preferable when the lease runs over ten years.*
17. *Provide brackets for fire extinguishers near all ranges.*

Each specific type of restaurant has its peculiar requirements. In general they are:

FORMAL RESTAURANT. Dignity in decorations, an atmosphere of quiet, soft lighting effects, spaciousness, seldom profitable in high rent area, larger kitchen than for other types, window display space not essential.

COFFEE SHOPS (OR LUNCH ROOMS). Tables and counters, compact seating arrangement, part of cooking may be done in dining room, good ventilation essential, ease of cleaning essential due to rapid turnover per chair or stool, smaller tables than in formal dining room. Simplicity of decorations and color.

SODA GRILL OR FOUNTAIN LUNCH. Fountain unit should be close to entrance. Seats at fountain reduce turnover and should not be used if table space is available. Tables may be placed at back of room. Decorations can be more colorful than in lunch room.

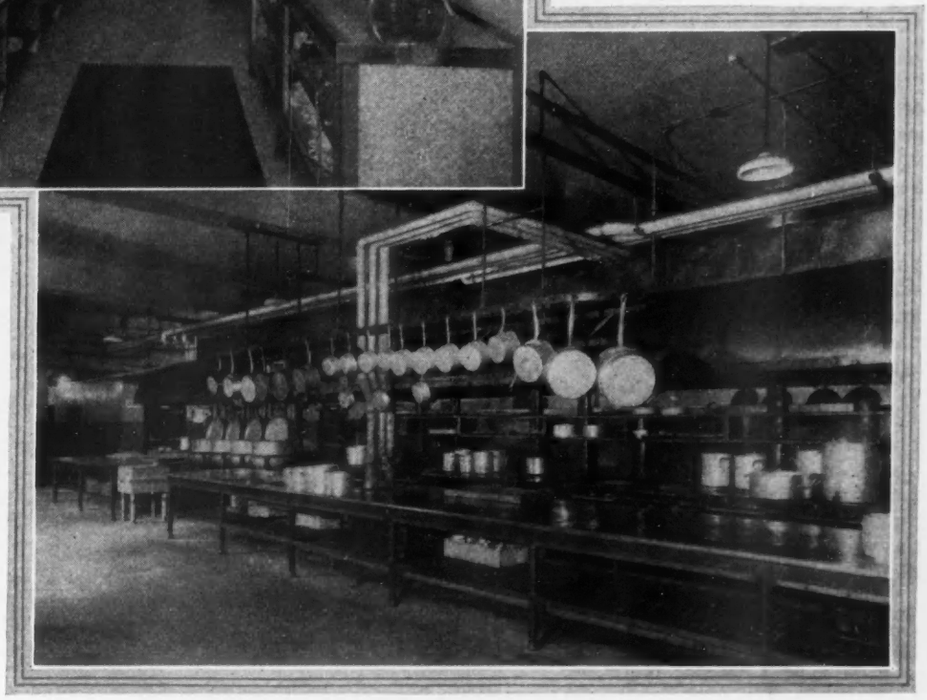
CAFETERIAS. Spaciousness is essential. Wider space between tables than for service restaurants. Special ventilation essential over steam tables. Window display space not essential. Basement or second floor location often profitable. Special lighting over food at steam tables. Provide space for checker at end of cafeteria line.

Restaurant architecture and construction offer unusual opportunity to men with ideas and enough knowledge about the feeding business to know when the business is properly located and financed. Shoestring operators are especially active because of easy credits, an over-supply of vacant stores and because the business is one that operates on a cash basis.

"TESTS PROVE DIAGONAL SHEATHING BEST" is one of the extra valuable features to be presented in the MARCH American Builder.

You have all argued and wondered about the relative strength and stiffness of Diagonal and Horizontal Sheathing. The Forest Products Laboratory has completed tests that now settle this question. Full report next month.

The Modern Restaurant or Hotel Kitchen is Scientifically Designed and Equipped.



Kitchen Planning Specialists Are Available for the Service of Architects and Builders.

450 Homes in 18 Years

as well as

Many Apartments and Stores

is this builder's record

How He Does Business

by DALE R. VAN HORN

John M. Alexander

"QUALITY is the best policy, and quality brings success," is the opinion of John M. Alexander, builder and realtor, of Lincoln, Nebraska. And this man's opinion is worth noting, for in less than 20 years of successful business he has turned a capital of $65.00 into a sizable fortune, and travelled a road which has brought him to the top of the building ladder.

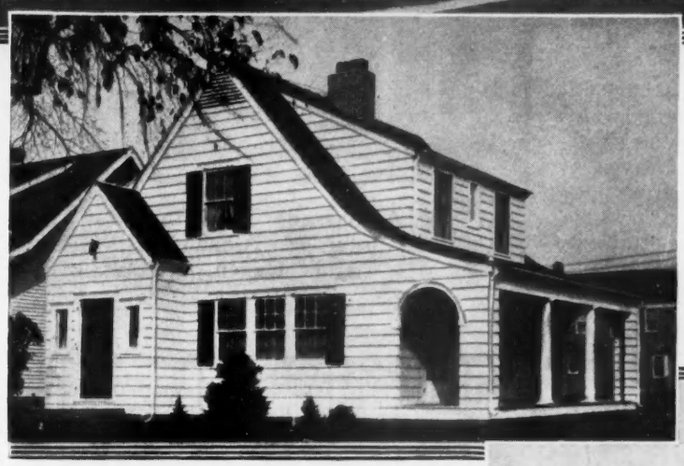
His first large deal came when he was 25 years old, at which time he sold a large apartment house for a good commission. With the money he had been able to save from the commission he bought a lot, paying $100.00 down, and planned a house for it. This plan was so well conceived that before it was completed he sold it at a profit of $750.00. This successful venture encouraged and developed his latent desire to create his own designs. Although he did not give up his buying and selling proclivities at this time he, nevertheless, began to turn his attention to building.

In a few years Mr. Alexander's building activities practically overshadowed his real estate interests and at the present time the company has built approximately four hundred and fifty houses. Some of these are simple dwellings, while others are among the most pretentious homes of the city.

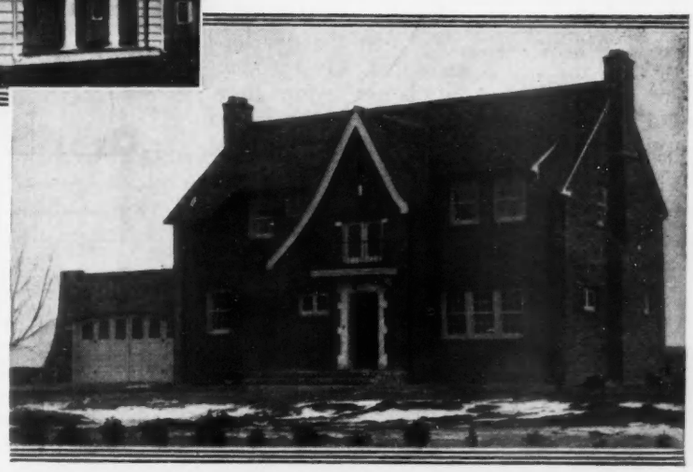
His belief is that people want a new type of architecture. They want the beautiful. In Lincoln he has used English, Colonial, French, Southern Georgian, and now he is featuring the Norman-French style of home, of brick, frame, concrete or stone. "Probably the most popular type of home we have built," Mr. Alexander states "is the Colonial. This seems to fit the artistic as well as the financial needs of the average family. Southern, New England and Dutch styles all have been greatly in demand for the past five or six years. In all these the floor plans are somewhat similar and the changes are evident only in the exteriors which have been developed through the early years of this country, and each represents its locality."

It is this Lincoln builder's plan always to keep in line with the trend of building needs. When the demand for

John M. Alexander's Home in Lincoln, Nebr.



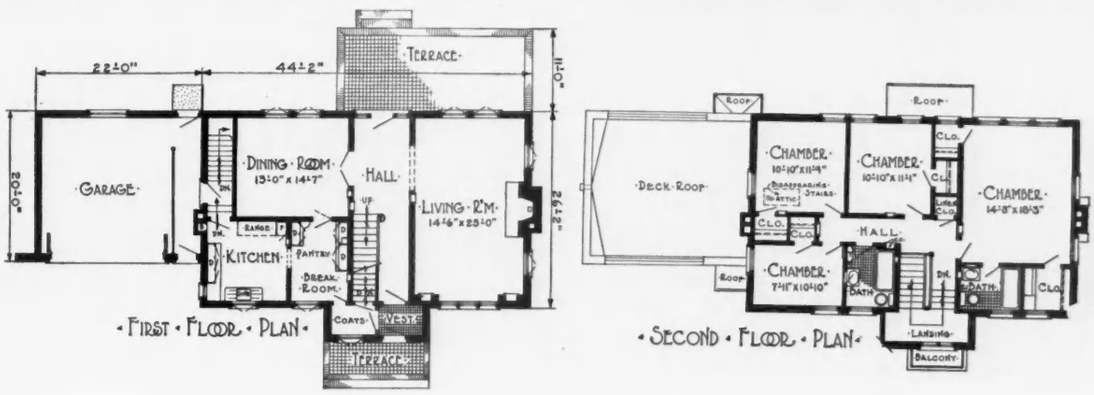
This Builder Uses All Materials Equally Well



homes fell off his attention was turned to the building of apartments. He brought to Lincoln a new type of multi-family dwelling in the lovely Ambassador and President apartments here illustrated. The Ambassador contains 40 apartments while the President has one more. Each building has automatic elevators, a roof garden, a party room, laundry and lockers, electrical refrigeration and tiled bathrooms. The woodwork consists of mahogany doors with gum-wood trim and reinforced terrazzo has been used on the floors. Vapor vacuum heat is used and each building is equipped with two oil burners, one for heating water and one for general heating purposes.

Because the buildings are constructed of reinforced concrete the upkeep of them is very slight and the income is accordingly very good. The annual rent from the two buildings is $50,000,

Three Different Styles and Types of Homes Built Recently by John M. Alexander, Lincoln, Nebr. Inside arrangement of the brick house, just above, is shown in the floor plan diagram below.



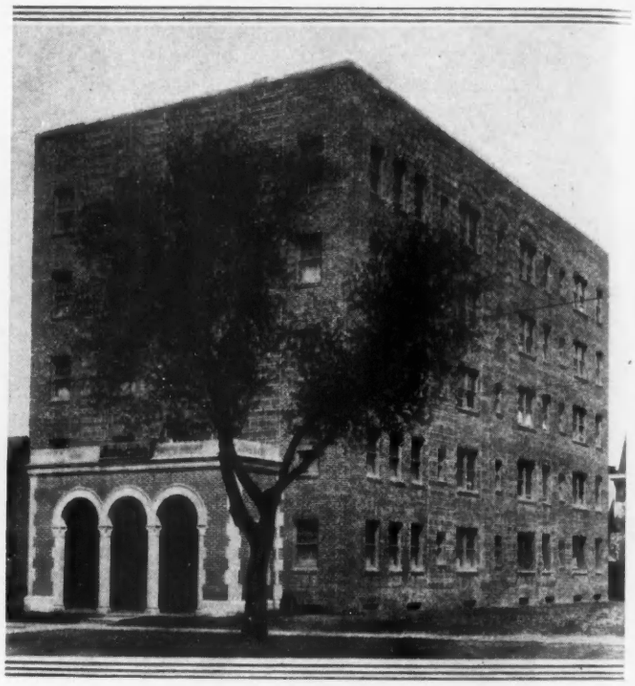
which is approximately 9½ per cent net profit. N. Bruce Hazen is the architect who planned these apartment houses. Nearly all of the Alexander houses are planned by independent local architects.

It is this builder's idea to construct an apartment with such infinite care of detail that the building will remain desirable for many years to come. In Mr. Alexander's opinion, the outside appearance of an apartment house is the most important item to be considered excluding materials and workmanship. It is also of paramount importance that the inside of the apartment be planned so the greatest possible income may be derived from a given amount of space. Special features such as heating and refrigeration also enter into the appeal an apartment house will have to the general public. Mr. Alexander believes that the erection of an apartment on a lot has the tendency to increase the value of surrounding property.

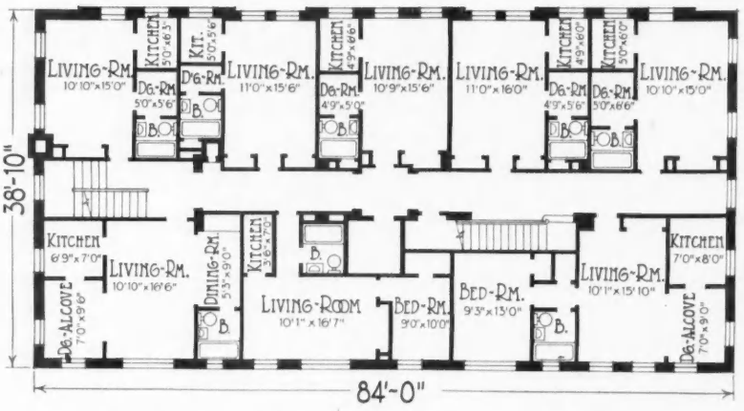
Mr. Alexander's business is of large enough proportions that he has superintendents in general charge with a foreman for each division of labor.

"In all my buildings I use nationally known lines of building materials," he explained. "Power machinery is operated wherever possible and transported from job to job. All labor is hired by the hour with the exception of plumbing and heating jobs, which are let by contract. Lumber and millwork is bought from local firms because I believe that dollars, when possible, should stay at home. Whenever purchasers desire to do so, we arrange terms of payment for them.

"The builders in a town are the real developers," Mr. Alexander continued. "If a city has men who are inclined to build, that city is assured of development. Under the leadership of a few men the development of the city is unlimited. Overproduction in the building line is not serious here. The builders can do as great a service as any of the citizens in building up a city and bringing that particular city to the attention of outsiders."



The Ambassador Apartments, Lincoln, Nebr., John M. Alexander, Builder; N. Bruce Hazen, Architect.



Floor Plan of the Ambassador Apartments.

To the Left Is Perspective of John M. Alexander's Newest Apartment, "The President."

N. Bruce Hazen, Architect.

Modern Basements Are Dry

By W. D. WILL

THE place which the modern basement has come to occupy in home life has made it necessary for builders to direct their attention to proper methods of waterproofing and damp-proofing, without which no basement construction can hope to be permanently satisfactory.

Progressive builders have been quick to sense their opportunities in this direction. Damp, dark, dimly lighted basements have, in the past, always been a source of annoyance to home owners, but now, more than ever, prospective home owners are demanding—and getting—light, airy basements which serve purposes other than those of housing the coal bin and fruit cellar.

Realizing the saving in useful space which can be effected by placing the children's play room, the den, or the work shop in the basement, careful builders have concentrated their efforts toward constructing attractive basements which are comfortable, cheery and—water-tight. The last of these qualifications is perhaps the one which is most neglected, and yet if the proper attention is devoted to this item at the time of construction, the basement walls and floors may be permanently waterproofed and damp-proofed at little additional cost.

Practically all soils are of such a nature that water is bound to seep through the walls unless proper provision is made to repel it. This may be effected in several ways. The wall may be made up of concrete blocks, which are themselves made of waterproofed portland cement, and laid in a full bed of water proofed portland cement mortar with joints slushed full. This type of construction is in itself waterproof and needs no other treatment. Where an absorbent brick, tile or stone is used in the wall, the outer surface should be given the additional protection of a waterproof portland cement plaster coat ½″ thick, extending from 3″ above the grade line down to below the top of the footings. Where the contractor makes the basement walls of concrete, the concrete may be waterproofed at the time it is mixed by the use of a water repellent integral waterproofing—or he may use waterproofed portland cement with which has been ground the correct amount of waterproofing.

Inside Finish Important

The inside of the wall, whatever the units used may be, should be painted with a permanent, washable cement paint. This adds greatly to the attractiveness of the basement at little additional cost. In cases where the proper provisions have not been made to properly waterproof the wall, the application of portland cement paint on the inside will definitely repel all dampness. When properly applied cement paint becomes an actual part of the wall. In addition, such an application gives to the walls an attractive surface which will not crack or peel off, due to the chemical action of lime and alkalis which quickly destroy other paints. It must be remembered, however, that cement paints can be applied only to masonry surfaces. A wall to which cement paint has been applied is easily cleaned with ordinary soap and water.

A Water-Tight Floor

The floor of the basement should be made of concrete of no leaner mixture than one part of waterproofed portland cement, two parts clean, well graded, washed hard sand and four parts of crushed stone or clean washed gravel passing a 1″ ring. Any concrete contractor following the usual procedure for making good concrete can make waterproof floors by using the mixture given above.

Whether a builder is constructing a home to sell or under contract, the owner's satisfaction which comes from the well constructed "bottle tight" basements cannot help but add to his reputation for sound home construction. If he is building the home to sell, the opportunity for a quick sale is much greater when the prospect is shown a basement which really looks as though it might be lived in, with clean, dry floors and with walls painted white with a paint that actually contains portland cement and in itself is damp-proof.

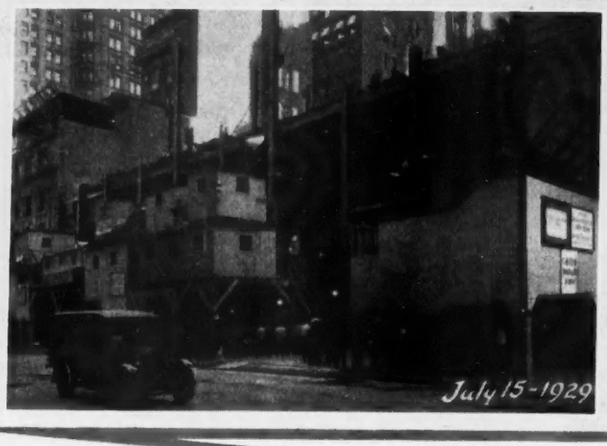
The builder who is building under contract, while not directly concerned with the sale of the home, cannot help but profit from the good will which results from attractive, well constructed, water-tight basements.

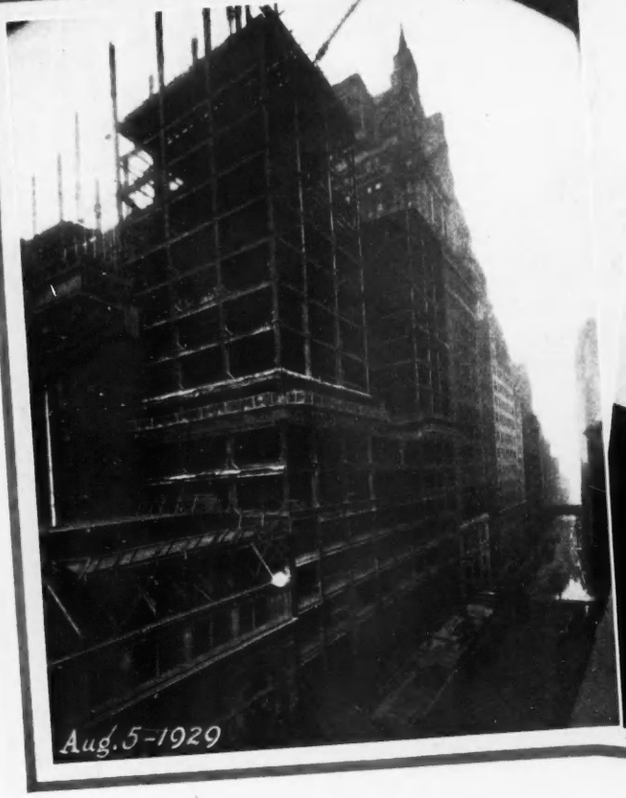
MORE ABOUT BASEMENTS AND BASEMENT EQUIPMENT of interest to Speculative and Merchant-Builders, will be presented in the March American Builder.

To Right: The Start of the Steel Erection July 1st, Demolition Debris Still Being Removed.

Below: View of Wall Street End July 15th. Opening between the two sections of sidewalk sheds is to provide space for material trucks to go through; all material had to be deposited within confines of plot.

Below: On May 9th Wrecking Was Under Way. Tenants are still in the large office building.





Left: On August 5th Enclosure of the Building Began. Brick Layers' Hanging Scaffolds in Place. Right: On August 29th the Building Is Over-topping Its Neighbors. Observe the construction elevators located in what will be a court. The construction tower is entirely of tubular steel enclosed with wire mesh. The building in the foreground is the U. S. Sub-Treasury.

HIGH LAND VALUES MAKE RAPID BUILDING An ECONOMIC TREND

A 1929 building record was made in the construction of the bank of Manhattan Company's office building in New York. The building is officially known as "No. 40 Wall Street."

The site of this new building is historic as it adjoins the U. S. Sub-Treasury; a venerable building erected nearly one hundred years ago to replace Federal Hall—the first capitol of the United States, on the balcony of which George Washington took his oath of office as our first president.

The "Bank of the Manhattan Company" is an institution almost as old as our country. It was founded by a group of financiers of the early days who were "in wrong" with the politicians then in control. To secure a charter for a new bank was out of the question so their lawyer, Aaron Burr, obtained a charter for a "Manhattan Company" to supply water to the lower section of Manhattan Island and to engage in any other necessary business. The other business was banking, hence, shortly after there was established a "Bank of the Manhattan Company." Needless to say the water supply business was soon discontinued.

A circular cast iron reservoir was built and water supplied to a certain district through drilled wood pipes. During the last twenty-five years a number of pieces of such pipe were discovered during excavating for subways and skyscrapers.

Wall Street is well known to everyone in this country and to many in foreign lands. A square foot of real estate here commands the highest price, therefore it is costly to let such real estate lie idle. Only a very high building could pay an adequate return on the investment for ground and structure.

The problem placed before the architect, engineers, builder, and material men was to erect a structure seventy-one stories high complete and ready for tenants in less than a year! The year was to embrace the time after one renting period and before another, so that the leases could be made to suit the convenience of tenants.

That the building will be completed within the time specified is a foregone conclusion and from the progress already made it seems that it will be completed ahead of schedule.

On May 1, 1929, the last tenants moved out of several of the buildings to be replaced with the new structure. One of the largest buildings to be demolished had a number of tenants whose leases did not expire until May 15th. Possession of this building was not obtained until the 16th.

Six months later the entire structure was completed with the exception of enclosing a few of the upper floors!

The erection of the buildings was handicapped greatly by lack of space in which to store equipment and material. It was even a hard job to obtain space enough at the start for a field office. At times there were over 2000 men working at once on the structure. Many ingenious ways had to be devised to overcome difficult situations that developed in building this structure.

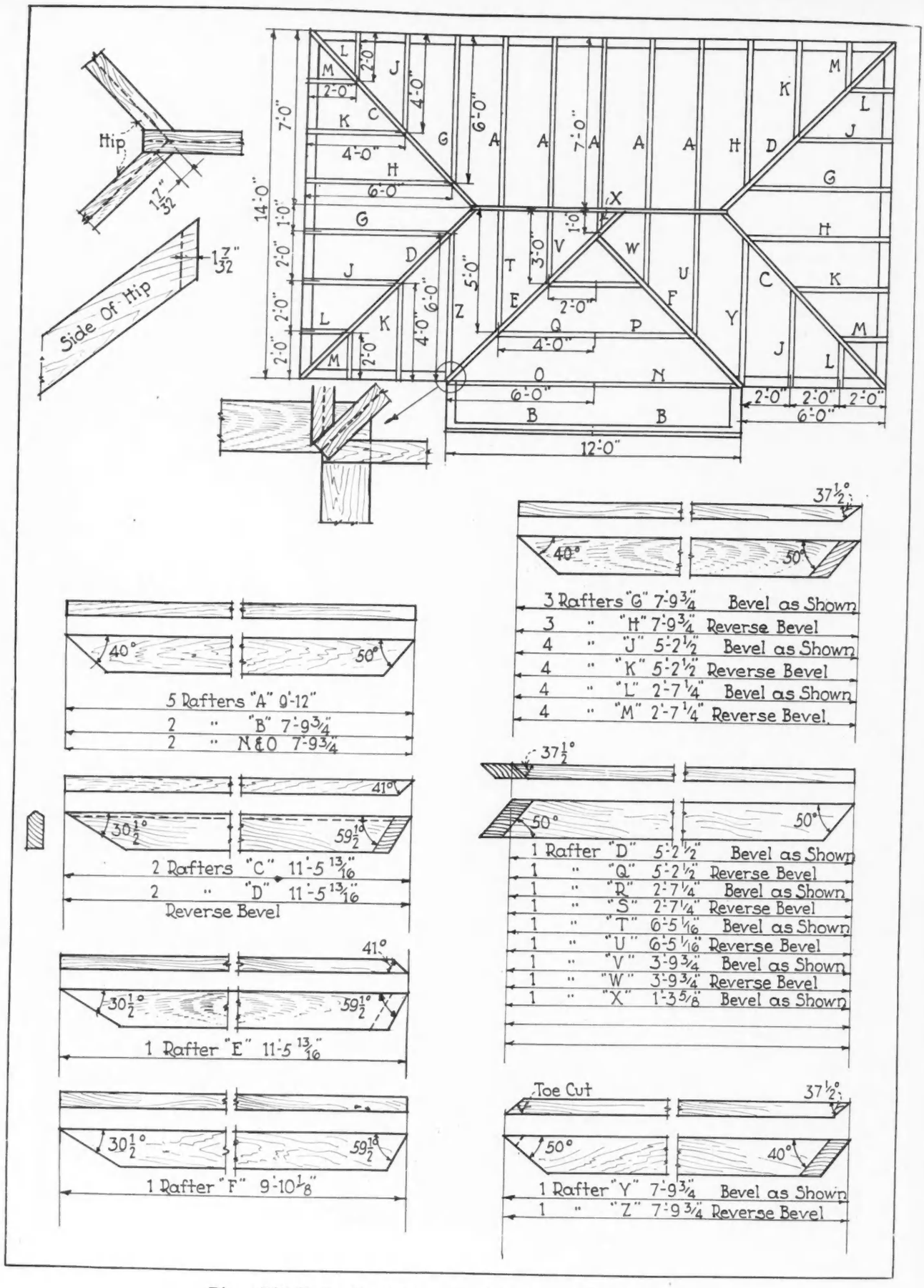
There are seventy-one stories, the two top floors being observation rooms. The spire extends still higher—the total height above curb level of Wall Street is 925 feet, 4 inches.

While the extraordinary height of this building will appeal to the wonderment of the general public, the practical builder will seek below the curb for perhaps the most interesting piece of construction.

The foundation extends below the street level from 60 to 90 feet through a bed of quicksand to solid bed rock. The foundation work was started before the demolition of the building and when it was down erection of the steel work began. This unique foundation is the subject of an interesting article in this issue.

To give a detailed story of the construction of this building would fill a large size volume so we merely give a pictorial story of this mammoth structure.

Bank of Manhattan Building, H. Craig Severance, Archt.; Starrett Bros., Bldrs.



Piece Bill Fully Detailed as Explained on Opposite Page.

Machine Age Roof Framing

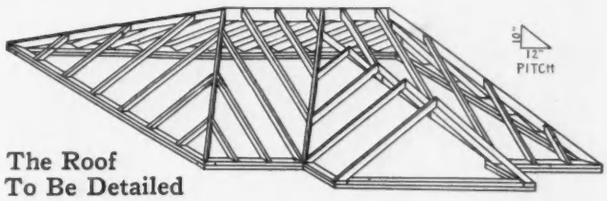
How to Make Use Efficiently of a Power Saw in Cutting the Framing for a Roof—Diagrams on Opposite Page

By JOHN T. NEUFELD

VERY many builders are apt to look at the present situation in the construction field with a pessimistic view. Some tell us there is no profit; others tell us you have to be a schemer to get by, meaning, of course, that you have to cheat, etc. It is true that the large profits that were possible ten years ago in the city when the building boom was on are not so easily made now. We believe, however, that the present situation will develop into a more stabilized situation. At any rate it is hoped that more efficient methods of construction will be adopted. If the building industry with its high wages will in a measure come up to the efficiency of other industries such as manufacturing industries, the result can only be a beneficial one for all involved. The machine has already done wonders in bringing about efficiency in construction work, but it will do more. The machine will bring about more regular work all the year round. With machines it is possible to continue operations at a profitable basis at times when purely hand labor would be out of the question.

Machines may be used and misused. They may be purely a matter of overhead instead of efficiency; therefore with the introduction of the machine we must introduce a little genius. And every workman should be willing to put forth a little study if it will increase his comforts in general. It is the intention of this article to show how work may be planned ahead of time so as to make use efficiently of a power saw in cutting the framing for a roof.

Steel which has to be worked to a much greater degree of accuracy is all fabricated with machinery and shipped to the job. It is therefore quite possible to cut all the framing for a roof with the power saw beforehand. The small illustration herewith shows an isometric view of a hip and valley roof, to be used for our discussion. The full page illustration shows a detail sheet as it should be worked out beforehand so that the cutting of framing material may be done with speed. First of all draw a plan of the roof deciding where the different rafters come. This may be to scale or not. A free hand sketch is often sufficient; however, a more accurate method of drawing will be helpful. Next we would say, have a good table at hand. If possible use a table of degrees. This is much more convenient and less liable to cause errors. Such a table is shown herewith.



The Roof To Be Detailed

Start with the common rafters. Number them on the sheet. Draw a side view and a top view of the different rafters. All rafters having the same cuts may be listed under one sketch. When the machine is set for one cut all rafters of that kind should be cut. In making up a detail sheet or piece bill, as it is sometimes called, do not hesitate to make some extra notes on the sheet.

The side cut of hip and jack is shown here as the angle that it would make laid out on the back of the rafter. The machine, whether a table machine or a hand machine, may be set at 45 degrees as the side cut is always a 45-degree cut with the side of the rafter.

Instead of the usual list of problems we will figure out in detail some of the rafters as the piece biller would have to figure them. Note the rise per foot run is 10 inches.

Common Rafter "A"

Run of rafter, 7 feet 0 inch.

Length per foot run, 15.62 inches.

Length, 15.62 × 7 = 110.04 inches or 9 feet 2 1/16 inches.

Deduct for ridge, 1 1/16 inches.

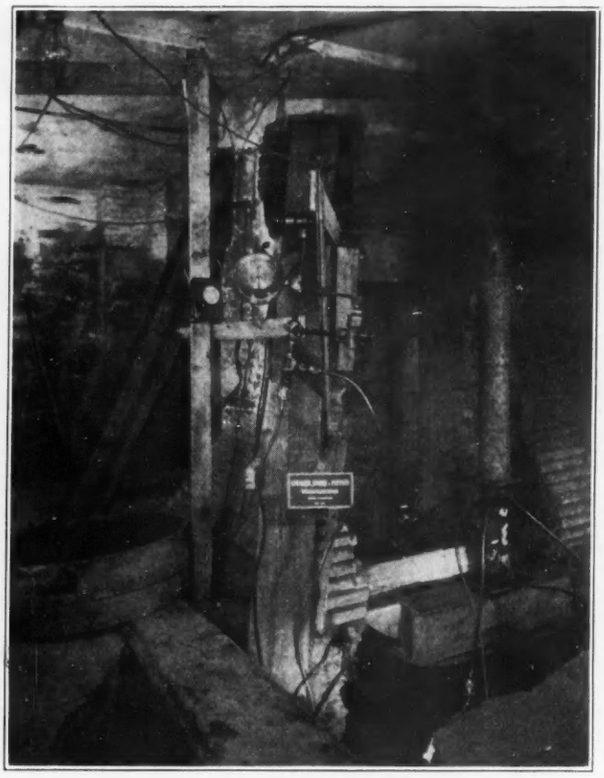
Net length, 9 feet, 2 inches.

Lower cut, 40 degrees; upper cut, 50 degrees; 5 required.

(*Continued to page 130*)

RAFTER TABLE

Rise Per Foot Run	Pitch by Degrees	Plumb Cut by Degrees	Length Per Foot Run	Subtract for Ridge	Length of Hip Per Ft. Run of Common	Subtract for Ridge	Bottom Cut of Hip	Plumb Cut of Hip	Side Cut of Hip	Side Cut of Jack
6″	26½	63½	13.42″	⅞″	18.00″	1 3/16″	19½	70½	43½	42
7″	30	60	13.89″	15/16″	18.36″	1¼″	22½	67½	42½	41
8″	33½	56½	14.42″	1″	18.76″	1¼″	25	65	42	40
9″	37	53	15.00″	1″	19.21″	1 5/16″	28	62	41½	39
10″	40	50	15.62″	1 1/16″	19.69″	1 5/16″	30½	59½	41	37½
11″	42½	47½	16.28″	1 1/16″	20.22″	1⅜″	33	57	40	36½
12″	45	45	16.97″	1⅛″	20.78″	1⅜″	35	55	39	35½



4 MONTHS

Unusual Foundation Methods Speed Erection of Bank of Manhattan Tower

Jacking Down a Cylinder Caisson in a Niche Cut Into an Existing Piece of the Old Bank of Manhattan Building.

THE remarkable speed made in building the Bank of Manhattan Building was due, in large part, to the unique method of installing the foundations. If the usual methods had been used, steel erection could not have been started in less than four months after completion of the wrecking of the old buildings on the site.

This four months was saved by installing foundations under the old buildings while they were being wrecked. Foundation construction and demolition were started simultaneously and, in spite of the fact that rock was from 60 to 100 feet below the street grade, overlaid by 40 feet of quicksand, foundations were ready for steel five weeks after the old Bank of Manhattan Building was vacated by tenants, and two days after the wrecking of the old building was finished.

The unusual methods by which this was accomplished were evolved by the foundation contractors and were, to a large extent, the outgrowth of their rich experience in underpinning. However, although the foundation scheme was largely an application of underpinning methods to foundation construction, new features had to be developed to meet the peculiar problems of the job.

TYPE OF FOUNDATIONS: The exterior columns and all tower columns, comprising a total of 76, are supported by caissons to hard rock at an average depth of 65 feet below street. These caissons vary in size from 9 feet square down to 44 inches diameter, and the deepest was 82 feet deep, or 100 feet below street grade.

Because of the quicksand, 40 feet deep, the caissons for the U. S. Assay Office on the adjoining plot to the West and for the Bank of America adjoining to the East, had been sunk by the pneumatic method. In fact, every deep caisson foundation previously installed in the neighborhood had been done under compressed air. In this case, however, the extreme speed called for in the builder's schedule and the small space available in the cellars of the old buildings on the site, made use of the pneumatic method out of the question. Instead, the caissons were sunk in the open and, although many difficulties were encountered, the work was accomplished without loss of ground and at a saving in cost and time.

For 27 interior columns which carry loads up to 950 tons, steel cylinder pile piers were installed. The cylinders were 16 inches in diameter, concrete filled, and the largest pier contained 15 cylinders.

INSTALLING FOUNDATIONS: In order to meet the time schedule, work was conducted throughout the job on a three-shift basis, seven days a week. With foundation work and demolition proceeding at the same time, a maximum of 1,200 men per day were employed, resulting in extreme congestion on the 150 by 250-foot plot.

Possession of the west half of the site was obtained May 1st. Demolition of the six-story buildings on the site was immediately begun. At the same time foundation work was started by installing the necessary plant and opening up pits in the basements preparatory to sinking the caissons.

On May 16th the old Bank of Manhattan building, 12 stories high, which occupied the east half of the site was vacated. On the same day foundations for the new building were begun in the basement as wrecking of the old building was begun at the roof. The old building was a very heavy masonry structure of wall bearing type, with heavy interior piers of masonry. In most cases the locations of new foundation piers were such that they had to be installed by cutting into the existing walls, piers or footings, or by sinking pits under them.

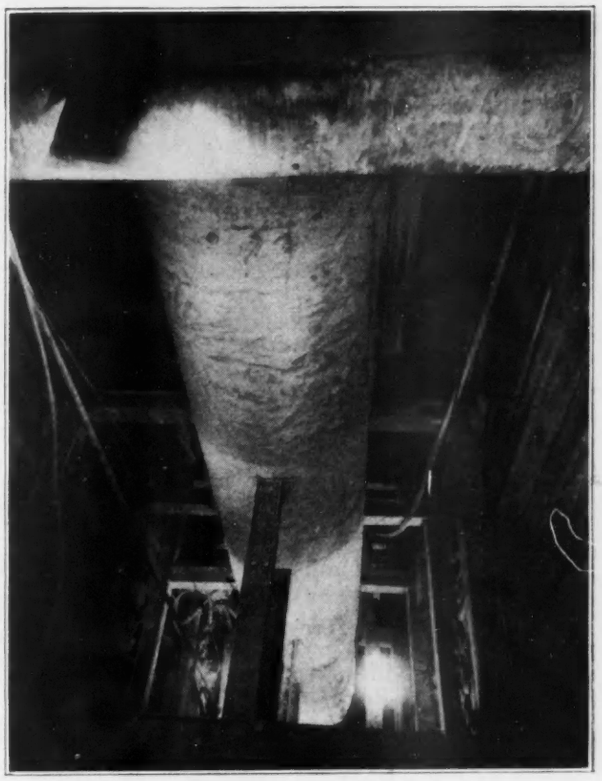
CYLINDER CAISSONS: The foundation contractors overcame these difficulties by devising the method of jacking down 44, 48 and 52-inch steel cylinders, using the existing walls and piers as reactions for the jacking. For the lighter column loads caissons of these diameters were of sufficient size. For the columns carrying the heavier loads, 44-inch diameter caissons were installed as temporary foundations so that the steel erection could be started at the earliest possible date, and supplementary caissons of the required size for full load were later sunk.

SAVED!

First Hand Report

By W. T. McINTOSH, *Engineer*

with Spencer, White & Prentis, Inc.



Steel Sheeted Supplementary Caisson Being Sunk Around a Temporary Cylinder Caisson, Bank of Manhattan Foundation Work.

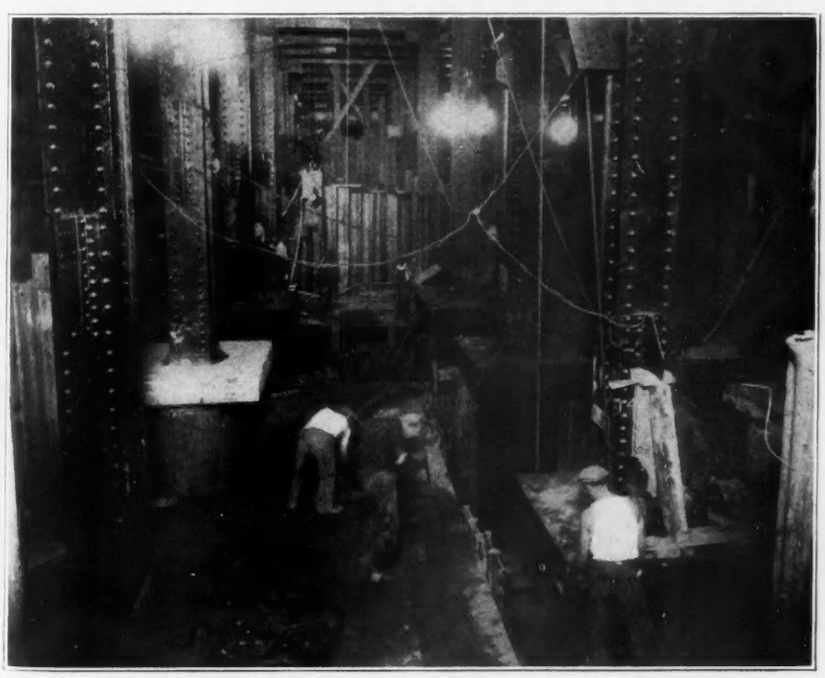
Recesses or chases were cut in existing brick walls or piers in which to start the cylinders, and the old concrete spread footings were cut as required. Where this cutting of the walls, piers and footings materially lessened their carrying capacity, shores or needles were installed to prevent settlement or undue strains in the old structure. Wood sheeted pits were then sunk to water level.

Notches were next cut in the masonry and in these notches steel I beams were set horizontally above the pits. Against these reaction beams the cylinders were jacked down with hydraulic rams operating at pressures up to 6,000 lbs. per square inch. Hydraulic pressure was supplied from an electrically operated central plant in which constant hydraulic pressure was maintained by a pneumatic-hydraulic accumulator.

Men inside the cylinders dug out the material by hand as the cylinders were jacked down, while steam siphons in each pit removed the inflowing water. Extreme care was exercised to keep the bottoms of the cylinders well below the level of excavation at all times so that no "boiling" of the quicksand would occur.

So long as the cylinders were in clear quicksand the progress was satisfactory, but as soon as an obstruction of any kind was met serious difficulties resulted. The danger of boiling, of course, prevented digging to the bottom of the cylinders so that the obstruction could be exposed and removed. If the obstruction was large progress was halted. If small, an increase in jacking pressure would advance the cylinder, but only by distorting it. As soon as there were signs of buckling in the cylinder, heavy reinforcing bands were put in and if necessary steel struts were installed across the cylinders to brace the bands. If the buckling became excessive before reaching hardpan, it was necessary to install a new, smaller cylinder inside the first.

Due to the fact that practically all of the boulders in the sand were just above the hardpan and that there were few other obstructions, it was possible to get the cylinders nearly down before serious difficulties occurred. It was then a case of fighting the rest of the way down by all the various methods which could be devised, in the meantime maintain-



Excavating Supplementary Steel Sheeted Caissons Around the Temporary Cylinder Caissons While the Superstructure Was Being Erected Overhead.

ing all the jacking pressure which the cylinders would stand without crippling. It was only because the boulders were in the bottom of the quicksand, close to the hardpan that the method of jacking cylinders was successful. Had they been higher in the sand, the caissons could not have been put down in that way.

When hardpan was reached the cylinder was seated well into it to cut off the flow of water. The excavation was then carried on down as an open shaft through the hardpan and soft rock to hard rock. No continuous sheeting was used but where disintegrated rock was encountered steel lagging was put in and braced across the pits with light I beams. Rock, when reached, was leveled and benched to provide full level bearing, and the caisson was filled with concrete up to cut off level.

Looking Down Cylinder Caisson 80 Feet Deep Under Old Bank of Manhattan.

In some cases the cylinder caissons on the sites of the old 6-story buildings could not be jacked down because the wrecking proceeded so fast that no reaction could be obtained. Those cylinders were driven from water level down to hardpan by means of compressed air pile driving hammers, using a special drive head built up of a section of cylinder with heavy reinforcing bands at top and bottom, and were excavated in the same way as the jacked cylinders. The same difficulties were met as in the jacked cylinders, with the added one that when obstructions were encountered above the hardpan the driving force of the hammers was insufficient.

STEEL SHEETED CAISSONS: In a few instances the locations of the caissons were such that they could be sunk inside the old buildings without

Making General Excavation and Driving Steel Cylinder Pile Piers After Completion of Demolition of Old Buildings on the Site. General view showing extreme congestion on the site due to necessity for keeping all equipment and materials inside the building lines.

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interference with their walls. In such cases, full sized steel sheeted caissons were sunk instead of temporary cylinders. Thirty-five foot long steel sheet piling was set up to form the caissons, the first and second floors of the old building above being removed to provide the necessary headroom.

The sheeting was alternately driven and excavated down to hardpan and was braced with rings of timber about 4 feet center to center. Care was exercised to keep the sheeting driven far enough below the excavation to prevent boiling of the material in the bottoms. When hardpan was encountered the steel sheeting was driven well into it to form a seal, and from there down a shaft of the same size was sunk through the hardpan and soft rock without sheeting, except where soft strata were encountered. The bottoms were leveled or benched in sound, hard rock, and the caissons were concreted up to the proper grades.

ADJOINING BUILDING UNDERPINNED: While the caissons were being sunk, the adjoining building known as 27-29 Pine Street, was underpinned. This is a 12-story building of heavy construction on a 4-foot thick concrete mat. The length of wall adjoining the new structure was 100 feet, and the estimated weight to be underpinned was 3,000 tons. Pre-test underpinning was used throughout, this being the only economical method by which the work could be done in quicksand without serious settlement of the structure. This type of underpinning consists of sectional steel cylinders, jacked down to a predetermined minimum depth and load capacity, excavated, concreted, tested and wedged against the foundations of the structure. In the pre-test method, which is patented, the full test load is maintained on the jacks, while the wedges are driven to transfer the load of the structure to the underpinning. This method of wedging compresses and holds in compression both the material under the cylinder and the cylinder itself, so that no rebound occurs before wedging, thereby eliminating the principal cause of subsequent settlement.

WORK IN THE OPEN: When demolition of the buildings on the east half of the site had been completed, derricks were erected for prosecuting work in the open.

The pile piers comprised groups of from three to fifteen steel cylinders, 16 inches diameter, ⅜ inch thick, driven to absolute refusal with pneumatic pile driving hammers, excavated by blowing out the material with compressed air, cut off at required grade, filled with concrete and capped with reinforced concrete. A total of 262 cylinders was installed.

When the demolition of the old Bank of Manhattan building had progressed far enough, two steam shovels and a gasoline crane were put in and the general excavation was carried down to a level about 25 feet below the street, to which level the water had been lowered by pumping.

From this level steel sheeted pits were sunk around the cylinder caissons to cut off levels, preparatory to placing of the billets by the steel workers. This was necessary because the billets were larger than the cylinders which supported them.

On June 15th demolition of the old buildings was completed. On June 17th the foundations were ready for steel and steel erection was begun. Foundations for 103 columns had been installed while the old buildings were being wrecked and were ready for steel two days after the demolition was finished.

WORK DURING STEEL ERECTION: While the first lift of columns for the new building and the first tier of beams were being erected, general excavation was done by hand and the curb walls on Wall and Pine Streets were underpinned. All the remaining work was done under the steel, while steel erection and other work was going on at top speed overhead.

After the steel erection derricks had been raised above the first floor level the general excavation was completed.

On July 31st all excavation and foundation work was completed, two and a half months after full possession of the site was obtained and wrecking of the old Bank of Manhattan building started.

The foundation and underpinning work were done by Spencer, White & Prentis, Inc., New York, under the direction of J. C. Weaver, general superintendent, Anton Gunther, superintendent, and W. T. McIntosh, engineers for the building as a whole and Moran & Proctor were consulting engineers for foundations.

✣

Machine Age Roof Framing

(Continued from page 125)

Common Rafter "B"

Run of rafter, 6 feet 0 inch.

Length per foot run, 15.62 inches.

Lengths, 15.62 × 6 = 93.72 inches or 7 feet 9¾ inches.

Cuts same as for "A"; 2 required.

Common Rafters "N" and "O"

Note that these rafters are the same as rafters "B" except that at the lower end a corner has to be cut off to fit the rafter against the valley rafter.

Hip Rafters "C" and "D"

Run of hip, 7 feet, 0 inch.

Length per foot run, 19.69 inches.

Length, 19.69 × 7 = 137.83 inches or 11 feet 5 13/16 inches.

Measure to longest point and make no deductions for ridge.

Seat cut, 30½ degrees; plumb cut, 59½ degrees with bevel of 41 degree (note that this is on back of rafter); 2 rafters "C" required.

Rafter "D" is the same except a *reverse* bevel; 2 rafters "D" required.

Valley Rafter "E"

For this valley rafter the length and cut is the same as for the hip "D"; but as it is a valley rafter it is shown separate to avoid mistakes.

Hip Jack Rafters "G" and "H"

Run of rafter, 6 feet 0 inch.

Length per foot run, 15.62 inches.

Length, 15.62 × 6 = 93.72 inches or 7 feet 9¾ inches.

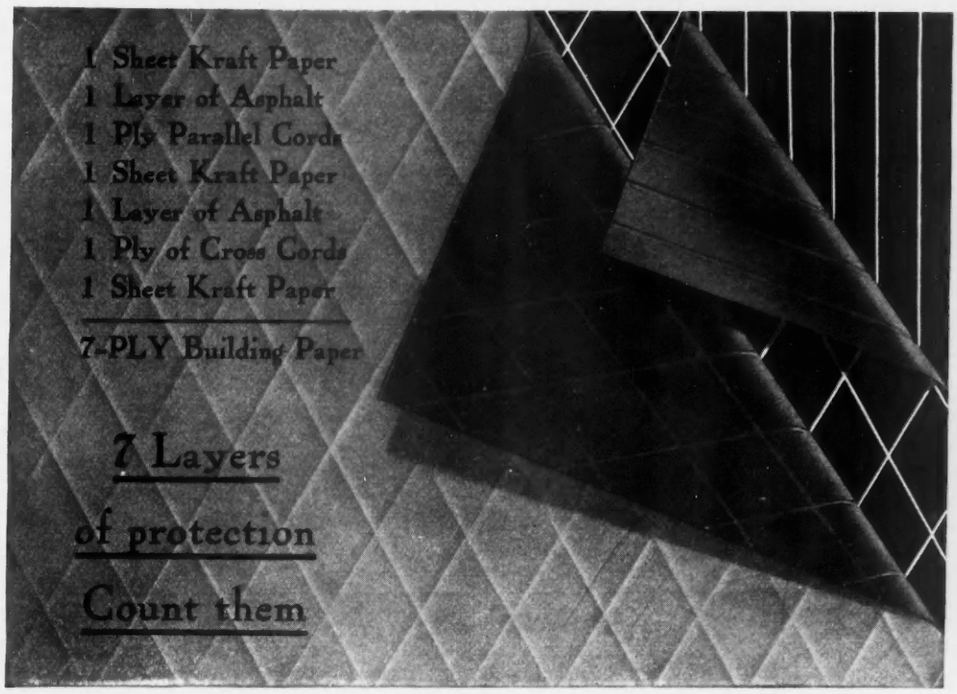
Measure to longest point.

Seat cut, 40; plumb cut, 50 with bevel of 37½ degrees.

Bevel is 45 degrees with side of rafter; 3 rafters "G" required.

Rafter "H" is the same except with reverse bevel; 3 rafters "H" required.

Other rafters are figured out in similar manner and should be listed on the work sheet.



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Style in the Bath Room

(*Continued from page 97*)

is a tank necessary if city water pressure is sufficient for a flush valve. Virtually all of the better toilets are sold with either a tank or flush valve as optional equipment. Vitreous china is preferred for the tank because a tank made of vitreous china will not sweat.

Years ago the home-owner was practically limited in his choice of toilet seats to birchwood with a mahogany finish. Today, if he doesn't care for a toilet seat of gleaming white, he can select one of eighteen different colors. The modern toilet seat will not split, warp or discolor. It is highly sanitary because there is no chance for the wood to absorb moisture. Certain makes of toilet seats have white hinges and thus offer no opportunity for corrosion.

The ultra-modern toilet has a chair with a comfortable cane back, a cane seat and cover. This combination not only has the obvious advantage of greater comfort and attractive appearance, but also provides a handy dressing seat. These chairs may be obtained in white or they may be finished to match the color of the fixtures or the tile.

A further refinement is the complete concealment of the toilet in a recess in the bathroom. Thus it is evident that, whereas a few years ago all toilets were more or less alike and they were all placed in about the same position in the bathroom, today an almost endless variety of combinations may be worked out by the enterprising builder working with the plumbing contractor and the architect. Distinctive bathrooms—bathrooms suited to the individual taste of the master and mistress of the home are easily possible today.

Beauty in Bath Tubs

Many changes have been made in the tub and its fittings. Are you building a house for a man of wealth who would welcome your suggestion for something truly distinctive in his bathroom? Very well, suggest to him a bathtub of onyx with gold plated fittings. Obviously a tub of this quality will not be placed against the wall or recessed. It should be put on an elevation where it will truly dominate the bathroom in regal style.

Less expensive, but nevertheless genuinely aristocratic in its makeup is the solid porcelain tub. Porcelain is made of selected fire clays. The body is molded into form and when thoroughly dried, several coats of vitreous china are applied to the surface and coated with glaze. The piece is then fired at a very high heat which bakes the body and fuses the vitreous china lining with the glaze to the body. The glaze is a form of glass and therefore extremely resistant to stains or dirt and very easy to keep clean.

For the home-owner whose pocket book is not of the generous dimensions necessary for the purchase of a porcelain tub, the tubs made of porcelain enamel on iron will be entirely satisfactory. Acid-resisting enamel which is impervious to the mixtures used by tile-setters and which cannot be harmed by fruit juices or medicines, should, by all means, be chosen. The enameled iron tub offers both attractiveness and long life although it requires more careful cleaning to retain its first glistening finish than porcelain.

The tub legs, of course, have long been obsolete and have gone the way of the kerosene lamp with the Ford model T. It had to go because with the increasing difficulty of getting domestic help, the housewife doing her own work demanded fixtures that could be kept clean easily. And it lacked style.

Nobody misses it because today an endless variety of types and sizes of tubs are available. Some are decidedly modernistic in design. Others in their massiveness suggest the Roman bath. Still others suggest a period effect. A complete ensemble is offered by many manufacturers, that is, a harmony of design between lavatory, toilet, tub, dental lavatory, fittings, accessories, dressing table, and chairs.

Because of the interest that it adds to bathroom arrangement and the opportunity it brings to use odd nooks of space, the recess bath is becoming increasingly popular. While virtually all tubs are now sold with shower connections, the recessed tub is especially well adapted to shower bath use either with curtains or enclosed with plate glass extending entirely across the front of the recess.

Truly marvelous is the beauty of design of some of the modern tubs. Some have low, straight lines, with a bottom broad and flat—a design suggesting smartness and convenience. Modernistic to the last line is another type with beveled edges, square corners and straight lines.

Shower Baths Are Popular

The shower, either in connection with the tub or as a separate compartment, has found its way into every modern bathroom. The best bathroom design demands concealment of the shower pipes in the wall. Automatic regulators have been devised which make it impossible for scalding hot water to descend on the bather and also prevent unexpected showers.

Until three or four years ago all curtains were white duck. Today a dozen manufacturers offer curtains of all colors in water-proof materials.

A word about style in the fittings of the tub, shower, and lavatory. No longer need faucets and escutcheons take on dinginess and unsightliness due to tarnish and corrosion. They are now obtainable with a finish which will retain its original sheen through years of use. No polish is required in cleaning—only the use of mild soap and water and polishing with a dry rag. This is a talking point that the man who is building a home to sell should not overlook. Many a housewife, who has spent hours polishing the nickel in an old bathroom, will be tremendously attracted to a new bathroom or new kitchen sinks with fittings of chromium or chromard.

With the use of chromium plating has come new designs—hexagonal and octagonal, with charmingly new and different lines. Utility, too, has been kept in mind as for instance in the designing of bigger and wider supply spouts which allow the water to gush into the tub without unnecessary splashing or noise. Stoppers have been improved and are quicker in action and do not allow the bathing water to come in contact with any concealed parts that cannot be cleaned.

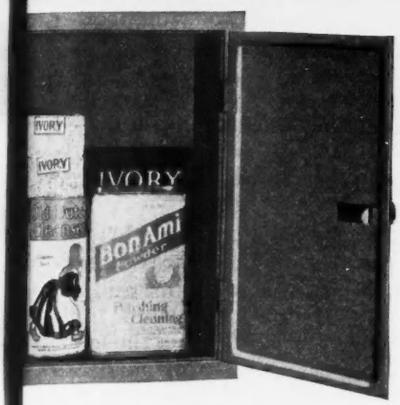
Smart Lavatory Lines

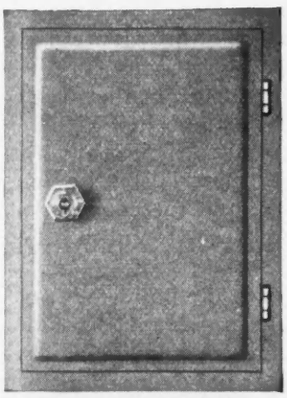
A marvelous transformation has taken place in the lavatory. The wall hung type of lavatory was succeeded by the solid pedestal type and this in turn has given way to the lavatory with two legs of purest period design. In fact, it is in lavatory legs that manufacturers have been able to adhere most closely to designs such as the Georgian and work out perfect harmony of line with bathroom furniture.

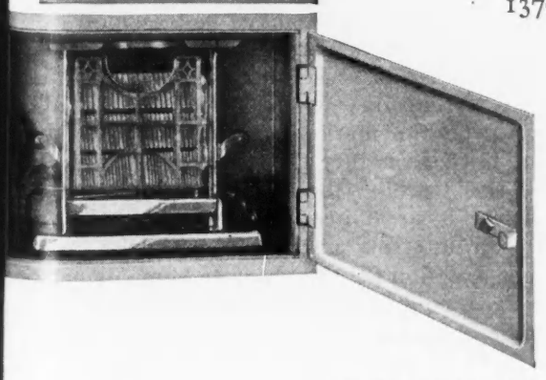
The better lavatories are made of vitreous china which will not chip or stain. Vitreous ware is more sanitary than enamel ware because it is easier to keep clean.

(*Continued to page 134*)

GABRIEL UTILITY CABINETS







will soon be in the stock rooms of Gabriel Dealers everywhere. Inspect these new utilities at your early convenience. You will find that they are carefully constructed, neatly finished, and can be enameled to exactly match the most modern interior. **To sell easily and at a profit** your homes must be completely equipped with useful and practical utilities. How can you better signify your understanding of these necessities?

Gabriel utility cabinets installed in the bathroom, kitchen, breakfast-nook and dressing rooms, add attractiveness and visible proof of the individual attention given to the building of your homes.

The utility cabinet line includes the clothes chute door and frame (2 sizes); the plumbing access door and frame; the service cabinet for the bathroom; the utility cabinet (2 sizes) for housing the electric toaster, electric iron, soap and scouring powder, individual bed room and service cabinets. When preferred the safety utility cabinet can be furnished complete with an electric outlet.

See this complete line at your dealer's or write for our catalog

GABRIEL STEEL COMPANY

13700 Sherwood Avenue DETROIT, MICHIGAN

GABRIEL STEEL CO., 13700 Sherwood Ave., Detroit, Mich.

Gentlemen: *Please send me your catalog completely describing Gabriel Utility cabinets. We note below the name of our leading dealer.*

_____

_____

_____

_____

Dealer's Name

While many styles of lavatories suitable for bathrooms of all sizes are available, preference is shown for the wider types which allow considerable space for placing toilet and shaving accessories. The lavatory with period legs, a marble top, and vitreous china bowl is today ultra-fashionable. Also ultra-fashionable is the commode lavatory in Italian period design. This lavatory has drawers and is not unlike a chest in appearance.

The use of the dental lavatory in Pullman cars has done much to familiarize the public with the advantages of this fixture. It is generally admitted that the chances for spread of infection are greatly lessened if the same fixture is not used for washing the hands or face which has just been used for washing the teeth.

The bidet, which is quite widely used in Europe, has made slow headway in America. The convenience and sanitary advantages of this fixture, however, are steadily making a wider appeal.

Bath and Dressing Room Combined

The bathroom, rather than the bedroom, is the logical dressing room. With the general custom of starting the day with a bath has come the realization that it is inconvenient to step from the bathroom into the bedroom for dressing. Consequently the modern bathroom has chairs, a chaise-lounge, a dressing table, closet space, and drawer space built into the walls. The old white bathroom stool of a decade ago has blossomed out into a chaise-lounge covered with colorful waterproof materials. Obviously in this type of bathroom the toilet is placed in a separate compartment. In fact, in all of the better bathrooms, toilets are separated from the other fixtures.

So far has this tendency of a combination bathroom and dressing room progressed that the bedroom as well has been included in the bathroom. A room for a bachelor hotel has been designed which is a combination bathroom and bedroom. The lavatory is in a little offset in the wall, the toilet is in a compartment, and the bathtub may be concealed by sliding doors.

The use of the bathroom as a dressing room has created a demand for a dressing table as a companion piece to the lavatory. Dressing tables in white or in colored vitreous china which match the lavatories to the minutest line may be obtained. There has also been created a combination lavatory and dressing table which is desirable when space must be conserved. This combination fixture, with the lavatory at the left and the dressing table on the right side, is very smart and appeals to the woman who appreciates a touch of distinction in her bathroom.

It is evident that all of the tendencies which have been described have increased tremendously the floor space of the bathroom. The little 5 by 5 bathroom has doubled and tripled and the end is not yet. The builder who wishes to be just a little ahead of the other fellow will do well to watch the tendency during 1930 to make the bathroom the true health center of the home by concentrating there all of the exercising and light treatment machines which are now the vogue. This is the logical place for them. With the public interested in the health-giving properties of ultra-violet light, it is evident that the next step is to get into the bathroom the sunlight which contains ultra-violet rays. This can be done if the sunlight is allowed to pass through quartz glass. Ordinary glass cuts out ultra-violet light. Consequently, some architects have predicted that the bathroom of the future will be on the roof where there will be an abundance of ultra-violet light. Such bathrooms have already been fitted up at some country estates.

In conclusion, the thoughts on bathroom styles so far presented in this article may be briefly summarized as follows: 1930 will bring larger and better located bathrooms. 1930 will bring more general acceptance of colored fixtures and fixtures of better quality. Many changes are taking place in bathroom fixtures and in bathroom design and it would be well for the builder to keep his eyes closely on this, the most important room in the house.

✣

Organize for Better Homes

(*Continued from page 81*)

In this respect, as in others, it works, although it is surprising to learn of builders permitting their erstwhile competitors to pass on their construction. "The interest displayed by builders," says H. O. Bell, Chairman of the Association, in commenting on the certification work, "is almost unbelievable. They have been quick to learn the mutual advantages of organized cooperation. Among several, here is a case in point. Several builders, paying a friendly call at a fellow member's construction job, called his attention to some items that in their opinion would not pass the certification committee. The builder saw fit to disregard this warning. This house, after many months, remains uncertified, unlisted and unsold. Houses on either side built more recently by the same builder have been certified and sold."

Builder initiative, under this plan, remains an important factor. The association in no way handicaps its members in the selection of plans and no special material requirements are set up to limit specification. The builder is free to use those of his choice but, as he guarantees his workmanship for twelve months and exacts the same guarantee from his sub-contractors, most of the membership require trade marked articles that are guaranteed by the manufacturers.

Builders operate as usual, buying from their regular sources and handling their business just as heretofore. Salesmen are not slow to point out the advantages of the trade-marked materials and equipments used in Certified Homes; and the cooperation of manufacturers in educating salesmen and in other ways is welcomed.

"On account of the failure of home builders," says Arthur M. East, Vice-President and Manager of the Association, "to give full value for the dollars invested in homes or because of over-selling or unsound financing, some cities have had as high as one thousand foreclosures per month. Just as the drop in the stock market has reduced the price of all securities, so foreclosures which throw homes, at bargain prices, on the market not only affect new construction, but also reduce the prices of all homes for sale in the territory because it has reduced demand. There is great need for unified effort on the part of all interests connected with the real estate and construction field to promote home ownership and restore confidence and willingness on the part of families to assume the obligation and benefits of home ownership."

The NEW Victor IN-BILT CLEAN-AIR VENTILATOR

DESIGNED FOR THE MODERN HOME

People are interested in ventilation. It's more than a matter of health—Mrs. Housewife wants her home kept free from cooking odors, from greasy, smoky fumes that mar the decorations and dull the appetite. Every woman will welcome the suggestion of an architect, builder or contractor who proposes a Victor IN-BILT Ventilator for the new home.

Cooking odors and grease stained decorations are never found in a Victor ventilated home

Attractive

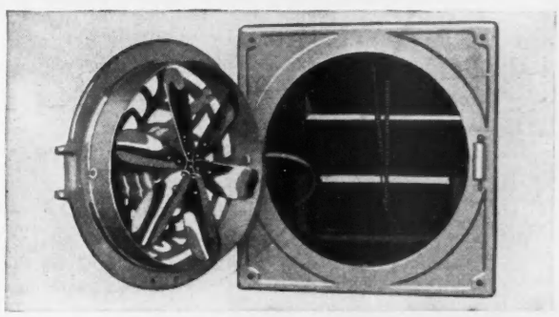
Whole hearted attention has been paid for giving it beauty. The graceful, dome shaped grill fits pleasingly into any type of decorative scheme. The Victor IN-BILT Ventilator's appearance is further enhanced by absence of any unsightly strings, chains, or control mechanism. A single, simple switch on the wall operates it.

Easy to Install

There is no befuddling complications in the construction of the Victor IN-BILT. It is simplicity itself to install —it may be adjusted to frame or brick walls with equal ease. The electric switch may be placed anywhere.

Mechanically Perfect

The quiet-running, rugged fan cannot interfere with radio reception. The outside louvers are weathertight, opening automatically only when the motor is going and provide an unusually large air passage. Victor has provided many exclusive features in the IN-BILT that are obtainable nowhere else. Contractors and construction men the country over are reporting highly pleased customers. Complete literature mailed on request. Mail the coupon today!



Interior, showing grill with motor and fan swung open for cleaning or inspection

ORNAMENTAL GRILL
Closed Position
(Interior of Building)

THE CINCINNATI VICTOR COMPANY
715 Reading Road
CINCINNATI, OHIO

CINCINNATI VICTOR COMPANY
715 Reading Road, Cincinnati, Ohio
Gentlemen:
Please rush complete facts about your new IN-BILT Ventilator.

Name .....

Address .....

Check Here: Architect ☐ Builder ☐ Contractor ☐ Home Owner ☐

Tested and Approved 2542 Good Housekeeping Institute GOOD HOUSEKEEPING MAGAZINE

Approved!
The high quality and perfect efficiency of this product has gained for it the approval of America's greatest testing laboratory—The Good Housekeeping Institute.

What's New in Equipment for Buildings

For further information in regard to any item described in the "What's New" Departments address American Builder Information Exchange, 105 W. Adams St., Chicago

Automatic Garage Door Control

FOR private garages the electric door control device shown in the illustration takes all of the inconvenience out of the garage door problem. It can be attached to any type of door, overhead, sliding, folding or swinging, either on a new garage or one already built. Once it is installed it will open the doors, light the garage, then close and lock the doors and put out the lights.

A Switch Beside the Driveway Operates the Doors Without Getting Out of the Car.

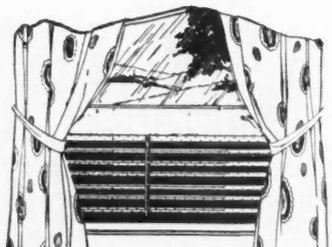
A switch is installed at the side of the driveway where it can be reached without getting out of the car. As the owner drives into the driveway he presses a button. The garage doors are unlocked and opened and the lights switched on. He drives into the garage and after entering his house he presses another switch button which turns off the lights and shuts and locks the garage doors. He has the advantage of the garage lights in going from the garage to the house. In going out the operation is just reversed.

This same type of door operator is used for the doors of public garages where it has given thorough satisfaction. For public garages it can be equipped with any desired number of remote controls so that the doors may be opened for a customer from wherever the attendant may be.

✣

Improved Window Ventilators

THE window ventilator illustrated here is scientifically constructed to provide fresh air in easily regulated amounts to homes, offices, stores, schools, hotels, hospitals, factories. Its patented construction keeps out storms and wind, makes the open window safe at all seasons, yet does not interfere with opening and closing of the window itself when desired. The ventilators are installed inside the sash.

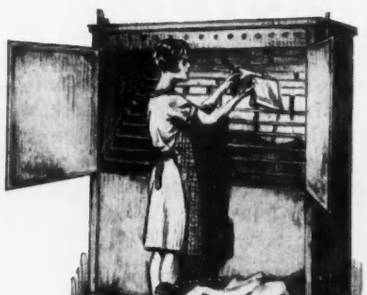


Placed in Any Window It Affords Ventilation Without Draft.

More and more the necessity for fresh air is being recognized both in home and industrial life. Fresh air keeps mind and body alert and vigorous, makes life more comfortable and healthful, makes workers more efficient. The ventilators which accomplish these things are made in six attractive colors of baked enamel—gray, green, beige, old ivory, baby blue and brown.

Clothes Dryers in Colors

DOMESTIC clothes dryers have been on the market for some time, but it is only within the last three or four years that this appliance has been made absolutely safe and dependable. One company, which has been a pioner in this field, has developed a gas-fired, thermostatically controlled, cabinet type dryer which occupies but ten square feet.



These Efficient Clothes Driers Are Now Furnished In Enamel Finish.

This dryer, made of galvanizd iron, is covered inside and out with two colors of heat-treated enamel. Drying capacity is more than sufficient for a large tubful of clothes and the drying action easily keeps pace with the washer. The constant and uniform circulation of clean, fresh air dries the clothes quickly, sterilizes them and protects them from dust and soot.

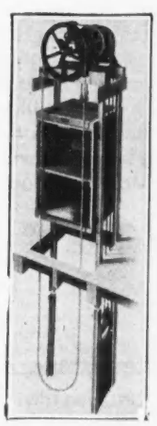
✣

Dumbwaiter Adjustable to Load

ONE of the essential factors in securing satisfactory installations of dumb waiters and elevators is the ascertaining of exact loads to be carried and the selection of equipment best suited to the specific requirements. Unfortunately, this is not always possible in advance of the time when installation must be completed.

Furthermore, dumb waiter requirements are occasionally altered due to unforeseen changes in ownership, leases, or conditions of operations. Equipment already installed to perform definite work is made practically useless by the decreasing or increasing of loads to be handled.

To replace such hand power dumb waiters involves considerable trouble and expense which can be avoided by installing a new type of hand power dumb waiter, conceived and perfected to meet universal conditions of dumb waiter service.



It Is Easily Adjusted to Changed Load Requirements.

This dumb waiter machine is a self-contained unit so designed and constructed that easily made changes are possible in the mechanism, permitting adjustment to various speeds and capacities. The wide field of capacity and operating requirements formerly served by five different types of manually operated dumb waiters is now more effectively covered by this one improved machine. The economy and satisfaction derived are of interest to builders and owners of structures in which equipment of this nature is used for countless purposes.

Everybody Wants a Fireproof Roof

And here in this Dutch Lap Style is a J-M Asbestos Shingle that offers sales help far beyond its cost . . . . . .

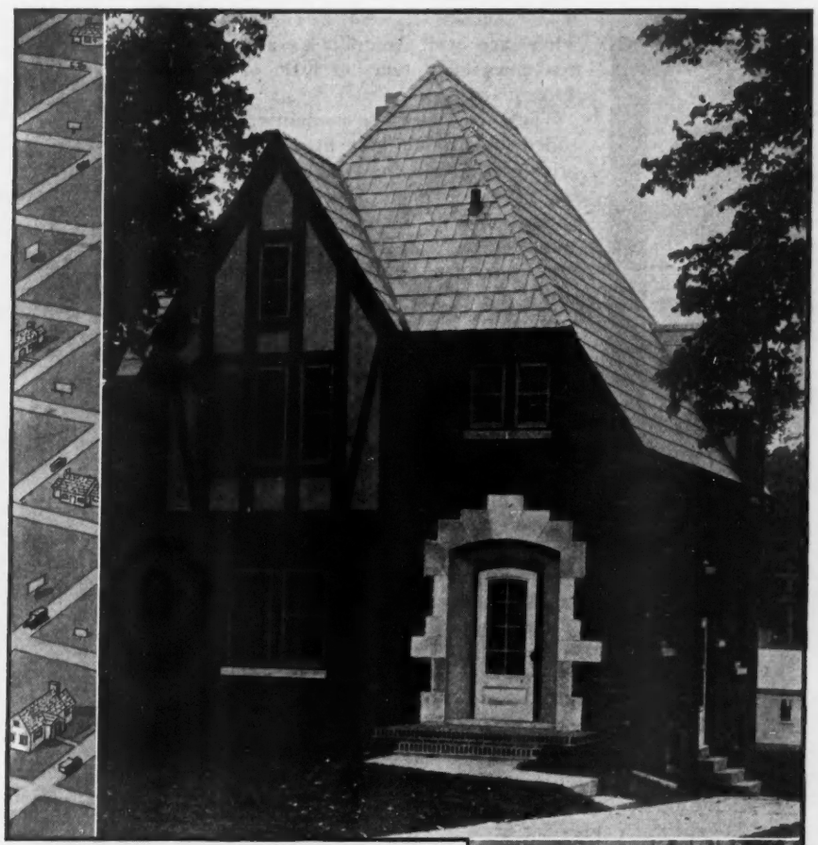
THE trend of the home buyer is towards a fireproof roof. Frankly, Johns-Manville's persistent, aggressive advertising to the public has done much to foster this demand. Hundreds of houses built on a speculative basis have been sold sooner because the builder took advantage of the fireproof idea and the Johns-Manville name.

Never before has it been possible to offer your prospects the attraction of a J-M Asbestos Roof at so low a cost to yourself. The J-M Dutch Lap Asbestos Shingle provides a roof with lines approximately the same as the regular American style, yet because of the economy of both material and labor when Dutch Laps are used, the cost is low.

Full variety of color

Closely following the average home buyer's interest in fire protection is his demand for color. J-M Dutch Lap is offered in a variety of attractive shades including the popular new Mulberry and Mottled Green.

There is no doubt about the value of a J-M roof as the means of shortening the gap between the completion of the house, and the completion of the sale. The public is being told about Johns-Manville far more often than it is hearing of any other name in the building material business. The addition of such new items as J-M Insulating Board makes the tie-up of your name and ours still more valuable. Write to us about the use of J-M Asbestos Shingles on your next jobs. Our district sales offices will be glad to offer you the fullest cooperation.



J-M Dutch Lap Asbestos Shingles on a house in Des Moines, Iowa. The effect produced by these shingles suggests a far greater outlay than is actually required.

• • •

The roof is No. 40 J-M Dutch Lap Mulberry shingle with No. 18 Boston Ridge in Mulberry color.

The house is of variegated brick construction known as Hackberry brick with black mortar.

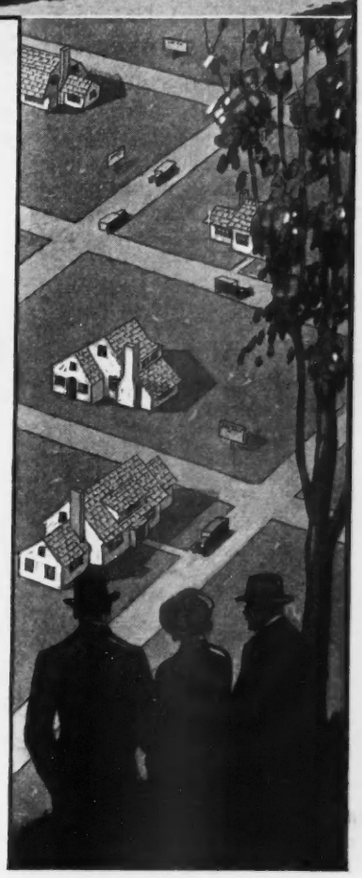
English style windows were used.

Quarter sawed gumwood is used in interior finishing and also for built-in fixtures.

This house was built by Magnus Nelson, 1103 42nd St., Des Moines. (Architect, Contractor and Builder.)

• • •

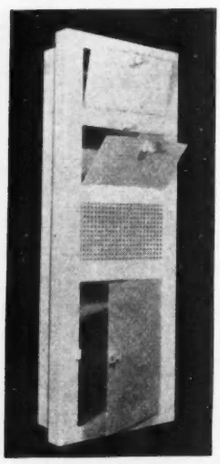
We welcome inquiries as to the use of J-M Asbestos Shingles in houses built for sale. Address Johns-Manville, 292 Madison Ave., New York City.



Johns-Manville JM PRODUCTS **Asbestos Shingles**

Built-In Steel Laundry Cabinets

BUILT-IN cabinets have been designed and are rapidly being adopted to take the place of cumbersome clothes hampers and receptacles. These cabinets are stamped from heavy furniture steel and welded. They are well ventilated, sanitary, convenient and take up little or no floor space.



Convenient and Sanitary Built-In Laundry Cabinets Take No Floor Space.

They are used as containers for soiled linen or clothing in public and private lavatories and in bathrooms. for paper or linen towels in washrooms, and in business and professional offices, hotels and hospitals for the convenient disposal of various soiled waste materials. Clothes are dropped in through the door above the grille and removed through the larger door at the base. The model shown here also has a special section at the top to hold clean towels.

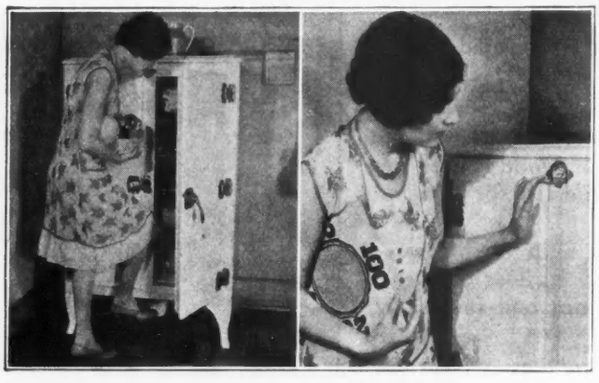
These cabinets are finished, unless otherwise specified, in permanent, white enamel, baked on at a high temperature to prevent chipping, crazing and peeling. For installations where colors other than white are desired to match decorations or other accessories, a perfect match can be obtained by submitting color samples to the manufacturers.

Standard sizes are provided to meet all but the most unusual conditions of installation. The sides are drilled so that they may be securely fastened to the studs on both sides. The tile is set up to, and flush with, the flange of the cabinet except in thin wall construction, where the tile is set back of the flange.

✣

More Convenient Refrigerators

CONTRACTORS, developers and others engaged in building houses and apartments for sale will find in the refrigerator illustrated here unusual features which will gain the interest of prospects and constitute an excellent selling point for the houses in which they are installed. These features greatly appeal to the housewife because of their practical convenience and time and labor-saving qualities.



The Door Is Opened by Means of a Handy Foot Fedal and an Automatic Signal Shows When the Refrigerator Temperature Goes Too High.

These refrigerators are all steel with tight welded joints and sturdy construction adapted to later installation of mechanical refrigerating units. They are porcelain lined. There is a self-opening door, opened by a light pressure on a foot pedal, that adds much convenience and saves many steps for the housewife.

The cabinet is supported by 8½-inch legs, making it easy to sweep or mop under the refrigerator and to see when dust is gathering. There is also a temperature signal which, automatically, indicates when the ice supply is insufficient to keep the temperature at 50 degrees or less, the safety mark for food. All corners are rounded, making for easy cleaning and the cabinet is finished in white, making it an attractive piece of household equipment.

✣

Sectional Electric Ranges

A NEW electric kitchen range that the housewife can build up or take down at will, like a sectional bookcase, has recently been placed on the market. The complete unit comes in 16 parts, making this range readily adaptable to the largest residence or the smallest apartment. One range is convertible into 50 different styles, it is stated.

Electric Stove in Sections Like a Bookcase Can Be Adapted to Any Requirements.

The dealer can stock the one model of range to fit all electric range requirements instead of keeping a large number of models in stock as is necessary ordinarily. By shifting the parts on the one unit, he can provide a range for the small or large home, the right handed or left handed woman, the tall or the short woman, or can answer any other special requirement, such as offering a range with the oven below and the range surface on top, with the oven at one side and the range surface at the other, etc.

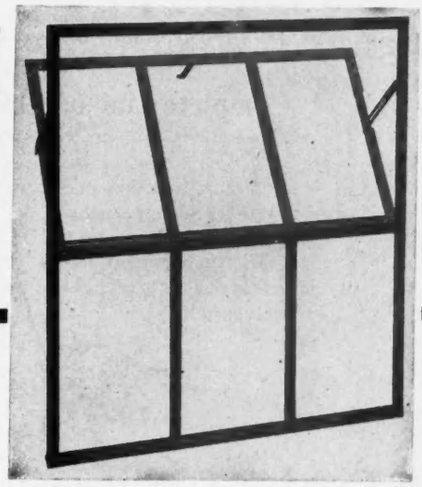
By means of the one range the housewife can provide for increased cooking requirements as the family enlarges, or a larger house is required, without buying an entirely new range. She can buy a part of the range at first, say oven, base and legs, and add other parts from the dealer's stock, as required. She can also shift the arrangement of the parts to conform with changes in kitchen size or furnishing through remodeling or buying additional kitchen equipment.

All parts are light and easily handled and fit snugly into each other. If the family is going away for the summer, the oven, range surface and small base can be taken along and set up in the summer cottage.

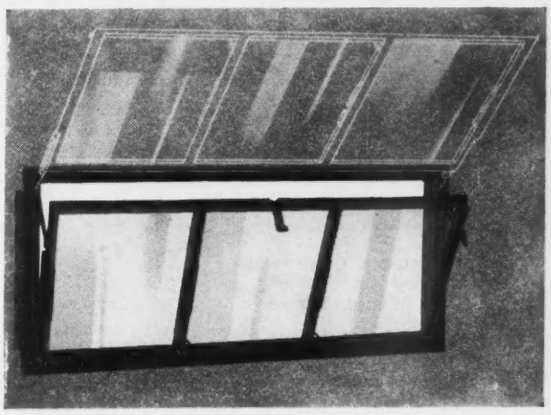
SPECIAL OFFER ACT NOW

Choice of 4 standard sizes—

6 light, 10x16 glass, $4.75 each.
6 light, 12x18 glass, $5.50 each.
6 light, 12x20 glass, $5.75 each.
6 light, 14x20 glass, $6.25 each.



This
GENUINE VENTO PUTTYLESS STEEL GARAGE WINDOW
FREE



Construction—Frame—Electrically welded at corners—muntins—solid—no riveting. Made of 1½" x 1" x ⅛" T Bar. One of the strongest windows made.

Painted with patented rust proof paint. Treated with rust inhibitor.

Sold by over 2,000 Lumber and Building Supply Dealers. There is a Dealer near you.

U. S. Pats. 3-4-24—12-11-28—7-30-29

SPECIAL OFFER

FREE—One Vento Puttyless Steel Garage Window with your order for 5 Vento Puttyless Steel Basement Windows at your dealers. Be sure and take the coupon—signed—to your dealer before March 20, 1930. This special demonstration offer closes then.

Exclusive Vento Features

Vento Puttyless Steel Sash save from 75c to $1.00 per opening for glazing. Lights are easily replaced when broken as sash does not have to be removed. Vento Sash are storm-proof and burglar-proof. They are so hinged that they open at the top, allowing ventilation without draught, or they can be opened same as ordinary sash.

Vento Basement Sash are easily installed. They fit any foundation and fin on side gives extra anchorage.

Vento Sash are constructed of 12-gauge steel, electrically welded and jigged square and plumb.

Vento Sash are tapped for Vento Storm Sash and Screens.

Our new catalog describes in detail Vento's exclusive features. *Get yours from your dealer or write us.* Ask your dealer to show you these sash. An inspection will convince you of their superiority and the money saving advantages of this trial offer.

DEALERS!

Vento's complete line of steel sash, coal chutes and other building supplies is increasing dealers' business everywhere. If you are not already a Vento dealer write at once for Special Free Offer to Builders through Dealers.

Vento Steel Sash Co.

Muskegon, Mich.

DEALERS MAIL THIS COUPON FOR INFORMATION

Vento Steel Sash Co., Muskegon, Mich.
Please send me complete information regarding your products and your special FREE offer. I can use (No.) copies of your new catalog.

Firm Name _____
Address _____
Town _____
State _____ A.B.

TAKE THIS COUPON TO YOUR DEALER FOR FREE GARAGE WINDOW

This coupon, presented to your dealer with your order for five or more Vento Puttyless Steel Basement Windows entitles you to one genuine Vento Puttyless Steel Garage Window.

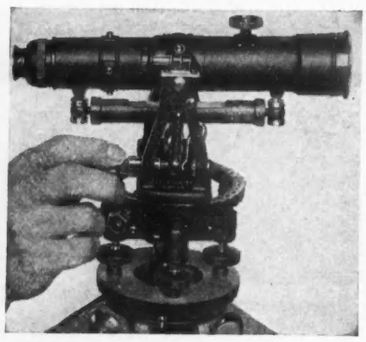
Name _____
Address _____
Town _____
State _____ A.B.

What's New in Contractors' Equipment

For further information in regard to any item described in the "What's New" Departments address, American Builder Information Exchange, 105 W. Adams St., Chicago

Improved Transit and Level

AN unusually high grade instrument for the contractor has recently been introduced. It uses a new principle for this type of instrument, in that the telescope is leveled by the turn of a slow motion screw and can be clamped, when set for any grade. In using this instrument the telescope is not removed when changing from transit to level positions.



This Unusual Instrument Is Leveled by Turning a Slow-Motion Screw.

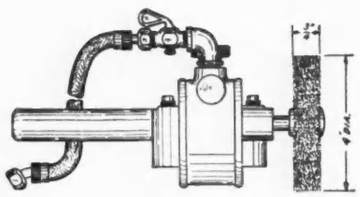
This design possesses several advantages in the accuracy and speed with which the work can be done. The method of leveling the telescope makes it possible to set the line or grade from one set-up of the instrument. The telescope tilts 75 degrees, so that points may be set on walls, forms or foundations, or it may be used for plumbing brickwork, window frames, corner posts or columns. It can also be clamped when tilted, a useful feature in setting drains or sewers. There is also a horizontal circle for setting off the occasional angles called for in construction work.

Among other unusual features of the design is the optical properties of the telescope, which focuses within 5½ feet, and has a large objective lens, admitting twice as much light as usual. This makes it easy to use inside rooms or late in the afternoon. Also, the instrument is made largely of lynite, a metal possessing great strength but light weight, so that the convenience in carrying it up and down ladders or over forms will be appreciated.

✣

Removes Paint, Scale and Rust

THIS light and simple air operated unit will remove rust, scale and loose paint from any surface to be painted faster and with less effort than any other method of cleaning, it is claimed by the manufacturer. It should prove an ideal cleaning unit in connection with all portable airpainting equipments used or to be used by paint contractors whose problem of cleaning surfaces before painting has always been a slow and costly operation. The rotary, steel wire, brush cleaner will effect considerable saving in time and labor. It is attached to any air supply and operated at a slow or fast speed at will by regulating the airvalve.

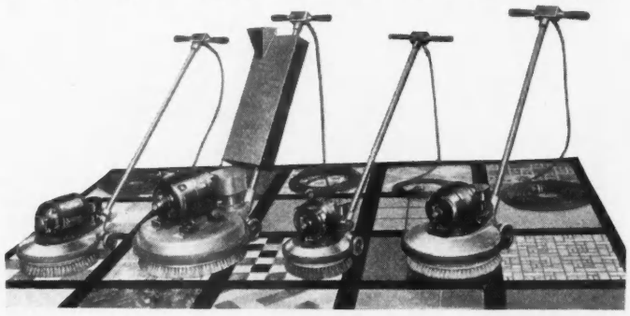


A Paint Removing Tool that Will Greatly Aid the Painting Contractor.

Complete Line of Floor Machines

THE four models of electric floor machines shown constitute the full line of machines as manufactured by a well known floor machine manufacturer. The largest model illustrated is receiving widespread recognition in all large buildings, universities, hospitals, military academies, schools, colleges, large department stores, etc.

This machine is 18 inches in diameter, uses a ¾ H. P. motor, weighs 125 pounds (all on the brush) and may be had with or without a specially designed water tank of 3½ gallon capacity. This machine is capable of scrubbing, waxing, or polishing at the rate of 3,000 to 5,000 square feet per hour.

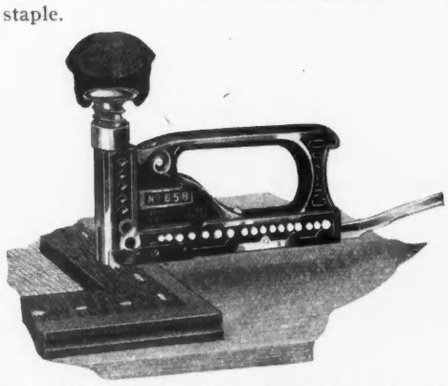


Four Models Adapted to All Types of Service Are Found in This Line of Floor Machines.

✣

An Improved Screen Tacker

A GREATLY improved screen tacking outfit is now available for fastening screens quickly and securely to frames. This tacker uses a new sturdy screen staple of special design and of substantial length and holding power. The staples are put up in strip form and are automatically fed forward by means of performations in the staple units. Each downward stroke of the tacker plunger severs and drives a staple.



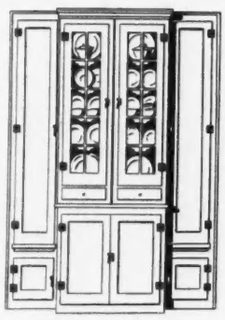
Speed and Economy Have Been Built Into This New Model Screen Tacker.

A special feature is that every staple on the strip is used; also the staple chamber is positively and automatically cleared when ready for reloading. All tendency of the last one or two staple units clogging the machine is entirely eliminated; thus there is no waste of staples and the tacker has exceptional durability.

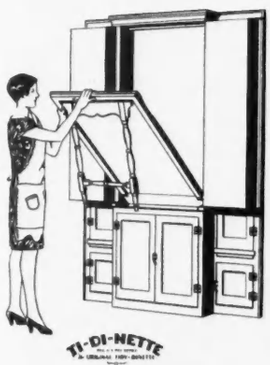
TI-DI-NETTE

REG. U.S. PAT. OFFICE

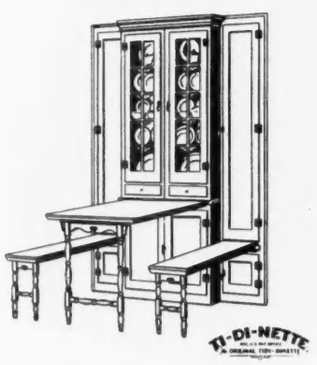
The ORIGINAL TIDY-DINETTE



Closed—neat, compact, beautiful. Occupies very little space.



Opens easily—always ready for instant use.



Seats five people comfortably. The china cases are extremely convenient.

HERE IT IS!

Designed by a woman for women

At last—a PRACTICAL disappearing breakfast set. Made to fit into a four-inch stud wall, or against the finished plaster wall.

TI-DI-NETTE is NEW. Only six months old, yet hundreds are now in daily use. It is being rapidly adopted as Standard Equipment, by progressive builders of fine homes and apartments.

WOMEN PREFER TI-DI-NETTE because it is so extraordinarily—

COMPACT—it takes up no floor space, when out of use.

CONVENIENT—it saves hundreds of steps each meal, everyday.

ROOMY—there is ample space for China, Silver, Linens, Iron, Toaster and Ironing Board.

SANITARY—all parts are accessible and easily cleaned. It is vermin proof.

DURABLE—the sturdy construction used prevents breakage. There are no parts to get out of order.

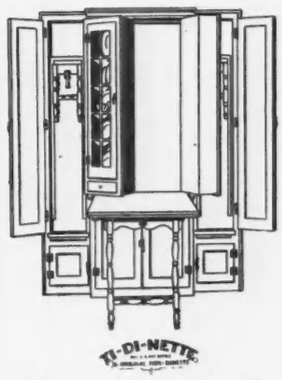
BEAUTIFUL—finely fashioned, beautifully proportioned, it is reminiscent of the stately cabinets of Colonial days. Yet, it is so designed as to fit admirably into a room of almost any style or period.

The entire front, table and seats are birch. Vari-colored FORMICA table tops that will not break, burn or stain, can be furnished. All hardware is Bronze, Nickel or Statuary Bronze finish; which adds quiet dignity, is easily cleaned, and will not tarnish.

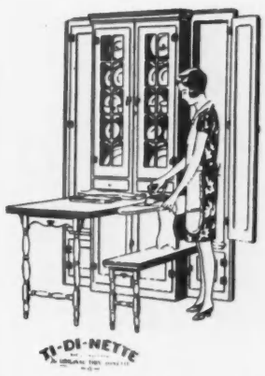
Architects, Builders, Bankers and Realtors prefer TI-DI-NETTE, because Housewives do; they know that EASIER SALES AND RENTALS ARE INSURED, wherever TI-DI-NETTE is installed.

When you know all about TI-DI-NETTE, your good business judgment will demand that you include this exceptional sales feature in your 1930 buildings.

PRICES AND CATALOG UPON REQUEST



Rigidly constructed of solid birch. It will never warp or shrink.



The ironing board is an added convenience at no extra cost to you.

TI-DI-NETTE SALES CO.,

INCORPORATED

Cabinet Division of

STARCK BROTHERS, Inc.

Manufacturers and Patentees

FACTORY

MILWAUKEE, WISCONSIN

EXECUTIVE OFFICES

228 N. LA SALLE ST., CHICAGO, ILL.

TI-DI-NETTE SALES CO., Inc.,
228 N. LaSalle St.,
Chicago, Ill.

Please send me descriptive literature and prices on TI-DI-NETTE.

Name.....

Address.....

Town.....

State.....

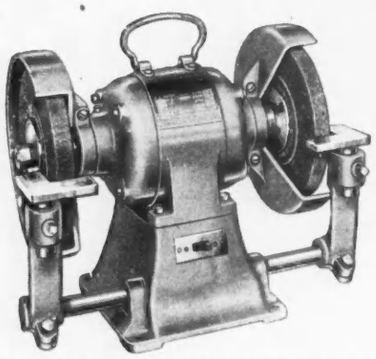
I am a (Please Check)

☐ Builder ☐ Contractor

☐ Realtor ☐ Architect

Heavy Duty Bench Grinder

HERE is a ball bearing bench grinder designed for factory or garage use where a heavy duty grinder is required. It is perfectly balanced for smooth running and is furnished with two seven by ¾-inch carborundum wheels, one coarse and one fine, adjustable tool rests. The wheels are well guarded. It is adaptable for use with wire brushes and buffing wheels. A handle is provided for carrying.



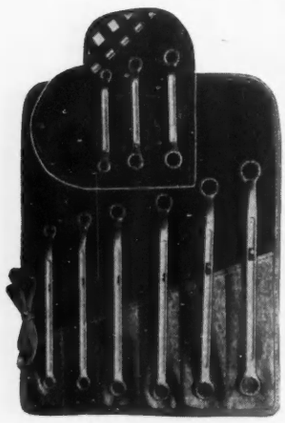
A Ball Bearing Bench Grinder for Use Wherever a Heavy Duty Machine is Needed.

It is furnished for either 110 or 220 volts, 60 cycle; 110 volt, 50 cycle: 110 volt, 40 cycle: 110 volt, 25 cycle alternating current, and also for direct current 115 or 230 volt.

✣

Two Box Wrench Sets

TWO new chrome vanadium wrench sets have been announced by a well known tool manufacturer. One set consists of the three most popular short type, double hexagon box wrenches. These three double end wrenches take care of the six most commonly used nuts and bolts.



A Small and a Large Set of Wrenches in Sizes to Handle the Common Sizes of Nuts and Bolts.

The other set consists of six double hexagon, double end, box wrenches of the regular length which are the most frequently used sizes. These wrenches are all broached with double hexagon opening, making it possible to remove nuts or bolts even though obstructions will only permit a 1/12 turn at a bite.

✣

Pliers with Parallel Grip

THE principles of the cam, the fulcrum and the wedge have been combined in the pliers illustrated to produce a tool with a powerful parallel grip, increasing its efficiency to a considerable degree so that it will perform the work which has before required a number of other tools such as the monkey wrench, stilson wrench and various other wrenches.

In this plier the pin has been eliminated as a point of strain, and therefore as a weak point. The pin is used solely for the purpose of holding the two members together. The cam slides the fulcrum to its correct position, as shown in the illustration, irrespective of the load. The sliding action of both the cam and the fulcrum combine to wedge the work between the jaws, producing a grip that cannot slip. The fact that the fulcrum is always close to the load is one reason for the great power of these pliers.

This plier will grip, hold and turn a pipe in close quarters or lying flat on the floor or flush against the wall. Nuts with rounded corners are held as securely as a piece of flat metal. All this is done without the use of gears or the necessity of changing any part of the tool. There is no screw adjustment. It grips with the slightest pressure and releases instantly.

Something Really New, Pliers That Do the Work of Several Wrenches.

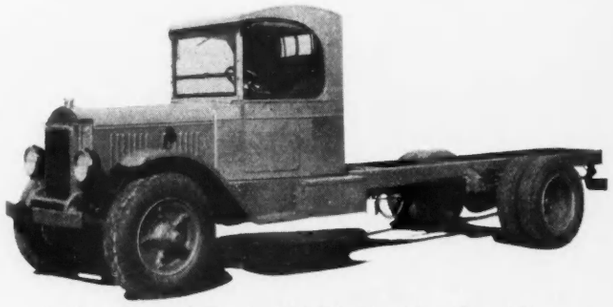
These pliers are a high grade, drop forged tool, made of a special formula alloy chrome vanadium steel properly hardened. The teeth are accurately machined and will not batter or crumble. All workmanship is of the highest grade.

✣

Power and Speed in New Truck

THE latest addition to a comprehensive line of heavy trucks is a new six cylinder truck designed for those fields where diversified hauling requirements demand power, capacity and high, safe speed.

Some of the interesting features of the new six cylinder engine are: a combined fan and water pump mounted on the front of the cylinder block, both driven from the one belt; crankcase ventilation provided by a flexible tube extending from the valve cover plate to the elbow on the carburetor intake; throttle control of the exhaust heat applied to the inlet manifold through a jacket on the [illegible]er; thermostatic temperature control.



A New Line of Trucks Which Combine Great Power with Passenger Car Speed.

There is a by-pass to the path of the cooling water through the jacket space. When the temperature of the jacket water drops below 150 degrees, no water circulates through the jacket and circulation begins again when the jacket temperature rises above 175 degrees.

Another interesting feature of the engine is a high pressure lubrication system which operates under a pressure of 55 pounds per square inch and extends to main, connecting rod and camshaft bearings. An H-W filtrator is included in the oil circuit.

In its announcement the company making this truck states that this truck not only has the ability to get into the rough going, take the load and with brute power pull out onto the road, but once on the road it is capable of sustained speed to keep pace with ordinary passenger car traffic.

FOR ADVERTISERS' INDEX SEE NEXT TO LAST PAGE

Make your kitchens "sell" your houses...*this new way*

Design unique individual kitchens . . . with our Miniature Kitchen Set . . . just the units women want . . . arranged to make the most of each kitchen

In our files are photographs of hundreds of kitchens—all assembled from Curtis Kitchen Units. Yet no two are alike—for no two kitchens require just the same units, arranged just the same way.

You can make the kitchens in the houses you build models of *individuality* and convenience with Curtis Kitchen Units. Curtis Units come in a wide variety of styles and sizes, ready to be assembled in numberless combinations. To make the planning of your kitchens easy for you, make use of Curtis Dealers' Miniature Kitchen Set. This new way, you can *see* just what your kitchens will be like before a single step is taken in actual building.

Curtis Kitchen Units come to you completely set up, ready to put into place. We have prepared an attractive, colorful booklet, "Your Dream Kitchen," showing a few of the almost numberless kitchens that may be built with Curtis Units. Write us for your free copy.

There's a lumber dealer near you who carries the Curtis line and who has a Miniature Kitchen Set . . . Or we'll be glad to have you make use of our Free Planning Service. Ask us to send you along with "Your Dream Kitchen" some of our Kitchen Data Sheets. Fill these out with the dimensions of your kitchens. We'll send you sample layouts at no cost showing how we believe Curtis Units can best be used to give your individual kitchens the utility and convenience *that sell women prospects.*

The Curtis Companies Service Bureau,
330 Curtis Building, Clinton, Iowa

Representing

Curtis Companies, Inc., Clinton, Ia.; Curtis Bros. & Co., Clinton, Ia.; Curtis & Yale Co., Wausau, Wis.; Curtis Sash & Door Co., Sioux City, Ia.; Curtis, Towle & Paine Co., Lincoln, Nebr.; Curtis Door & Sash Co., Chicago, Ill.; Curtis-Yale-Purvis Co., Minneapolis, Minn.; and Curtis, Towle & Paine Co., Topeka, Kan.

Visit Curtis Woodwork, Inc., Display Rooms and Sales Office, Room 201, 9 East 41st Street, New York City. Chicago Display Rooms, Curtis Door & Sash Co., 1414 South Western Avenue, Chicago, Illinois.

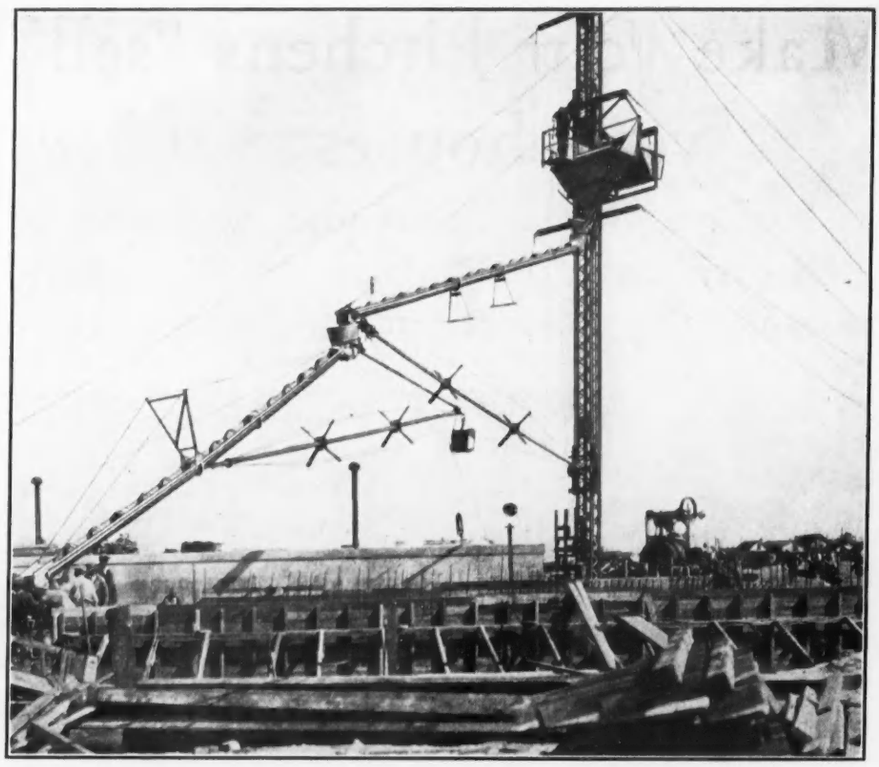
A CURTIS GEORGIAN MANTEL
—SELECTED BY DELINEATOR INTERIORS

This dignified Curtis Georgian Mantel was selected by Delineator Interiors for its charming living room created in Delineator studios, New York City, and featured in the January issue of that publication. Curtis applies the same care in the design and manufacture of windows, doors, trim, porchwork, kitchen units, that you see in this Georgian Mantel.

1866 CURTIS WOODWORK

This trade-mark appears only on Curtis Woodwork and no item of woodwork that does not bear this mark is genuine Curtis Woodwork. For your own protection be sure this mark is on each piece.

Of course she'll want one of these special Curtis units. It's a marvel of convenience—with its sugar bin, flour bin and cutlery drawer that all tilt forward obligingly when opened.



Heavy Steel Tower Chuting Equipment

Equipping To Cut Costs

Analyzing the Varied Ranges of Contractors' Equipment in the Light of Builders' Needs

IMAGINE, if you can, a twenty-story hotel or apartment building constructed by primitive methods with slave labor; thousands of them breaking up stone by hand and toiling with loaded baskets to dizzy heights, there to deposit their pitiful loads. It might be done. It is reasonably certain that the pyramids were built that way. But how long would it take, what would it cost and how well would the work be done compared with present-day methods?

In this modern age, the site for such a building might easily be worth $250,000 in one of the large cities, and, with primitive methods, such a building would take a number of years to construct. At 5%, the interest on the investment in land would be $12,500 per year. It is scarcely necessary to compute the vast amount of food which the slaves would consume during this protracted period. It would far exceed the wages paid to a small construction gang of the modern type with full power equipment for the few months required to complete the building. Five years as against five months would be a fair comparison of these construction methods; and the cost, with all hand labor, would be prohibitive compared to the use of power equipment.

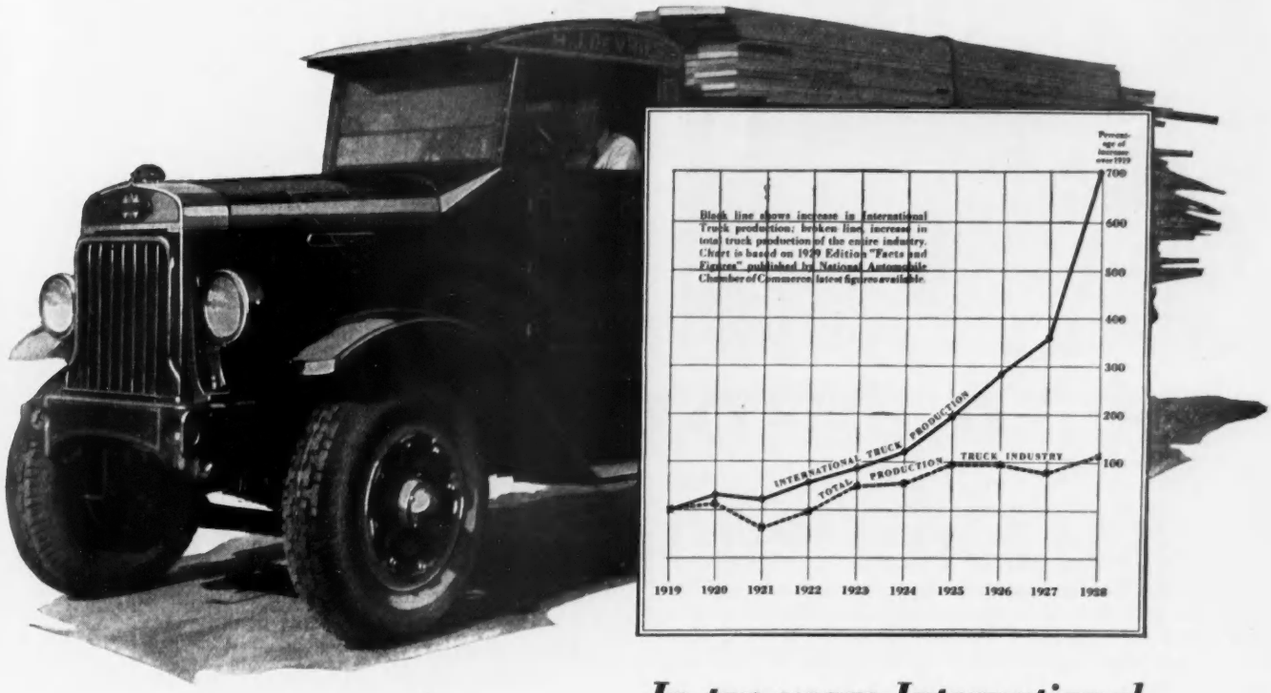
This comparison is purposely far fetched; it serves to draw attention to the proven efficiency of machinery over hand labor. It can't be questioned, for, putting one mechanical horse power against one man's work, the mechanical power costs but a fraction of the laborer's wage, even at eight cents per k. w. hour or an equivalent cost for gasoline or coal.

These are facts which many builders and contractors realize. Most of our big construction firms and many sub-contractors carry quite heavy investments in power equipment. If I were superintendent of one of these construction companies, I would insist upon every improved piece of equipment and every new power operated device being investigated to see if it could be used on our work. For I would know that the line of our construction costs would go down as the line of our investment in power equipment went up—provided I could keep that equipment in fairly constant service.

There was a time—not so very long ago—when the small builder and contractor considered himself quite independent of power. But that day has passed and we find a large proportion of the smaller builders using concrete mixers, mortar and plaster mixers, power saws and woodworkers, electric hand saws, electric drills and hammers, power door lock mortisers, power planes, power bench sanders and floor surfacers. Practically all of them use motor cars and trucks and an increasing number of them have power hoists, winches, derricks, cranes, power shovels and excavators, hand and hydraulic jacks, spray painting equipment, pumps, gasoline engines, tractors and other important items of equipment.

The delivery, distribution and assembly of material so that the workmen are never idle for lack of material are important factors in speeding up the work and keeping down construction costs on any job. Here, the motor truck plays an important role. Between two and

Fast-Growing Popularity



In ten years International Truck production has increased Seven-Fold, while the total truck production of the industry has only doubled

STARTING in 1919, with a 15-year record of successful truck manufacture, and a production already well up with the leaders, International Truck production has grown seven times as fast as the total output of the industry.

The steadily rising popularity of Internationals can be seen in every form of trucking from New York to Hollywood and on every kind of highway from the pavements of Pensacola to the trails of Yukon Territory.

Owners of International Trucks representing every type of business, large and small, are firmly convinced that Internationals deliver the very utmost in hauling satisfaction.

This comparison, indicating the growing preference for Internationals, is offered in no vainglorious spirit but simply as a matter of public record. Please remember, too, that back of International Trucks stands more than a quarter of a century of automotive achievement and 99 years of experience in general engineering and manufacture.

May we add that what Internationals have been doing for others year after year they may rightfully be expected to do for you.

There is an International Truck to meet your own requirements. We suggest that you ask the nearest International Branch or dealer to show it to you. There is no obligation.

International Trucks include the ¾-ton Special Delivery; the 1-ton Six-Speed Special; Speed Trucks, 1¼, 1½, and 2-ton; and Heavy-Duty Trucks to 5-ton. Company-owned branches at 176 points and dealers everywhere have the line on their display floors for convenient inspection. Catalogs on request.

INTERNATIONAL HARVESTER COMPANY
of America
(Incorporated)
606 So. Michigan Ave. Chicago, Illinois

INTERNATIONAL

INTERNATIONAL TRUCKS

Power Hand Saw Does Fast Work Fitting Doors.

three billion dollars worth of construction materials and equipment, aggregating millions of tons, are delivered to building sites throughout the United States in any normal building year. This material comes from lumber and building material yards, rolling mills, structural steel fabricating shops and ornamental iron works, brick kilns, quarries, gravel pits, sand banks, contractors' warehouses and shops. Even where it comes in by railroad, it must be moved from cars to site by trucks, unless there is a sidetrack at the site. But the radius of direct truck delivery is constantly increasing. From marketing centers in every section, hundreds of miles of smoothly paved highways radiate in every direction. Builders are adding to their fleets of trucks every year because this enables them to buy to the best advantage, even though their trucks go considerable distances to pick up materials and equipment. By this means, also, they can control deliveries and are sure of having them on the job when wanted. They use these trucks to get their own equipment to the site. Concrete mixers are either mounted on trucks or towed on their own trailer wheels. Scaffolding, ladders, trestles, concrete forms, lumber, power saws, woodworkers, form clamps, pumps, rubber hose, concrete buggies, wheelbarrows, portable contractors' offices—all are easily and quickly assembled at the job by means of trucks, following the survey and the driving of stakes. Power excavators move under their own power but horse scrapers are delivered by trucks. Cranes, derricks, piledrivers, winches and engines must be towed by tractors or delivered by trucks.

There has been a remarkable evolution in truck bodies for the many different requirements. Trailers with low bodies are quite extensively used for lumber, stone and steel deliveries, the trailer wheels adjustable for any required length and carrying loads at low levels for easy loading and unloading. Special truck bodies have been devised for handling brick, tile and similar materials so that the whole load is dropped gently to the ground in one operation on a movable platform. Self-dumping trucks are a familiar sight. Crushed stone, sand, gravel and other bulk materials are delivered by these trucks with but a brief pause for unloading. Excavated materials from caissons and foundations is generally loaded direct from power shovels into dump trucks and unloading requires but a few seconds for each load at the dump terminus.

The notable efficiency of big engineering construction is being copied on the smaller jobs. Wherever single dwellings are being constructed in group developments, power shovels can be used to great advantage in basement excavations. Gasoline, electric and steam excavators each have their adherents. Horse scrapers operate with difficulty in any but the lighter, drier soils; power excavators are able to operate in clay, even in wet weather.

The number of builders and contractors using electrical hand saws, power saws and woodworkers has shown a remarkable increase in the last few years. They speed up work to a surprising degree, especially where a careful study has been made of their application and use. In fact, much of the equipment which carpenters and contractors formerly used only for shop work is now transported by truck and used at the job. Bench saws, power planes and sanders, door lock mortisers and similar time and labor saving conveniences all go to the job. The heavier lathes, band saws and fixed equipment remain in the shop and trucks deliver the semi-assembled products to the job. The lighter woodworkers go to the job, if it is a wood frame building, among the first pieces of equipment. It is usually wise to house the woodworker in a shed, at least until the building is under roof.

The great variety and versatility of some of the woodworkers on the market is remarkable. Here is what one of these machines will accomplish, combining the functions of eight machines in one:

1. Saw Table:
   Ripping, square and bevel—cross-cutting, square, bevel and compound bevel—coping or dadoing, crosswise or lengthwise—rabbeting (smooth rabbeting on planer)—Mouldings, with moulding head on saw arbor—lock-corner cutting—many special operations.
2. Jointer:
   Glue-joint surface on flat side—glue-joint surface on edge, either square or bevel—beveled corners, length-

The Power Shovel and the Motor Truck Are Indispensable in Excavating.

WHEN YOUR PROFITS DEPEND ON CUBIC YARDS HAULED

More time saved, more material hauled, more profit earned—the aim of every far-seeing contractor. And in the fulfillment of that end, motor trucks play an important part.

Hundreds of contractors—and tens of thousands of other business men—have found Dodge Trucks able allies. Regardless of weather or road, Dodge Trucks work dependably always. They are geared for time-saving speed and acceleration. They are sturdily built for gruelling service. They are easy to maneuver on the road or ahead of the road. They are economical to operate and maintain—throughout their unusually long lives.

Buy a Dodge Truck with assured safety to your investment. It will enable you to save more time, haul more material and earn more profits.

DODGE TRUCKS

wise or on end—drum sander operations (by substituting sander drum for cutter-head).

3. Thickness Planer:
   Planing to any exact thickness—tenoning, clean and exactly centered—rabbeting, clean, extra wide, and deep—raised panel work.
4. Boring Table:
   Round holes, any size or depth—edge, end or side of work—hollow chisel mortising, side or edge of work—routing, side or edge of work—spoke tenoning—counterboring.
5. Speed Spindle:
   Disc sanding, side, edge or end of work, with work held square by table—tool grinding—buffing and polishing—carving with flexible shaft—mouldings with shaper cutters.
6. Band Saw (separate attachment):
   All varieties of band sawing.
7. Upright spindle shaper (separate attachment):
   Mouldings on curved edges of every description.
8. Turning Lath (separate attachment):
   Wood turning of all kinds.

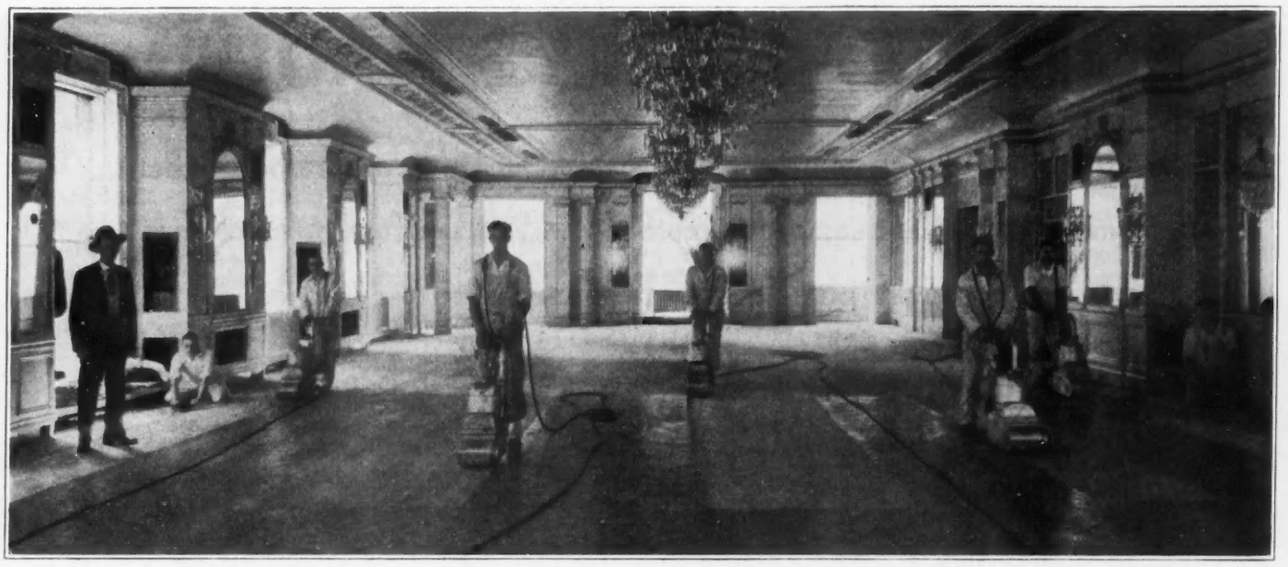
The "trowel trades," strange to say—are using about the same hand tools they have used since prehistoric times, but their work has been enormously facilitated by patent trestles and scaffolding, wall and ladder brackets, power plaster and mortar mixers, to say nothing of builders' hoists and cranes which carry masonry materials, as well as other building materials, so quickly and efficiently to the various floor levels. The old time hod carrier has passed into history and will soon be more of a curiosity than the horse.

One of the handiest tools to have on any construction job is the electric hand saw which substitutes speed, precision and tirelessness for the back-breaking work of ripping and other hand sawing. It conserves the energies of the carpenters and vastly increases their productive output. It is claimed that a 2 by 12 inch plank, which takes a full minute to cut off with an old style saw, can be cut with an electric hand saw in four seconds, or 1/15th the time and with almost no fatigue. An even greater advantage is shown in ripping. It used to take 9 minutes to rip a two inch plank 12 feet in length. The electric hand saw will do it in 38 seconds.

Fitting doors is one of the departments of carpentry which runs into considerable time and money with many builders and contractors. Let us take the evidence of J. F. Shepherd, a contractor at Stockton, California. On one of his jobs, two carpenters with electric saws, and one helper cut three sides of 1¾ inch Philippine mahogany doors, (three cuts per door). The fewest number of doors completed in one day was 33; the greatest number was 38. On form work—a heavy construction cost item—John Patoni, a New York City contractor, states that, with an electric hand saw, his men made up 29 panels of 16 feet by 2 feet each in one hour. Two ends were cut, one length was ripped and a pocket cut made on the other side.

It will be even more illuminating to have the savings of an electric hand saw shown in terms of money. Here, we have the statement of Contractor W. J. Rozek, that, in the construction of a 32-flat building at Schiller and First Streets, Elmhurst, Illinois, he saved $700 through the use of an electric hand saw.

There is not space enough in this article to name all the uses of electric hand saws, since they are useful in practically every phase of carpentry. A few of these important uses are: making and remaking forms for concrete; cutting roof and jack rafters; notching rafters; cutting studs, joists, flooring, sheathing, stair stringers, door bucks, ripping and innumerable other uses. A recent interesting development has been the perfection of a new model by one of the leading electric hand saw manufacturers which will cut to a depth of 4⅝ inches. By making two cuts, beams or other timbers over 9 inches thick can be cut with this model.



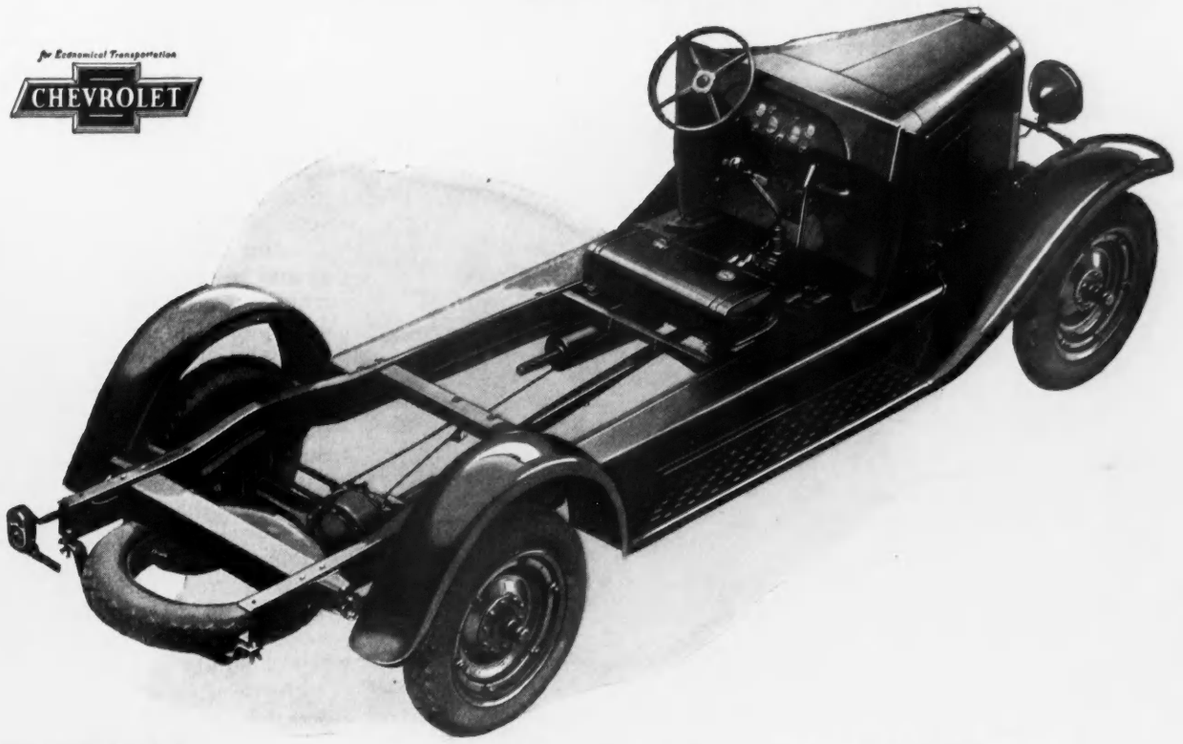
Floor Surfacing by Power Does a Better Job at Less Expense. Both light and heavy machines are used.

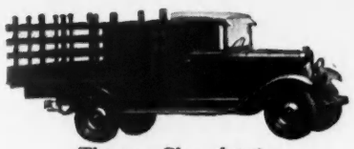
The enormous increase in concrete construction has, of course, resulted in a corresponding evolution in equipment for making, placing, molding and curing of concrete. This increase in concrete construction is shown by a comparison of the portland cement output. In 1900, it amounted to 8,482,000 barrels; whereas, in 1928, the production amounted to 176,195,000 barrels, or more than 20 times the 1900 figure. Only 32% of this total goes into paving, leaving an increase of about 150,000,000 barrels due to construction activities.

The efficiency of the concrete mixer is well known. Hand mixing of concrete is practically a thing of the past. The only question with most builders and contractors is what sizes and types of mixers to buy and how many they should keep in commission. Outside

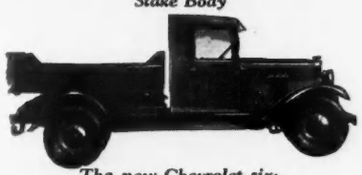
Announcing the New CHEVROLET Six Cylinder TRUCKS

for Economical Transportation
CHEVROLET





The new Chevrolet six-cylinder 1½ Ton Truck Chassis equipped with Stake Body



The new Chevrolet six-cylinder 1½ Ton Truck Chassis equipped with Dump Body

The new Chevrolet six-cylinder 1½ Ton Truck Chassis equipped with Panel Body

Again, Chevrolet has used the savings from its great volume production to bring to American business the greatest commercial car value in its history—

—a stronger, sturdier, more powerful line of six-cylinder trucks . . . at sensationally low prices!

Every factor that makes a commercial car desirable has been refined and improved in these new trucks. The six-cylinder valve-in-head motor has been increased to 50 horsepower! The brakes have been enlarged and improved—with the front brakes of the internal-expanding type! Steering has been made easier and steadier! The rear axle is heavier and stronger! And throughout the chassis, scores of detailed improvements add to strength, durability and economy.

See these trucks at your Chevrolet dealer's—today. Check their new features. Get a trial load demonstration. And remember—no matter what your business—there is a body type to meet your particular need.

Chevrolet Motor Company, Detroit, Michigan
Division of General Motors Corporation

A SIX IN THE PRICE RANGE OF THE FOUR

of the very largest sizes, used for mixing concrete on big dams and similar public works or railroad engineering jobs, the usual range of sizes varies from half-sack mixers—that is, taking a charge of a half-sack of portland cement, with accompanying aggregate—up to the 8-sack size, which turns out a mix of about 29 cubic yards, or over two tons of concrete in one mix.

The Mixer Manufacturers' Bureau has adopted seven sizes as standard for construction mixers, as follows: 3½-S, 5-S, 7-S, 10-S, 14-S, 21-S and 28-S, these numbers designating the guaranteed capacity in cubic feet of mixed concrete per batch when the mixers are operated on level grade. Mixers may be (and are) manufactured smaller than the 3½-S and larger than the 28-S but the members have agreed to make nothing between the standard sizes listed. Construction mixers are designated by the letter "S" and paving mixers by the letter "E."

Scaffold Brackets of Steel Are Handy, Light and Safe.

The smaller machines are nearly always tilters; that is, the mixing drum is charged at the top and tilted down to a discharge angle after mixing. There are, however, some large mixers made in the tilting type. The smaller size mixers are nearly always mounted on automobile trailer wheels with rubber tires and are towed to the job behind the contractor's truck. Even the largest building or contracting firms should be equipped with some small size mixers, because of their mobility and the quickness and ease with which they can be dispatched to take care of the small concreting jobs, rather than to tie up their larger and more costly mixers on this type of work. It costs several times as much (considering the interest on the investment) to put a large mixer on a job as a small one. On the other hand, where there is sufficient volume of work, the larger size mixers cut down both time and costs.

The revolving drum type of mixer with power loader on one side and discharge on the other is one of the popular types and is useful for a wide range of work. There has been considerable refinement in recent years tending to quicken the action of both loading and discharge, also for the accurate measurement of water and its positive control. The time of mixing, according to all authorities, should never be less than one minute and, from that, varies up to several minutes, so all speeding up of the machine operations must be in the loading and discharge. There have been improvements in bearings and frames and wearing parts have been made more rugged. Trussed axles and rubber tires, even on the 7-S size, tend to reduce shocks and lengthen service.

The larger mixers are not, as a rule, towed but loaded on trucks or else permanently truck-mounted. In the latter case, no platform is required and the mixed concrete is run out to the concrete buggies through an attached steel chute. Thus, the mixer is ready for work the moment the truck pulls up to the job. This latter type is especially recommended for concreting sidewalks, curbs and gutters, as it moves along under its own power as the work progresses.

We venture the assertion that more builders are under-equipped with mixers than over-equipped. The number and range of sizes should be proportioned to the volume of work which each builder and contractor normally handles.

It will pay every builder and contractor to study his equipment carefully each winter, to be sure that he has the latest and best he can afford and also to see that he has the right sizes and enough of them and that every piece is in good working condition. It is far better to replace broken, worn or rusted parts during idle time in the yard than to find out the weak spots by breakdowns and costly delays on the job.

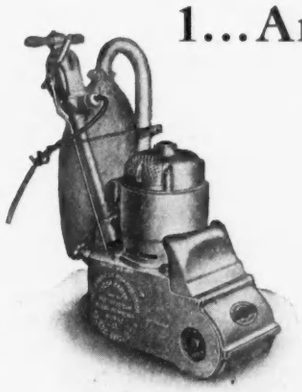
So far as mixers are concerned, it is an excellent plan to consult the manufacturers each year if you are doing much concreting work, secure full advantage of their engineering and service departments, go over your costs with them; also, keep posted on the latest improvements as they are introduced and discuss the equipment and methods which best suit your work. Another recommendation is to take full advantage of the advice, information and counsel of the Portland Cement Association. They maintain a staff of engineering and field experts for exactly this purpose and are glad to give impartial advice and free counsel. This relates to all concreting practice. Letters addressed to the Association in care of this magazine will immediately be forwarded.

Concrete construction may, roughly, be divided into monolithic or poured concrete construction and the use of concrete masonry units. These are both becoming increasingly important, not only in the field of commercial, industrial and school buildings, but in the residential field as well. There is a marked trend towards the construction of fire-safe houses with reinforced concrete floors and concrete masonry walls. Concrete contractors throughout the United States are finding it profitable to install machinery for the mixing, molding and curing of concrete block and tile units as well as concrete roof tile. One plant of this description will take care of quite a large community serving

Three Outstanding Sanders

Demanded by Leading Contractors Builders and Floormen Everywhere

1...American High Production Floor Sander



American High Production Floor Sander

Demanded because of its one-man portability, operating ease and unusually great capacity.

Recommended for larger sanding and resurfacing jobs on which speedy production is of utmost importance, yet, high quality work is required.

Weighs only 180 lbs. complete . . . only 90 lbs. with the quickly detachable 1½ H.P. motor removed. The 8-inch wide sanding drum is covered with special resilient shock-absorbing material insuring a finer smoother sanded surface. The efficiency of the vacuum system is unsurpassed.

The many oustanding "American" features incorporated into this sander insure *super-performance at low operating cost.*

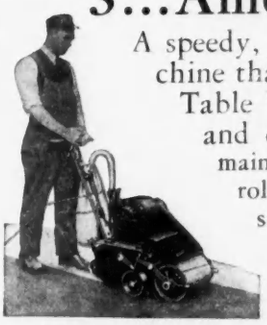
2...American Handy Sander

A portable combination floor and bench sander operating directly off of the light socket or base plug . . Especially efficient for dwelling and apartment house work . . An ideal machine for sanding narrow hallways, alcoves, closets, stair landings, etc.

Weighs but 34 pounds complete . . . *Easily carried any place with one hand* . . . The 6-inch rubber covered sanding drum is easily accessible . . . Automatic pressure regulator insures a smooth level surface . . . The heavy duty Universal type motor has power plus . . . "Under-load" drum speed is unsurpassed for sanders of this type and size . . . Ruggedly constructed to stand up under many hours *of hard continuous service.*

American Handy Sander

3...American Universal



American Universal

A speedy, powerful floor surfacing machine that produces a "Smooth as a Table Top" finish easily, quickly and economically. The 12-inch main sanding drum and 4-inch edge roller are driven by a silent high speed chain from a 1½ H.P. motor. Its many exclusive "American" features has made this *an outstanding floor sander* for more than fifteen years.

Contractors, Builders and Floormen have learned that there IS a difference in SANDER quality. Demand the name "American" on your next sander . . . THAT is your guarantee of quality work and quality performance with minimized upkeep expense. Mail the coupon TODAY for detailed information regarding "American" sanders.

***The* American Floor Surfacing Machine Co.**

515 South St. Clair St., Toledo, Ohio

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Gentlemen: Without obligation, please send me complete information covering ☐American High Production Floor Sander, ☐American Handy Sander, ☐American Universal.

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Street .....

City ..... *State* .....

BUILDERS OF DEPENDABLE FLOOR SURFACING MACHINES FOR OVER A QUARTER OF A CENTURY

all comers. Equipment for manufacturing concrete units has been brought to a high state of perfection by a number of manufacturers and has entirely superseded the hand molding and tamping of concrete block and tile. Many lumber and building material dealers in the smaller cities are finding it profitable to install power equipment for the molding of concrete block and tile, thus enabling them to fill the needs of local builders and contractors.

Batch mixers, concrete distributing towers, special form clamps, metal forms, as well as hoists, cranes and derricks are necessary equipment for firms contracting to construct large concrete buildings. In the batch mixers, the material is usually weighed into the mixers, allowance being made for any extra moisture in the sand.

For medium size buildings, the monkey-on-a-stick conveyor is exceedingly useful for the placing of other materials, as well as concrete. Steel scaffolding, adjustable trestles, ladder jacks, builders brackets and roofers brackets are other items of equipment having time and labor saving features which cut down costs.

Spray painting machines are finding a larger field every year and coming into more general use because of their efficiency. The manufacturers claim—and have considerable evidence to back it up—that spray painting produces better work than hand painting at a lower cost. It is many times quicker than hand painting. Objection to the fumes affecting the workmen when used indoors is met with a device resembling a gas mask, which, it is said, fully protects the operator's lungs. There is little or no trouble from this cause when used outdoors. Anyone who has seen the superior enameling on steel or wood kitchen cases or on domestic washing machines gets an idea of the even coverage and fine finish procurable by use of the spray painting machines. I have seen a wood desk varnished with a spray painting machine and the quality of the finish was particularly fine. On wooden surfaces, the force of the spray causes the paint to penetrate farther than when painted with a hand brush.

It is claimed—and I have never seen it successfully contradicted—that a floor surfacing machine will accomplish in one day the work of six men scraping or sanding by hand. The hand workers claim that the highest quality work can only be done by their method; that the floors should be scraped and sanded with the grain. On the other hand, I know that some of the largest and most beautiful ball room floors in the United States have been surfaced with power sanders, and the amount of hand finishing is becoming smaller each year. So it would seem as if the back-breaking work of hand finishing floors was becoming a thing of the past. An important feature of the machine surfacers is that the wood fibres and dust are automatically gathered up by air vacuum. Rotary machines for waxing and polishing are finding increasing use each year and machines of this type are also finding increasing favor for the scrubbing of large floor surfaces. Terrazzo floors are successfully ground down only by heavy power surfacers.

There are many items of contractors' equipment which are time and labor saving conveniences even though not power driven. For instance, modern builders are often equipped for their own surveys with surveyors' instruments. In this case, they place their excavation markers and guide lines quickly and accurately by the use of transit and level. Their exact precision is fully as valuable as the ease and quickness with which they can be operated. Any builder who cavils at the expense of adding transits and levels to his equipment should consider that these instruments insure him against heavy loss. I know few things more expensive than building over the line of another man's lot.

All architects and many builders prepare their own plans, elevations and other working drawings. To do this work properly, requires an equipment of drawing boards, draftsmen's tools, pencils and drawing ink.

Special folding rules are available for the use of builders and contractors which are as far superior to ordinary rules as a good set of carpenters' tools is superior to toy sets. Then, there are special T squares and angles which will automatically indicate the angle of any rafter or other cut.

One of the oldest adages in the English language is this: "A good workman is known by his tools." This is true of carpenters' tools, masons', plasterers' and plumbers' tools, sheet metal workers', electricians', roofers' and lathers' tools and so throughout the entire list of craftsmen. Power tools will never entirely displace good hand tools nor remove the need for skilled craftsmen. On the other hand, in addition to hand tools when he needs them, the craftsman becomes master of mechanical slaves which relieve him of hard toil and drudgery, conserve his vigor and energy and greatly multiply his effective output. The entire history of America since the introduction of machinery in all lines has proved that it creates more employment by raising the standards of living. Thus, both employer and employee should be interested in a full complement of time, labor and money-saving contractors' equipment.

✣

NEWS OF THE FIELD

New Company Organized

THE Leader Boiler and Heater Co., Decatur, Ill., has recently been organized for the production and sale of complete oil and gas burning units. While the new company is not a subsidiary of the Leader Iron Works, it was organized by members of the latter firm and is very closely associated with it. Inasmuch as it was the intention to develop a complete line entirely out of the range of the workmanship ordinarily carried on in the Leader Iron Works, it was decided that a separate organization could handle this line to better advantage than a new department.

✣

Milburn Offers Prizes

THE Alexander Milburn Company, 1416-28 W. Baltimore St., Baltimore, Md., has offered an award for development work in gas cutting and welding. A total of $3,000, divided into three prizes of $1,000 each for 1930, 1931 and 1932, for the best authenticated results accomplished with illuminating or by-product gases tending to lower the cost of modern cutting and welding methods, are offered.

✣

Fintube Takes Over Convecto

THE Fintube Radiator Co., Inc., a New York Corporation manufacturing enclosed radiation by patented methods, has taken over the Convecto Radiator Division of the Metal Stamping Co., New York. The general offices and factory of Fintube Radiator Co., Inc., are located at 4402 to 20 Eleventh Stre, Long Island City, N. Y.

The company also announces that the Thermo Service, Inc., of 101 Park Avenue, New York, has been appointed distributors for the metropolitan area. A few excellent territories are open for proven distributors.

Questions and Answers

This Department Conducted by
V. L. SHERMAN

Have You a Question You Would Like to Have Someone Answer?

Have You An Answer to Any of the Questions Listed Below?

QUESTIONS TO BE ANSWERED IN THE APRIL ISSUE

Give Us Your Answer—Those Published Will Be Paid For.

1. *I used to know of many substantial and attractive, wide board, soft-wood floors, but I cannot find any one to agree with me. What can you tell me about them?*
2. *Is it feasible to use iron railings for stairs, etc., in the house? Are they at all attractive or do they make too much of a contrast?*
3. *How are the sizes of sewer-lines figured in building groups of houses?*
4. *How can I deck a flat roof to make it absolutely rain and snow proof and strong enough to walk on occasionally without harming it? I would like to use canvas.*

5. *The sketch submitted shows a thatched roof over an entrance which seems impossible as a real thatching job and therefor out of place even when it is roofed with cedar shingles. What do you think about it? Would I be justified in using thatching effects in this way?*
6. *What is the cause of pitting plaster? What can be done to avoid it?*
7. *About how much heat is lost through a fire-place?*
8. *When using an oil-burner, is the flue ever likely to fill up? I understand this sometimes happens and would like to know the reason.*

SEE MARCH FOR ANSWERS TO JANUARY QUESTIONS

Following are the questions asked in the December issue, and their answers

Question: How can sound-proof walls or partitions be built?

ANSWER: Sound-proofing of partitions is a real need in the present day jazz age. Its value is questioned, however, in the modern planned house with all of the rooms opening into one another. A definite problem came to my office recently wherein sound-proofing was practical. My client, a school teacher, desired to build a house to rent, isolating three rooms on the ground floor for her own occupancy. She did not wish to be disturbed by noisy tenants; and the dividing partition was designed in the following way: Two sets of studding were staggered, making the overall structural thickness of the partition six inches, with sixteen inch centers nailing for the lath on each room side. Between the two rows of studding an insulating quilt was woven, *tacked on one set of studs only*. No portion was cut into. It extended unbroken from the floor to ceiling.

ARTHUR BATES LINCOLN, *Architect*, New York City.

Question: Where should grease-traps be used, and why?

ANSWER: Kitchens of hotels, restaurants, clubs, cafeterias, large residences, abattoir, garages, gas-stations, or any place where there is discharge of heavy wastes of any greasy matter should be provided with grease-traps. All such waste should be discharged into the trap (or into a catch-basin) before entering the sewer. The heavy matter can be caught thus and skimmed off, and then used or sold for some commercial purpose. The idea is to keep such heavy matter from obstructing the sewer after congealing as well as to provide a source of profit from sale of grease as a by-product.

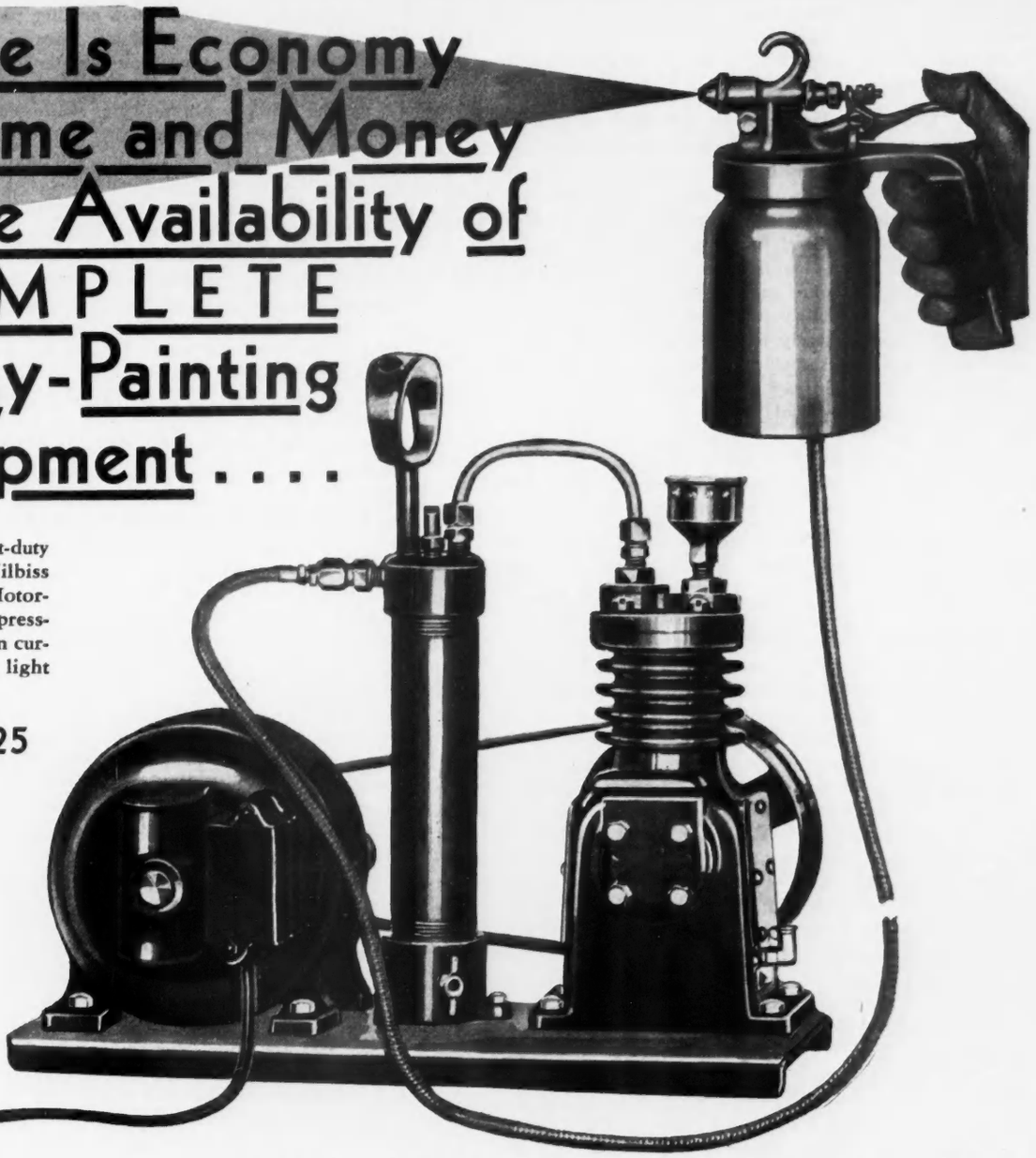
THOMAS G. ENGLISH, Pittsburgh, Pa.

Question: I am told that I can increase the heating capacity of my present furnace by increasing the cold-air faces from one to three. If this is so can you explaing why, and how should I locate them?

ANSWER: Return ducts in a warm air heating plant and their grilles, or as we generally say, cold-air faces, are of great importance. The free area of the grille should be at least one-half the total or gross area and should be equal in area to that of the duct leading from it. The total return-duct areas should be equal to or greater than the total areas of the supply ducts. The return ducts should be pitched toward the furnace, should be of metal, or lined with metal, and should have as little hindrance for the currents of air as possible. Longer return ducts should be given preference in sizing so as to maintain a balance in circulation. Exposed areas such as large windows, French doors, bays and so on should be provided with cold-air faces to prevent drafts and the possibility of disturbed natural circulation, pockets, or in other words stalling. The stairs of a two-story house should be accounted for with an ample cold-air face since the flow of cooler air from the floor above will spread easily unless withdrawn.

This sounds like an awful lot of words for one question, but when it is a question of your pocket or the coal merchants bank account everyone will agree, including the coal merchant that a well designed heating plant is worth the trouble. You probably need three cold-air faces well placed. If you had them you would be feeding the furnace casing with cooler air, absorbing more heat from the furnace per pound of coal, and delivering air faster and at a lower temperature to the rooms. The ceiling would be less hot and the floors warmer. Unless there are more than three rooms on the

There Is Economy of Time and Money in the Availability of COMPLETE Spray-Painting Equipment....



A typical light-duty complete DeVilbiss spray outfit. Motor-driven air compressor operates on current from the light socket.

$68.25

DeVilbiss spray outfits are made in many models and capacities from the smallest *practical* outfit in the market to the largest equipment used in industrial and contract painting operations, serving every painting task indoors and out.

DeVilbiss Spray-Painting and Spray-Finishing Outfits cost so little and last so long that there is no need to try to make one spray outfit serve in many and various operations. The modern master painter uses a small, easily portable DeVilbiss outfit for small jobs and one of the larger DeVilbiss outfits for big scale operations. The manufacturer uses specialized DeVilbiss spray outfits and spray booths in his finishing rooms and suitable DeVilbiss portable outfits for odd jobs, maintenance and service work. Have *complete* spray-painting equipment. Write for catalog of the many DeVilbiss portable spray-painting outfits.

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second floor the cold-air face at the foot of the stairs should take care of that floor, *if it is large enough.* Discomfort and loss of heat both come from increasing the differences in temperature.

Question: How can an oak floor finished by waxing be made proof against water stains?

ANSWER: I think it is generally understood that any floor which may be subject to water stains, that is through washing or scrubbing should be treated only with a hot oil finish or some prepared floor finish which is the equivalent of boiled linseed oil. This is true of bath-room and kitchen floors. Although some may differ with me I should say that to avoid possibility of water stains on a waxed floor that floor should merely be filled and waxed. Omission of varnish is not usual, and many use shellac, but from what I have seen I would say that to get the best results from waxing that alone should cover the filler and be kept in first class condition by rewaxing and polishing. Such floors should not be scrubbed or washed ever, but may be cleaned with a cloth first dampened and then sprinkled with kerosene, and then wiped clean before rewaxing.

Question: What success would I have with a common brick house painted white? Or any other color?

ANSWER: The editor of this department has seen many successful jobs of brick painting and some very shoddy ones. He has been advised by men in the brick business and in the paint business that such painting is entirely right and that it is entirely wrong. We wish to submit the following letter from Mr. Gilbert R. Green, attorney, of Buffalo, and beg to suggest that in some cases a man outside of the building field may give us pointers especially when his profession is that of the conservation of rights and property.

"The best treatment to give an old brick building that has never been painted would be to apply not less than three coats of good oil paint or one coat of a cement base paint and two coats of oil paint over this. If this suggestion is too expensive, a coat of cement base paint, which becomes waterproof after it dries, would make the walls of a uniform color with one coat. It might be necessary to apply a second coat of oil paint over this to make a satisfactory job, especially if the walls are old and dry.

"Simply to stain the bricks one can take high grade Venetian red in oil, adding a little yellow ochre, if a yellowish cast is desired for the surface. To 25 lbs of this color in oil add a half-gallon of japan drier of fair quality and 2 gallons of turpentine substitute. (Benzine evaporates too rapidly.) One coat of such stain might impart a uniform color, but two coats would make a more satisfactory job. It would be well to try out a small portion of the walls before puttting any sort of a coat over all of it.

"In Buffalo, about fifty years ago, ten small brick houses were erected on each side of Summer Street. They were of uniform size and appearance. In fact the sameness was so great that it gave the observer a feeling of monotony. In the last few years it has been very interesting to watch the different methods adopted by the different owners to alter, stain and paint their domiciles. Now no two are alike, and it seems to me that the owners who have used oil paints to beautify their homes have done a better job than the ones who have used only stain."

Question. Will a kitchen ventilating fan cause an increase in fuel cost, or will it lessen it? I have been told both ways and would like some reasons.

ANSWER: Some day, and in the not too distant future, all homes will be equipped with air conditioners. Most of us now get along as best we can on the air that is within the house and such air as we cannot keep out. In the long run it would be more profitable to condition the air within the house and recirculate it with a smaller portion of fresh air. If ordinary conditions hold, any means for providing the escape of some of the inside air, and especially that air which is best lost, will result in a certain influx of outside air which, being fresh, provides more comfort at a lower temperature than does stale air. A fireplace is one of these means. Another is a ventilating fan in the kitchen. If the kitchen atmosphere escapes from the kitchen into other rooms of the house the odors, noticeable or not, give sufficient taint to the air to make it seem stale. If this strikes you as cutting the matter a little too fine, let me suggest that you leave a skillet of cold grease on the kitchen table, or some cut pineapple, not to mention a mess of boiled cabbage, or perhaps, just to be mean, neglect to empty your cigar stubs from the tray. It will not be long before you will be inclined to take a walk. A bit of fresh air, you will say, will do no harm if indulged in moderately.

If air is to be comfortable, lower temperatures are possible only with reasonably fresh air. On the whole you should save considerable if the kitchen fan is used for ventilation.

The following letter, from Mr. Louis W. Radle, of the West Wind Minnesota Company, of Minneapolis, has to do with this:

"The assumption that we work on takes it for granted that kitchen ventilation by means of ventilating fans is a necessary adjunct to the home or apartment. The ventilating systems differ, of course, in a unit and a multiple residence.

"In a unit residence where a fan is not employed it is necessary to open doors and windows in an attempt to rid the house of hot grease-laden atmosphere. Where this is done several times a day, it naturally follows that the entire house becomes chilled unnecessarily, causing an extra consumption of coal. A ventilating fan operating while the kitchen range is in use does not take out the normal air in the house or kitchen. The heated air rising from the range is trapped by the suction of the fan and immediately exhausted. When the range is no longer in use the fan is closed, leaving all of the original normal air in the house as before.

"In a multiple residence either the unit ventilation or the central ventilation system is employed. In a central system it is necessary to operate the suction fan continuously because of the fact that no two families prepare their meals at the same hours. Consequently heated air is being exhausted from the apartments at least 18 hours out of 24. In this case there will be an extra consumption of coal. In unit ventilation for apartments each individual fan is used only during the short period of time when it is necessary in each apartment. In this case, as in the unit residence, the coal consumption should be lessened considerably."

Question: To what types or styles of houses is wood siding adaptable?

ANSWER: The following rather brief answer is from Mr. Arthur Bates Lincoln, architect, of New York City.

"Any frame house is adaptable to wood siding for exterior finish, while masonry walls decidedly are not. The Colonial styles, New England, Dutch Colonial, Cape Cod and many other ramifications of this ever popular domestic architecture make extensive use of siding. English houses are today being built with siding on gable ends, thus giving a little relief from the monotony of stucco and half-timber gables."

✣

Stanley Forms New Company

THE Stanley Works, New Britain Conn., announces the formation of the Stanley Electric Tool Company. This new company will manufacture and distribute the electrically operated hand tools developed by the Stanley Rule & Level Company, including electric drills, screw drivers, bench and aerial grinders, etc.

CLASSIFIED DIRECTORY AND BUYERS' GUIDE

Listing Reliable, Responsible Manufacturers of All Kinds of Materials, Equipment, Machinery, Fixtures, Home Conveniences and Furnishings, Hardware, Tools, Etc., Used in the Building and Related Fields

And the Page Numbers on Which Their Advertisements Appear

THIS Classified Index and Buyers' Guide is arranged from A to Z according to NOUN names; that is, all kinds of Roofing are in one section in the proper alphabetical place. In the section devoted to Doors you will find lists of over thirty different kinds. Do not look for Screen Doors, but for *Doors—Screen;* if you want to find metal lath, look for *Lath—Metal, etc.*

Under each classification the names of manufacturers appear alphabetically, followed by page number on which their advertisement appears in this issue of the AMERICAN BUILDER.

The manufacturers listed below will be pleased to furnish complete information on any product that appears in connection with their names, although they may not be advertising those particular products in this April number. Do not hesitate to write them to forward catalogues, prices and the names and locations of their nearest dealers.

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ABESTONE Felt Roofing, H. W. Johns-Manville Co., New York, N. Y.
ACCELO Anti-Freeze Solution, Anti-Hydro Waterproofing Co., Newark, N. J.
ACCO Sash Chain, American Chain Co., Inc., Bridgeport, Conn.
ACCURATE Metal Weatherstrips, Accurate Metal Weather Strip Co., New York City
ACKERSON-JOHNSON Expansion Screw Anchors, Ackerman-Johnson Co., Chicago.
ACME Clothes Lines, Samson Cordage Works, Boston, Mass.
ADAMSTON Flat Glass, Adamston Flat Glass Co., Clarksburg, W. Va.
ADMIRALTY Tubing, Chase Companies, Inc., Waterbury, Conn.
ADVANCE Concrete Machines, Lansing Co., Lansing, Mich.
ADVANCE Pumps, F. E. Myers & Bro. Co., The, Ashland, O.
AERO Radiators, National Radiator Co., Johnstown, Pa.
AETNA Sash Cord, Samson Cordage Works, Boston, Mass.
AGATEX Chemical Cement Floor Hardener, The Truscon Laboratories, Detroit, Mich.
AGILIS Quick Compression Faucets, Crane Co., Chicago, Ill.
AGILIS JR. Quick Compression Faucets, Crane Co., Chicago, Ill.
AIKEN Saw Sets, Sargent & Co., New Haven, Conn.
AIRE-U-WELL Power Unit, Holland Furnace Co., Holland, Mich.
AIR-WAY Casement Window Hardware, Richards-Wilcox Mfg. Co., Aurora, Ill.
AJAX Sheathing and Roofing Brackets, Ajax Building Bracket Co., Cleveland Heights, O.
AJAX High Grade Coil, Log and Dredge Chains, American Chain Co., Inc., Bridgeport, Conn.
AJAX Saw Mill Dogs, American Saw Mill Machinery Co., Hackettstown, N. J.
AJAX Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
ALBION Aluminum Bronze Powder, Aluminum Co. of America, Pittsburgh, Pa.
ALCOA Aluminum, Aluminum Co. of America, Pittsburgh, Pa.
ALCOVE Drinking Fountains, Crane Co., Chicago, Ill.
ALEXANDRIA Baths, Crane Co., Chicago, Ill.
ALKABAR No-Lime-Burn Primer, Truscon Laboratories, The, Detroit, Mich.
ALL-NITE-LITE Transformers, General Electric Co., Schenectady, N. Y.
ALL-STEEL Locks and Sash, National Mfg. Co., Sterling, Ill.
ALL-STEEL Portable Garages, Edwards Mfg. Co., Cincinnati, O.
ALLEGAN Road Scrapers, Lansing Company, Lansing, Mich.
ALOXITE Cloth Grinding Wheels, Discs, Tool Sharpening Stones, etc., Carborundum Company, Niagara Falls, N. Y.
ALPHA Brass Pipe, Condenser Tubes, Chase Companies, Inc., Waterbury, Conn.
ALPHA Cement, Alpha Portland Cement Co., Easton, Pa.
ALPINA Syphon Revolving Ventilators, Milwaukee Corrugating Co., Milwaukee, Wis.
ALTRURIA Drinking Fountains, Crane Co., Chicago, Ill.
ALTA Electric Hand Saws, Lock Mortisers, Stair Routers, Electric Planes, Electric Hand Saws, Wappat, Inc., Pittsburgh, Pa.
ALVA Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
AMBLER Asbestos Building Products, Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.
AMBROTEX Varnish, Truscon Laboratories, The, Detroit, Mich.
AMERICAN Base and Wall Polisher, American Floor Surfacing Machine Co., Toledo, O.
AMERICAN Chains, American Chain Co., Bridgeport, Conn.
AMERICAN Domore Abrasive Paper, American Floor Surf. Machine Co., Toledo, O.
AMERICAN Metal Tile, Milwaukee Corrugating Co., Milwaukee, Wis.
AMERICAN Radiators, American Radiator Co., New York, N. Y.
AMERICAN Saw Mill Machinery, American Saw Mill Machinery Co., Hackettstown, N. J.
AMERICAN Handy Grinder, American Floor Surfacing Machine Co., Toledo, O.
AMERICAN Rapid Abrasive Paper, American Floor Surf. Machine Co., Toledo, O.
AMERICAN RAPID GRINDER Tile, Marble and Terrazo Floor Surfacer, American Floor Surfacing Machine Co., Toledo, O.
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AMERICAN SWIVEL Base Machine, American Floor Surf. Machine Co., Toledo, O.
AMERICAN UNIVERSAL Wood Floor Surfacing Machine, American Floor Surfacing Machine Co., Toledo, O.
AMURSEAL Waterproofing Compounds, Anti-Hydro Waterproofing Co., Newark, N. J.
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ANCHOR BRAND Dry Colors and Fillers, C. K. Williams & Co., Easton, Pa.
ANCHOR Concrete Block, Brick and Bldg. Tile Machines, Consolidated Concrete Machy. Corp., Adrian, Mich.
ANDERSEN White Pine Frames, Andersen Frame Co., Bayport, Minn.
ANDREWS Heaters, Furnaces, Water Supply Systems, etc., Andrews Heating Co., Minneapolis, Minn.
ANGO Laboratories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ANSBOR Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ANTI-HYDRO Waterproofing, Anti-Hydro Waterproofing Co., Newark, N. J.
APARTO Lavatory, Crane Co., Chicago, Ill.
AQUA SILK Waterproof Shower Curtains, Crane Co., Chicago, Ill.
ARCO Thermostats and Regulators, American Radiator Co., New York, N. Y.
ARCOLA Hot Water Radiator Outfit and Boiler, American Radiator Co., New York, N. Y.
ARCUO Drinking Fountains, Crane Co., Chicago, Ill.
ARCUS Lavatories, Crane Co., Chicago, Ill.
ARDMORE Lavatories, Crane Co., Chicago, Ill.
ARGOTILE Strip Shingles, Beckman-Dawson Roofing Co., Chicago, Ill.
ARIDTITE Waterproofing Compounds, Anti-Hydro Waterproofing Co., Newark, N. J.
ARKONA Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ARMORTOP Concrete Floor Hardener, Anti-Hydro Waterproofing Co., Newark, N. J.
ARMPLEX Cooler Door Closers, Chicago Spring Hinge Co., Chicago, Ill.
ARROLAC for Sprayed Finish on Brass Shell Devices, Arrow Elec. Div., Arrow-Hart & Hegeman Elec. Co., Hartford, Conn.
ARROBELL Porcelian Sockets, Arrow Elec. Div., Arrow-Hart & Hegeman Elec. Co., Hartford, Conn.
ARROWAX for Heat Resisting Sealing Compounds, Arrow Elec. Div., Arrow-Hart & Hegeman Elec. Co., Hartford, Conn.
ARMSTRONG'S Linoleum Floors, Armstrong Cork Co., Lancaster, Pa.
ART ROC Coloring and Hardener for Cement, The Truscon Laboratories, Detroit, Mich.
ASEPTICOTE Flat Wall Paint, The Truscon Laboratories, Detroit, Mich.
ASFALSLATE Shingles, Philip Carey Mfg. Co., Lockland, Ohio.
ASHLAND Pumps, Jacks and Swings, F. E. Myers & Bro. Co., Ashland, O.
ASYLUM Bath Tubs, Crane Co., Chicago, Ill.
ATHA Tools, Stanley Rule & Level Co., New Britain, Conn.
ATLAS Cooler Door Fasteners, Garden City Plating & Mfg. Co., Chicago, Ill.
ATLAS Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ATLAS Waterclosets, Crane Co., Chicago, Ill.
ATLO Water Closets, Crane Co., Chicago, Ill.
AUT-O-DOR Electric Operator, Richards-Wilcox Mfg. Co., Aurora, Ill.
AUTOMATIC Floor Surfacing Machine, Wayvell, Chappell & Co., Waukegan, Ill.
AVOLYN Drinking Fountains, Crane Co., Chicago, Ill.

BABY Bath Tubs and Closets, Crane Co., Chicago, Ill.
BAILEY Planes, Stanley Rule & Level Co., New Britain, Conn.
BAKELITE Products, Bakelite Corp., New York, N. Y.
BALSAM-WOOL Insulating and Sound Deadener, Wood Conversion Co., Cloquet, Minn.
BANNER Measuring Tapes, The Lufkin Rule Company, Saginaw, Mich.
BANTAM JUNIOR Concrete Mixers, Ransome Concrete Machinery Co., Dunellen, N. J.
BARACIDE Acid and Alkali Proof Coating, The Truscon Laboratories, Detroit, Mich.
BARNERT Washup Sink, Crane Co., Chicago, Ill.
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BAYLEY Steel Windows and Doors, Wm. Bayley Co., Springfield, O.
BAYONNE Duck and Waterproof Cloth and Roof and Deck Cloth, John Boyle & Co., Inc., New York City.
BEARCAT Mortiser and Borer, The Paxson Co., Dowagiac, Mich.
BEAVER Saws, Henry Disston & Sons, Philadelphia, Pa.
BEAVER Woodworking Machinery, Hutchinson Mfg. Co., Norristown, Pa.
BED-ROCK Planes, Stanley Rule and Level Co., New Britain, Conn.
BEE Clothes Lines, Samson Cordage Works, Boston 9, Mass.
BEE HIVE Pitch and Roofing Felt, Samuel Cabot, Inc., Boston, Mass.
BESSLER Disappearing Stairways, Bessler Disappearing Stairway Co., Akron, O.
BEVERLY Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
BIG AMERICAN Wood Floor Surfacers, American Floor Surfacing Machine Co., Toledo, O.
BIG BILL Padlocks, Sargent & Co., New Haven, Conn.
BIG FOUR Door Hangers and Track, National Mfg. Co., Sterling, Ill.
BITUBAR Pitch Proof Coating, Truscon Laboratories, Detroit, Mich.
BITUMET Asphalt Coatings for Metals, The Asphalt Products Co., Inc., Syracuse, N. Y.
BLACK & DECKER Portable Electric Tools, Black & Decker Mfg. Co., Towson, Md.
BLACKFORD Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.

BOMMER Spring Hinges, Floor Surface Spring Hinges, Door Pivots, Lavatory Stall Hardware, Screen Door Hinges and Door Springs, Bommer Spring Hinge Co., Brooklyn, N. Y.
BOSS Mixing Machinery for Concrete and Hoists, American Cement Machine Co., Inc., Keokuk, Ia.
BOSTON Faucets, Crane Co., Chicago, Ill.
BOYLSTON Lavatories, Crane Co., Chicago, Ill.
BRAIDX-NON-METALLIC Sheathed Cable, General Electric Company, Bridgeport, Conn.
BRASCO Metal Store Fronts, Brasco Mfg. Co., Chicago, Ill.
BRIXMENT (for Brick and Stone Masonry), Louisville Cement Co., Louisville, Ky.
BRONCHO Concrete Mixers, Lansing Co., Lansing, Mich.
BROOKS Ready Roofing, Johns-Manville, Inc., New York, N. Y.
BRUCETON Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
BRUSHING PLASTIC Roof Coating, The Asphalt Products Co., Inc., Syracuse, N. Y.
BUCKEYE Pumps, Hydrants, etc., Mast, Foos & Co., Springfield, O.
BUENA Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
BULL DOG Adjusters, Casement Hardware Co., Chicago, Ill.
BULL DOG Chains, Chain Products Co., Cleveland, O.
BULL DOG Lock Stove Pipe, Wheeling Corrugating Co., Wheeling, W. Va.
BULL NOSE Corner Bead, Milwaukee Corrugating Co., Milwaukee, Wis.
BULLDOZER Power Pumps and Working Heads, F. E. Myers & Bro. Co., The, Ashland, O.
BULLY BOY Saw Sets, Henry Disston & Sons, Philadelphia, Pa.
BURNHAM Heating Boilers, Burnham Boiler Co., Irvington, N. Y.
BUTLER Clothes Dryer, Butler Mfg. Co., Brooklyn, N. Y.
BUTLER Self-Adjusting Window Ventilators, Butler Laboratories, Inc., Brooklyn, N. Y.

C M C Builders Hoists, Construction Machy. Co., Waterloo, Iowa.
CABOT Paints, Paper, Wood Preservatives, Shingle Stains, etc., Samuel Cabot, Inc., Boston, Mass.
CANNON BALL Door Hangers, Hunt, Helm, Ferris & Co., Harvard, Ill.
CAPITOL Barrows, Lansing Co., Lansing, Mich.
CAPITOL Boilers, U. S. Radiator Corp., Detroit, Mich.
CAPITOL WEATHERSTRIPS, Diamond Metal Weather Strip Co., Columbus, O.
CARBORUNDUM Grinding Wheels, Tool Sharpening Stones, Scythes, Razor Strops and Hones and Oil Stones, Discs, etc., Carborundum Co., Niagara Falls, N. Y.
CARDINAL Toggery Racks, Chas. Fischer Spring Co., Brooklyn N. Y.
CAREY Asfaltslate Shingles, The Philip Carey Co., Cincinnati, O.
CARTER Lock Mortiser, R. L. Carter Co., Inc., Phoenix, N. Y.
CARTER Power Plane, The R. I. Carter Co., Phoenix, N. Y.
CARTER Woodworking Machy., R. L. Carter Co., Inc., Phoenix, N. Y.
CASCO Waterproof Glue, The Casein Mfg. Co., New York, N. Y.
CED-A-ROC, Shingles, Beckman-Dawson Roofing Co., Chicago, Ill.
CENTURY Air and Hand Pumps, Paint and Whitewash Spraying Machines, The F. E. Myers & Bro. Co., Ashland, O.
CEPECO Chains, Chain Products Co., Cleveland, O.
CHABELCO Chains; Chain Belt Co., Milwaukee, Wis.
CHALLENGE Finished and Gauging Plasters, U. S. Gypsum Co., Chicago, Ill.
CHALLENGE Measuring Tapes, Lufkin Rule Co., Saginaw, Mich.
CHAMET Bronze, Chase Companies, Inc., Waterbury, Conn.
CHAMPION Door Lock Mortiser, Colgan Machy. and Supply Co., Columbus, O.
CHAMPION Door Springs, Sargent & Co., New Haven, Conn.
CHAMPION Drag Saws and Saw Mill Drags, American Saw Mill Machinery Co., Hackettstown, N. J.
CHAMPION Finishing and Gauging Plasters, U. S. Gypsum Co., Chicago, Ill.
CHAMPION Saw Sets, Henry Disston & Sons, Philadelphia, Pa.
CHAMPION Pipe and Boiler Covering, Johns-Manville, Inc., New York, N. Y.
CHANNELDRAIN Roofing, Wheeling Corrugating Co., Wheeling, W. Va.
CHASE Brass, Chase Companies, Inc., Waterbury, Conn.
CHEVROLET Automobiles and Trucks, Chevrolet Motor Co., Detroit, Mich.
CHICAGO Cabinet Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
CHICAGO Door Springs, Chicago Spring Butt Co., Chicago, Ill.
CHICAGO Stevedore Truck, Lansing Co., Lansing, Mich.
CHROMITE Tile, Chromite Co., Chicago, Ill.
CHICAGO Unions, Crane Co., Chicago, Ill.
CHROMOL Hack Saws, Henry Disston & Sons, Philadelphia, Pa.
CLARKE UNIVERSAL Portable Saw, Clarke Sanding Machine Co., Chicago, Ill.
CLARKE VAC-ALL Cleaner, Clarke Sanding Machine Co., Chicago, Ill.
CLARKE VACUUM Portable Sander, Clarke Sanding Machine Co., Chicago, Ill.
CLARK JEWEL Gas Range, American Stove Co., St. Louis, Mo.
CLEARWAY Valves, Crane Co., Chicago, Ill.
CLERMONT Lavatories, Crane Co., Chicago, Ill.
CLEVELAND Chains, Chain Products Co., Cleveland, O.
CLIFTON Lavatories, Crane Co., Chicago, Ill.
CLIMAX Barrows, Lansing Co., Lansing, Mich.
CLIMAX Wire Netting, Gilbert & Bennett Mfg. Co., Chicago, Ill.
CLINTON Face Brick, Finzer Bros. Clay Co., Sugar Creek, O.
CLINTON Grilles, Wickwire Spencer Steel Co., New York City.
CLINTON Metallic Paint, Mortar Colors and Cement Colors, Clinton Metallic Paint Co., Clinton, N. Y.
CLINTON Wire Lath and Wire Cloth, Wickwire Spencer Steel Co., New York City.
CLIPPER Wood and Pole Saws, American Saw Mill Machinery Co., Hackettstown, N. J.
CLOSIN Lavatories, Crane Co., Chicago, Ill.
CLOVER LEAF Hay Carriers, The F. E. Myers & Bro. Co., Ashland, O.
COG GEAR Well House, Tank Spray and Cistern Pump, The F. E. Myers & Bro. Co., Ashland, O.
COLLOPAKES Colloidal Paints and Stains, Samuel Cabot, Inc., Boston, Mass.
COLON Barrows, Lansing Company, Lansing, Mich.
COLONIAL Lavatories, Crane Co., Chicago, Ill.
COLUMBIA Baths, Crane Co., Chicago, Ill.
COLUMBUS Leather Cloth and Table Covers, Columbus Union Oil Cloth Co., Columbus, O.
COMBINATION Hay Unloaders, F. E. Myers & Bro. Co., Ashland, O.
CONRED Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
CONSERVO Wood Preservatives, Samuel Cabot, Inc., Boston, Mass.
COOPER'S Metallic Shingles, National Sheet Metal Roofing Co., Jersey City, N. J.
COPLEY Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
COPPERED Metal, Milwaukee Corrugating Co., Milwaukee, Wis.
COP-R-LOY Sheet Steel, Wheeling Corrugating Co., Wheeling, W. Va.
COPTIC Lavatories, Crane Co., Chicago, Ill.
CORBIN Locks and Hardware, P. & F. Corbin, New Britain, Conn.
CORCORAN Steel Bathroom Cabinets, Corcoran Mfg. Co., Cincinnati, O.
CORINTH Baths, Crane Co., Chicago, Ill.
CORNA-LATH, A Cornerite, North Western Expanded Metal Co., Chicago, Ill.
CORNER-WISE Garage Door Hardware, Richards-Wilcox Mfg. Co., Aurora, Ill.
CORNET Baths, Crane Co., Chicago, Ill.
CORRECTO URINALS, Crane Co., Chicago, Ill.
CORRUGATED KNO-BURN Self-Furring Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
CORSYN Water Closets and Tanks, Crane Co., Chicago, Ill.
CORTLAND GRAY-WICK Wire Cloth, Wickwire Brothers, Cortland, N. Y.
CORTO Radiators, American Radiator Co., New York, N. Y.
CORWITH Baths, Crane Co., Chicago, Ill.
COTTAGE Fencing, Gilbert & Bennett Mfg. Co., Chicago, Ill.
COUGAR Saws, Henry Disston & Sons, Philadelphia, Pa.
CRACO Closet Tanks, Crane Co., Chicago, Ill.
CRANE Steam Specialties and Plumbing Supplies, Crane Co., Chicago, Ill.
CRANE HARD METAL, Valves and Valve Trimmings, Crane Co., Chicago, Ill.
CRANE LAP Flanged Pipe Joints, Crane Co., Chicago, Ill.
CRANETILT Steam Traps, Crane Co., Chicago, Ill.
CREOLEUM Dampproofing for Wood, Truscon Laboratories, The, Detroit, Mich.
CRESCENT Band Saws and Woodworking Machinery and Swing Saws, Crescent Machine Co., Leetonia, O.
CRESCENT Lavatories, Crane Co., Chicago, Ill.
CRESCENT Woodworking Machinery Co., The Crescent Machine Co., Leetonia, O.
CRETA Drinking Fountains, Crane Co., Chicago, Ill.
CRIMPEDGE Eave Troughs, Milwaukee Corrugating Co., Milwaukee, Wis.
CRITTALL Casement Windows, Crittall Casement Window Co., Detroit, Mich.
CROMAR Finished Oak Flooring, Cromar Co., Williamsport, Pa.
CROWN Shingle Machine, American Saw Mill Machy. Co., Hackettstown, N. J.
CURTIS Woodwork, Curtis Cos., Clinton, Ia.

DANDY Bag Truck, Lansing Co., Lansing, Mich.
DANGLER Gas Range, American Stove Co., St. Louis, Mo.
DAYLIGHT Hog House Window, Milwaukee Corrugating Co., Milwaukee, Wis.
DEFIANCE Pumps, Stands and Spray Pumps and Working Heads, The F. E. Myers & Bro. Co., Ashland, O.
DELCO-LIGHT Incandescent Lighting Plants, Water Systems and Accesories for Same and Electric Washing Machines, Delco-Light Co., Dayton, O.
DENTAL Lavatories, Crane Co., Chicago, Ill.
DENTUS Lavatories, Crane Co., Chicago, Ill.
DETROIT FENESTRA Steel Factory Windows, Detroit Steel Products Co., Detroit, Mich.
DE VILBISS Portable Painting Systems, The DeVilbiss Co., Toledo, O.
DE VILBISS Spray-Painting Systems, The DeVilbiss Co., Toledo, O.
DEVORO Closet, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
DE WALT Woodworker, DeWalt Mfg. Co., Leola, Pa.
DIAMOND Caulking and Glazing Compound, Diamond Metal Weather Strip Co., Columbus, O.
DIAMOND Metal Lath, Truscon Steel Co., Youngstown, O.
DIAMOND Metal Weatherstrip, Diamond Metal Weatherstrip Co., Columbus, O.
DIAMOND Mills, Fairbanks, Morse & Co., Chicago, Ill.
DIAMOND POINT Saws, Henry Disston & Sons, Philadelphia, Pa.
DIAMOND WAY Metal Weather Strips, Diamond Metal Weather Strip Co., Columbus, O.
DIAMOND Zinc Screen Slides, Diamond Metal Weather Strip Co., Columbus, O.
DIRECT ACTION Gas Range, American Stove Co., St. Louis, Mo.
DISSTON Crucible Steel Saws, Files, Rasps, Gummers and Premier, Henry Disston & Sons, Inc., Philadelphia, Pa.
DIXIE Metallic Shingles, Wheeling Corrugating Co., Wheeling, W. Va.
DONLEY Fireplace Equipment, Donley Bros. Co., Cleveland, O.
DOUBLE-MESH Herringbone Metal Lath, Genfire Steel Co., Youngstown, O.
DORIS Bath Tubs, Crane Co., Chicago, Ill.
DOUBLE-DIPPED Shingles, C. A. Mauk Lumber Co., Toledo, O.
DOUBLE JACK Wire Stretchers, American Steel & Wire Co., Chicago, Ill.
DOUBLE-WHITE Paints, Samuel Cabot, Inc., Boston, Mass.
DRENDUL Sand Screens, Gilbert & Bennett Mfg. Co., Georgetown, Conn.
DUFLEX Door Hangers, Richard-Wilcox, Aurora, Ill.
DUL-VAR-TEX Varnish, Truscon Laboratories, The, Detroit, Mich.
DUMPY Saws, Henry Disston & Sons, Philadelphia, Pa.
DUNTEX Concrete Roofing Tile, W. E. Dunn Mfg. Co., Holland, Mich.
DUNTILE Concrete Building Units, W. E. Dunn Mfg. Co., Holland, Mich.
DUNTILE Machinery, W. E. Dunn Mfg. Co., Holland, Mich.
DUO & DUO JR., Lavatory Faucets, Crane Co., Chicago, Ill.
DUPLEX Flush Valve, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
DUPLEX Pumps, F. E. Myers & Bro. Co., Ashland, O.
DUPLEX Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
DUPLEX Steel Bridging, Genfire Steel Co., Youngstown, O.
DURITE Abrasive Cloth, Paper, etc., Behr-Manning Co., Inc., Troy, N. Y.
DURO Household Water Supply Systems, Pumps, etc., The Duro Co., Dayton, O.
DUROBAR Chains, Chain Belt Co., Milwaukee, Wis.
DURUNDUM Abrasive Cloth, Paper, etc., Manning Abrasive Co., Inc., Troy, N. Y.
DURUS Drinking Fountains, Crane Co., Chicago, Ill.
DUTCH Doors, Paine Lumber Co. Ltd., Oshkosh, Wis.

EBCO Sanitary Toilet Fixtures and Washroom Equipment, D. A. Ebinger Sanitary Mfg. Co., Columbus, O.
EAGLE Sash Pulley, Grand Rapids Hardware Co., Grand Rapids, Mich.
EAST LAKE Metallic Shingle, Crane Co., Chicago, Ill.
EASTERN Garden Wheelbarrows, Lansing Co., Lansing, Mich.
EASY-FOLD Breakfast and Dinette Sets, Schimmel & Co., Inc., Faribault, Minn.
EATON Lavatories, Crane Co., Chicago, Ill.
EBUR Combination Drinking Fountains and Lavatories, Crane Co., Chicago, Ill.
ECCENTRIC Swages, Henry Disston & Sons, Philadelphia, Pa.
ECCENTRIC BULL DOG Wire Stretchers, American Steel & Wire Co., Chicago, Ill.
ECLIPSE Door Springs and Door Checks, Sargent & Co., New Haven, Conn.
ECLIPSE Windmills, Fairbanks, Morse & Co., Chicago, Ill.
ECONO Expanded Metal for Concrete Reinforcement and Machine Guards, North Western Expanded Metal Co., Chicago, Ill.
ECONOMY Pumps, Stands and Door Hangers, The F. E. Myers & Bro. Co., Ashland, O.
EDDYSTONE Sash Cord, Silver Lake Co., Newtonville, Mass.
EDELWEISS White Enamel (Exterior), Truscon Laboratories, Detroit, Mich.
EDGELY Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
EDMANCO Metal Ceilings, Shingles, Rolling Doors, Shutters, etc., Edwards Mfg. Co., Cincinnati, O.
EDWARDS Ceilings and Shingles, Edwards Mfg. Co., Cincinnati, O.
EDWARDS Portable Garages, Roofing Tiles, Rolling Doors, Shutters, etc., Edwards Mfg. Co., Cincinnati, O.

EJECTO Closet, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ELASTITE Expansion Joints, Philip Carey Co., Chicago, Ill.
ELECTRIC DOORMAN, Power Door Corp., Chicago, Ill.
ELECTROBESTOS Insulating Material, Inc., Johns-Manville, Inc., New York, N. Y.
ELECTRIC CARPENTER, THE, Woodworking Machinery Co., Inc., Philadelphia, Pa.
ELECTRO-KABINET, Welded Products Corp., Kansas City, Mo.
ELEGIA Lavatories, Crane Co., Chicago, Ill.
EMPIRE Bolting Machines, American Saw Mill Machinery Co., Hackettstown, N. J.
ENTERITE Service Cable, Rome Wire Co., Rome, N. Y.
ENCO, Euclid Chemical Co., Cleveland, O.
ENDFLEX Floor Surfacing Sheets, American Glue Company, Boston, Mass.
ESSEX Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ETERNIT, Asbestos Shingles, Lumber, Corrugated Sheets, Eternit, Inc., St. Louis, Mo.
EUCO Iron Waterproofing, Euclid Chemical Co., Cleveland, O.
EUREKA Barrows, Lansing Co., Lansing, Mich.
EUREKA Chains, American Chain Co., Bridgeport, Conn.
EUREKA Expanded Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
EVENDRAFT Chimney Caps, Milwaukee Corrugating Co., Milwaukee, Wis.
EVERETT Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
EVERLASTING Chisels, Stanley Rule and Level Co., New Britain, Conn.
EVERLITE KOATING Wall Paint, Toch Bros., Inc., New York, N. Y.
EXPANSION Metal Trim and Corner Bead, Milwaukee Corrugating Co., Milwaukee, Wis.
EXPEDIO Water Closets, Urinals and Slop Sinks, Crane Co., Chicago, Ill.
EXPULSO Closets, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
E. Z. Garage Fixtures, Frantz Mfg. Co., Sterling, Ill.
E. Z. Shingle Bunchers, American Saw Mill Machinery Co., Hackettstown, N. J.

F D C G Dumbwaiters, Sedgwick Machine Works, New York, N. Y.
FAIRBANKS Scales, Fairbanks, Morse & Co., Chicago, Ill.
FAIRBANKS-MORSE Gasoline, Kerosene and Diesel Engines, Air Compressors, Centrifugal, Circulating Deep Well, Power, Railroad and Steam Pumps, Motors and Generators, Motor Cars, Motor Generator Sets, Central Station Power Plants, Railway Appliances, Farm Machinery, Lighting Plants and Water Systems, Fairbanks, Morse & Co., Chicago, Ill.
FAIRDAY Washing Machines, Fairbanks, Morse & Co., Chicago, Ill.
FAIRFAX Lavatories, Crane Co., Chicago, Ill.
FALCON Saws, Henry Disston & Sons, Philadelphia, Pa.
FAMOUS UNIVERSAL Woodworking Machines, The Sidney Machine Tool Co., Sidney O.
FAULTLESS Spray Pumps, Carriers, Hay Fork Pulleys, Door Hangers and Pumping Jacks, The F. E. Myers & Bro. Co., Ashland, O.
FAYS Saws, Henry Disston & Sons, Philadelphia, Pa.
FEDERAL Motor Trucks, Federal Motor Truck Co., Detroit, Mich.
FENESTRA Steel Casements and Windows, Detroit Steel Products Co., Detroit, Mich.
FENWICK Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
FERRITEX Roof Cement, Truscon Laboratories, Detroit, Mich.
FERRO Iron and Steel Filler, Cement, Johns-Manville, Inc., New York, N. Y.
FIBREWOVE Insulating Paper, Philip Carey Mfg. Co., Lockland, O.
FIBROTEX Roof Cement, Truscon Laboratories, Detroit, Mich.
FIBROTEX TOPPING Roof Paint, Truscon Laboratories, Detroit, Mich.
FIFTH AVE. Closets and Lavatory, Crane Co., Chicago, Ill.
FIRE FELT Pipe and Boiler Covering, Johns-Manville, Inc., New York, N. Y.
FIREFAX Refractory Cement, Carborundum Co., Niagara Falls, N. Y.
FIREITE Furnace Cement, Johns-Manville, Inc., New York, N. Y.
FISK Transportation Cord Tires for Motor Trucks and Automobiles, Fisk Tire Co., Chicopee Falls, Mass.
FITSTITE Barn Door Hardware, Richards-Wilcox Mfg. Co., Aurora, Ill.
FLAT TONE Flat Wall Finish, Sherwin-Williams Co., Cleveland, O.
FLAXLINUM Keyboard Insulation, Flax-li-num Insulating Co., St. Paul, Minn.
FLEXFELT Insulating, General Insulating & Mfg. Co., Alexandria, Ind.
FLEXOTILES, Flexotile Floor Co., Rockford, Ill.
FLEXSTONE Asbestos Roofing, Johns-Manville, Inc., New York, N. Y.
FLORIAN Drinking Fountains, Crane Co., Chicago, Ill.
FLUTED-CATCH Sockets and Receptacles, General Electric Co., Schenectady, N. Y.
FLYING DUTCHMAN Wood Carving Machinery, Gallmeyer & Livingston Co., Grand Rapids, Mich.
FOLEY Automatic Saw Filer, Foley Saw Tool Co., Minneapolis, Minn.
FORESTBLEND Face Brick, Finzer Bros. Clay Co., Sugar Creek, O.
FORMICA Insulation, Formica Insulation Co., Cincinnati, O.
FORMOCLOR QUALITY House Paint, Truscon Laboratories, The, Detroit, Mich.
FOUNTAIN Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
4 SQUARE LUMBER, Weyerhaeuser Forest Products Co., St. Paul, Minn.
FRANTZ Builders Hardware, Frantz Mfg. Co., Sterling, Ill.
FRAZIER Disappearing Stairs, Frazier Stair Co., Pittsburgh, Pa.
FRAZIER Self-Balanced Stairs, Frazier Stair Co., Pittsburgh, Pa.
FREE-O-DUST Floor Sander, Electric Rotary Machine Co., Chicago, Ill.
FRIGIDAIRE Iceless Refrigerators and Ice Cream Cabinets, Delco-Light Co., Dayton, Ohio.
FUME-SAF WHITE Enamel, The Truscon Laboratories, Detroit, Mich.
FYER-WAL Fire Doors, Richards-Wilcox Mfg. Co., Aurora, Ill.

G-F Metal Lath, Bridging, Steel Lumber, Sash, Tile Corner Beads, Trussit Channels, Casements, Wire Mesh, Lintels, Doors, Basement Windows, etc., Genfire Steel Co., Youngstown, O.
G. & B. Levels, Geier & Bluhm, Inc., Troy, N. Y.
G & B Poultry Netting and Wire Cloth, Gilbert & Bennett Mfg. Co., Chicago, Ill.
GALVABOND Galvanized Iron Primer, Truscon Laboratories, Detroit, Mich.
GAST Spray Master Air Painters, Gast Mfg. Corp., Bridgman, Mich.
GENASCO Protective Products, The Barber Asphalt Co., Philadelphia, Pa.
GENESCO LATITE Shingles, The Barber Asphalt Co., Philadelphia, Pa.
GENASCO SEALBAC Shingles, The Barber Asphalt Co., Philadelphia, Pa.
GENASCO STANDARD TRINIDAD Built Up Roofs, The Barber Asphalt Co., Philadelphia, Pa.
GENESEE Wheelbarrows, Lansing Co., Lansing, Mich.
GENFIRE Sheet Lath, Genfire Steel Co., Youngstown, O.
GENUINE FRANKLIN TUNNEL, Roofing Slate, Slatington Slate Co., Slatington, Pa.
GEYSER Pumps, F. E. Myers & Bro. Co., Ashland, O.
GIANT Door Hinges, Tracks and Pumps, The F. E. Myers & Bro. Co., Ashland, O.
GIANT Saw Mill Dogs, American Saw Mill Machy. Co., Hackettstown, N. J.
GIMCO Rock Wool Cork, General Insulating & Mfg. Co., Alexandria, Ind.
GIMCO Rock Wool Quilt, General Insulating & Mfg. Co., Alexandria, Ind.
GIMCO Commercial Wool, General Insulating & Mfg. Co., Alexandria, Ind.
GIMCO Granulated Wool, General Insulating & Mfg. Co., Alexandria, Ind.
GLIDE Door Hangers and Tracks, Frantz Mfg. Co., Sterling, Ill.
GLOBE Wheelbarrows, Lansing Company, Lansing, Mich.
GLYCO STAR Electric Switches, Hart & Hegeman Mfg. Co., Hartford, Conn.
GLYCO TASSEL Electric Sockets, Hart & Hegeman Mfg. Co., Hartford, Conn.
GOOD ROADS Paver, Ransome Concrete Machinery Co., Dunellen, N. J.
GOODYEAR RUBBER TILING, Goodyear Tire & Rubber Co., Akron, O.
GOODYEAR Tires for Motor Trucks and Automobiles, Goodyear Tire & Rubber Co., Akron, O.
GOSSET Fasteners, Hinges, F. D. Kess Mfg. Co., Beatrice, Neb.
GOULDING Saws, Henry Disston & Sons, Philadelphia, Pa.
GRAHAM Motor Trucks, Graham Bros. Co., Detroit, Mich.
GRAND Garage Door Holder, Sasgen Derrick Co., Chicago, Ill.
GRAND RAPIDS Grinders, Gallmeyer & Livingston Co., Grand Rapids, Mich.
GRANITEX Transpartent Coating for Cement Floors (Non-Staining and Dustless), Truscon Laboratories, Detroit, Mich.
GREAT SOUTHERN Saws, Henry Disston & Sons, Philadelphia, Pa.
GREENLAW AMERICAN Saws, Henry Disston & Sons, Philadelphia, Pa.
GREYHOUND Slide Saw Power Woodworker, The Woodworking Machinery Co., Inc., Philadelphia, Pa.
GRIPLOCK Chains, Chain Belt Co., Milwaukee, Wis.
GULF STREAM Duck and Roofing Canvas, John Boyle & Co., Inc., New York City.
GUMMER CUTTER Grinding Machines, Henry Disston & Sons, Philadelphia, Pa.
GUSHER Pumps, The F. E. Myers & Bro. Co., Ashland, O.

H. & A. Portable Electric Bench Machines, Heston & Anderson, Fairfield, Ia.
HB PAINT SPRAY, Hobart Brothers, Troy, O.
H. & H. Electric Switches and Radio Products, Arrow-Hart & Hegeman Co., Hartford, Conn.
HAGSTROM Friction Clutches, Hagstrom Mfg. Co., Glen Cove, N. Y.
HAIRINSUL Hair Insulation, Johns-Manville, Inc., New York, N. Y.
HANDY Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
HANDY HUTCH Woodworking Machine, Hutchinson Mfg. Co., Norristown, Pa.
HANDY MAN Hay Hoists, American Saw Mill Machinery Co., Hackettstown, N. J.
HART Electric Switches, Hart & Hegeman Co., Hartford, Conn.
HARTFORD Lavatories, Crane Co., Chicago, Ill.
HARTMANN-SANDERS Pergolas, Colonial Entrances, Columns, Rose Arbors and Garden Equipment, Hartmann-Sanders, Chicago, Ill.
HAYMAKER Carriers, The F. E. Myers & Bro. Co., Ashland, O.
HAVEMEYER Reinforcing Steel Bars, Concrete Steel Co., New York City
HAVEMEYER Truss Joist Bar, Concrete Steel Co., New York City.
HEACOCK Saw Mill Machinery, American Saw Mill Machinery Co., Hackettstown, N. J.
HEATILATOR Fireplace Units, Heatilator Co., Syracuse, N. Y.
HEGEMITE Molded Electric Switch Plates, Arrow-Hart & Hegeman Co., Hartford, Conn.
HERALD Carts, Lansing Co., Lansing, Mich.
HERCULES Pumps, The F. E. Myers & Bro. Co., Ashland, O.
HERMITAGE Lavatories, Crane Co., Chicago, Ill.
HESS Steel Furnaces, Hess Warming & Ventilating Co., Chicago, Ill.
HIBBEN Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
HIGGIN All Metal Screens, Higgin Mfg. Co., Newport, Ky.
HIGHLAND One-piece Steel Mortar Box, Highland Body Mfg. Co., Cincinnati, O.
HEAT Fire Resisting Cement, Clinton Metallic Paint Co., Clinton, N. Y.
HI-LO Door Hangers and Track, Frantz Mfg. Co., Sterling, Ill.
HI-LO Incandescent Lamp Dimmers, General Electric Co., Schenectady, N. Y.
HITCHINGS Sash Operating Devices, Hitchings & Co., Elizabeth, N. J.
HOBART BROTHERS Battery Chargers, Paint Spray, Electrical Garage Equipment, Hobart Bros., Troy, O.
HODELL Chains, etc., Chain Products Co., Cleveland, O.
HOLDEN Boiler Stands, Crane Co., Chicago, Ill.
HOLLAND Furnaces, Holland Furnace Co., Holland, Mich.
HOOSIER Pumps, Water Systems, Jacks, Rams, Regulators, Towers, Tanks, Flint & Walling Mfg. Co., Kendallville, Ind.
HORSESHOE Tools, Stanley Rule and Level Co., New Britain, Conn.
HOSPITAL Lavatories and Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
HOSPITAL Water Closets, Crane Co., Chicago, Ill.
HUEBER Track Scraper, American Sawmill Machinery Co., Hackettstown, N. J.
HUTHER Dado Heads and Saws, Huther Bros. Saw Mfg. Co., Rochester, N. Y.
HY-PO-RIB Reinforcement Steel Lath, Truscon Steel Co., Youngstown, O.
HY-RIB Metal Lath, Truscon Steel Co., Youngstown, O.

I. H. C. Com'l Autos, International Harvester Co., Chicago, Ill.
IDAHO PINE, Western Pine Mfrs. Assn., Portland, Ore.
IDALIA Lavatories, Crane Co., Chicago, Ill.
IDEAL Boilers, Brackets, Cements, Water Heaters, Valves, Shields, Packless Valves, etc., American Radiator Co., New York, N. Y.
IDEAL Elevator Door Hangers, Door Closet and Check and Locking Devices, Richards-Wilcox Mfg. Co., Aurora, Ill.
IDEAL-Products Plant Mixers, Consolidated Concrete Machy. Corp., Adrian, Mich.
IDEAL Hoists, Universal Hoist & Mfg. Co., Cedar Falls, Ia.
IDEAL Steam and Hot Water Heaters, American Radiator Co., Pittsburgh, Pa.
ILCO, Indiana Limestone Co., Bedford, Ind.
ILG Self-Cooled Motor Fans, Blowers, Shutters, etc., Ilg Electric Ventilating Co., Chicago, Ill.
ILGAIR Air Washing Unit and Humidifier, Ilg Electric Ventilating
ILGAIR Heating System (Unit), Ilg Electric Ventilating Co., Chicago, Ill.
ILLINI Water Closets, Crane Company, Chicago, Ill.
IMPERIAL Pumps and Carriers, F. E. Meyers & Bro. Co., Ashland, O.
IMPERIAL Roofing Tile, Ludowici-Celadon Co., Chicago, Ill.
IMPERIAL Wall Plasters, U. S. Gypsum Co., Chicago, Ill.
IMPROVED ASBESTOCEL Pipe Covering Sheets, Johns-Manville, Inc., New York, N. Y.
INDUSTRIAL White Enamel (Mill White), Truscon Laboratories, The, Detroit, Mich.
INGHAM DRAG Road Scrapers, Lansing Co., Lansing, Mich.
INSULITE Plaster Base and Wall Board, Insulite Co., Minneapolis, Minn.

INTERLOCK Casement Window Adjuster, The Lyons Mfg. Co., New Haven, Conn.
INTERLOCK Conductor Pipe, Milwaukee Corrugating Co., Milwaukee, Wis.
INTERLOX Master Slide Rules, Master Rule Mfg. Co., New York, N. Y.
INTERNATIONAL Heating Co., International Heating Co., St. Louis, Mo.
INTERNATIONAL Motor Trucks, International Harvester Co., Chicago, Ill.
INVINCIBLE Chisel Tooth Saw, Henry Disston & Sons, Inc., Philadelphia, Pa.
INVISIBLE JOINT Steel Ceilings, Milwaukee Corrugating Co., Milwaukee, Wis.
IROQUOIS Road Building Machinery, Barber Asphalt Paving Co., Philadelphia, Pa.

JACK JUNIOR Engines, Fairbanks, Morse & Co., Chicago, Ill.
JACKSON Auto Trailers, The Miles Co., Jackson, Mich.
JACKSON Hay Forks, The F. E. Myers & Bro. Co., Ashland, O.
JACKSON Saws, Henry Disston & Sons, Philadelphia, Pa.
JAEGER Concrete Mixers, Jaeger Machine Co., Columbus, O.
JERSEY Vises, Stanley Rule and Level Co., New Britain, Conn.
JEWELL Planer, American Saw Mill Machinery Co., Hackettstown, N. J.
JOHNSON'S PATTERN Gate Latches, Sargent & Co., New Haven, Conn.
JOSEPH Barrows, Lansing Co., Lansing, Mich.
JUNIOR Spray Pumps and Pumping Jacks, The F. E. Myers & Bro. Co., Ashland, O.

K-V Clothes Closet Fixtures, Knape & Vogt Mfg. Co., Grand Rapids, Mich.
K. & M. Magnesia Boiler and Pipe Coverings, Keasby & Mattison Co., Ambler, Pa.
KAHN Trussed Bar, Truscon Steel Co., Youngstown, O.
KALMANLATH for Building, Kalman Steel Co., Chicago, Ill.
KAWNEER Nickel Steel Windows, Kawneer Co., Niles, Mich.
KAWNEER Store Front, Copper and Bronze Covered Windows, Kawneer Mfg. Co., Niles, Mich.
KEES Building Corners, F. D. Kees Mfg. Co., Beatrice, Neb.
KEES-GOSSETT Screen and Storm Sash Hangers, F. D. Kees Mfg. Co., Beatrice, Neb.
KELLOGG MANN Incinerators, Kellogg Mann & Co., Inc., Buffalo, N. Y.
KENEBAGO Saws, Henry Disston & Sons, Philadelphia, Pa.
KENNEDY Ball-Bearing Sawrigs, Ralph Kennedy, Philadelphia, Pa.
KENT Lavatories and Sinks, Crane Co., Chicago, Ill.
KERN Drag Scrapers, Construction Machy. Co., Waterloo, Iowa.
KERNER Incinerators, Kerner Incinerator Co., Milwaukee, Wis.
KERNERATOR Incinerators, Kerner Incinerator Co., Milwaukee, Wis.
KEWANEE Steel Sash, Coal Chutes, Kewanee Mfg. Co., Kewanee, Ill.
KEY Expanded Metal Lath, Genfire Steel Co., Youngstown, O.
KEYSTONE, American Sheet & Tin Plate Co., Pittsburgh, Pa.
KEYSTONE Automatic Storage, Gas Water Heater, Crane Co., Chicago, Ill.
KEYSTONE Farm Trucks, International Harvester Co., Chicago, Ill.
KEYSTONE Files and Rasps, Saws, Henry Disston & Sons, Philadelphia, Pa.
KEYSTONE Hair Felt, Johns-Manville, Inc., New York, N. Y.
KEYSTONE Hand-Barrel, etc., Carts, Lansing Co., Lansing, Mich.
KEYSTONE Screen Door Sets, McKinney Mfg. Co., Pittsburgh, Pa.
KIMBALL Drinking Fountains, Crane Co., Chicago, Ill.
KIMBALL Elevators, Kimball Bros. Co., Council Bluffs, Ia.
KING Block Machines, The Miles Mfg. Co., Jackson, Mich.
KING'S CHARM Door Hangers and Track, McKinney Mfg. Co., Pittsburgh, Pa.
KING'S WOOD FIBRE Wall Plaster, U. S. Gypsum Co., Chicago, Ill.
KLEEN GLASS Window and Skylight Cleaner, Truscon Laboratories, The, Detroit, Mich.
KLONDYKE Barrows, Lansing Co., Lansing, Mich.
KNICKERBOCKER Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
KNICKERBOCKER Carts, Lansing Co., Lansing, Mich.
KNICKERBOCKER Concrete Mixers and Woodworkers, Knickerbocker Co., Jackson, Mich.
KNO-BURN Expanded Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
KOEHRING Heavy Duty Concrete Mixers, Shovel and Crane Excavators, Koehring Co., Milwaukee, Wis.
KOLL COLUMNS, Hartmann-Sanders, Chicago, Ill.
K-M Incinerators, Kellogg, Mann & Co., Inc., Buffalo, N. Y.
KROMICK Structural Steel Primer, Sherwin-Williams Co., Cleveland, O.
K-V Clothes Closet Fixtures, Knape & Vogt Mfg. Co., Grand Rapids, Mich.
KWIK-MIX Concrete Mixers, Koehring Company, Milwaukee, Wis.
KWICKSAW Power Hand Saw, Porter-Cable Machine Co., Inc., Syracuse, N. Y.

LABRUM Bath Tubs, Crane Co., Chicago, Ill.
LAMINEX Wooden Doors, Wheeler, Osgood Co., Tacoma, Wash.
LAMNECK Laundry Dryer, W. E. Lamneck Company, Columbus, O.
LANCET Saws, Henry Disston & Sons, Philadelphia, Pa.
LANE'S Door Hangers and Trap, Lanebro Mfg. Co., Inc., West Poughkeepsie, N. Y.
LANE'S Steel Bridging, Lanebro Mfg. Co., Inc., West Poughkeepsie, N. Y.
LANSING Mixers, Trucks, Scrapers and Carts, Lansing Co., Lansing, Mich.
LANSING COLONIAL Hand Cart, Lansing Co., Lansing, Mich.
LASTILE Composition Roofing, Philip Carey Mfg. Co., Lockland, O.
LEACH-OSHKOSH Concrete Mixers, Leach Co., Oshkosh, Wis.
LEADCLAD Sheets, Roofing, Wheeling Metal & Mfg. Co., Wheeling, W. Va.
LECTRAFLATER Electric Air Compressors, The Black & Decker Mfg. Co., Towson, Md.
LEVER BUCKET Spray Pumps, F. E. Myers & Bro. Co., Ashland, O.
LIGHTNING Sprayers, F. E. Myers & Bro. Co., Ashland, O.
LIGNI-SALVOR, Wood-Preserving Stain, Pfaltz & Bauer, Inc., New York, N. Y.
LINABESTOS, Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.
LINCOLN Twin Disc Waxing, Polishing and Scrubbing Machine, Lincoln-Schleuter Machinery Co., Inc., Chicago, Ill.
LINOVA Bath Tubs, Crane Co., Chicago, Ill.
LINOVUS Bath Tubs, Crane Co., Chicago, Ill.
LISPENARD Trucks, Lansing Co., Lansing, Mich.
LITERA Dental Lavatories, Crane Co., Chicago, Ill.
LITHOTEX Concrete Floor Hardeners, Living-Stone Co., Baltimore, Md.
LITTLE GIANT Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
LITTLE WONDER Paver, Combined Concrete Mixer and Paver, Construction Machinery Corporation, Waterloo, Ia.
LIVING STONE Concrete Bond, Living-Stone Co., Baltimore, Md.
LOADOMETER Truck Weighing Machinery, The Black & Decker Mfg. Co., Towson, Md.
LONE STAR METAL SHINGLE, Edwards Mfg. Co., Cincinnati, O.
LONGSPAN Expanded Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
LORAIN Oven Heat Regulator, American Stove Co., St. Louis, Mo.
LOW DOWN Tank Pumps, F. E. Myers & Bro. Co., Ashland, O.
LUCERNE Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
LUFKIN Rules and Tapes, Lufkin Rule Co., Saginaw, Mich.
LUME-TEX Waterproof Aluminum Paint, Truscon Laboratories, Detroit, Mich.
LUPTON Window Sash, Elbows, Conductor Pipes, etc., David Lupton's Son's Co., Philadelphia, Pa.
LUXTON Drinking Fountains, Crane Co., Chicago, Ill.
LUXURIA Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
LYDON Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
LYMCO Casement Adjusters, The Lyons Mfg. Co., New Haven, Conn.
LYNDEN Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
LYONS—Casement Adjusters, Lyons Mfg. Co., New Haven, Conn.

McHENRY Track Levels and Drills, Fairbanks, Morse & Co., Chicago, Ill.
MAJESTIC Quality Products, The Majestic Company, Huntington, Ind.
MAJESTIC Lavatories, Crane Co., Chicago, Ill.
MALLORY Standard Shutter Workers, Mallory Mfg. Co., Flemington, N. J.
MALTA Frames, The Malta Mfg. Co., Malta, O.
MANCO Asphalt Cement, Philip Carey Mfg. Co., Lockland, O.
MANHATTAN Lavatories and Urinals, Crane Co., Chicago, Ill.
MANNING SPEEDGRITS Abrasives on Paper, Cloth and Combination Sand Paper, Behr-Manning Co., Inc., Troy, N. Y.
MAPLEWOOD LINE Doors, Paine Lumber Co. Ltd., Oshkosh, Wis.
MARCO Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
MARCOSA Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
MARINERO Cotton Duck, John Boyle & Co., Inc., New York, N. Y.
MARMOR Lavatories, Crane Co., Chicago, Ill.
MARVEL Gas Water Heater, Crane Co., Chicago, Ill.
MARVEL Terrazzo Grinding Machine, Lincoln-Schleuter Machinery Co., Inc., Chicago, Ill.
MASBESTIC Pipe Joint Compound, Truscon Laboratories, The, Detroit, Mich.
MASSILLON Steel Building Products, The Macomber Steel Co., Canton, O.
MASTER Pumping Jacks, The F. E. Myers & Bro. Co., Ashland, O.
MASTER Slide and Folding Rules and Stucco Machines, Master Rule Mfg. Co., Inc., New York, N. Y.
MASTER SPRAY Air Painting Equipment, Gast Mfg. Corp., Bridgeman, Mich.
MASTER Woodworking Machinery, The Master Woodworker Mfg. Co., Detroit, Mich.
MATCHER Bits, Henry Disston & Sons, Philadelphia, Pa.
MATOT Dumbwaiter, D. A. Matot, Chicago, Ill.
MAUK Stained Shingles, C. A. Mauk Lumber Co., Toledo, O.
MAURETANIA Water Closets, Crane Co., Chicago, Ill.
MEDIA Drinking Fountain, Crane Co., Chicago, Ill.
MEDICUS Lavatory, Crane Co., Chicago, Ill.
MEDIO Bath Tubs, Crane Co., Chicago, Ill.
MERCHANT Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
MERITUS Fuller Faucets, Crane Co., Chicago, Ill.
MERUS Drinking Fountains, Crane Co., Chicago, Ill.
METAFORM Concrete Forms and Molds Metal Forms Corp., Milwaukee, Wis.
METALITE Abrasive Cloth, Manning Abrasive Co., Inc., Troy, N. Y.
METALLIC Measuring Tapes, The Lufkin Rule Co., Saginaw, Mich.
METRIC Closet Valves, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
MEYER Removable Steel Forms, Concrete Engineering Co., Omaha, Neb.
MIAMI Pure White Steel Bathroom Cabinets, Miami Cabinet Co., Middleton, O.
MIAMI Cement and Asbestos Wall Tile, Miami Cabinet Co., Middletown, O.
MICA KOTE Composition Roofing, Philip Carey Mfg. Co., Lockland, O.
MICRO Adjustable Boring Heads, Porter Cable Machine Co., Syracuse, N. Y.
MIDGET Punches, Henry Disston & Sons, Philadelphia, Pa.
MILCOR Cupolas, Metal Corner Beads, Stock Tanks, Hog Troughs and Ventilating Systems, Milwaukee Corrugating Co., Milwaukee, Wis.
MILES Cement Block Machines, Concrete Mixing Machines, Miles Mfg. Co., Jackson, Mich.
MINIER Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
MIRACLE Doors, Paine Lumber Co. Ltd., Oshkosh, Wis.
MODESTO Lavatories, Crane Co., Chicago, Ill.
MONARCH Planer, Matcher and Moulder, American Sawmill Machinery Co., Hackettstown, N. J.
MONARCH Radiators, National Radiator Co., Johnstown, Pa.
MONARCH Saw Sets, Henry Disston & Sons, Philadelphia, Pa.
MONITOR Wire Rope, Woven Wire Fence, American Steel & Wire Co., Chicago, Ill.
MONROE Lavatories, Crane Co., Chicago, Ill.
MORSE Dust Collectors, Knickerbocker Co., Jackson, Mich.
MULTI-CATCH Sockets, General Electric Co., Schenectady, N. Y.
MYERS CENTURY Pumps, The F. E. Myers & Bro. Co., Ashland, O.
MYERS DUPLEX Painting and Spraying Machines, The F. E. Myers & Bro. Co., Ashland, O.
MYERS IMPROVED Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
MYERS O. K. Spray Pumps, Pulleys, Door Hangers, Tracks, The F. E. Myers & Bro. Co., Ashland, O.
MYERS PERFECT Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
MYERS SURE LOCK Sling Unloaders and Door Hangers, The F. E. Myers & Bro. Co., Ashland, O.
MYERS UNIVERSAL Hay Fork Pulley, The F. E. Myers & Bro. Co., Ashland, O.

NATIONAL AERO Radiators, National Radiator Corp., Johnstown, Pa.
NATIONAL NOVUS Boilers, National Radiator Corp., Johnstown, Pa.
NATIONAL SMOKELESS Water and Steam Boilers, National Radiator Corp., Johnstown, Pa.
NEAPOL Water Closets, Crane Co., Chicago, Ill.
NEDUS Drinking Fountains, Crane Co., Chicago, Ill.
NERWALL Water Closets, Crane Co., Chicago, Ill.
NETMESH Expanded Diamond Metal Lath, Milwaukee Corrugating Co., Milwaukee, Wis.
NEUMAR Lavatories, Crane Co., Chicago, Ill.
NEVADA Lavatories, Crane Co., Chicago, Ill.
NEVADA Saws, Henry Disston & Sons, Philadelphia, Pa.
NEVER BREAK Corner Beads, Milwaukee Corrugating Co., Milwaukee, Wis.
NEW CENTURY Power Pumps, The F. E. Myers & Bro. Co., Ashland, O.
NEW CRESCENT Wheelbarrows, Lansing Co., Lansing, Mich.
NEW CYCLONE Dust Collectors, Knickerbocker Co., Jackson, Mich.
NEW MODEL Force Pumps, The F. E. Myers & Bro. Co., Ashland, O.
NEW PROCESS Gas Range, American Stove Co., St. Louis, Mo.
NEW WAY Door Hangers and Tracks, The F. E. Myers & Bro. Co., Ashland, O.
NEW YORK Brick Trowels, Henry Disston & Sons, Philadelphia, Pa.
NIAGARA Insulating Materials, Inc., Johns-Manville, Inc., New York, N. Y.
NIAGARA Pattern Chains, American Chain Co., Inc., Bridgeport, Conn.
NICALLOY Valve Trimmings, Crane Co., Chicago, Ill.

NOAHS PITCH Roof Repair Cement, Philip Carey Mfg. Co., Lockland, O.
NORFOLK Lavatories, Crane Co., Chicago, Ill.
NORMAN Casements, Crittall Casement Window Co., Detroit, Mich.
NORWEST Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
NO-SLAM Screen Door Checks, Sargent & Co., New Haven, Conn.
NOVA Lavatories, Crane Co., Chicago, Ill.
NOWELD Chins, Chain Products Co., Cleveland, O.
NU AIR Ventilators, Milwaukee Corrugating Co., Milwaukee, Wis.
NUTMEG Switches, Hart & Hegeman Mfg. Co., Hartford, Conn.

O. K. Carriers, Door Hangers and Tracks, The F. E. Myers & Bro. Co., Ashland, O.
OKOLONA Water Closets, Crane Co., Chicago, Ill.
OIL-O-MATIC Heating, Williams Oil-O-Matic Heating Corp., Bloomington, Ill.
OLD VIRGINIA WHITE Paints, Samuel Cabot, Inc., Boston, Mass.
OLIVER Lavatories and Water Closets, Crane Co., Chicago, Ill.
OLYMPIC Baths, Crane Co., Chicago, Ill.
OPEX Lacquers, Sherwin-Williams Co., Cleveland, O.
OPHIR Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
OPINE Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
ORBIS Fountains, Crane Co., Chicago, Ill.
OREGON Saws, Henry Disston & Sons, Philadelphia, Pa.
ORIOLE Saws, Henry Disston & Sons, Philadelphia, Pa.
ORNATUS Lavatories, Crane Co., Chicago, Ill.
OSBORNE Closet Valves, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
OTHELLO Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
OVATUS Lavatories and Tables, Crane Co., Chicago, Ill.
OVERHEAD Doors, Overhead Door Corp., Hartford City, Ind.
OVER-WAY Conveying Systems, Richards-Wilcox Mfg. Co., Aurora, Ill.
OXFORD Drinking Fountains, Crane Co., Chicago, Ill.

P. C. LATHES, Portable-Cable Machine Co., Syracuse, N. Y.
P. & B. Acid Resisting Paint, Ruberoid Co., New York, N. Y.
PAISTE Electric Products, Arrow, Hart & Hegemann Co., Hartford, Conn.
PANAMA Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
PARAHEX Strip Shingles, Beckman-Dawson Roofing Co., Chicago, Ill.
PARKS Woodworking Machinery, Parks Woodworking Machine Co., Cincinnati, O.
PARKWAY Drinking Fountains, Crane Co., Chicago, Ill.
PARSONS Pureaire Cabinet Gas Range Enclosure, Parsons Co., Detroit, Mich.
PAUL Pumps and Water Systems, Fort Wayne Engineering & Mfg. Co., Ft. Wayne, Ind.
PEARL Wire Cloth for Doors and Windows, Gilbert & Bennett Mfg. Co., Chicago, Ill.
PECOPROOF Waterproofing, Philip Carey Mfg. Co., Lockland, O.
PEERLESS Fireplace Furnishings and Ranges, Peerless Mfg. Co., Louisville, Ky.
PEERLESS Radiators, American Radiator Co., Chicago, Ill.
PEERLESS Roofing, Edwards Mfg. Co., Cincinnati, O.
PEERLESS Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
PEERLESS HEARTHFYRE Heater, Peerless Mfg. Co., Louisville, Ky.
PELHAM Sash Cord, Silver Lake Co., Newtonville, Mass.
PERFECT Pumps, The F. E. Myers & Bro. Co., Ashland, O.
PERFECT PATTERN Door Springs, National Mfg. Co., Sterling, Ill.
PERFECTION Glass Boards, Lufkin Rule Co., Saginaw, Mich.
PERFECTION Indirect Radiators, American Radiator Co., New York, N. Y.
PERFECTION Sanitary Closet, Chemical Toilet Mfg. Co., Syracuse, N. Y.
PERFECTION Saw Tables, American Saw Mill Machinery Co., Hackettstown, N. J.
PHILADELPHIA Carts, Lansing Co., Lansing, Mich.
PHILCO Composition Roofing, Philip Carey Mfg. Co., Lockland, O.
PHOENIX Sash Cord Awning Line, Samson Cordage Works, Boston, Mass.
PIATT Oil Burning Appliances, Motor Wheel Corp., Lansing, Mich.
PIERSON Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
PINECRAFT Sash, White Pine Sash Co., Spokane, Wash.
PINE CRAFT Weatherproof Sash, White Pine Sash Co., Spokane, Wash.
PITMAN Power and Spray Pumps, The F. E. Myers & Bro. Co., Ashland, O.
PLASTA-SAVER Expanded Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
POND Continuous Steel Sash and Sash Operators, David Lupton's Sons Co., Philadelphia, Pa.
PONDOSA PINE, Western Pine Mfrs. Assn., Portland, Ore.
PORTER CABLE Machinery and Tools, Porter-Cable Machine Co., Inc., Syracuse, N. Y.
PREMIER Automatic Storage Gas Water Heater, Crane Co., Chicago, Ill.
PREMIER Saws, Henry Disston & Sons, Philadelphia, Pa.
PREMIER Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
PREMO Lavatories, Crane Co., Chicago, Ill.
PRENTRILL Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
PUREAIRE Cabinet Gas Range Enclosure, Parsons Co., Detroit, Mich.
PURIMO Closets, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
PURUS Water Closets, Crane Co., Chicago, Ill.
PURUS JR. Water Closets, Crane Co., Chicago, Ill.
PYLAC Colored Lacquer, Truscon Laboratories, Detroit, Mich.
PYRAMID BRAND Structural Slate, The Structural Slate Co., East Pen Argyl, Pa.
PYRAMID Weatherstrips, Pyramid Metals Co., Chicago, Ill.
PYRO-TEX Fireproof Paint, Truscon Laboratories, The, Detroit, Mich.

QUALITY Hand Tool Grinders, Boettcher Company, Chicago, Ill.
QUICK MEAL Gas Range, American Stove Co., St. Louis, Mo.
QUILT Sheathing and Insulating, Samuel Cabot, Inc., Boston, Mass.

RADIA Heaters, F. W. Shepler Stove Co., Pittsburgh, Pa.
RANDALL Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
RANSOME STANDARD Building Mixer, Ransome Concrete Machinery Co., Dunellen, N. J.
RAPID Wood and Stone Surfacing Machines, Lincoln-Schlueter Machinery Co., Inc., Chicago, Ill.
READING Wrought Iron Pipe and Cut Nails, Reading Iron Co., Reading, Pa.
RECESS Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
RECONA Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
RED HOOP GALVANIZED Shingle Nails, American Steel & Wire Co., Chicago, Ill.
RED SEAL Tires, Goodyear Tire & Rubber Co., Akron, O.
REED Hay Forks, Pullers, The F. E. Myers & Bro. Co., Ashland, O.
REGAL Roofing, Johns-Manville, Inc., New York, N. Y.
REICHERT Metal Moulds for Concrete Construction, Metal Forms Corp., Milwaukee, Wis.
REID-WAY Convertible Sander, Reid-Way Co., Cedar Rapids, Ia.
REID-WAY Prepared Abrasive Sheets, Reid-Way Co., Cedar Rapids, Iowa.
REID-WAY Whirlwind Sander, Reid-Way Co., Cedar Rapids, Iowa.
RELAX Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
RELIABLE Gas Range, American Stove Co., St. Louis, Mo.
RELIABLE Measuring Tapes, Lufkin Rule Co., Saginaw, Mich.
RELIABLE Scaffold Brackets, Elite Mfg. Co., Ashland, O.
RELIANCE Door Springs, Chicago Spring Hinge Co., Chicago, Ill.
REMINDO Combined Switch and Buzzer, General Electric Co., Schenectady, N. Y.
RENO-BESTOS Packing Co., Ambler, Pa.
RE-PEL-LO Waterproof Duck, John Boyle & Co., New York, N. Y.
REVERE Copper and Brass, Revere Copper & Brass, Inc., Rome, N. Y.
REVERE Lavatories, Crane Co., Chicago, Ill.
REX Chains, Chain Belt Co., Milwaukee, Wis.
REX Concrete Mixers and Pavers, Chain Belt Co., Milwaukee, Wis.
REX CHABELCO Chains, Chain Belt Co., Milwaukee, Wis.
REX LUROBAR Chains, Chain Belt Co., Milwaukee, Wis.
REX GRIPLOCK Chains, Chani Belt Co., Milwaukee, Wis.
REX UNICAST Chains, Chain Belt Co., Milwaukee, Wis.
RIGO Drinking Fountains, Crane Co., Chicago, Ill.
RIXSON Builders' Hardware, Oscar C. Rixson Co., Chicago, Ill.
RIXSON Door Checks and Springs, Oscar C. Rixson Co., Chicago, Ill.
ROLLAWAY Door Hangers and Track, Frantz Mfg. Co., Sterling, Ill.
ROLSCREENS, Rolscreen Co., Pella, Ia.
ROOF SEAL Roof Paints, The Truscon Laboratories, Detroit, Mich.
ROSELLE Fountains, Crane Co., Chicago, Ill.
ROYAL Lavatories, Crane Co., Chicago, Ill.
ROYAL Shingle Machines, American Saw Mill Machy. Co., Hackettstown, N. J.
ROYAL Wood Working Machinery, American Saw Mill Machy. Co., Hackettstown, N. J.
RUBEROID Roofing and Shingles, Ruberoid Co., New York, N. Y.
RUGBY Lavatories, Crane Co., Chicago, Ill.
RUNWEL Door Hangers and Track, Frantz Mfg. Co., Sterling, Ill.
RUSSWIN Hardware, Russell & Erwin Mfg. Co., New York, N. Y.

SACHEM Sash Cord, Samson Cordage Works, Boston, Mass.
SAFEKOTE Roofing and Building Paper, Asphalt Shingle, Safepack Mills, Millis, Mass.
SAFEPACK Waterproof, Wrapping and Case Lining, Safepack Mills, Millis, Mass.
SAFETY Woodworkers, Safe Tool Mfg. Co., Bridgeport, Pa.
SAGLESS Gate Spring, Pivot Hinges, Chicago Spring Hinge Co., Chicago, Ill.
SAMSON Chains, Chain Products Co., Cleveland, O.
SAMSON Diggers, Saw Sets, Henry Disston & Sons, Inc., Philadelphia, Pa.
SAMSON Sash Cord, Shade Cord, Masons' Lines, Solid Braided Rope, Signal Cord, Bell and Register Cord, Samson Cordage Works, Boston, Mass.
SANDER PLANE Hand Sander, American Floor Surfacing Machine Co., Toledo, O.
SAN-EQUIP Chemical Toilets, San-Equip, Inc., Syracuse, N. Y.
SAN-EQUIP Filter Pipe, San-Equip, Inc., Syracuse, N. Y.
SAN-EQUIP Septic Drain Pools, San-Equip, Inc., Syracuse, N. Y.
SAN-EQUIP Siphon Septic Systems, San-Equip, Inc., Syracuse, N. Y.
SAN-EQUIP Sewage Disposal Systems, San-Equip, Inc., Syracuse, N. Y.
SANETO Water Closets, Crane Co., Chicago, Ill.
SANFORD Loggings, Tools, Leach Co., Oshkosh, Wis.
SANITARY School Indirect Radiators, American Radiator Co., New York, N. Y.
SANITAS Wall Covering, Standard Textile Products Co., New York, N. Y.
SANITEX Sanitary Closet Seat Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
SAN SOLVENT for Clogged Drainage, San-Equip, Inc., Syracuse, N. Y.
SANTO Urinals, Crane Co., Chicago, Ill.
SANWALL Water Closets, Crane Co., Chicago, Ill.
SARGENT Steel Squares, Latches, Padlocks, Door Checks, etc., Sargent & Co., New Haven, Conn.
SASGEN Derricks, Sasgen Derrick Co., Chicago, Ill.
SAVUTIME Electric Control, Savutime Devices, Inc., Rochester, N. Y.
SAWYER'S FAVORITE Mill Board, American Saw Mill Machinery Co., Hackettstown, N. J.
SCHLUETER Rapid Floor Surfacers, Lincoln-Schlueter Machy. Co., Inc., Chicago, Ill.
SCHRODER Eaves Trough Hanger, F. D. Kees Mfg. Co., Beatrice, Neb.
SEATCO Water Closets, Crane Co., Chicago, Ill.
SEDGWICK Elevators, Sedgwick Machine Works, New York, N. Y.
SELF-SENTERING Metal Lath, Genfire Steel Co., Youngstown, O.
SELFLOCK Eavetrough Hangers, Milwaukee Corrugating Co., Milwaukee, Wis.
SELLERS Kitchen Cabinets, G. I. Sellers & Sons Co., Elwood, Ind.
SEMCO Elevators, Sidney Elevator Mfg. Co., Sidney, O.
SEHMI Milling Saws, Huther Bros. Saw Mfg. Co., Rochester, N. Y.
SENIOR Spray Pumps and Pumping Jacks, The F. E. Myers & Bro. Co., Ashland, O.
SERENO Drinking Fountains, Crane Co., Chicago, Ill.
SEVILLE Lavatories, Crane Co., Chicago, Ill.
SHELBAS Lavatories, Crane Co., Chicago, Ill.
SHEELAV Lavatories, Crane Co., Chicago, Ill.
SIDNEY Elevators, Sidney Elevator Mfg. Co., Sidney, O.
SIDNEY Woodworking Machinery, Sidney Machine Tool Co., Sidney, Ohio.
SILVER LAKE Awning, Dumbwaiter, Sash, Shade, Ball, Trolley and Ventilator Cords, Silver Lake, Newtonville, Mass.
SILVER SEAL Aluminum-asphalt Paints, The Asphalt Products Co., Inc., Syracuse, N. Y.
SILVER STAR Electric Switches, Hart & Hegeman Mfg. Co., Hartford, Conn.
SIMPLEX Concrete Mixer, The Miles Mfg. Co., Jackson, Mich.
SIMPLEX Door Hangers, Richards-Wilcox Mfg. Co., Aurora, Ill.
SIMPLEX Levels, Chas. Bruning Co., Chicago, Ill.
SIMPLEX Single and Double Acting Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
SIMPLEX Pumps, Standards, Pumps, Jacks, and Door Hangers, The F. E. Myers & Bro. Co., Ashland, O.
SIMPLEX Saw Mill Dogs, American Saw Mill Machinery Co., Hackettstown, N. J.
SIMPLEX Screw Jacks, Templeton, Kenly & Co., Chicago, Ill.
SIMPLEX Woodworker, Combination Woodworking Machine Co., Chicago, Ill.
SIMPLICITY Woodworkers, Combination Woodworking Machine Co., Chicago, Ill.
SINGER Block Machine, The Miles Mfg. Co., Jackson, Mich.
SINTON Baths, Crane Co., Chicago, Ill.
SIRFABRICK (now known as Steeltex), National Steel Fabric Co., Pittsburgh, Pa.
SISALKRAFT Waterproof Building Paper, Sisalkraft Co., Chicago, Ill.
SITZ Baths, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
SIVON Cabinet Products, Sivon Cabinet Products, Ravenna, O.
SIX-LEVER Padlocks, Sargent & Co., New Haven, Conn.
SKILSAW Electric Saws, Skilsaw, Inc., Chicago, Ill.
SLATILE Roofing, Beckman-Dawson Roofing Co., Chicago, Ill.
SLOANE Linoleums, W. & J. Sloane Mfg. Co., Trenton, N. J.
SLYPHON Regulators, Air Brakes, Radiator Valves, American Radiator Co., New York, N. Y.
SNAPCATCH Porcelain Sockets and Receptacles, General Elec. Co., Schenectady, N. Y.

SNO WITE Enamel, The Truscon Laboratories, Detroit, Mich.
SOLID COMFORT Farm Trucks, International Harvester Co., Chicago, Ill.
SOLVAY Calcium Chloride, Solvay Sales Corp., New York, N. Y.
SOUTHERN Barrows, Lansing Co., Lansing, Mich.
SPECIAL Shovels and Scoops, Fairbanks, Morse & Co., Chicago, Ill.
SPEED MARVEL Wood Working Mach., Hutchinson Mfg. Co., Norristown, Pa.
SPEEDGRITS Abrasive Paper, Cloth and Combination, Behr-Manning Co., Troy, N. Y.
SPEEDMATIC Floor Sander, Porter-Cable Machine Co., Syracuse, N. Y.
SPIRO Water Closets, Crane Co., Chicago, Ill.
SPRAGUE Fixtures, General Electric Co., Schenectady, N. Y.
STANDARD Bath Room Fixtures, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
STANDARD Roofings, Beckman-Dawson Roofing Co., Chicago, Ill.
STANDARD Trowels, Henry Disston & Sons, Philadelphia, Pa.
STANLEY Tools, Stanley Rule and Level Co., New Britain, Conn.
STANLEY FOUR-SQUARE HOUSEHOLD Tools, Stanley Rule and Level Co., New Britain, Conn.
STANWIN Casements, Crittall Casement Window Co., Detroit, Mich.
STAR Cement, Louisville Cement Co., Louisville, Ky.
STAR Lock Stove Pipe, Wheeling Corrugating Co., Wheeling, W. Va.
STAR Metal Shingles, Wheeling Corrugating Co., Wheeling, W. Va.
STAR Tanks, Towers and Windmills, Flint & Walling Co., Kendallville, Ind.
STAY-RIB Metal Lath, Milwaukee Corrugating Co., Milwaukee, Wis.
STAYON Door Hangers and Tracks, The F. E. Myers & Bro. Co., Ashland, O.
STEELCOTE Portable Garages, Edwards Mfg. Co., Cincinnati, O.
STEELCRETE Expanded Metal, Consolidated Expanded Metal Cos., Wheeling, W. Va.
STEELHART Stucco Base, North Western Expanded Metal Co., Chicago, Ill.
STEELTEX Reinforcing and Plaster Base, National Steel Fabric Co., Pittsburgh, Pa.
STERLING Surveying and Engineering Instruments, Warren-Knight Co., Philadelphia, Pa.
STERLING INDIRECT Radiators, American Radiator Co., New York, N. Y.
STONETEX Exterior Dampproof Coating for Concrete and Masonry, Truscon Laboratories, The, Detroit, Mich.
STORM PROOF Hangers, National Mfg. Co., Sterling, Ill.
STUCCO Waterproof Cement Paint, Truscon Laboratories, The., Detroit, Mich.
STUCCOTEX Hydraulic Paint, Truscon Laboratories, The, Detroit, Mich.
SUBSIDO Closets, Crane Co., Chicago, Ill.
SUCCESS Chemical Fire Extinguishers, Johns-Manville, Inc., New York, N. Y.
SUPER-POR SEAL Transparent Dampproofing for Concrete and Masonry, Truscon Laboratories, The, Detroit, Mich.
SUPER-RADIANT Gas Heaters, Wheeling Corrugating Co., Wheeling, W. Va.
SUPERIOR Metal Corner Bead, Milwaukee Corrugating Co., Milwaukee, Wis.
SUPERIOR Woodworking Machy., Jones Superior Machine Co., Chicago, Ill.
SUPREME Roofings, Beckman-Dawson Roofing Co., Chicago, Ill.
SURBAS Lavatories, Crane Co., Chicago, Ill.
SURBOL Lavatories, Crane Co., Chicago, Ill.
SURE GRIP Carriers, Door Hangers and Tracks, Hay Forks, Pulleys, The F. E. Myers & Bro. Co., Ashland, O.
SURE LOCK Carriers, Unloaders, The F. E. Meyers & Bro. Co., Ashland, O.
SURETY Composition Roofing, Philip Carey Mfg. Co., Lockland, O.
SURLAV Lavatories, Crane Co., Chicago, Ill.
SUWANEE Saws, Henry Disston & Sons, Inc., Philadelphia, Pa.
SYMMETRIC Stone Crushers, The T. L. Smith Co., Milwaukee, Wis.
SYRACUSE Sanders, Porter-Cable Machine Co., Syracuse, N. Y.

T-BAR, Genfire Steel Co., Youngstown, O.
TAKE-ABOUT Sanding Machines, Porter-Cable Machine Co., Inc., Syracuse, N. Y.
TAKE DOWN Hay Rack Brackets, The F. E. Meyers & Bro. Co., Ashland, O.
TANDEM Sash Balances, Pullman Mfg. Co., Rochester, N. Y.
TARINA Baths, Crane Co., Chicago, Ill.
TASGON Penetrating Oil, Rust Solvent and Spring Lubricant, Samuel Cabot, Inc., Boston, Mass.
TELENDURON Moulded Products, Ambler, Pa.
TELEPHONE Self Closing Cocks and Bibbs, Crane Co., Chicago, Ill.
TELSA Compression Cocks, Crane Co., Chicago, Ill.
TELSA JR. Compression Faucets, Crane Co., Chicago, Ill.
TEMPERITE Quick Set and Anti-Freeze for Concrete, The Truscon Laboratories, Detroit, Mich.
TENSO Pattern Chains, American Chain Co., Inc., Bridgeport, Conn.
THE YANKEE Jaw Pipe Wrenches, Richards-Wilcox Mfg. Co., Aurora, Ill.
THESPIAN Drinking Fountains, Crane Co., Chicago, Ill.
THRU-CORD Switches, General Electric Co., Schenectady, N. Y.
THRUSH Hot-Water Heating Systems, H. A. Thrush & Co., Peru, Ind.
3-TY Steel Bridging, Lanebro Mfg. Co., Inc., West Poughkeepsie, N. Y.
TI-DI-NETTE, Ti-Di-Nette Sales Co., Inc., Chicago, Ill.
TITELOCK American and Spanish Metal Tiles and Shingles, Milwaukee Corrugating Co., Milwaukee, Wis.
TOLEDO Saws, Henry Disston & Sons, Philadelphia, Pa.
TOLVA Lavatories, Standard Sanitary Mfg. Co., Pittsburgh, Pa.
TOP NOTCH Sash Pulleys, Grand Rapids Hardware Co., Grand Rapids, Mich.
TORPEDO Ventilating Skylights, Milwaukee Corrugating Co., Milwaukee, Wis.
TORREY Spring Door, Sargent & Co., New Haven, Conn.
TRENCHLAY Non-Metallic Underground Cable, Rome Wire Co., Rome, N. Y.
TREE MARK Lumber, National Lbr. Mfrs. Assn., Washington, D. C.
TOURAINE Fountains, Crane Co., Chicago, Ill.
TRI-COAT Insulated Cable, General Electric Co., Schenectady, N. Y.
TRIMPAK Interior Trim, Trimpak Corp., New York, N. Y.
TRIPLE INSULAIRE, The Triple Insulaire Co., Milwaukee, Wis.
TRIPLEX Single and Double Acting Spring Hinges, Chicago Spring Hinge Co., Chicago, Ill.
TRIUMPH Jacks, The F. E. Myers & Bro. Co., Ashland, O.
TRIUMPH Planer, Matcher and Moulder, American Sawmill Machy. Co., Hackettstown, N. J.
TRIUMPH Saw Sets, Henry Disston & Sons, Philadelphia, Pa.
TRIUMPH Self-Closing Faucets, Crane Co., Chicago, Ill.
TRIUMPH JR. Self-Closing Faucets, Crane Co., Chicago, Ill.
TROUBLE-SAVER Brackets, Jacks, Scaffolds, Masons Trestles, etc., Steel Scaffolding Co., Evansville, Ind.
TROYAN Loud Speakers, Geier & Bluhm, Inc., Troy, N. Y.
TRUCK JACK Lifting Jacks, Elite Mfg. Co., Ashland, O.
TRUSCON Metal Lath, Expanded Metal, Post Caps, Concrete Reinforcing Materials, Steel Window Sash, Pressed Steel Sill Plates, Angles, Furring Strips, Beams, Platforms, Roofing, Steel Doors, Standard Buildings, etc., Truscon Steel Co., Youngstown, O.
TRUSCON Damp-proofing, Waterproofings, Paints, Varnishes, Enamels and Mill White Paints, Stains and Maintenance Products, The Truscon Laboratories, Detroit, Mich.
TRUSSIT Expanded Metal Reinforcement, Genfire Steel Co., Youngstown, O.
TUMBOLIER Electric Switches, Hart & Hegeman Div., Arrow-Hart & Hegeman Electric Co., Hartford, Conn.
TUXEDO Lavatories, Crane Co., Chicago, Ill.
TYPE A Heat Machines, American Radiator Co., New York, N. Y.
TYPHOON Pumps, Fairbanks, Morse & Co., Chicago, Ill.
TRYONE Drinking Fountains, Crane Co., Chicago, Ill.

UNION Woodworking Machy., Gallmeyer & Livingston Co., Grand Rapids, Mich.
UNION LOCK Poultry Fences, American Steel & Wire Co., Chicago, Ill.
UNIT Sash Balances, Pullman Mfg. Co., Rochester, N. Y.
UNITED Fences, American Steel & Wire Co., Chicago, Ill.
UNITED STATES Fences, American Steel & Wire Co., Chicago, Ill.
U. S. Mineral Wool, U. S. Mineral Wool Co., New York, N. Y.
U. S. Woven Wire Fence (Zinc Insulated), American Steel & Wire Co., Chicago, Ill.
UNIVERSAL Casements, Crittall Casement Window Co., Detroit, Mich.
UNIVERSAL Hay Slings and Pumping Jacks, The F. E. Meyer & Bro. Co., Ashland, O.
UNIVERSAL Measuring Tapes, Try and Mitre Square, The Lufkin Rule Co., Saginaw, Mich.
UPRIGHT Scrapers, National Mfg. Co., Sterling, Ill.
UP-TO-DATE Shingle Machines, American Saw Mill Machinery Co., Hackettstown, N. J.
U-PUT-ON Metal Weather Strips, Diamond Metal Weather Strip Co., Columbus, O.
UTAH Hay Slings, The F. E. Myers & Bro. Co., Ashland, O.

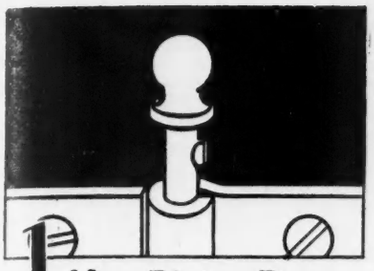
V. P. M. Tools, Sargent & Co., New Haven, Conn.
VALLEY CITY Disc Emery Surface and Tool Grinders, Polishing, Metal Grinding Machinery, Gallmeyer & Livingston Co., Grand Rapids, Mich.
VALLEY CITY Woodworking Machinery, Gallmeyer & Livingston Co., Grand Rapids, Mich.
VECTO Heaters, American Radiator Co., New York, N. Y.
VENETIAN Bathroom Cabinets, Morton Mfg. Co., Chicago, Ill.
VENTO Radiators and Heaters, American Radiator Co., New York, N. Y.
VENTO Puttyless Steel Sash, Vento Steel Sash Co., Muskegon, Mich.
VERNA Bath Tubs, Crane Co., Chicago, Ill.
VERNON Lavatories, Crane Co., Chicago, Ill.
VICTOR Door Springs, Sargent & Co., New Haven, Conn.
VICTOR Gummers, Henry Disston & Sons, Philadelphia, Pa.
VICTOR Pumps, The F. E. Myers & Bro. Co., Ashland, O.
VICTOR Ventilating Fan, Cincinnati Victor Co., Cincinnati, O.
VICTORY Hand Saws, Henry Disston & Sons, Inc., Philadelphia, Pa.
VIM CHAMPION Saws, Henry Disston & Sons, Philadelphia, Pa.
VINCENT Sinks, Crane Co., Chicago, Ill.
VIRGINIAN Saws, Henry Disston & Sons, Inc., Philadelphia, Pa.
VITRIBESTOS Pipe and Boiler Covering, Johns-Manville, Inc., New York, N. Y.
VORCY Urinals, Crane Co., Chicago, Ill.
VORTO Urinals, Crane Co., Chicago, Ill.

WALL-TEX Waterproof Wall, The Columbus-Coated Fabrics Co., Columbus, O.
WALLACE Woodworking Machinery, J. D. Wallace & Co., Chicago, Ill.
WAL-LITE One Coat Industrial White, Truscon Laboratories, Detroit, Mich.
WALL-TEX Permanent Wall Covering, Columbus Coated Fabrics Co., Columbus, O.
WALSYCLO Water Closets, Crane Co., Chicago, Ill.
WALSYN Water Closets, Crane Co., Chicago, Ill.
WALTILE, Ambler Asbestos Shingle & Sheathing Co., Ambler, Pa.
WAPPAT Electric Hand Saw, Lock Mortisers, Stair Routers, Electric Planes, Electric Hand Saw, Wappat, Inc., Pittsburgh, Pa.
WAPPAT Electric Handsaw, Wappat, Inc., Pittsburgh, Pa.
WASHBURNE Sliding Door Locks and Latches, National Mfg. Co., Sterling, Ill.
WATCHMAN Wall Safes, The Wehrle Co., Newark, O.
WATERPROOF SPEED GRITS, Behr-Manning Co., Inc., Troy, N. Y.
WAUKEGAN Barbed Wire, American Steel & Wire Co., Chicago, Ill.
WEARPROOF Roofings, Beckman-Dawson Roofing Co., Chicago, Ill.
WEATHERBEST Stained Shingle, Weatherbest Stained Shingle Co., Inc., No. Tonawanda, N. Y.
WHEELING Hand Dipped Copper Steel Conductor Pipe, Stove Pipes, Dampers and Wire Nails, Wheeling Corrugating Co., Wheeling, W. Va.
WEHRLE Watchman Wall Safes, The Wehrle Co., Newark, O.
WEYERHAEUSER Lumber, Weyerhaeuser Forest Products Co., St. Paul, Minn.
WHEELING Sheet Steel, Wheeling Corrugating Co., Wheeling W. Va.
WHITE ROCK Gypsum Wall Board, American Gypsum Co., Port Clinton, O.
WHITE'S IMPROVED Instruments, David White Co., Milwaukee, Wis.
WICKWIRE Bronze Wire Cloth, Wickwire Brothers, Cortland, N. Y.
WILTON Lavatories, Crane Co., Chicago, Ill.
WINDOW Coal Chutes, Holland Furnace Co., Holland, Mich.
WIN-DOR Casement Hardware, Casement Hardware Co., Chicago, Ill.
WINTHROP Asphalt Shingles, Beckman-Dawson Roofing Co., Chicago, Ill.
WIZARD Saws, Henry Disston & Sons, Philadelphia, Pa.
WIZARD and UTILITY Doors, Paine Lumber Co. Ltd., Oshkosh, Wis.
WOCO Doors, Wheeler, Osgood Co., Tacoma, Wash.
WODACK Hand Power Saws, F. L. Rogers & Co., Chicago, Ill.
WOLVERINE Barrows, Contractors' Material, Hoists, Lansing Co., Lansing, Mich.
WONDER Concrete Mixers and Hoists, Backfillers and Trench Pumps, Construction Machinery Co., Waterloo, Ia.
WOODMERE Bath Tubs, Standard Sanitary Mfg. Co., Pittsburgh, Pa.

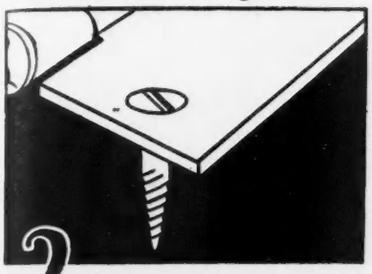
XX CENTURY Expanded Metal Lath, North Western Expanded Metal Co., Chicago, Ill.
XXth CENTURY Metal Lath, North Westerni Expanded Metal Co., Chicago, Ill.

YANKEE Tools, North Bros. Mfg. Co., Philadelphia, Pa.
YORK Drinking Fountains, Crane Co., Chicago, Ill.

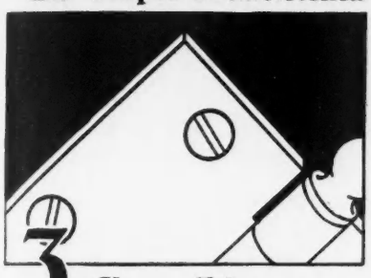
ZAGELMEYER System of Concrete Block Molds, Zagelmeyer Cast Stone Block Machinery Co., Bay City, Mich.
Z Gasoline Engines, Fairbanks, Morse & Co., Chicago, Ill.
ZIG-ZAG Rules, Stanley Rule & Level Co., New Britain, Conn.
ZINCLAD Rust Proof Nails, W. H. Maze Company, Peru, Ill.
ZIP Saws, Henry Disston & Sons, Philadelphia, Pa.



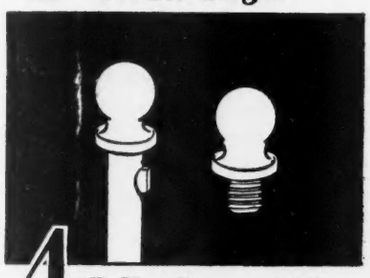
1•Non-Rising Pins



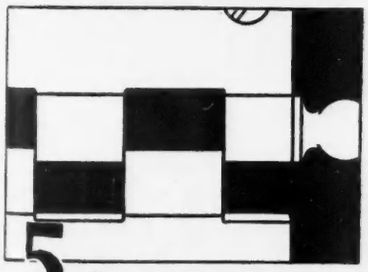
2•Proper Countersinks



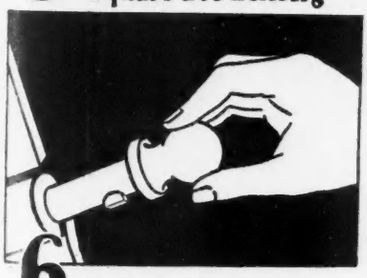
3•Clean Edges



4•Rolled Pins and Nibs

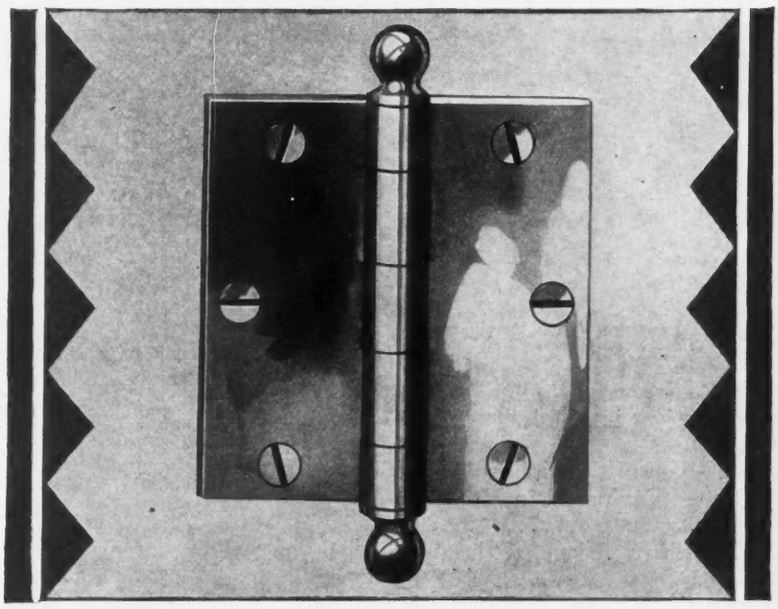


5•Square Broaching



6•Reamed Barrels

These Six Features Insure Quality in FrantZ Deluxe Butts..



1. The small wing keeps the pin from turning when the door is swung, and consequently prevents it from rising.

2. Screw holes are located to assure maximum security. They are smoothly countersunk to fit properly the screws furnished.

3. Accurately cut to standard sizes. Blanked from cold rolled steel of uniform thickness. Edges are cut clean and true.

4. Pins and nibs are rolled from the finest cold drawn wire to assure long wear. Both are smoothly rounded.

5. The leaves slide together easily and fit closely to make a smooth barrel. This is accomplished by square broaching.

6. Inside of the barrel of every loose pin Butt is reamed to assure easy removal and replacement of the pin.

FrantZ Butts are made to a standard of perfection that assures only the highest quality finished product. Yet they cost you no more than ordinary types. When you buy butts and insist upon FrantZ you get extra value—a service distinctive of stores that identify themselves as FrantZ Guaranteed Builders' Hardware Dealers.

Write for a sample FrantZ Butt—look it over—take it apart—examine it thoroughly and convince yourself that it has outstanding value. Use the coupon. Frantz Mfg. Co., Sterling, Ill.

FRANTZ

TRADE MARK

Guaranteed **Builders Hardware**

Frantz Mfg. Co., Dept. A-3
Sterling, Ill.

Kindly send me a sample FrantZ Butt picked at random from stock for my examination. (Write name and address plainly.)

Name..... Address.....

City..... State..... My Hdwe. Dealer is.....