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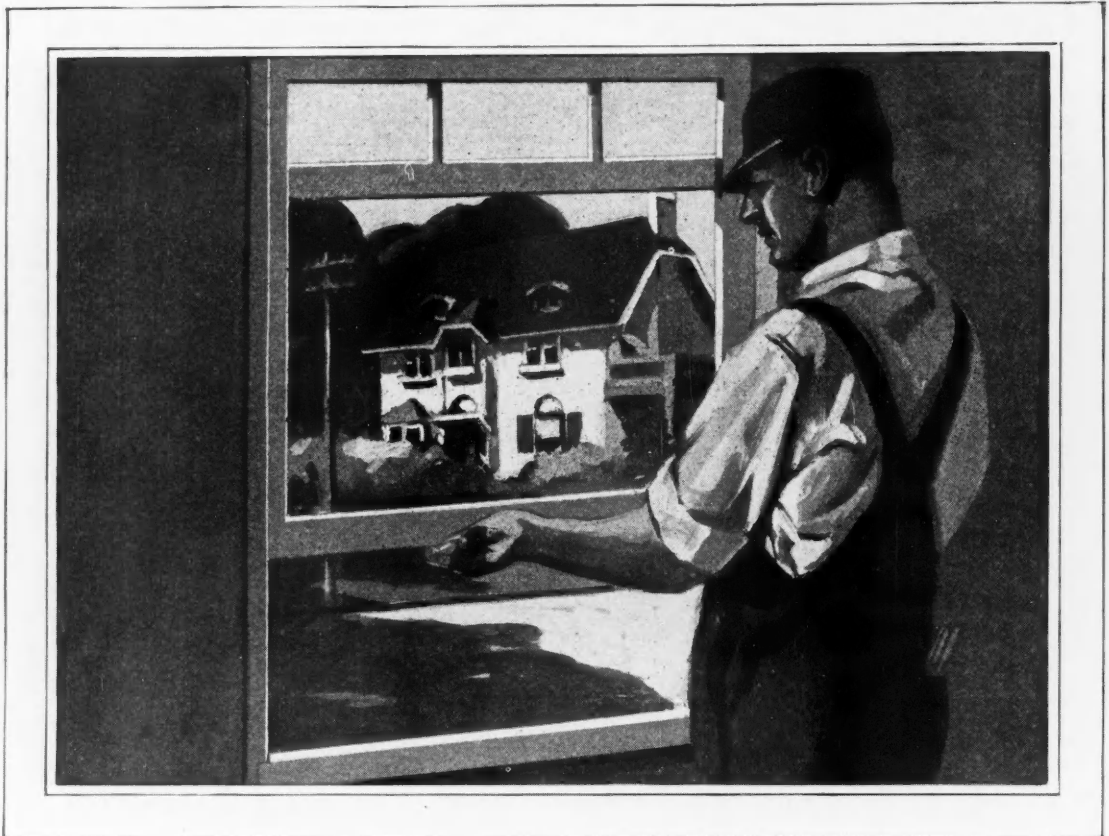
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AN INVITATION TO YOU

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



Accurate Construction Makes Easy Running Windows

ACCURACY of construction and careful choice of materials in the Andersen Frame make snug fitting yet easy-sliding windows.

Andersen Standard White Pine Frames are accurately made. Each part is the product of a special machine. The parts, when assembled, form a perfect fitting frame that excludes all weather.

Exposed portions of Andersen Frames are of genuine White Pine. This wood has for centuries shown its ability to weather all out-of-door conditions without warping, shrinking, swelling or rotting. Windows run easily in Andersen accurate Frames; the use of White Pine keeps them easy running for all time.

Dealers in Andersen Standard Frames can deliver immediately 121 different

sizes from a stock of only 11 standard sizes, simply by interchanging heights and widths. The advantages of an accurate frame, ready when wanted, are evidenced in the saving of time, labor and money. Such frames are more profitable for the dealer to handle yet cheaper for the builder to use.

Each Andersen Standard Frame is packed in two small bundles containing seven units. These seven units with pockets and pulleys in place complete can be nailed up in 10 minutes.

Write for This Book

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

Andersen Lumber Company
Department A-11 South Stillwater, Minn.



Andersen FRAMES

FRIENDLY CHATS *with the* EDITOR



Let's Keep Building Going All Winter!

THERE is no excuse for anything less than a twelve-months' construction season—except the excuse of bad habit.

There is no reason why the winter months should not take some of the burden of keeping things going.

It can be done and is being done every year by builders and contractors who know the profit of keeping their efficient organizations together and working.

Let's all do it!



Standard Zoning Law

A STANDARD law for the assistance of those responsible for the framing of state zoning enabling acts has just been issued by the Department of Commerce. Zoning ordinances for the regulation of use, height and area of buildings are being adopted by cities in almost every state in the Union, and in some states where there is no specific authority for zoning these ordinances may be set aside by the courts. An enabling act is advisable in all classes.

The Department of Commerce model for an enabling act under which municipalities can adopt zoning regulations is a twenty-page, mimeographed document with foot notes covering questions which might arise in the wording of various sections and provisions. It is not a federal law, but a suggested form for state zoning enabling acts.

The publication may be obtained free of charge from the Division of Building and Housing, Department of Commerce, Washington, D. C.



Who Chose the Heating Plant?

IN the reports now coming in from AMERICAN BUILDER readers about their business and what they are interested in, we have been struck with the number who recommend, buy, sell, or install heating plants. Evidently heating has come to be an intimate part of the builder's responsibility to his clients.

And this is natural for who is the public to lean on in its quest for better heating? Surely not on its own experience; because, as a rule, it has no experience. The owner can specify that he wants the right heating

plant that will give complete satisfaction, but he cannot say just which plant or what installation will assure that end. He needs counsel and must act on another's advice.

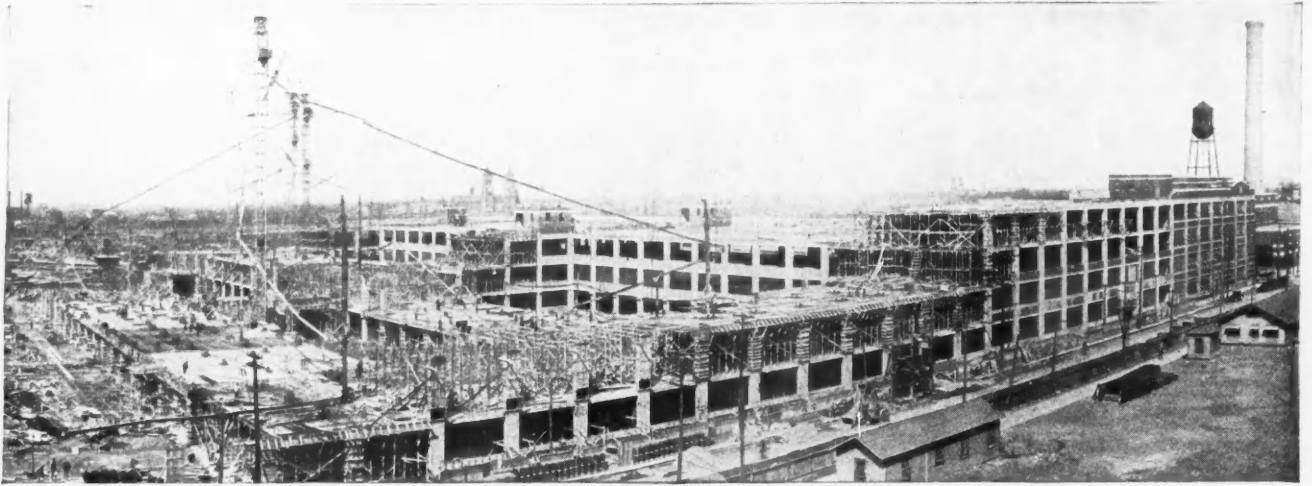
Naturally, he feels that the man who has a given plant to sell has an "axe to grind." So, instead of blindly following the advice of the salesman, no matter how good it is, he seeks an expert, outside viewpoint. He turns to the architect or builder and asks: "What do you know about the Always-Hot furnace or do you think I ought to install a Steam-Up plant or would you recommend an Ever-Hot hot water system?"

And when the builder or architect answers this question the answer carries conviction. The builder says: "A home of this size can be well heated with a hot air furnace. I suggest a Big Ben. I've put them in on a dozen jobs and there never has been a come-back. Ask Mr. Jones, he's had one of them five years and he says they go easy on coal and long on heat. I like to install a Big Ben and I'll see to it that it is set and piped right."

What would be the normal, natural reaction of any owner to such a statement? He believes in the builder, recognizes he has had special observation and experience and knows that his advice carries weight. The perfectly natural thing for the owner to do is to accept the builder's suggestion and consider the heating question fully answered and settled.

It is this situation which has caused far-seeing makers to recognize the big part the general builder and architect has in not only influencing but actually determining heating installations. "Our biggest market is the builder," says one manufacturer. "He does not pay the bills, but just the same he buys our furnaces. We would dislike to have his opposition as much as we welcome his co-operation. It is an established part of our selling plan to cultivate the builder. He makes or influences more heating decisions than any other factor and we find it is essential to have his favorable influence." ❖

A COUNTY agent in a Missouri county recently attached to his automobile a model poultry house recommended by the State College of Agriculture and took it with him for several months on his demonstration trips. As a result of giving special demonstrations at 14 community fairs, 21 new poultry houses are under construction, and 27 were remodeled.



The Cadillac Motor Car Co. Building Under Construction. The Du Pont Engineering Co. knew the amount and Cost of Materials Used Each Day by Means of a Simple but Complete Cost Accounting System.

Simple Construction Costs System

Plan Used by Du Pont Co. Reveals Useful Information at Moment's Notice—
Suitable on Any Sized Job

WHILE working on the construction of the mammoth new plant of the Cadillac Motor Car Company in 1920, the construction manager of the DuPont Engineering Company placed in effect a speedy, efficient and accurate system for distributing costs of labor and material.

This system saved considerable money for the DuPont Company in bookkeeping and accounting expense alone. Yet, the whole plan is so simple and elastic that it can be adopted with proportionate success to the work of the smaller contractor or to the largest construction work in the country. It can be used to advantage by any manufacturer or contractor having a cost accounting problem.

Tells Details of Costs

The DuPont Engineering Company, for instance, knew every day the total cost to date in time and material of the entire Cadillac job. They also knew the cost

of each building unit under construction, and could tell in a few minutes the amount spent on any operation, such as painting, for a given unit.

Their cost accounting requirements are fundamentally the same as those of any other concern—even a manufacturer. The factory manager must know the cost of each product, the cost of each operation and how the labor and material is distributed between productive and non-productive work.

The activities of the DuPont Engineering Company are directed from the main office in Wilmington, Del. Each job—the DuPont Company has many in progress at one time—is under the direction of a construction manager, who must render a report to the home office each week. The costs of each job are kept separate as if each were handled by a separate contractor.

Altho the Cadillac job is now completed, the same system has been applied on other DuPont jobs. It is likely that within a short time this system will be standard in branch offices of the DuPont Engineering Company.

Keeping in mind the flexibility of the system for work of different kinds, let us look into the system as applied on the Cadillac plant job.

Employees Classified

In the first place employes were classified according to pay rolls, CA, CB, CC and CD—the total number varying from 2,000 to 4,000, depending upon the time of year and labor conditions. The cost ledger was also divided by pay rolls, CA, CB, CC and CD—meaning construction A, B, C and D. The ledger was then subdivided into classes such as "brickwork," "excavating," "shoring" and others, with each operation known by a code number.

A printed booklet gave the "code" in detail so that



Orderly Arrangement of the Cadillac Building Construction Stock Room Saved Time and Stopped Losses.

It could be applied to each job handled by the DuPont Company throughout the country. This may be illustrated as follows: C-3-C. Superstructure on unit "C"—making concrete columns. First, the forms are made; then (2) placed in position; (3) steel bands are placed around them to prevent bulging; (4) mixing and placing concrete which is elevated to high towers and poured in forms; (5) removal of the forms after columns are set; (6) cleaning forms before using again. Each of the foregoing charges was distributed to one of the six subdivisions of the code C-3-C. The control card for code C-3-C showed the daily totals and totals to date of all postings to each of the subdivisions. The ledger included thirty control cards and approximately 150 subdivision ledger cards.

Simplified Plan

Now let us see how the time cards came thru ready for posting. In the first place the DuPont

Engineering Company had a special job ticket with three stubs. The top part of the card had the man's name, number, occupation and spaces for time, rate and amount. On a stub the foreman wrote the employee's number, code number, kind of work performed and time. If the employee worked on another job during the day, the new foreman filled in a second stub. At the end of the day the hours and amounts charged to each kind of work were extended on the stubs, and the total time and amount checked against the upper half of the card and against the time shown on the clock card. Then the stubs were cut apart and sorted, while the main part of the job ticket went to the time-keeper's office.

With these stubs sorted into the classifications of the ledger, posting became a simple operation. Charges for the different classifications, or subdivisions of the ledger, were added and the total posted directly to the ledger card. Each of these ledger cards showed the total for the day and the total charges to date—so that, at any time, it was possible to determine the cost to date of any particular operation in any division.

When all the individual cards had been posted, the grand total of all charges for the day and the grand total to date, as accumulated in the posting machine, was printed directly on the control card for that division or code number.

Adding the totals on the control cards gave the complete labor cost of the

Labor Charges <i>CB</i> 19			
Code	<i>CIC</i>	Subdivision	<i>Painting</i>
Date	Total for Day	Old Total	Total to Date

AUG 1	59.42		
AUG 2	54.25		
AUG 3	63.77		
AUG 4	55.26		
AUG 5	77.21		
AUG 6	42.75		

Labor Charges <i>CB</i> 19			
Code	<i>CIC</i>	Subdivision	<i>Concrete</i>
Date	Total for Day	Old Total	Total to Date

AUG 1	44.21		
AUG 2	35.64		
AUG 3	55.65		
AUG 4	69.25		
AUG 5	77.25		
AUG 6	37.05		

Labor Charges <i>CB</i> 19			
Code	<i>CIC</i>	Subdivision	<i>Remov Form</i>
Date	Total for Day	Old Total	Total to Date

AUG 1	63.00		
AUG 2	60.10		
AUG 3	54.65		
AUG 4	77.89		
AUG 5	88.95		
AUG 6	55.25		

Labor Charges <i>CB</i> 19			
Code	<i>CIC</i>	Subdivision	<i>Finishing</i>
Date	Total for Day	Old Total	Total to Date

AUG 1	56.95		
AUG 2	63.25		
AUG 3	64.65		
AUG 4	77.25		
AUG 5	89.15		
AUG 6	56.56		

Control Card			
Code	<i>CIC</i>	For	19
Date	Total for Day	Old Total	Total to Date

AUG 1	223.58		223.58
AUG 2	213.24	323.58	436.82
AUG 3	237.72	436.82	674.54
AUG 4	275.65	674.54	950.19
AUG 5	332.56	950.19	1,282.75
AUG 6	191.61	1,282.75	1,474.36

7.60
7.60
7.13
7.13
7.60
5.69
42.75
6.13
6.13
2.93
5.20
5.20
5.19
6.17
37.05
4.05
5.30
8.59
8.59
8.55
8.55
4.05
4.50
5.40
6.30
55.25
8.03
8.03
8.07
8.07
4.06
4.06
8.08
8.08
8.07
56.56
191.61

No. *CB 806*
CIC
Remov Forms 9 855

No. *CB 824*
CIC
Remov Forms 4 405

No. *CB 618*
CIC
Remov Forms 5 450

No. *CB 892*
CIC
Remov Forms 6 540

No. *CB 812*
CIC
Remov Forms 7 630



Time Record Slips on Cadillac Building Job Were Easily and Neatly Transferred to Permanent Records With the Rapid Help of Adding Machines.



Time Card Racks Arranged to Prevent Delays and Controversies.

entire job for the day and to date.

Record of Materials

Material costs were distributed in a manner similar to labor costs. Requisitions were "batched" by code numbers and accounts. These individual items were then listed and the total posted to an individual account. This total, added to other "batch" totals, gave the grand total for all subdivisions which were posted to the control card. This control card gives the value of material used during the day, and the total cost of material to date.

These daily figures made it possible for the book-

keepers to prepare a report for the main office at Wilmington, on a moment's notice if necessary.

Stockroom Savings

A great saving was effected in the stockroom by the use of the following plan:

Material from the storeroom was delivered to the bearer of a store order when the order was signed by a man authorized to requisition stores. These orders were assigned a charge account by a code similar to the one mentioned before. As the stock record for any kind of stock showed both quantity and value the operator posted both, at the same time.

STORE ORDER No. 26502

CHARGE E-3-C

QUANTITY 2122 DESCRIPTION 3 1/2 Maple Flooring 17/16" X 2 1/4" VALUE 1151.55

ENTERED H.C.H.

DATE 2-28-20 M.C.E.

Du PONT ENGINEERING CO
DETROIT, MICHIGAN

MATERIAL AND SUPPLIES RECEIVED

DATE Feb. 28th, 1922

RECEIVED BY Willian Horner

CONSIGNOR Reed Ply, Michigan

SHIPPED FROM WIK. FIELDS

ENTERED H.C.H.

RECORD OF STORES

Name Flooring Part Number

Placed per 100 Sq. Ft. Per 1000' Maximum

Pounds per 100 sq. Minimum

Size 17/16" X 2 1/4"

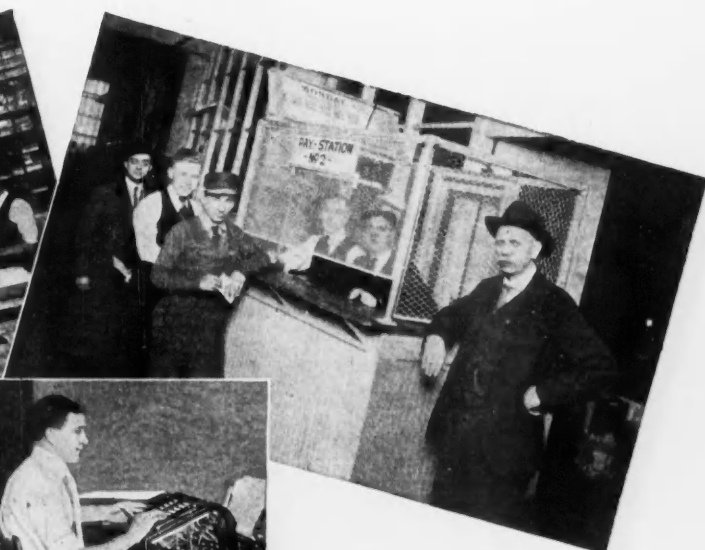
Description Maple

QUANTITY OR PIECES				MONEY VALUE			
On Hand	On Order	Received	Issued	On Hand	On Order	Received	Issued
49127	466707	381058	9500	466707		466707	
49127	466707	381058	9500	466707		466707	
89238	847762	286215	9500	847762		847762	
119366	1139778	158023	9500	1139778		1139778	
136006	1292001	220039	9500	1292001		1292001	
159162	150778	150778	9500	150778		150778	
175033	2152040	2152040	9500	2152040		2152040	
197740	2152040	2152040	9500	2152040		2152040	
204901	2044407	162158	9500	2044407		2044407	
304546	2516562	472160	9500	2516562		2516562	
	2892190	376628	9500	2892190		2892190	
15020	15020	257878	9500	15020		15020	
15020	142690	169812	9500	142690		142690	
15020	5715	168008	9500	5715		5715	
15020	54292	158008	9500	54292		54292	
15020	5750	251475	9500	5750		5750	
15020	26806	251475	9500	26806		26806	
15020	23108	222376	9500	23108		23108	
15020	49165	467068	9500	49165		467068	
15020	38330	467068	9500	38330		467068	
15020	38330	364135	9500	38330		364135	
15020	129719	129719	9500	129719		129719	
15020	31956	303582	9500	31956		303582	
15020	31070	294690	9500	31070		294690	
15020	20594	196617	9500	20594		196617	
15020	20467	303582	9500	20467		303582	
15020	32145	1287516	9500	32145		1287516	
15020	21310	1592894	9500	21310		1592894	
15020	24495	1795313	9500	24495		1795313	
		213478	00			213478	00
			00			2028042	

The Exact Quantity and Money Value of All Materials and Labor Expended on the Cadillac Motor Co.'s Big Building Job Were Totaled and Known Daily and by Sum Total to Date. This vital information was possible by means of a simplified cost system that any builder can use.



No Confusion or Costly Delays When the Stock Room Is Correctly Planned and Conducted.



A Sufficient Number of Pay Windows Made Pay Day Orderly for the Du Pont Engineering Co. on the Cadillac Building Job.



The Adding Machine Makes Today's Facts Knowable Today.

Stocks received were posted as soon as the "Received" sheets were checked against the invoices. The quantity and value of the new stocks were added to the old balances and the new balances extended. The operation was much the same as in posting requisitions, except of course, that quantities were added instead of subtracted.

Store order postings to the stock record ledger cards averaged 750 items a day. Received orders averaged 200 items a day. Certain cards in the stock record ledger were posted three or four times in a day when miscellaneous material was being posted.

Every builder recognizes the dollar and cents value of experience. The more he knows about every contract that he handles the more practical and usable experience he gets. How is he to stop waste unless he knows just where the waste is? How is he to be sure that labor costs are figured correctly on the several divisions of the job unless he knows what the labor costs actually total on each operation? Is his experience of the fullest possible use unless it is based on detailed and complete knowledge? Of course not.

Cost accounting is of vital value because it replaces uncertainty with positive knowledge, it enables a builder to know rather than to guess. Sometimes if he is just guessing he will guess too low and pay the cost of the error out of his earnings. Sometimes he will guess too high and forfeit the job to another contractor, unless he has followed the good practice of detailed cost accounting so he can make his bid keeping with actual costs determined thro detailed records on every contract.

More contractors and builders would use cost

accounting systems if they knew how simplified they may be made.

Service 6602		
DU PONT ENGINEERING COMPANY DETROIT, MICHIGAN		
A. M.	P. M.	Overtime
No. <i>412</i>	Date <i>Aug 1 1920</i>	
Name <i>Arthur Sampson</i>		
Occupation <i>Carp</i>	Amt. <i>8.55</i>	
Hrs. Wkd. <i>9 1/2</i>	Hrs. Pd. <i>9 1/2</i>	Rate <i>90</i> Bonus
Timekeeper _____		
Foreman _____		
CHARGE	HRS.	AMOUNT
No. <i>CA 412</i>		
<i>CIC</i>		
<i>Remove Forms</i>	<i>9 1/2</i>	<i>8.55</i>
No.		
No.		

If a Workman's Kind of Work Was Changed During the Day a New Stub on the Three-Stub Time Ticket Was Made Out by Sorting and Totaling These Stubs. The total labor cost on each operation was determined.

HOME PLANNING TALKS

By Our
Head Draftsman



“Would You Be Interested in an Income Producing Property That is Also a Real Home?”

EVERY day clients come to us with the request for plans and ideas for homes that will be, in a measure, income producers. And there are many of these—ranging all the way from the ordinary double house to the multiple apartment building.

A new type of home which is an ingenious income property is gaining in popularity among home builders. It merits the attention of members of the building industry and every one who wants to build for profit.

It is a combination residence and apartment building. It is so designed that in addition to providing the owner a home of his own it brings him in additional income. It is a three flat home with the appearance of a regular private residence, overcoming the objection many people have to living in a home that has the appearance of a double house.

Converting the second and third floor—if there is one—into three-room apartments increases the earning capacity of the property considerably more than building a regular duplex house. In this arrangement one flat, consisting of six rooms—three of them bedrooms—and bath occupies the first floor. This is ideally suited for the owner and his family. On the second floor are two three-room apartments with private baths. These two flats will bring in more rent than if the entire floor was rented as a six-room apartment. If a third floor was desired the same arrangement could be adopted there. Three rooms is the popular size of small flats today in most all of the modern apartment buildings. They are convenient and practical and are much in demand by renters.

Because of the attractive income features more of these homes will be built in the future. It is an excel-

lent field for contractors and architects to employ their new ideas of construction and design as its development is just beginning. One of the Blue Ribbon Homes described in this issue clearly illustrates this new idea in home building.

A QUITE different kind of a double house is also illustrated this month. It is more decorative than most; and this particular one was designed for a location having a beautiful outlook two ways—front and back. So one-half of the house is on the street side, the other faces the lawns and garden.

It's just an example of the clever ideas that architects and builders are working into their home designs today.

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

THERE have been a good many favorable comments on our remarks last issue in this place on that ever present question, “how much will it cost?”

We expressed it as our conviction that there is just one right and proper way to get an estimate of cost on a proposed new building, and that is to get it from a responsible local builder or supply dealer who will stand back of his figure by delivering the materials and labor at the price quoted.

We would like to repeat here to our clients and their friends who often write us asking this question, especially in regard to our Blue Ribbon Homes: We could make a good guess and it would be accurate so far as we know the details of the job; but after all, *it is the responsible local man who will furnish the labor and materials who is the only one whose estimate has any value.*

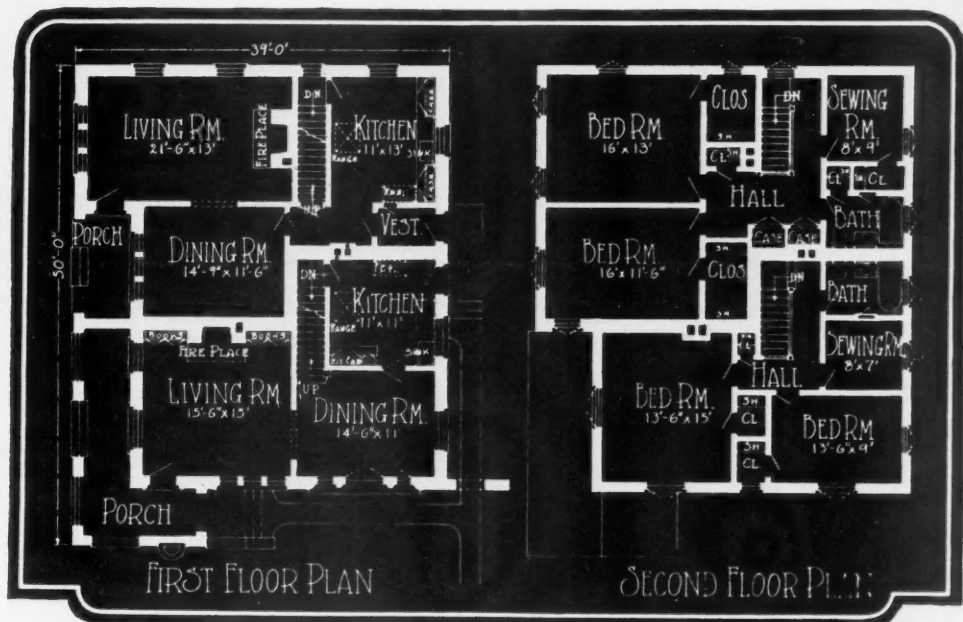


THE annual rust-loss of home-owners of this country is six times greater than the fire loss.

DUI
ti
the ot
help t
design
tive ar
fnish,
each h
has a
death o

BLUE RIBBON HOMES

PRACTICAL
&
ARTISTIC



DUPLEX HOUSE OF SPANISH DESIGN. This is a type of home that is becoming very popular in many sections of the country because it enables the owner while occupying one-half of it to realize a splendid income from the other half at the same time. There are many who prefer to erect a double house and with the additional income help to pay for the property but they do not wish to live in a home that has the appearance of a double house. This design therefore is just what they are looking for. It is very seldom that we see a double house with such an attractive and charming appearance as this one. The red tile roof, the porches with the impressive archways, the stucco finish, the style of windows and shutters are all designed and set off beautifully. The interior arrangement is excellent, each home containing six rooms and bath and being absolutely separate and independent of the other. Each home has a living room, dining room and kitchen on the first floor and two bedrooms, a sewing room 8 x 9 feet and a bath on the second. In both homes you enter the living room from the porch.

Million Ft. of Lumber in MovieSet

Skilled Builders Employed to Duplicate Ancient Castle Used in Feature Picture—
Build Speedily

By CARL K. CHAPIN

INSTEAD of the flimsy, makeshift construction that was once considered adequate, the trend in building moving picture sets seems to be toward substantial structures erected by the best builders and engineers and using great quantities of standard materials.

Builders who can handle difficult construction and who have the equipment and staff to assure completion of the job in record breaking time are in constant demand in the motion picture centers.

There is no feverish rush to make the plans, months often being spent in studying architecture of other periods and in preparation for the actual building but when the work is once under way every possible time-saving method is used.

Duplicate Town in 42 Days

The research branch of the Douglas Fairbanks Pictures Corporation spent a year in acquiring details concerning the intimate history of Twelfth Century life among the English people; these details to be used in the picturization of Douglas Fairbanks in "Robin Hood." When final plans were ready, the production staff of engineers and constructors occupied an adobe swamp, and in 42 days with an army of 500 skilled mechanics, had completed replicas of the castle of King Richard the Lion Hearted, and the town of Nottingham—and the picture was on production.



Massive Wall and Gateway Built to Imitate Stone Perfectly Is One of the Interesting Construction Features of the "Robin Hood" Scenery.

During these 42 days upwards of 1,000,000 ft. of lumber had been put in place, 252 tons of plaster and 400 bbls. of cement had been used in casting the sections of imitation stone facing which covered the 700 ft. of exterior walls to the castle. These walls were more than 80 feet in height from the surface of the water in the surrounding moat, to the top of the parapet.

Certain details of the draw bridge and tower construction were cleverly worked out in fabricated steel, later to be masked with wood and plaster to give the appearance of the ancient wood and stone structures. These self supporting steel towers were 60 feet high and rested on concrete pedestals that they might carry the strain of the draw bridge, which had a span of 28 feet and a width of 20 feet, 8 inches, without allowing any of the thrust from the bridge to be transferred to the castle walls and thereby causing cracks in the carefully prepared plaster surface.

In casting the exterior walls a matrix of real rubble wall was laid by stonemasons, this model section being 12 feet by 24 feet, and from this were prepared the moulds from which all subsequent plaster casts were struck. At the peak of production more than 10,000 square feet of wall castings were made in one day, or enough to house in 8 ordinary 6 room dwellings.

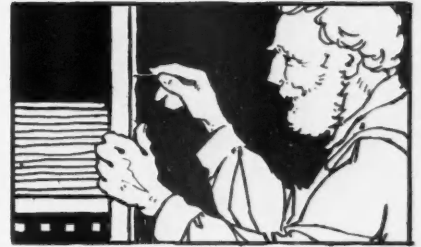
Credit for the ingenious methods of combining good engineering practice with the peculiar requirements of the picture industry belong to Robert Fairbanks, who is production manager at the studio. Solid concrete blocks which cover the floors of the banquet room and the interior of the castle proper were laid in colors by filling a sectionalized hollow frame form 12 feet by 18 feet with stained concrete in the various sections and pulling the form as soon as the surface of the blocks had been floated with wooden trowels. This proved an inexpensive and quick method of laying this patterned floor which is larger than the concourse of the Pennsylvania Station in New York.

The achievement of erecting this massive structure with its 50,000 square feet of imitation stone exterior and 178,000 sq. ft. of interior walls of plaster board, button lath, etc., in 42 days, will stand for some time as a record.



A Tribute

By Maude Krake Backlund



MY father was a carpenter. I played
 Among the clean fresh shavings in his shop,
 Finding a new use daily for the sweet
 New millings of the golden sawdust meal
 While little daughters of more prosperous men,
 Proud mothers, wheeling prouder stiff-necked dolls
 In varnished, velvet-cushioned carriages,
 Listless and bored went by the open door.

WITH bright new nails and bits of smooth-planed
 boards
 I built doll chairs and beds. The little cart
 My doll rode in my father made for me.
 He made my sled, my desk, a set of shelves
 Which held the books that one by one were bought
 At some small sacrifice to please a child
 Who read too much, and dreamed too deep and aimed
 Too high for one who soon must work to live.

I DID not like to sew, having no mind
 For things so wholly feminine; yet drew
 Patterns and figures on thin bits of boards
 And cut them out upon the bracket saw.
 Having no mind for woman's work, I found
 Less interest in woman's narrow speech
 And ran for refuge to the droning saw,
 The swishing plane and hammer's rhythmic beat.

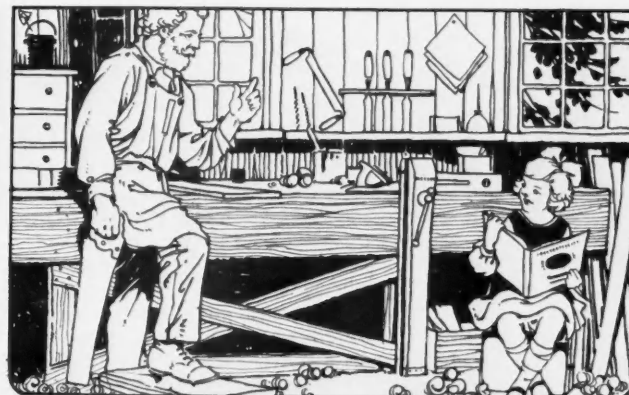
MY father talked to me when I was nine
 As with himself; a silent self which served
 To clear a thought by simply listening.
 Later we often held opposing views,
 Had many a strong and heated argument
 And I was pleased when I had gained a point;
 Yet prouder was that child who dared a world
 To prove her father's judgment less than right.

OFTEN on Sundays, tramping thru the woods,
 Or on long drives beneath a starlit sky,
 My father talked to me, his woman-child,
 In speech most tender, personal and wise.
 I think he could have fashioned from a plank
 A wooden creature, which beneath his words
 Would stir with noble impulses, and feel
 The sap of life again along the grain.

THRU love of men and reading he became
 A lawyer, keen to do without the court
 In settling controversies which arose
 Between old neighbors, needless quarrelings
 Which brought good men, tho stubborn, to the law;
 And his desire that common brotherhood,
 Not fear of penalties, should keep the peace,
 Brought him good friends, and cost him many fees!

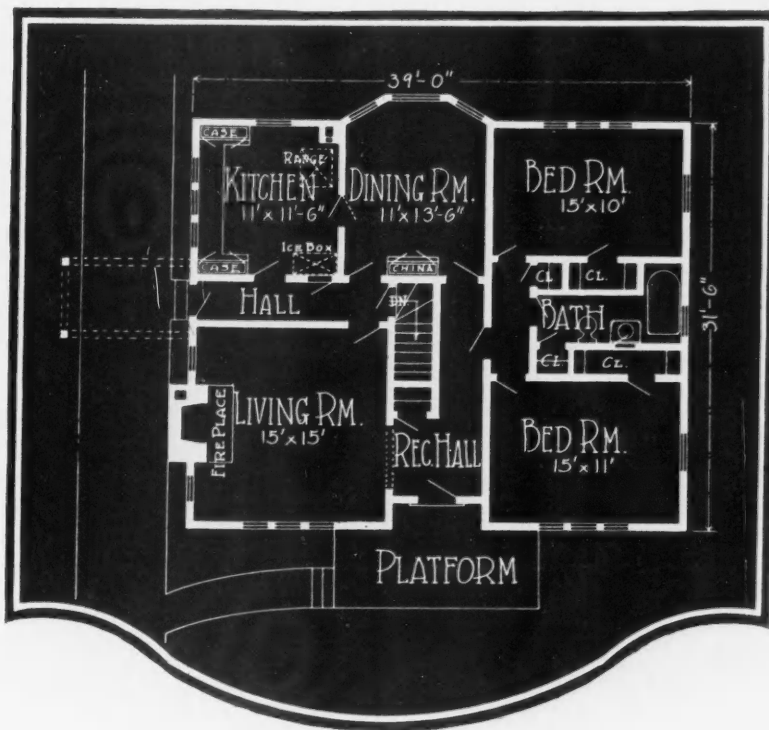
THE friendships of those later years became
 A lasting tribute to a man of worth.
 They speak oft of his loyalty; his keen
 Prophetic vision, and his eloquence
 And noble purpose; of his character
 Consistent with the standard he maintained
 Ideal for his fellow-man; and thus
 They think of him as they have known him best.

BUT I recall a deep pine-scented shop,
 And one who, like the Master Carpenter,
 Looked lovingly upon a little child,
 A wondering child, who read and dreamed too much,
 And had strange thoughts which would not be denied;
 For to my childish mental vision came
 My father's face, when someone spoke of God;
 God's grace is still my father's tender smile!



BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



POPULAR IN CALIFORNIA. But this type of architecture is, by no means, exclusive to that section. Here is a home that is compact, is built of durable material and that insures snug warmth in winter and unusual coolness in summer. No wonder it is a type of construction becoming generally popular. It has the customary five rooms and all of them are of good size. The unique entrances and the bay window treatment in the dining room are distinguishing features. A china closet, fireplace, ample closet room and a pergola are added features that make this striking design particularly pleasing. The increasing popularity of this type of home assures it will meet modern desires for many years.

Where Mahogany Is Used for Natives' Huts

IN Mexico today travellers will find in certain inland sections of the country that homes built of mahogany are very much the

style. While this valuable wood has always been so expensive in this country that it has been confined to furniture and cabinet work, it is interesting to hear of its use there in the mahogany forest regions for all kinds of building, the peons having to build their homes of it when they would much prefer American

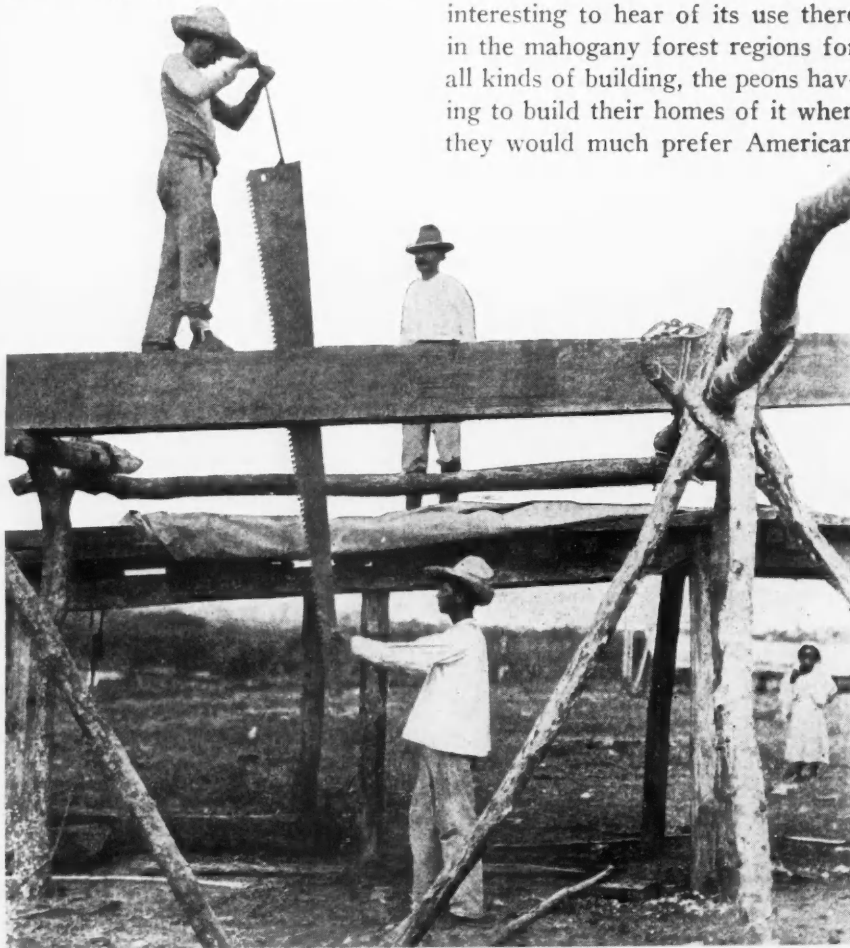
pine—which for them is too costly.

Building homes, particularly by the peasant class, of solid—no veneer—mahogany to us of course is very unusual and seems like poor business judgment when there is such an excellent market in this country, but there it is a case of necessity and economy, because it is the only wood adapted for home use that is plentiful and easily obtained.

There is something fascinating about the romance of mahogany. Probably because it is grown in tropical countries only, making it different from the regular American timber.

Here in these inland sections of Mexico, many of the people still using primitive methods, that American lumbermen have long ago discarded, turn out this popular and costly wood. It seems strange, with such a heavy and constant demand for the wood, that modern and more efficient methods have not been adopted.

Mahogany is being used now for interior trim of many homes because of its attractive appearance, color and quality; and to the architects, contractors and builders who are coming in contact with it frequently these illustrations of various phases of the industry will prove interesting.



The Mahogany Industry in Mexico. A primitive method of sawing out planks. Back in the mahogany country most of the houses are built of this material and it is solid—no veneer. Mahogany is the only wood, except cedar, that can be worked easily and it is therefore used for all kinds of building. The natives would greatly prefer pine, but this wood is more expensive than the mahogany.



Unloading a Forty-foot stick of Mahogany Into a Mexican River.

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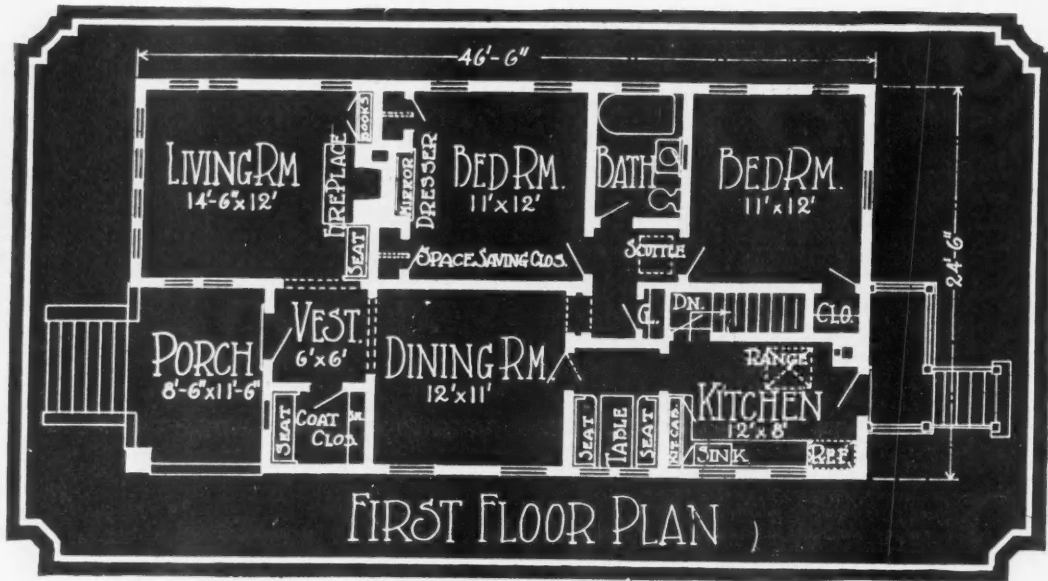
These Peon Workmen, Laboring for Next to Nothing and Under Most Trying Conditions, Become Highly Expert in the Use of Their Long Axes. They square the mahogany timber to exact size and with surprising accuracy.



A Few of the Larger Logging Companies Have Installed Modern Methods and Handle Their Mahogany Logs from Forest to Tidewater on a Narrow Gauge Railway. This photo is of the operations in Campecho, center of the Mexican mahogany industry.

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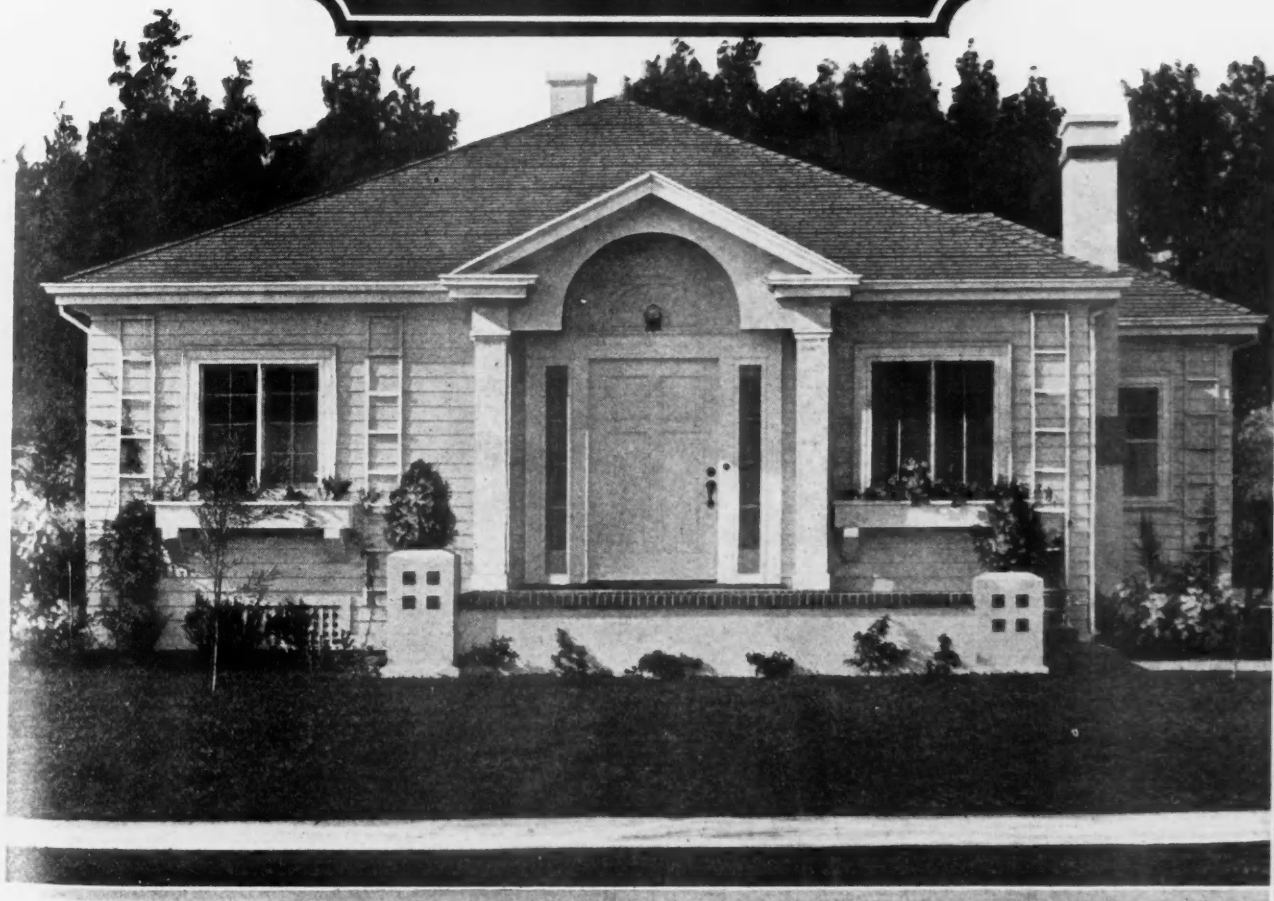
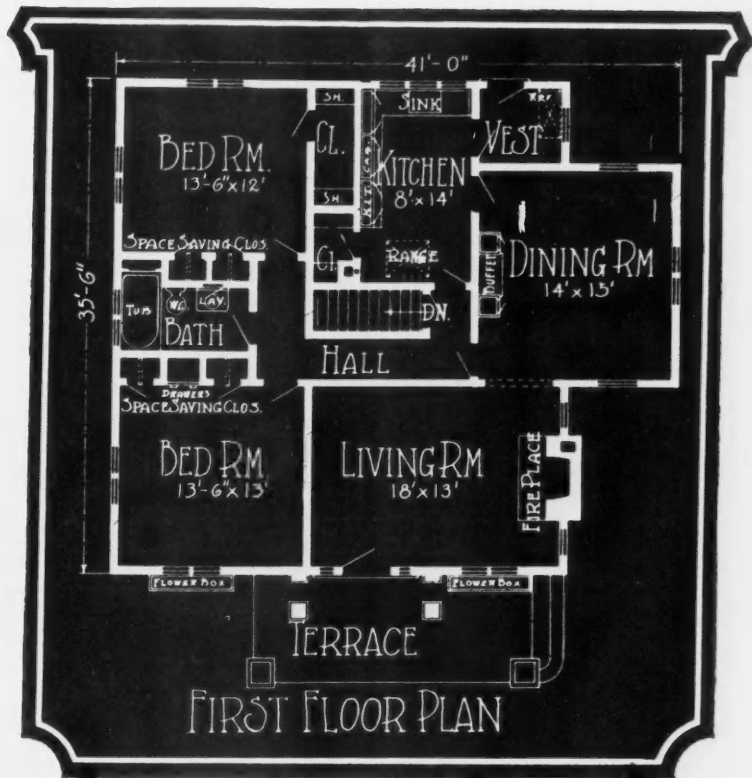


ATTRACTIVE AND ECONOMICAL STUCCO HOME. This residence is especially designed for home-seekers preferring a stucco house that is cozy and compact. It has a conservative and substantial appearance. The rooms are all large and comfortable and the interior arrangement is very pleasing and convenient. One particularly desirable feature that will appeal to the housewife is the breakfast room located directly between the kitchen and dining room. From the porch one enters a vestibule, half of which is converted into a coat closet. Directly ahead is the dining room. The breakfast room and kitchen are also on this side of the house. The living room joins the vestibule by cased opening directly to the left. It is very modern with a fireplace, seat and built-in book cases. The two bedrooms and bath occupy the rest of this side of the house.

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BLUE RIBBON HOMES

PRACTICAL & ARTISTIC



AN ARISTOCRATIC BUNGALOW. This is an excellent design of a 5-room bungalow that is different. It has all the attractive features a modern home should have and the terrace and front entrance which have been distinctively designed create a very pleasing appearance for the front exterior. The rooms are all large, the living room being 18 feet by 13 feet with a fireplace. The two bedrooms, on the left of the house, are very comfortable, both being 13 feet 6 inches by 13 feet with two windows each. The house itself is 35 feet 6 inches by 41 feet and sits well on a good sized lot leaving plenty of ground for a beautiful lawn.

Movies to Promote Home Building

By PAUL GREEN

SENSING the national need for some concrete method of encouraging home building in the United States—one which would not entail a prohibitive cost—one of the most prominent educational film companies took it upon itself to ascertain exactly what could be done to meet this demand. As a result a five-reel film is now being made and already requests from all parts of the United States have been received asking for the privilege of using it.

By this method the Perfect Home will be taken to the people instead of asking the people to come to the house, as heretofore. This greatly increases the number of people who can be reached and influenced toward owning homes.

A modern six-room brick colonial residence is being built in Glen Ellyn, Illinois, for the purpose of making this film. The problems that confront the prospective home builder are thoroly met and discussed thru the medium of this picture.

This method will secure national interest to the



The pensive, loving mother, anticipating the new home—a home for her growing children.

“Own Your Home” movement and has a great deal more in it than the old method of erecting homes to be shown over a limited period of time. The non-essentials can be omitted and the dramatic interest played up to the highest degree. The popularity of the movie theatre is the best endorsement of the value of this method of solving this problem.

The first problem that the would-be builder finds himself confronted with is the selection of the lot. Its value from the standpoint of securing a loan to be used in the building of the home is developed to the highest degree. The banker gives his advice. Other steps considered are: the consultation with the architect, the going over the bids, the choice of the contractor, the selection of building materials in the house.

Some considerable film is used showing the mechanical construction of the house. More or less space is devoted to correcting some of the popular misconceptions concerning building. Therefore this film is of particular



“Breaking Ground” for the Movie Home-Building Plot. Real actors and a real scenario will create a film masterpiece in the interest of home building in the United States. The producers have already received bookings for this film from practically every large city and town in the United States. Every labor and time-saving device—electrical and otherwise—will be shown in this house.

interest to contractors. Everything possible is done to boost the interest in home building.

The story begins with the city life of a typical Chicago family in a typical Chicago apartment. After varying experiences extending over a period of time the family finds itself temporarily separated. The father is in Denver establishing a new business connection.

A difference of opinion regarding the advisability of home-owning has developed almost into a breach. The husband (the hero) is used to typify opposition toward home building. He, like many others, does not feel that home owning is enough in itself to justify the money outlay. He feels that renting is more economical and supplies all the necessary demands that only the home can fill. He is blind to the real issue. He is shown at every turn as the object of ridicule owing to his attitude toward home building. He stubbornly holds to his views up to the very last, even tho now and then he has a moment of uncertainty. Without acknowledging it his uncertainty is growing.

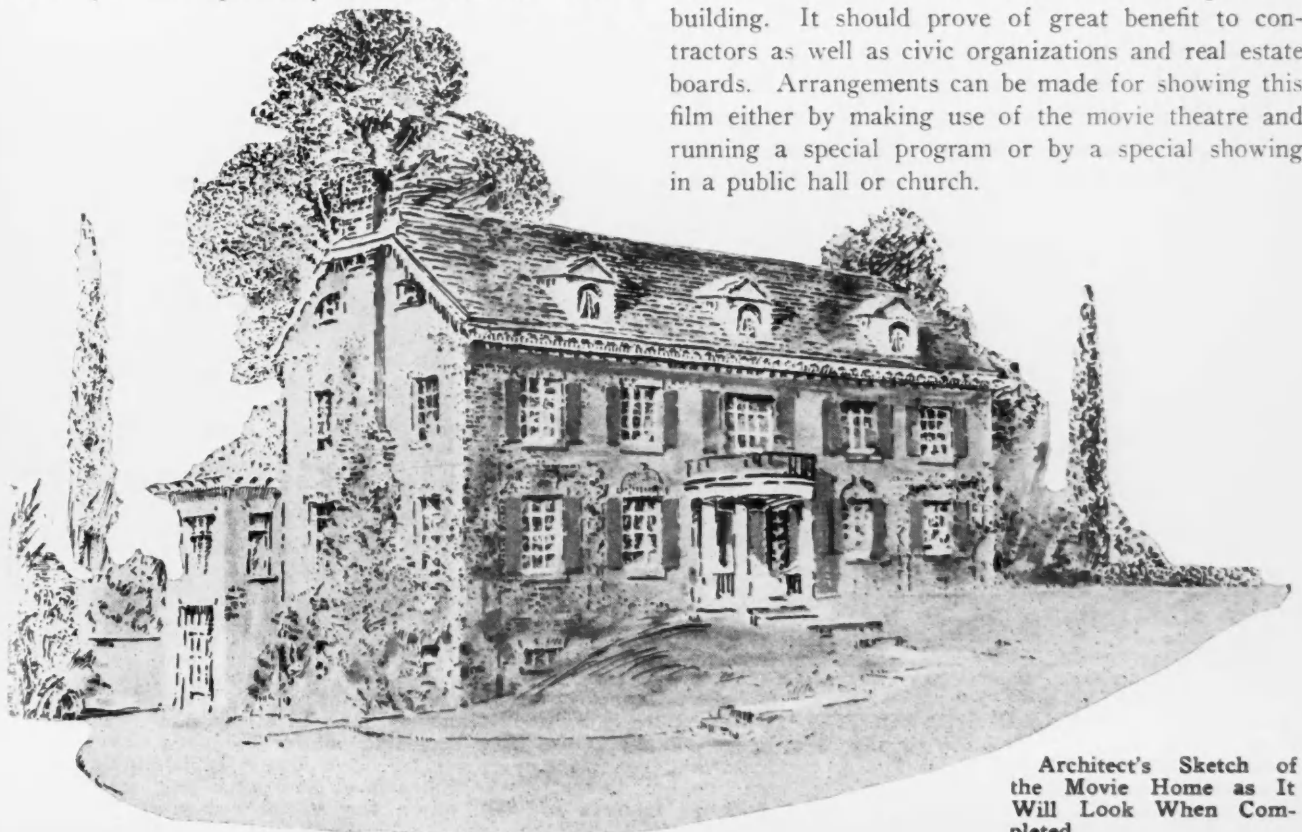
Returning home at Christmas time and not knowing that his wife has, in the meantime, built a home in one of the Chicago suburbs, he goes to the apartment that they had occupied only to find it deserted. As he



Janitor to Tenant: "You've Got Just What Your Lease Calls for—Heat from October 1st to May 1st, and Not a Day Sooner."

turns dejectedly to leave he is stopped by his father-in-law and is taken to the new home. The joy and surprise of seeing his dear ones waiting for him around the Christmas tree in a new home is too much for him. His pride and his home instinct come to the surface for the first time and he realizes that, fundamentally, he has wanted a home all the time.

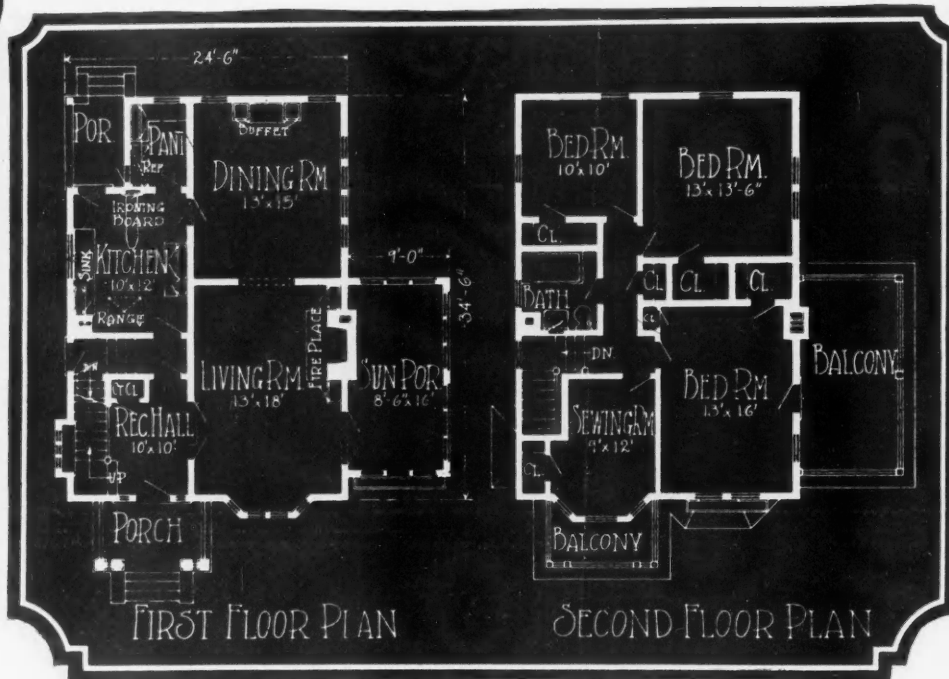
The film will be available for use by any organization or individual who wishes to encourage home building. It should prove of great benefit to contractors as well as civic organizations and real estate boards. Arrangements can be made for showing this film either by making use of the movie theatre and running a special program or by a special showing in a public hall or church.



Architect's Sketch of the Movie Home as It Will Look When Completed.

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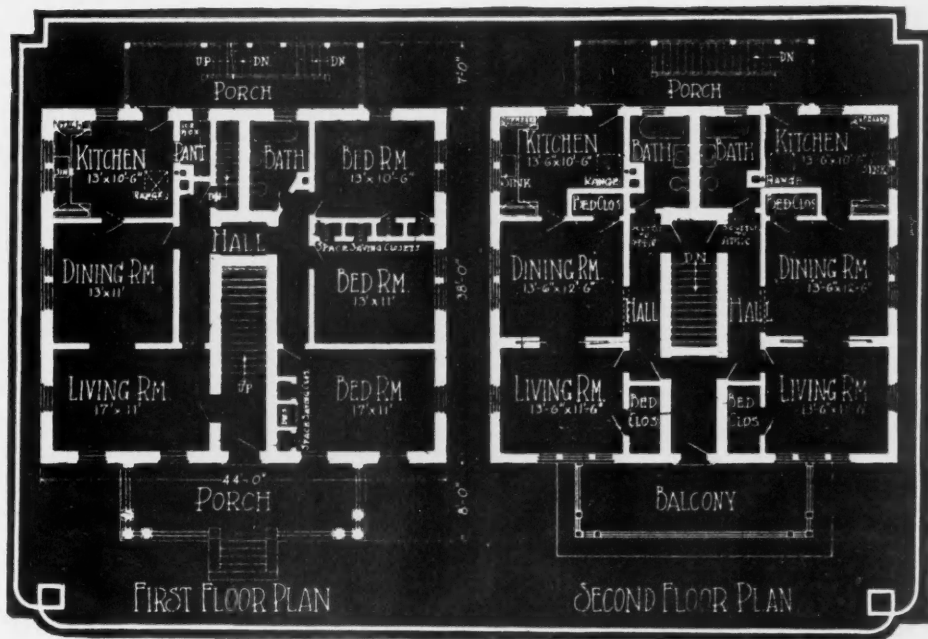


ORNAMENTAL SQUARE HIP-ROOFED HOME. Here is a beautiful home that will attract the attention of every passer-by. There is an abundance of space and the rooms have been laid out for light and convenience. The general appearance, both design and arrangement of detail, place it in a class of its own. In addition to the seven regular rooms there is also a good sized reception hall 10 feet square and a large sun porch that can be used throught the year. The two balconies are very desirable features and will prove very useful and practical besides adding to the appearance of the house.

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INGENIOUS THREE-FLAT HOUSE IS A GOOD INVESTMENT. It is a beautiful structure that appeals particularly to the man who desires a home for his family but feels that he must also have some additional income from the property. It is designed with that idea in view. There are three flats. One on the first floor containing six rooms and two on the second floor with three rooms each. The apartment on the lower floor is adapted for the owner and his family, having three bedrooms, living room, dining room, kitchen and bath. Both apartments on the upper floor having a living room, dining room, kitchen and private bath. They are each equipped with two disappearing beds of the type found in high price apartment hotels today. These beds when down are located in the dining and living rooms. Both flats open onto a common hallways that leads to the balcony.

A Practical Six Room House

Home of C. E. Carter, Esq., Tenafly, N. J.

By R. C. HUNTER & BRO., Architects

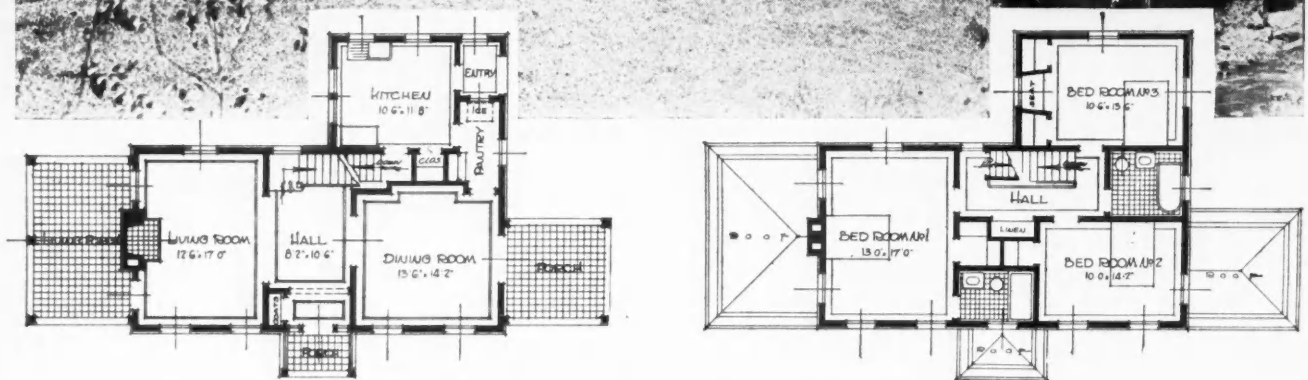


Photo and Plans of Delightfully Planned Home at Tenafly, N. J.

THE plan arrangement of this house follows the Colonial type, with the main first floor rooms either side of a central hall and the kitchen and pantry placed in an ell that extends to the rear. The architects have tried no "stunts," they have designed a house, pure and simple, hence no freaks are found either outside or inside.

The plan arrangement adopted gives all rooms good exposure, that is, plenty of light and good ventilation. It gives a well lighted stairway and this is a feature

that is often overlooked. Dark stairways result in accidents, as shadows on steps are very deceiving and missteps are easily made when one is using the stairway.

On the second floor three bed rooms, two bath rooms and plenty of closets are all compactly arranged. Note the numerous windows in each bed room, insuring abundant air and sunshine. Note that the beds have proper spaces and the dressers can be located where they will receive good light.

Pleasingly Unique is This Airplane Bungalow

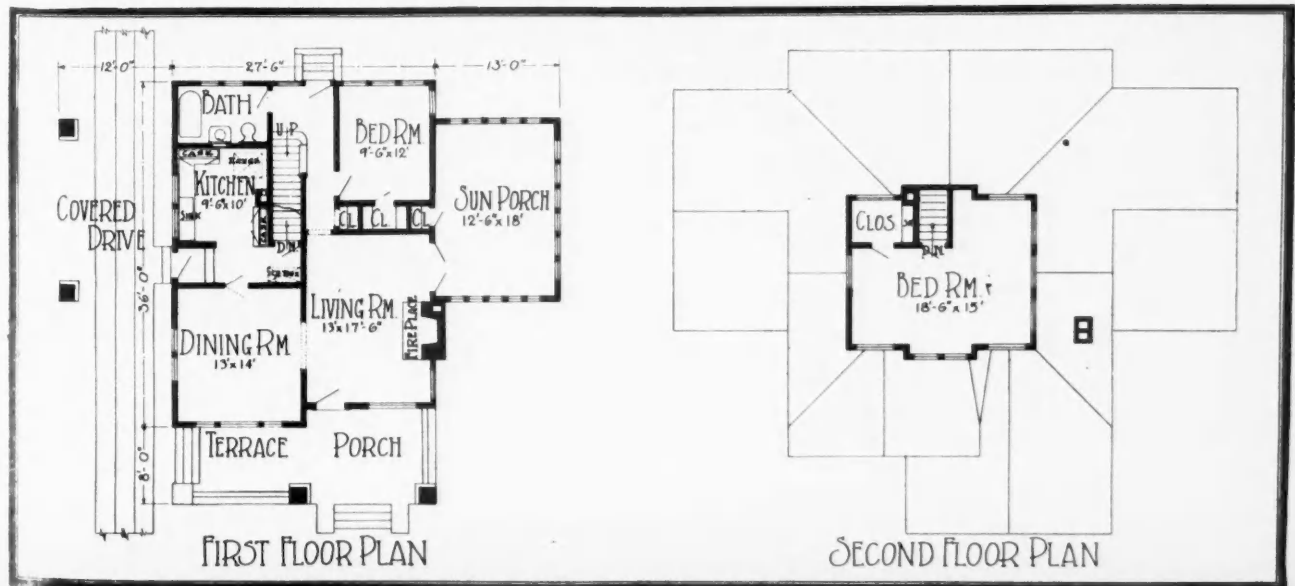


DISTINCTIVE, attractive and yet practical the airplane bungalow is not "just something new" but a home suggestion that will eagerly be adopted by many who value the latest in home designs.

Builders will please prospects by showing them this type of airplane bungalow, a name derived from the wing-like spread of the second story.

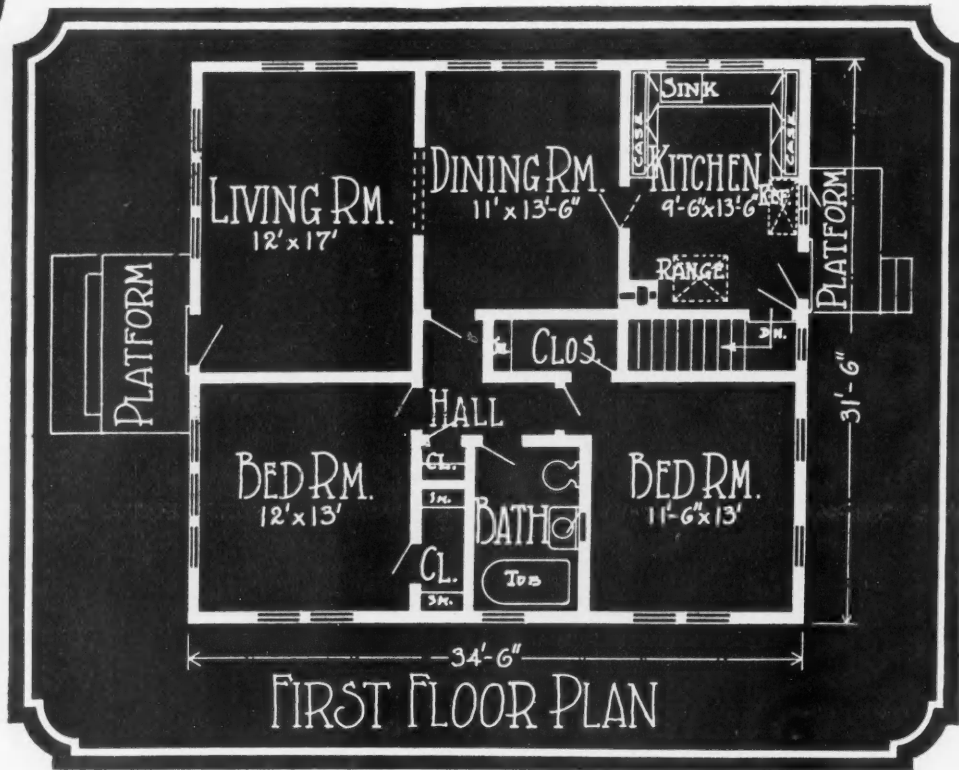
Novel in its exterior treatment, it is wholly practical within. Besides the usual first floor rooms there is a comfortable bedroom below stairs and a spacious and sunny upstairs sleeping room.

The covered drive is a distinctive and practical idea. "Come, take a trip in my airship" may be changed to "come, live with me and be happy in my airplane bungalow."



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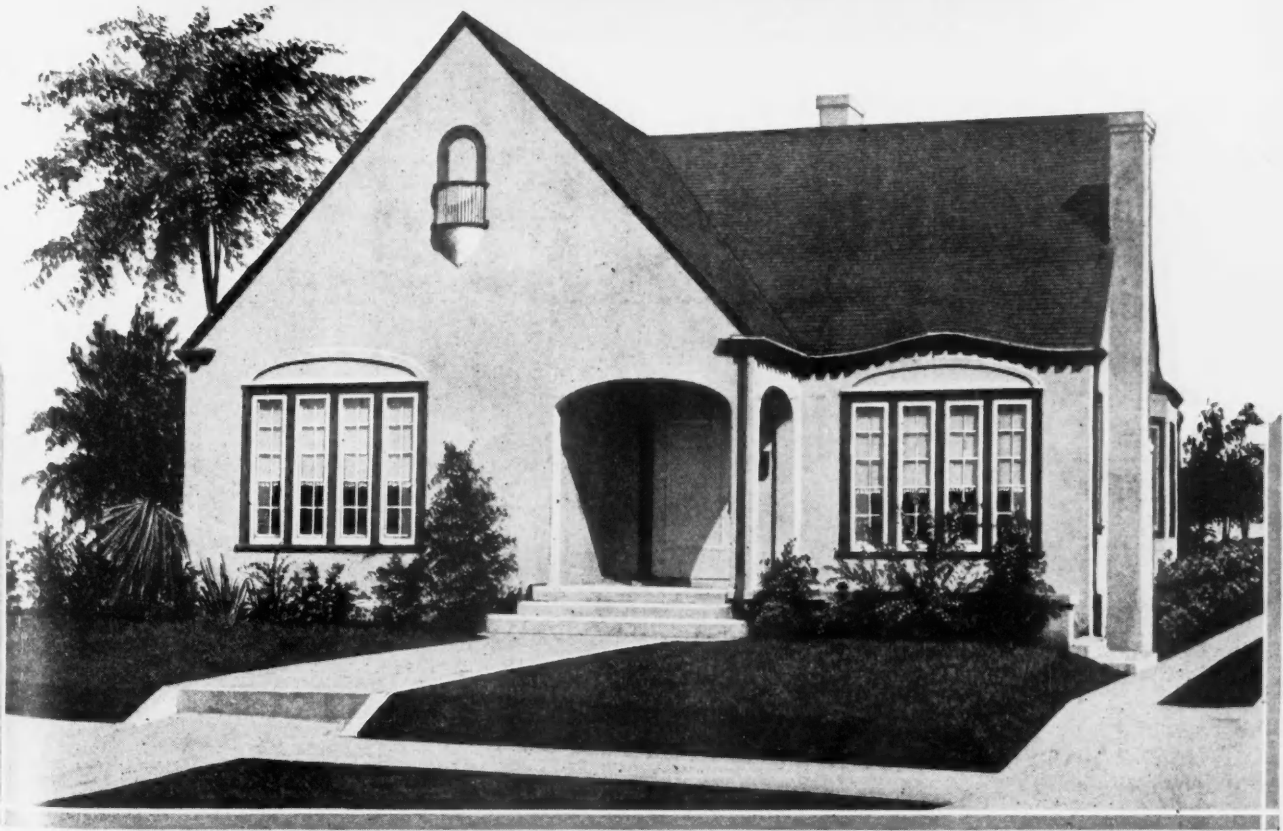
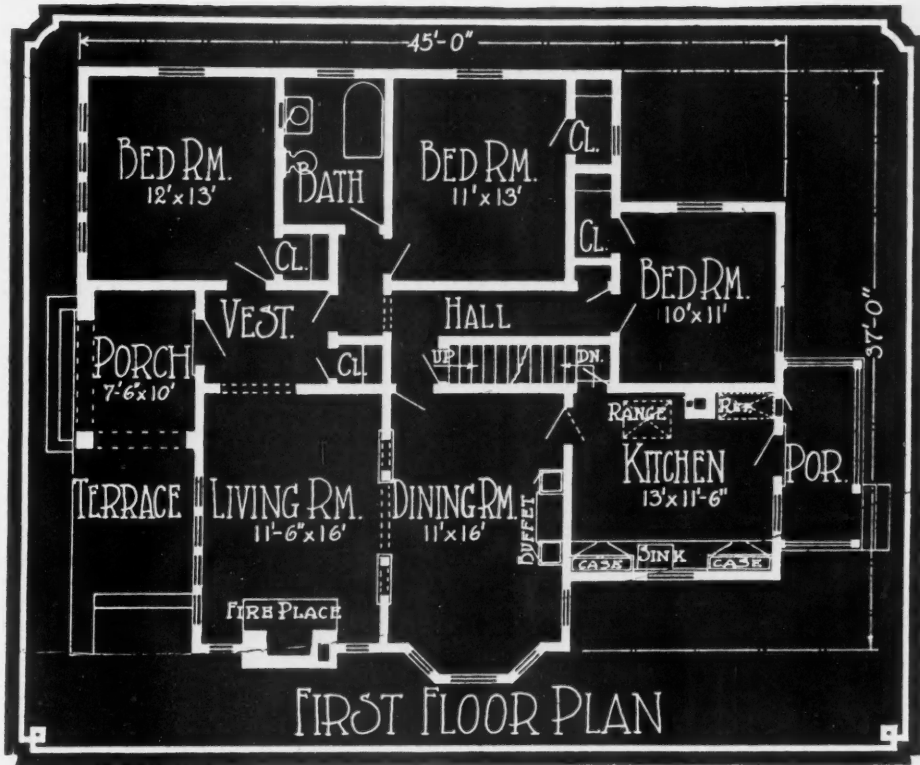


A COZY BUNGALOW FOR A SMALL FAMILY. The fact that this 5-room home is set close to the ground, built up but one story, finished with narrow clapboard sidewalls and heavy eaves supported by extended beams, is an assurance of its bungalow nativity. The designer has sought a departure from the customary by adopting some very attractive colonial features. Note the front entrance, the platform with the colonial hood over the front door. The front windows are built in well, giving an abundance of light to both the living room and front bedroom. The living room is entered from the front door. Directly back of the living room is the dining room. The kitchen is also at the rear.

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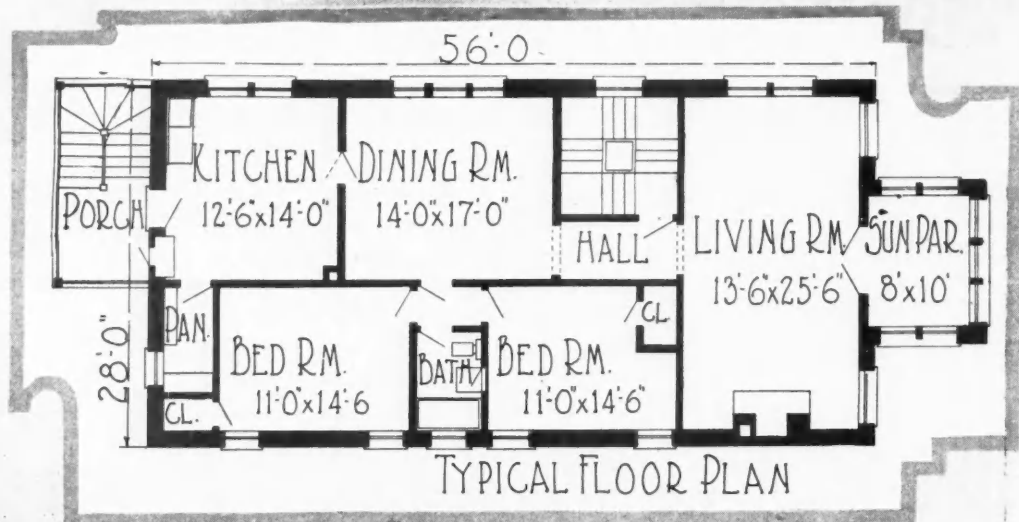
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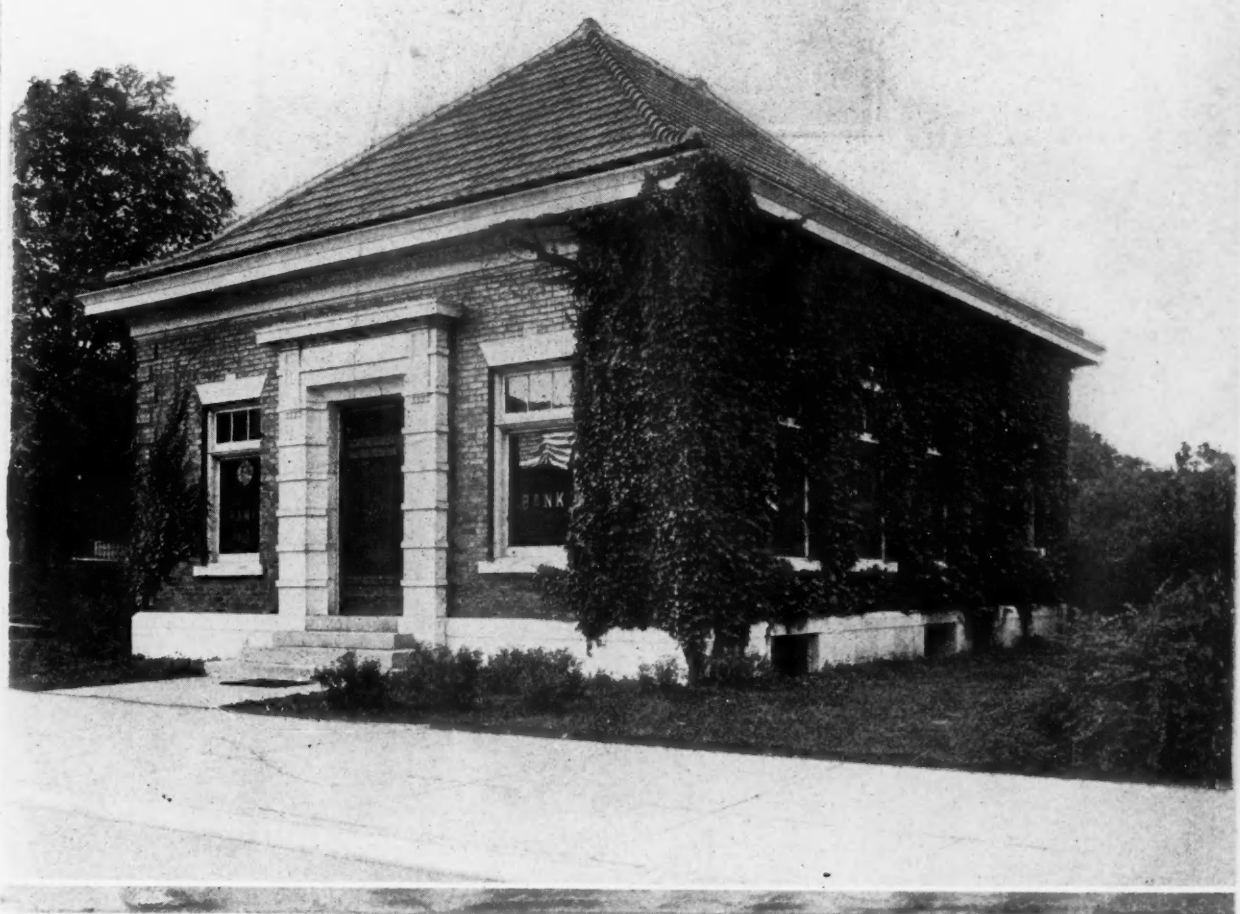
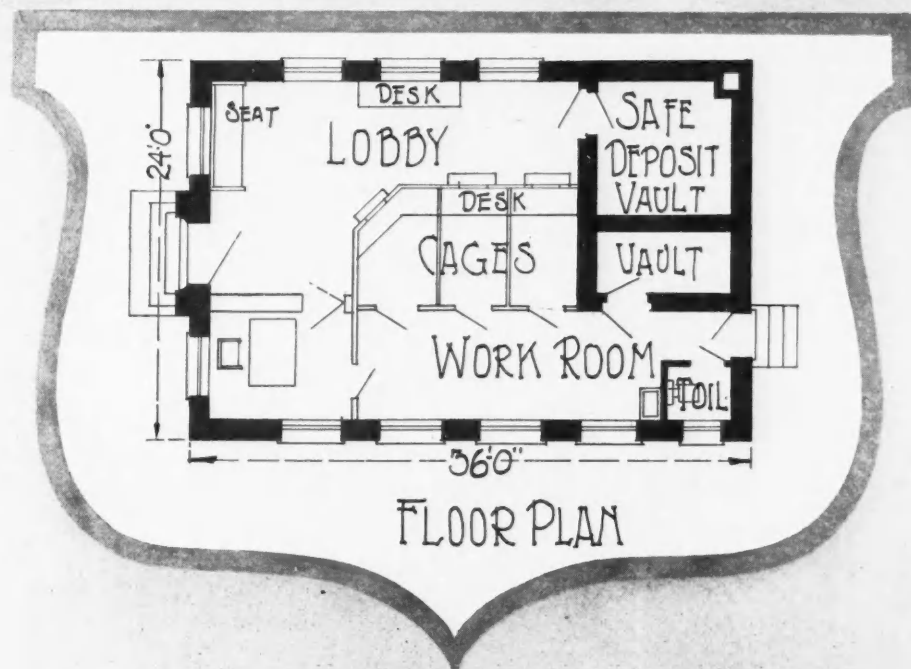
AN UNUSUAL AND DISTINCTIVE BUNGALOW. The designer of this home has delightfully combined the quaint English and Spanish mission styles of architecture. It is a home that will stand out in any city. Its individuality is apparent in many ways. Its casement windows, second story balcony, roof lines, front entrance and terrace all bring about a very pleasing effect. From the front entrance one enters the vestibule. On the left side of the house are the three bedrooms and bath. Two of these sleeping rooms are entered from the vestibule and one from the hall. At the right of the vestibule is the living room. Directly ahead is the dining room which also opens onto the hall. The kitchen joins the dining room and opens onto the back porch.

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MODERN THREE-APARTMENT BUILDING. The sun parlor, which has come to be one of the most important features of the modern apartment, is prominent in this building. It is further enhanced by an ornamental hip roof of green tile which is also used for the main roof. Among the popular developments in apartment construction in the last few years is the living room extending the full width of the house as shown in the floor plan here. Each apartment contains five rooms, of which two are bedrooms conveniently located on one side of the apartment, with bath adjacent. This building is constructed on a narrow lot, being 28 feet wide by 56 feet long.

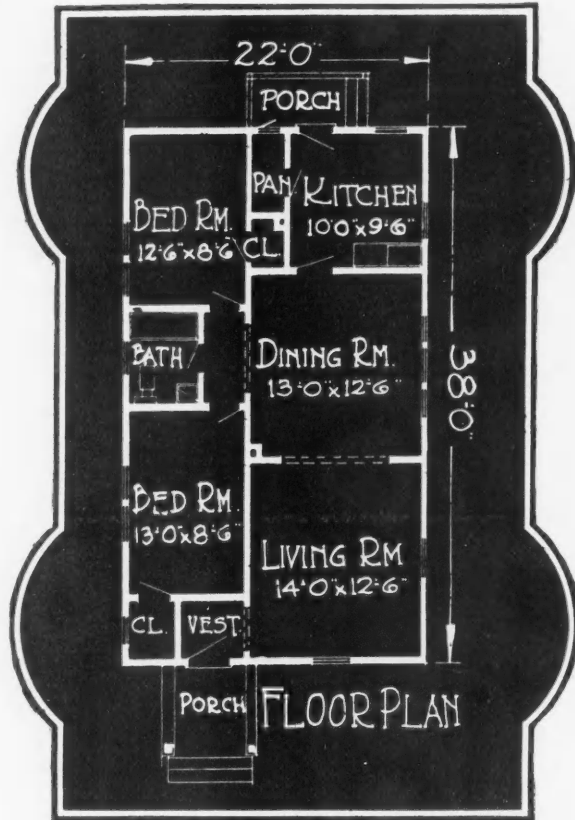
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EFFICIENT BANK DESIGN FOR SMALL TOWN. Builders are often called upon to erect bank buildings in small towns. For this purpose the design shown here is most desirable. Here is a stout structure of brick with terra cotta trim and attractive hip roof of ornamental concrete tile, large enough to take care of the business of a community but at the same time efficiently small. Only 36 by 24 feet, it has a strong safety deposit vault and bank vault, both surrounded by thick brick walls, workroom, tellers' cages, and a good sized lobby fitted with desks and seats for customers. There is also an outer office for bank officials. This is a building that will satisfy the needs of many communities and form a creditable addition to the architectural scheme of the town in which it is located.

BLUE RIBBON HOMES

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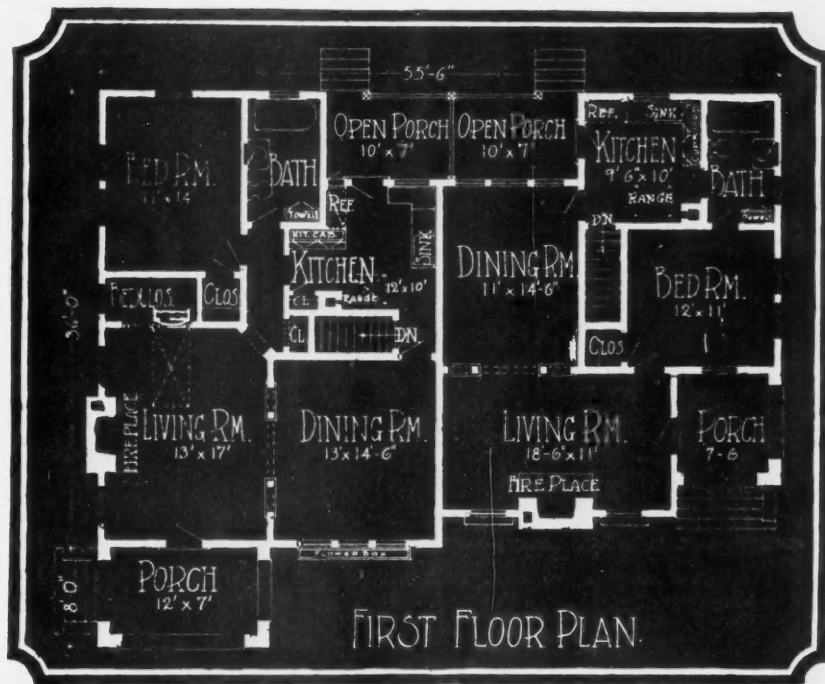


A COZY SHINGLE HOME. Here is an attractive and appealing home-like little place that would stand out above the ordinary homes in any city. The house is especially adapted to narrow lots from 25 to 30 feet as it is 22 by 38 feet in size. All six rooms are conveniently laid out creating a very favorable impression and the building costs should be very reasonable. From the front porch one enters the vestibule or hall. Directly to the right is the living room which is of ample size, 14 feet by 12 feet 5 inches. The two bedrooms on the first floor are entered from the dining room and the bath is located between them. The one room on the second floor is well lighted and comfortably arranged and would be an excellent bedroom.

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ATTRACTIVE DUPLEX BUNGALOW. For those who seek additional income from their property and prefer the western style of architecture this double-house with four rooms and bath in each home will particularly appeal. Both sides of the house are planned along the lines of an apartment. The exterior is of stucco and the exposed parts of roof shingles. A pleasing effect has been worked in with the stucco finish and flat roof. The two porches indicate the front entrances. The living room is entered from the porch in both homes. In addition there is a dining room, bed room, kitchen and bath in each flat. In the left one a wall bed opening into the living room has been provided, making two bedrooms in this apartment. The building is 56 feet 6 inches wide and 36 feet deep. The rooms are all of comfortable and convenient size and are well lighted, ventilated and heated.



OUR FRONT COVER HOME

Hotel Apartment Bungalow

Designers of the Little Bungalow on Front Cover Have Incorporated in it the Attractive and Space-saving Features of the Most Exclusive Apartments

EVERYONE admires the convenience, comfort, attractiveness and efficiency of the modern city apartment hotel.

How would you like to have your own bungalow home designed and planned along the lines of the most modern and exclusive of these buildings?

This is just what has been done with our beautiful November front cover home. It artistically and economically provides the same accommodations and conveniences that have been perfected for these exclusive apartments.

It is a space-saving home equipped with space-saving beds and fixtures with every convenience for comfort and efficiency. Home builders everywhere are realizing the advantages of furnishing their houses with space-saving equipments. They eliminate waste space. They reduce building cost. They increase rental values and augment living comfort.

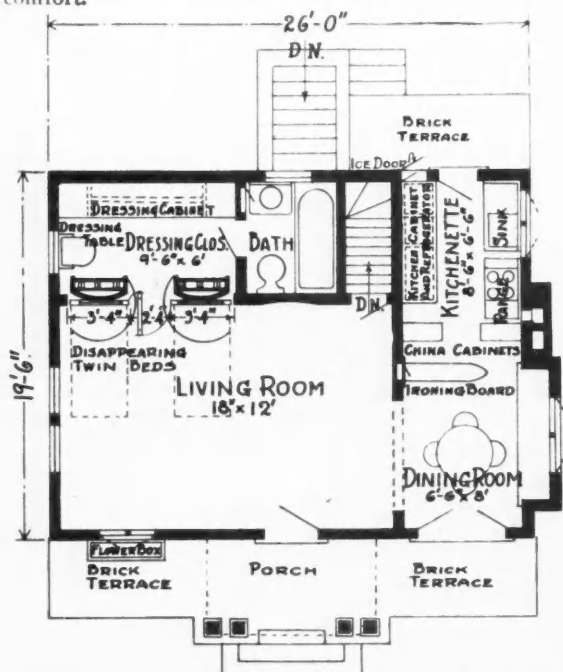


Living Room Showing the Two Door Beds in Night Time Position. Plan provides for a door (not shown in sketch) between beds opening into dressing closet.

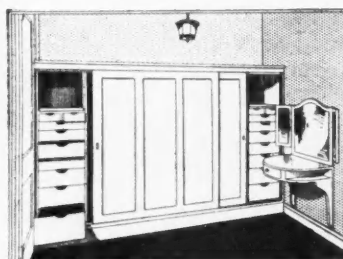
This home has been designed so that it may be built on a small lot, as it is only 26 feet by 19 feet 6 inches. The interior arrangement is ideal and unique. It is so small that the housekeeping is easily taken care of yet there is complete privacy and comfort in every room. There are three rooms, a closet and bath. They are the living room, dining room, kitchen and dressing closet.

This arrangement follows the plan of high-priced suites in the best modern apartment hotels today. It is possible to live as comfortably and much more conveniently in these two or three rooms now than it was formerly to live in five or six rooms. This has been made possible thru the introduction of the space-savers.

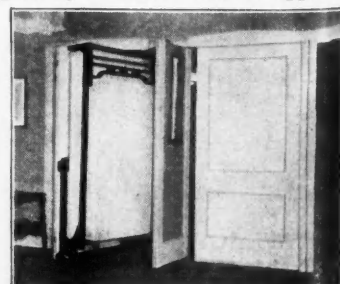
The living room is entered from the front porch. It is large and comfortable, being 18 by 12 feet. Two disappear-



Floor Plan of Unique Front Cover Bungalow Designed Along Lines of Modern Hotel Apartment and Equipped with All Its Space-saving Features.



Space-saving dressing cabinet with dressing table in connection is complete equipment for a dressing room.



Bed Folded Into Closet, Allowing Space to be Used for Other Purposes During the Day.

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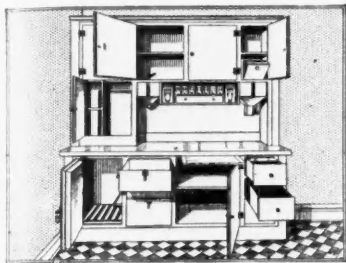
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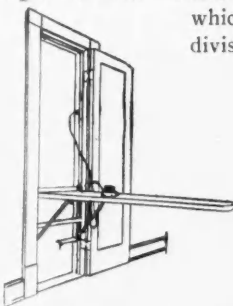
ing twin beds open into this room. This is one space-saving feature the architects have worked in very attractively. In the old style large homes during the day when beds are not in use valuable space is going to waste; but with this space-saving arrangement the living room is transformed into a bedroom at night by simply revolving the beds. They are practical, convenient and easy to operate. It gives more room to live in with less room to clean, to furnish or to pay for.



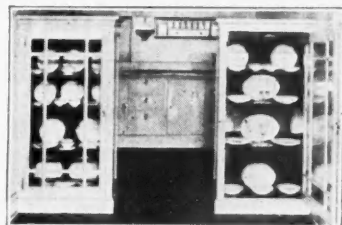
Combination Ice Box and Refrigerator Economizes Space and Makes Housekeeping Easier.

The space-saving dressing cabinet and dressing table located in the dressing closet offer all the conveniences of clothes closets and chiffoniers in two fixtures. This room requires no other furniture and is as convenient as a room of much larger size. There is plenty of space for hanging clothes and two compartments of trays.

The kitchenette is also equipped with time and space-savers. There is a combination built-in kitchen cabinet and outside icing refrigerator, embodying advanced ideas for space-saving and convenience. The refrigerator may be located at the right or left. There are also two built-in china cabinets which conserve space and form a handy division between the kitchenette and dining



Built-in Ironing Board Can Be Folded Out of Sight When Not in Use.



China Cabinets Not Only Save Space But Add to Charm of the Interior.

room. The built-in ironing board, located in the dining room near the china cabinets, is folded out of the way, when not in use, in a closet especially provided for it. This completes the equipment for the working end of the house.



Wood Radiator Covers Are Attractive

MANY homes are now being equipped with radiator covers made of genuine wood. These greatly improve the interior appearance of the home as they can be furnished to match the woodwork or furniture perfectly. The cover eliminates the hard metallic lines of the radiator, and becomes a fine piece of furniture which will last a lifetime. They are made in either the console or case-ment type assuring complete harmony besides providing all of the practical features of the metal shield. The accompanying photograph shows the console type cover.

Being made of wood, the upper surface does not become excessively warm. When installed on a low radiator it

makes an ideal window seat. It is securely fastened in place and is strong enough to support the weight of several persons. When installed on a high radiator, plants, books and other objects may be placed upon it.

It is easily and quickly installed or removed. It protects the walls and furnishings. It forms a seal with the wall and deflects the heated air currents outward. This prevents the walls, curtains and other decorations from becoming soiled.



Use All the Space in Your Closets

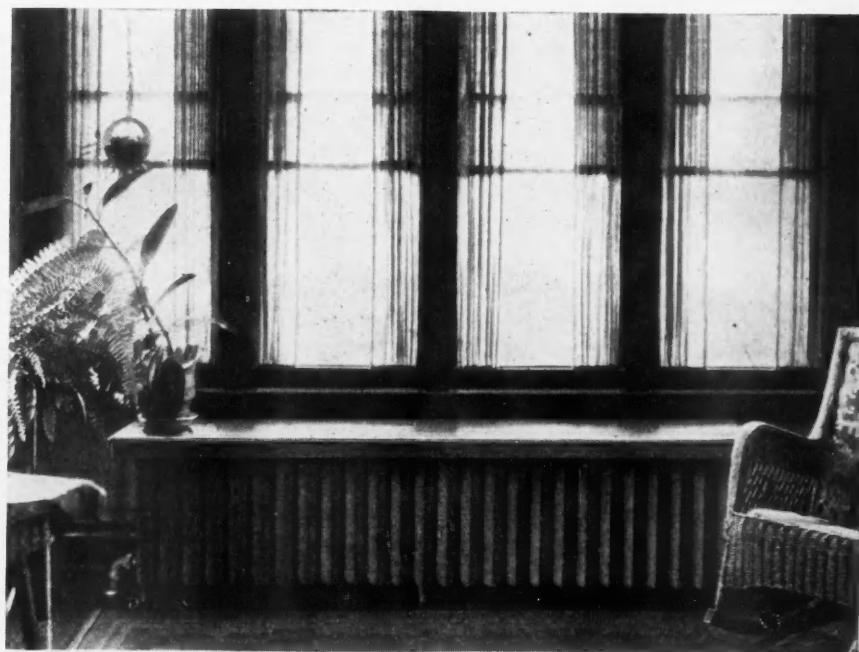
FREQUENTLY in the modern home there is a shortage of closets and many a housewife wishes she had an arrangement that would give her more hooks and hangers. In very few closets are the hangers so arranged that it is possible to get the full benefit of the closet space.

The new compact clothes hanger brackets shown in the illustration are very handy and enable you to get the full benefit of your closet space. They take the place of the ordinary hook and will accommodate four hangers.



Clothes Hanger Brackets Put the Clothes Closet on an Efficiency Basis.

As seen by the picture they may be placed under the shelving, on the door or walls. They can be put in any place where clothes hangers can be used and they save time and space. They keep the suits apart and all the clothing in order.



A Wooden Radiator Cover Can Be Matched with the Furniture and Woodwork, Adding to the Appearance of the Room and Serving Usefully as a Window Seat.

Shower Bath Stall for Private Homes

A NEW metallic shower bath, especially designed to be built into the bathroom of the home and incorporating unique space-saving ideas, has been recently placed upon the market.

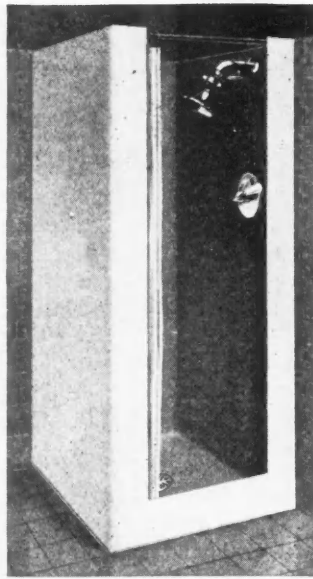
Shower baths have always been very popular in homes but because of the amount of space required to properly install one, only a proportionately small number of families have been able to enjoy them. Others have experimented with the bathtub showers but these nearly always prove very unsatisfactory.

As the illustration shows, the metallic shower bath stall can be easily installed in one corner of the average bathroom. It is 32 inches square and 6 feet high.

It is made of No. 10 steel plate, rolled to shape; there are no joints or rivets. The bottom is slightly dished to drain to the center. This stall is durable, light in weight, non-absorbent, sanitary and easy to install.

The stall is furnished coated with mineral paint and after installation is completed, it may be finished in white enamel or tinted as desired.

The opening for mixer control is made on either side and near the front. This enables the bather to do all adjustments for water temperature before entering the stall.



This Shower Stall Occupies Little Space and Can Be Installed in One Corner of the Bathroom.

Wall Tank Closet Saves Space

MANY bathrooms have to be laid out so small that there is no space to walk around after all the equipment is installed. The need for more space is an important factor in the construction of modern hotels, homes and apartments. A new wall tank for either wall or floor closets has been designed with desirable space saving features that will meet this need for more room. It is the first time a wall closet is used successfully with a low down tank.

The accompanying illustrations show the equipment installed and how it fits in the wall. It is held in a normal or closed position by a simple screw retaining means, which, when released by a turn of the screw, permits the tank to open, as shown, for adjustments or repairs to the flushing device. It can be disconnected and entirely removed in a minute and a half and returned



Wall Tank as It Appears in Bathroom.



Wall Tank Opened to Reach Flushing Apparatus.



The Tank Is Easily Lifted Right Out of the Wall.

again in two minutes; the uncoupling of two small nuts, using ordinary pliers, does the trick.

It conserves bathroom space and its appearance is more attractive than the ordinary equipment. The front of the rim is only 19 inches from the wall while the usual combination measures 27 to 30 inches. The tank when used with the closet especially built for it saves six or seven inches of space.

The tank operates either a wall or floor closet which will make it a favorite with architects, sanitary engineers and home builders. It is five inches in depth from the finished wall, fitting easily in all regular partition walls.



Build Package Receiver in Door

NECESSITY has demanded conservation of valuable building space and a reduction of household drudgery and a new space-saving package receiver accomplishes both these things. The photographs show how it fits in or takes the place of the ordinary kitchen door. It is a good-looking cabinet that occupies the hitherto unused space of a door and solves one of the most vexatious of all household problems, the receipt and delivery of 95 per cent of the parcels from the tradesmen.

The built-in package receiver is not limited either to back-doors. In apartment buildings they are designed for the front door. It is built on the unit system for either doors or walls. It is made of standard sizes two or three compartments for doors, and two compartments for walls, some adopted for existing homes and apartments and others for new



Can Be Installed in Door or Wall Without Occupying Valuable Space.



Built-in Receivers Solve the Delivery Problem for Housekeepers.

homes and apartments.

Each cabinet has two doors, front and back, each of which lock and unlock alternately. Close the inside door, turn the latch and it automatically unlocks the outside door. Close the outside and it automatically unlocks the inside door. This operation is unfailing, sure. One of the two doors, either outside or inside, is always locked. Both doors cannot be opened at the same time. However it opens, closes, locks or unlocks the same as any door. It requires no special fitting to install and has no keys to lose nor keyholes to find.

It takes up no valuable space nor interferes in any way with the operation of the door. It is sanitary, weather-, fool- and thief-proof.

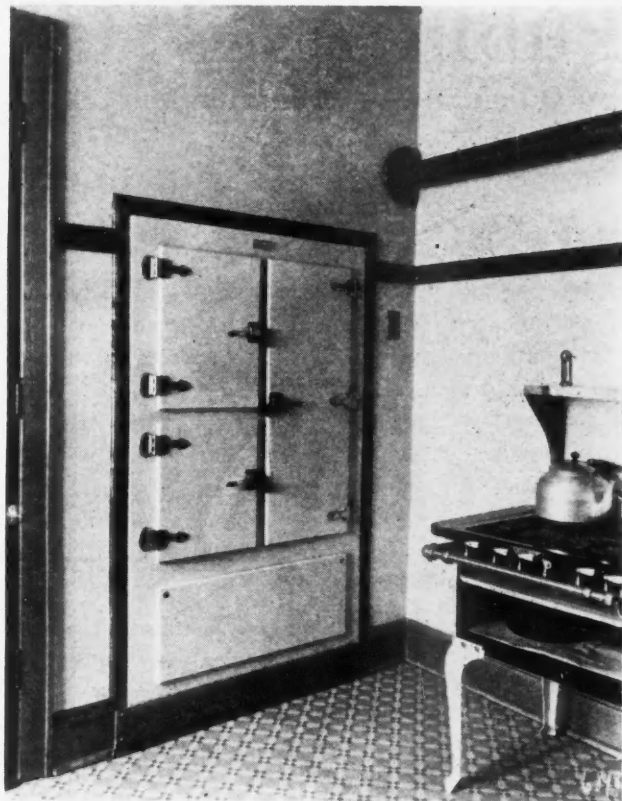
Chairs Use Slides Beneath

Built-in Electric Refrigerators

BUILT-IN electric refrigerators in homes and apartment houses are rapidly gaining in popularity. They are being installed in many new homes today because they are cleaner, more sanitary, more compact and more convenient than the old-fashioned ice-boxes. Since they are proving so successful in domestic use it looks as if the day is not far distant when nearly every new home will have this equipment built in.

One of these machines is shown in the accompanying photograph, built-in to a kitchen. Not only do they greatly improve the appearance of the kitchen, but they enable the housewife to use the space that a refrigerator ordinarily occupies, for some other purpose.

It costs less money than she has been paying out year after year for ice and for food spoilage. The machine lasts for years. The only maintenance cost is the monthly bill for electric power, which is small. The purchase of a domestic refrigerating plant is not an expense. It is an investment in cleanliness, in food economy, in convenience and in contentment. Figuring it over a period of years plus the power bill, and it will save money month by month and throw in all the other far more important advantages. In the mechanical refrigerating machine the gas is compressed and turned into a fluid. After it is compressed, it is cooled, either by air or by water coils. The liquid flows into the refrigerating compartments where the food is kept, thru the pipes absorbing heat from the refrigerating compartment and the food stored there, then becomes once more a gas, and goes on over and over completing the cycle and keeping the refrigerator cold.



An Electric Refrigerator Built-in the Kitchen. It not only saves space but greatly improves the appearance of the kitchen.



Built-in Units Save Kitchen Space

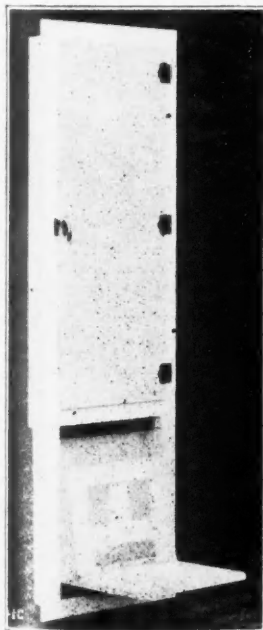
THE disappearing breakfast nook is one of the popular and practical space-saving devices found in modern homes today. It consists of four chairs, a table and cupboard. The chairs and table fold into the walls when not in use and are out of the way. Breakfast rooms are much in demand in American homes but frequently because of the limited amount of floor space it is impossible to build one. This equipment makes it possible to enjoy the advantages of such an alcove without sacrificing any space.

The chairs, table and cupboard are manufactured and furnished in units ready to be installed in existing homes and apartments or to be built-in in new structures. Two of the illustrations show the

table both folded out of sight and ready to be used. When not in use the chairs slide underneath the cupboard as is shown in the third picture. There is plenty of space provided for dishes, etc., in the cupboard. Over one of the seats is an ironing board which may be dropped down when other equipment is out of the way. The entire equipment also adds to the appearance of the interior.



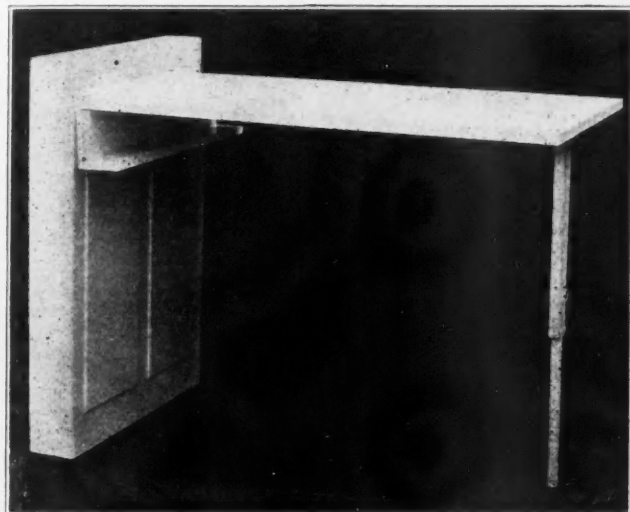
IF a man's home is destroyed in Fiji he reports to his chief that he needs a new one, and a certain number of men are assigned to build it. All property there is owned in common. No man labors as an individual, but the work is done in common and the result divided equally among all.



Chairs When Not in Use Slide Out of Sight Beneath the Cupboard.



The Table When Not in Use Slides Into the Wall and Is Completely Out of the Way.



Four Eat at This Table Very Comfortably and When They Finish the Space Is Used for Some Other Purpose.

Public Asks "Is Wiring Complete?"

Quick Sale at Profitable Margin May Hinge on Extent and Arrangement of Electrical Conveniences

By C. H. HUNTLEY

JUST like a woman! She delights in making an ant look as big as an elephant."

With that sarcastic remark the owner confessed another lost opportunity for the sale of residence property he had shown to a score of persons but had sold to none.

The "ant" which the woman prospect had magnified to elephantine proportions was the sad lack of electrical outlets and the inconvenient arrangement of the all-too-few light and power conveniences that had been built into the house.

Complete house wiring has introduced a new factor in the building field, a factor which vitally concerns every builder, for it's a factor that visibly affects the ease and profit with which the property may be sold. When an investment of an extra hundred dollars may add more than a thousand dollars to the sale price and materially increase the probability of a prompt sale, such an investment assumes

an importance greatly in excess of the small sum involved.

Houses properly and completely wired are more desirable to live in. They are more valuable. They are more saleable.

A "Current" Question

No one questions the increased value of the elec-

trically wired home. Two residences of equal location and similar general value cease to be in the same class, for marketable purposes, when the prospect discovers one is wired and the other is not. The public has shown such a plain preference for the modern convenience of electricity that no one questions the wisdom of installing electricity. That same public which for years has asked "is there electricity in this house?" is now asking "is it *completely* wired?"

The "complete electric home" idea has captured the public's good-will. In nearly eighty cities more than 1,000,000 prospective buyers have seen the model electric home and been won to its superior advantages. Over one hundred additional homes electrically complete are being built and exhibited this year to another million folks who contemplate buying or building. One need look no further than a few years ahead to realize that the completely wired home will be a matter of common knowledge and common preference.

Wiring Fundamental

Contractors, manufacturers and dealers realize that the absolutely essential basis of a home that is to be adequately equipped electrically is a *complete* wiring system.

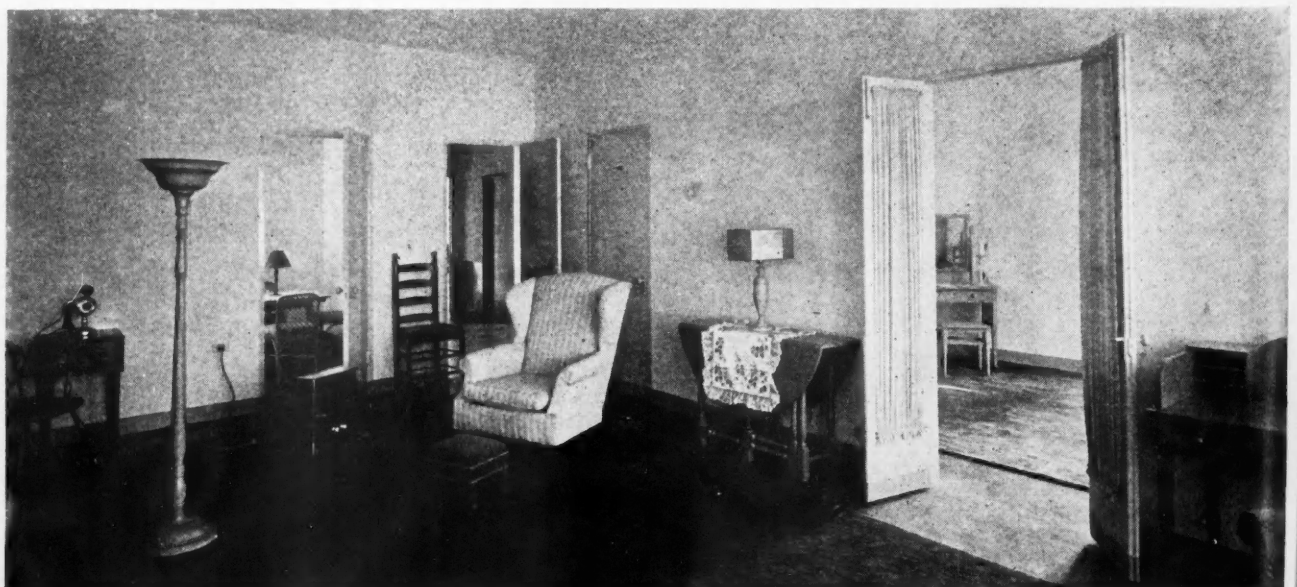
Complete house wiring means a sufficient number

AHUNDRED dollars additional investment in better and more extensive electrical wiring may add a thousand dollars to the sale value of the home.

Women are easily influenced by small niceties and prefer to buy from the builder who has provided for her comfort and convenience.

Quality material and superior workmanship prevent serious and expensive after-troubles.

Adequate and efficient electrical equipment impossible unless primary step—the wiring—has been rightly planned.



Milady Wants Plenty of Light at Her Dressing Table and Conveniently Located Lamps and a Cheerful Electric Heater in the Living Room.

of three simple devices—wall switches, lamp sockets and convenience outlets—properly located, to provide for all the electric lamps and all the electrically-driven or electrically-heated household appliances that the buyer of the house may wish to use.

How the "Home Electric" has become a matter of immediate interest to the general builder and its effect in promoting sales may be noted from these instances:

A "Home Electric" in Louisville, Kentucky, was sold at auction not long ago, at the conclusion of a public demonstration. More than a thousand persons attended the sale. The house, built to sell for \$11,000, brought \$15,025.

A manufacturing concern built 250 houses on the outskirts of Canton, Ohio, about two years ago, when business was booming. Then it found itself unable to dispose of them. Last fall the problem of getting the public to come and inspect them was under consideration. Suggestions ranged from a "big feed" to a circus as a means of attracting visitors.

A "Home Electric" was proposed. The Electrical League of Canton wired and equipped one of the dwellings in a week, re-wiring it so as to make it a seven-circuit house. On the first day it was open 4,000 persons—approximately one-tenth the entire population of the city—visited it.

More than 83,000 persons visited and inspected three "Homes Electric" in Cleveland, last year. The first, valued at \$37,000, was sold on the last day the



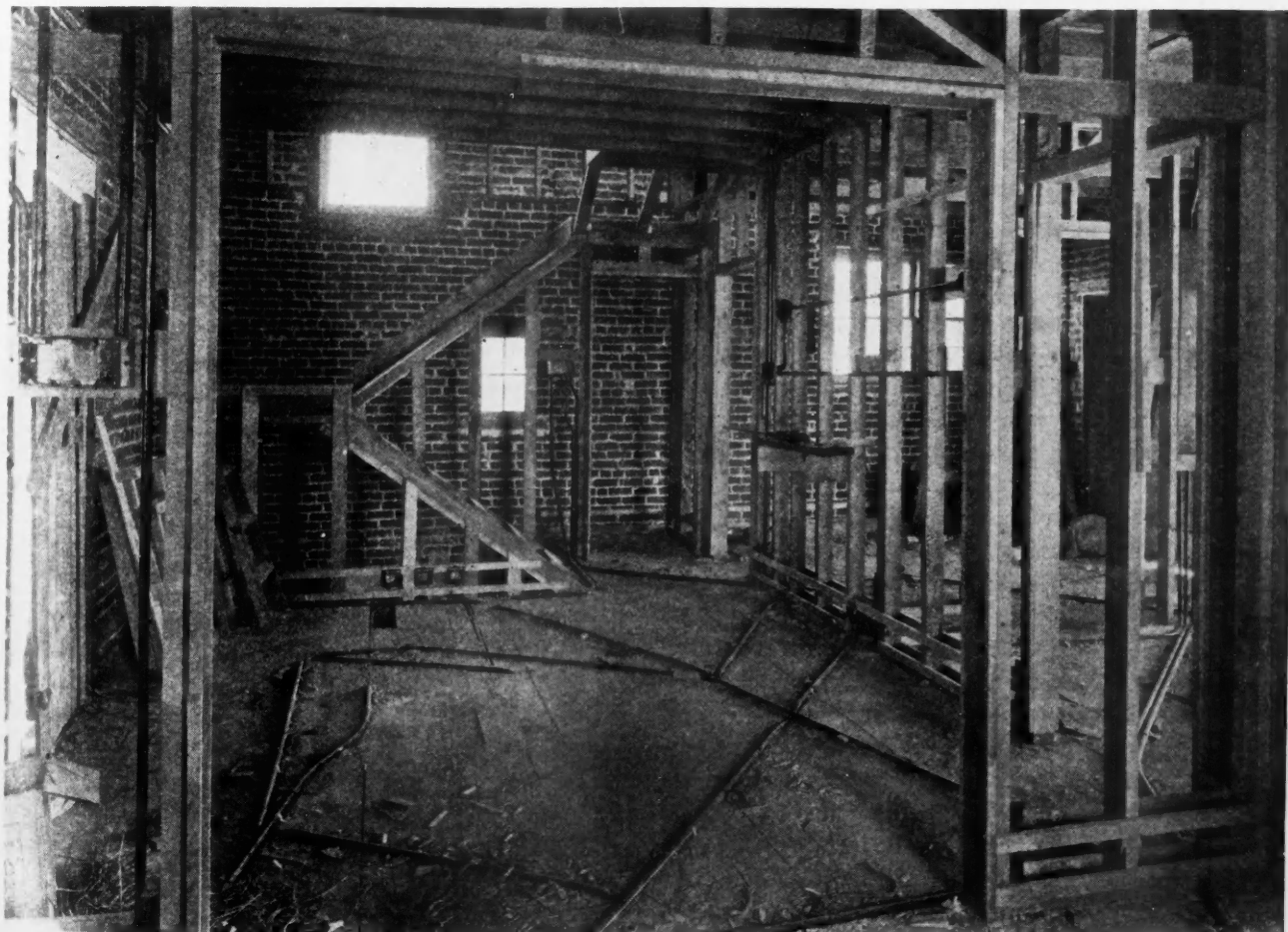
Crowds Came to See the Electric Home. Sales follow crowds.

house was open to the public. The second, valued at \$48,000, and the third, valued at \$17,000, were both sold during the second week they were opened for inspection.

Public Preference

The one million persons who inspected the completely wired home noted the added convenience and comfort which adequate and properly placed outlets afford. Their preference for such a home is pronounced.

The exact number of switches, lamp sockets and convenience outlets—and their location, of course, de-



An Abundance of Leads for Electric Outlets Are a First Essential for the Home-Like Home.

depends on the number, size, shape and layout of the rooms. It is an individual problem in the case of each dwelling. One generalization may, however, be made. Every room should have at least one convenience outlet; some should have several. As for lamp sockets and switches, there is a marked trend toward more and better illumination and more convenient control of lighting.

No builder plans a house without making some provision for electricity any more than he does without planning for the plumbing. Yet some builders who realize the value and selling advantage of complete and modern plumbing and who do not hesitate to install it because of the cost, fail to give equal consideration to the wiring system.

A recent inquiry covering typical \$10,000 houses, indicated that the plumbing represented \$400 of the total cost, and the heating \$350, while the wiring was but \$246. The cost of wiring was less than that of the lathing and plastering or the painting, and but little more than the hardware and nails.

"Yours to Serve"

The value of a complete plumbing system in making a sale is emphasized in terms of the service it will render. The same is true of the heating system, and should be true of the wiring system.

The experience of every building contractor shows that a house is often sold because of some novel feature, such as a unique nook by the fireplace, casement windows, window seats or an ultra-convenient arrangement of the kitchen. Particularly is this true where a woman is involved in the sale, as is usually the case.

Little Niceties

The completely wired house lends itself particularly well to the creation of novel effects and conveniences. The thoughts of many a woman, giving but passing attention to the other features of a house, will come back to clothes presses lighted automatically by the opening of the doors leading to them. Her attention will be engaged by a lamp placed so that it will light a dark stair landing, or by beautiful and artistic lighting fixtures arranged according to the latest and most efficient ideas of illumination. Control of all the lamps in the house from a master four-way switch in his bedroom, a burglar alarm, or even a three-way switch that will make it possible for him to turn on or off the garage lamps either in the garage, or from the kitchen or other convenient point, will go far toward making a sale, to a man.

With completeness of the wiring system should also go quality materials and quality workmanship. It is poor "economy" to use inferior materials or to have the work done by inferior labor merely because the first cost may be cheaper. Defects are not discernible until interruption of the service indicates them and repairs then prove costly in time and money.

The difference in cost between quality wiring mate-

rial and other kinds is very small; the difference in continued satisfactory service is great.

Competent workmanship is essential in making the installation. The thoughtful builder will have the wiring done by a contractor who is experienced, who has earned a reputation for satisfactory work, and who is thoroly responsible.

Every builder can make each dwelling he constructs a "Home Electric" to the extent of equipping it with a complete wiring system, which is the essential basis for satisfactory and adequate electric service. All builders will do so tomorrow. The forward-looking ones are doing so today.



"No Work for a Woman We'd Say"

WELL, well, well, we welcome Ruth to the fraternity of cement workers and so far as we are concerned her claim to the honor of being the first and only woman to take up cement work for a living is a valid claim. Far be it from us to dispute the word of a woman, much less the word of so worthy a worker as Ruth.



Miss Ruth Zartman and her good right arm and handy trowel are on the job daily in sunny Los Angeles. She shows speed and skill in laying concrete sidewalks for the convenience of residents and visitors to the western beauty spot.

She is making a lasting name for herself, for the name of Miss Zartman is imbedded in cement as well as in the memory of man. She is probably the only woman who earns her satins and furs by laying cement sidewalks.

All of which may make you just a bit more anxious to see Los Angeles, which, after all, may be the reason for taking this actual photograph.

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ARCHITECTURAL DRAWING



Lettering on Plans

The First of a Series of Practical Articles

BY M. R. TEACH,

Instructor in Architectural Drawing, Bradley Polytechnic Institute

THE fellow who gets the big salary in the architect's drafting room is the expert letterer. We have known of \$25 to \$50 extra per week being paid just because of a man's ability to letter well on drawings.

This series of articles by Prof. M. R. Teach will give you the best there is in architectural drafting. This article starts right out on the most important subject of LETTERING. Boys, go to it.

EDITOR.

OF prime importance to a set of drawings is good lettering, and for that reason, this article is devoted to letters and lettering. While the whole subject of lettering cannot be exhausted in this article, a few points will be touched upon to enable a student to make fair attempts in the formation of letters.

Architectural lettering may be classed in two main divisions; that for titles and inscriptions on display drawings, and that for titles and notes on working drawings. Practically all of the lettering of both of these classes has been derived from the Old Roman as modified and refined by the architects of the Italian Renaissance period. The Old Roman alphabet can be varied considerably to meet the needs of each particular case, but there must be no unnecessary flourishes or exaggeration, for one secret of good lettering is simplicity.

Figure 1 illustrates the Roman alphabet with pointed serifs or spurs and constructed on squares to show the proportional width of each letter. This alphabet may be

constructed mechanically as is demonstrated with the letter A, but takes considerable more time and work than is usually deemed advisable in the drafting room. The width of the full stem is one-ninth of the total height of the letter, the narrow strokes being one-eighteenth inch in height.

In studying this alphabet, the letters should be considered in their family group, the rectangular letters such as I, J, H, T, L, E and F being taken first, then the diagonal letters, A, V, M, N, W, K, X, Y, Z; and lastly the curved letters such as O, Q, C, etc. which go to make up the remainder of the alphabet.

Let us first consider the rectangular group of which the letter A may be taken as the standard of comparison. Using the width of stem (one ninth the height of the letters) as the unit of measure the width of the letter will be taken as seven units. Due to optical illusion the light horizontal line joining the two stems must be placed a trifle above center. The serifs are arcs of circles one and three quarter units in diameter.

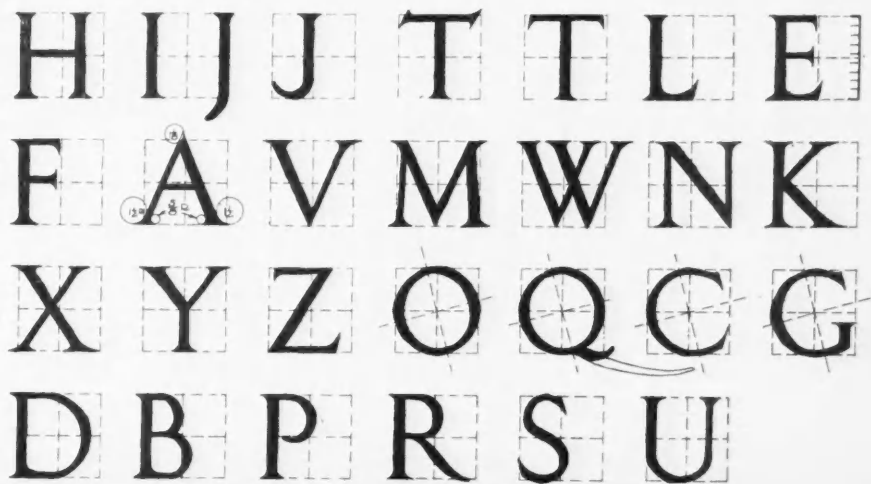


Fig. 1. Blocking Out Caps.

Again due to optical illusion the E is a little narrower at the top than it is at the bottom, being four and one quarter units at the top, and four and one half units from serif to serif at the bottom. The intermediate line of the E occupies the same position as the corresponding line of the H.

The F and L have the same forms as the corresponding parts of the E.

Among the diagonal letters N should be considered first, since it still carries a feature of the rectangular group, that being the two vertical lines. In this letter, as is common in others of the group, the main stem of unit width is diagonal, which, if extended thru the light line at the top would be tangent to the serif.

The point of the A extends about three-fourths of a unit above the upper guide line and is cut off as shown with a circle of two and one quarter units in

mately 58 degrees with the horizontal. Serifs of the Z have the same form and size as the corresponding serifs of the E.

Among the curved letters O is beyond a doubt the easiest constructed. The outer curve is a circle and the inner one a true ellipse, the major axis of which is rotated counter clockwise thru an angle of 15 degrees with a vertical.

For optical reasons, the letters O, Q, S, C and G, should be constructed a hair's breadth above the upper guide line as well as the same amount below the lower guide line. This is due to the fact that curved letters always look smaller than rectangular letters of the same height.

An alternate is given in the style of tail which is fastened to the letter O to form Q.

The left half of the C and G is the same as that of the O. The upper curve of both of these letters is

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

A B C D E F G H I J K L M N O P Q R

A style of capitals S T U V W X Y Z for small notations

Fig. 2. Some Working Alphabets.

diameter. The apex is moved a little to the left of the center so that both sides of the A will appear to have the same inclination.

V has approximately the same form as the A, but is rotated thru an angle of 180 degrees.

W the widest letter of the alphabet is composed of two contracted V's. The width of each is reduced from eight and one half units to seven and one half units to prevent the letter from covering too much space, for even as is, it covers ten and three quarter units.

X is composed of one full and one narrow stem intersecting a trifle above the center line to prevent the upper part from seeming top heavy. This is another optical illusion.

Z, a most peculiar letter, is one of the hardest to construct, in spite of its apparent simplicity. The wide diagonal stem is drawn at a little different angle from the diagonal in any other letter, it being approxi-

cut off at an angle of 15 degrees with the vertical, that is, parallel to the major axis of the ellipse of which these letters are partly composed.

D is truly a combination of the left half of E and the right half of O.

Let us now cut off the spurs on the right side of the E and in their place construct curves, the outer edges being arcs of circles and the inner edges segments of ellipses. We then have the letter B.

The upper parts of P and R appear about the same as the B, but it will be noticed on closer inspection that they have been extended from four and one half units to five units.

The upper curve of the S is cut off exactly the same as that of the C or G, and the lower curve in a similar manner at the same angle, that is, 15 degrees with the vertical. It should be noticed by the student that the upper curve is three-fourths of a unit narrower than the lower curve.

Now for a few general remarks which have been touched upon in the preceding paragraph, but are collected here for handy reference.

1. Those letters having distinct upper and lower parts require the upper to be a little smaller in size than the lower one. This reduction is made on the right side except in the cases of the Z and M which contract toward the center line.

2. Intermediate horizontal lines are placed a little above the center line in all cases except A, where it is placed in the same relation to the one-third guide line, that is, a trifle below the center line.

3. Curved letter such as O, Q, S and others should extend a little above the upper and a trifle below the lower guide lines.

4. All heavy diagonal lines slope downward toward the right except in the case of Z.

5. All light diagonal lines slope downward toward the left.

Serifs are not always made long and pointed as seen in Figure 1, but are probably more often treated as in Figures 3 and 4. This style is far more easily constructed.

Figure 2 illustrates two alphabets which may be used as standards by the student for most of the



Fig. 3. Poor Spacing.



Fig. 4. Good Spacing.

lettering on working drawings. These are both, however, based upon the Old Roman alphabet with some slight variations. Letters of this size may be made with a 404 or 303 gillott lettering pen, but for larger letters a ball point pen 516F or a Hunt's Shot Point 512 should be used. Top and bottom guide lines should always be drawn for all lettering no matter how small or how rapid the execution. None of these letters should be extended wider than their normal width to height. They may be compressed, however, if desired, and by keeping the round letters, C, D, G, O, Q, full an interesting and pleasing effect is obtained.

Most students think that after they have mastered the forming of letters, there is nothing more to learn concerning good lettering. However, the correct spacing of the letters and words is just as important as the correct formation of the letters, for if the spacing is improperly done, it will destroy the pleasing effect of the most carefully constructed letters. Uniformity of effect is the thing desired, that is, the letters in one part of a word should not appear crowded as compared with those in another part. Under the subject of lettering we will have to consider, first, the spacing of letters in words; second, the spacing of words; third, the spacing of lines, all of which are hard problems that can only be gotten thru constant

practice and cannot readily be determined from a few rules which might be given.

Now consider the spacing of the letters in the word DRAWING. In figure 3, the letters have been spaced so that the distance between them are equal. It is readily seen, however, that these letters do not appear to be placed evenly. In other words, the space between A and W appears considerably greater than the space between I and N. Such is really the case, so we cannot say that Figure 3 is spaced properly. Now in Figure 4, each letter is spaced with reference to its shape and the shape of the letter preceding it. This brings us to the one rule that is important. Letters in words are not spaced at equal distances, but are made to appear uniform by keeping the irregular shaped backgrounds between them to approximately the same area. Thus adjacent letters with straight sides should be placed farther apart than those with curved sides, so that at times it is even necessary to overlap such combinations as AT or LW. In Figure 4, and I and N are placed the farthest apart, for that is the only combination in the word where we

get two straight vertical lines adjacent. The area between D and R and between N and G are the same, for here we get a vertical line next to a curve. Now even less space is left between the nearest parts of the R and A or the I and W. The spacing of Figure 4 is correct and the effect is far more pleasing than Figure 3.

A word should first be lightly sketched, just blocking out the letters in rough form. These should then be shifted until the best effect is produced, when it may be more neatly penciled and details completed.

There is no set rule for the minimum or maximum distance between letters, so the draftsman should use his own discretion as long as he keeps within the bounds of reason. One thing that should be remembered, however, is that, the closer together letters are placed, the harder it is to adjust them. Let me illustrate: Two objects almost equal in size are placed a considerable distance apart. To the majority of people viewing them, they will most certainly appear equal. Now if placed close together, the difference in size can readily be seen. In other words, never crowd Old Roman.

In spacing words in a line, the following rule should be adhered to in most cases: The clear distance in words should never be less than the height of the letters, nor more than twice this height. The exception to this rule is in the case of compressed letters.

No rule can be given for determining the vertical distance between lines. This varies with every bit of lettering in order to meet the many needs of the draftsman or designer.

Vanishing Door Hardware

By E. J. G. Phillips

MORE and more attention is constantly being given to such refinements in home building which add to the beauty as well as to the utility of the house. Contractors and builders should be prepared to handle all such work to the best possible advantage.

An item which has been receiving considerable attention of late is the vanishing door which has been found to add much comfort, convenience, economy of maintenance and saving of household labor. If the doors are built on the design of a French door, an item of perpetual beauty and elegance has been added to the home.

The illustration (Fig. 1) is a fair sample of the modern vanishing French door, hung on adjustable, ball-bearing hangers. When desired, the doors disappear silently into the wall pockets, leaving a free unobstructed opening and on occasion the doors may be withdrawn to close the opening without in any way detracting from the general appearance of the room.

Fig. 2 illustrates a condition which is often met wherein swinging doors would interfere with some other detail of the house, which in this case is a china closet. It will be noticed that the china closet is just as accessible regardless whether the doors to the adjoining room are open or closed, and there is no possibility of the large doors coming into interference with the china closet door which might result in a breakage of the glass. Furthermore, the vanishing doors are designed to match the china closet doors, which makes it possible to maintain a uniform appearance in the room.

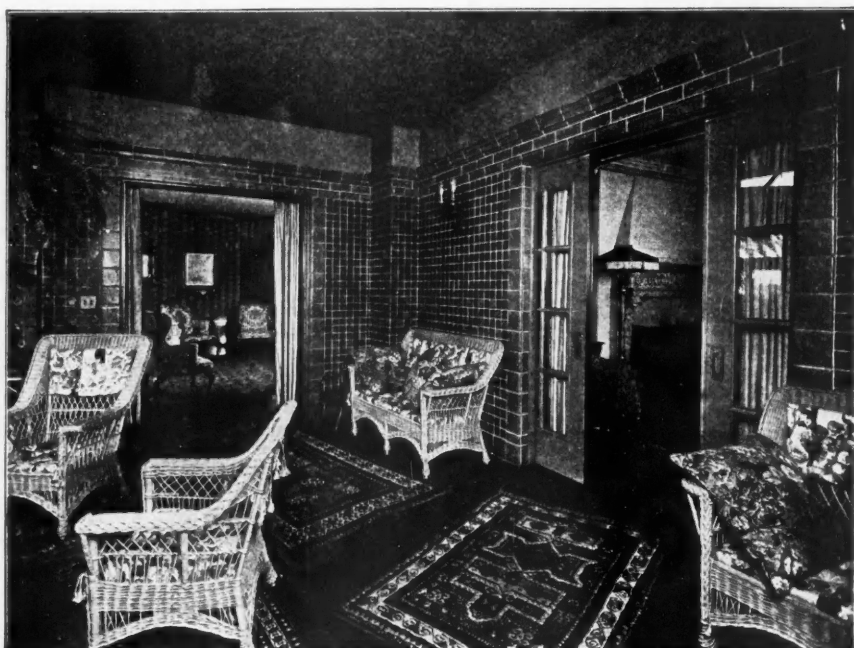


Fig. 1. Modern Vanishing French Doors Hung on Adjustable Ball-Bearing Hangers, Disappear Silently Into the Walls.

The use of vanishing doors is not confined to openings between principal rooms of the house but may often be advantageously employed in openings from bed rooms to closets. A considerable amount of space in the bed room can be saved. Interference with other doors in the room can also be avoided by the use of the vanishing door.

Vanishing doors require no unsightly bumpers, holders or checks. All of the hardware is invisible except the knob or pull. The doors cannot be slammed



Fig. 2. No Chance of These Doors Bumping Into the China Closet.

shut by the wind, but can be opened any desired distance and will always remain just where they are put.

Then again when particular color schemes are being used in different rooms each side of the vanishing door can be given a different finish, and the door never swings into either room to break up the decorative effect by showing a different color. Portiers or draperies can be used in any opening with vanishing doors without the slightest interference.

Fig. 3 shows the rough opening for a pair of vanishing doors, ready for lathing and plastering. The studding for bearing partitions should be set the standard way, but in partitions which do not carry floors above, the studding may be set the narrow way to reduce the thickness of the wall. Partitions for single doors are constructed in a similar manner except that it is only necessary to provide a pocket in one side of the opening. At the opposite side, space for a false pocket 4 to 6 inches deep is required. The diagram should be clear to any experienced builder,

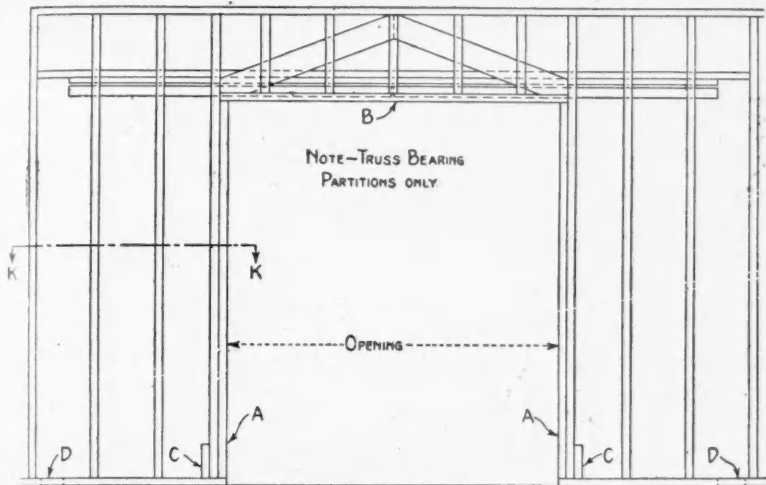
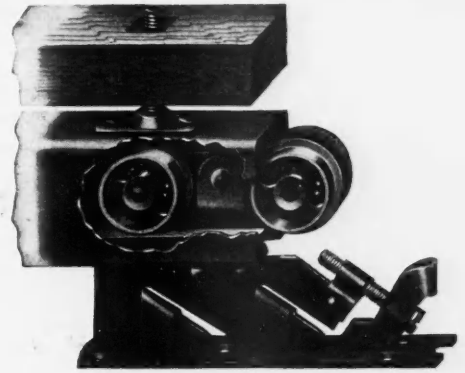


Fig. 3. Partition for Double Doors Ready for Plastering.



A Close-up View of the Sliding Door Track and Mechanism. This track can be easily removed without injury to plastered walls. Distance top of door to bottom of heading timber $6\frac{1}{4}$ inches. Minimum width of wall pocket $2\frac{1}{4}$ inches.

more detailed information can be secured from the manufacturers of vanishing door hardware.

The best grade of vanishing door hangers are made with ball bearings, giving the easiest possible operation. The tracks are lined with hardwood to make the movement of the doors as silent as possible. The

track can be removed from the partition if the partition is correctly constructed. Adjustments in hangers and track, which are easily accessible, are provided so that the door can be kept in perfect operation regardless of changes which may occur in the building due to settling or shrinkage.

Pepping Up the Old Place

Over-Coating with Stucco Does the Trick at Small Expense

By ESTELLE H. RIES

SOME facetious individual desiring to refer to a house originally of frame construction that had received a coat of cement, spoke of it as an "overcoated" house. This, amusing as it may appear, exactly describes what happened to the dwelling illustrated.

The difference in expense between the upkeep of a frame house with the necessary painting, carpentry work and repairs required by ordinary use, and the cost of the stucco house is an amount small enough to be disregarded by the modern house owner. This building has been "overcoated" at a cost equivalent to twice painting a frame house in the usual way.

An opportunity is presented to show how different a house may look when erected of unlike materials even if the main structural features are practically identical. In the example in question, careful comparison shows that about all the change that has been made in the second story was to turn the little porch into a sleeping balcony and the construction of partly removable glazed sash. On the lower story the porch becomes enclosed, treated to conform with the arched window openings in the upper story, and instead of a space available only in summer, is now a living porch available all year round.

The four cement posts capped with urns along the

building line at the front supplement the new architectural character of the house and provide an ornamental feature. Between the gate posts are seen a wide entrance to the garage while a single leafed gate at the right serves as proper entrance to the house.

The transformation of an old house into a modern structure as has been accomplished in the present instance, presents very few structural difficulties and provides opportunity in remodelling to advance the style of the house from an architectural design now practically out of date to the most modern of stucco houses.

The transformation of an old house into a modern structure as has been accomplished in this house where stucco is to be applied. Upon this wire lath, the stucco is trowelled to the desired finish. Much latitude is to be had in exterior appearance, as stucco lends itself to various finishes as to texture (smoothness or roughness of finish) and color. The difference in color is secured by the introduction into the aggregate of pebbles or stones of a desired color. Ornamental tiles are often introduced, but these should be avoided unless carried forward with the best artistic knowledge.

It is claimed for stucco houses that they are cool in summer and warm in winter. The upkeep is com-



Hard to Believe Such a Change Is Possible. The house in the circle is the same house before it was "overcoated" with stucco. It is located in Brooklyn.

paratively insignificant. Many stucco houses in suburban localities are made increasingly attractive by the planting of ivy which in the course of a short while throws out its branches in every direction and offers a fine contrast in color with the stucco walls.

In the house illustrated, shingles have been used in the roof, but it is desirable when remodeling a house and overcoating it, to make the roof as fire-resisting as are the stucco walls.

Considering the low cost of an alteration such as this, and the great artistic improvement of the house that results, it would seem that a large number of suburban houses built at a time when domestic architecture was at its lowest ebb, might be decidedly bettered if they were treated after the manner of this Brooklyn dwelling.



Hardwood Manufacturers Institute Design Typifies Aim of Organization

THE Hardwood Manufacturers Institute has adopted as the institute's insignia the design shown in the accompanying illustration. It has been developed within the institute's organization as typifying or illustrating the purpose to which the work of the association is dedicated.

In the September issue of "The Institute Bulletin," the

first issue of the new official publication of the Hardwood Manufacturers Institute, published in their new offices at 1020 South Wabash Ave., Chicago, F. H. Murray, originator of the device explains the message he would have it carry.

The insignia is composed of three distinct parts, he says, two parts interlocking, with the third element consisting of an encircling band serving to bind the upper and lower parts together.

In the upper segment there appears an illustration to typify the growing hardwood tree. Below in the lower segment appears the factory. The phrase "Scientific Utilization" means the best possible utilization of hardwoods from the tree to the finished product. The standing timber and factory process must be bound together in the cause of scientific utilization.



New Insignia of the Hardwood Institute.



The First Advertisement

IT is said that the first known advertisement appeared on a Greco-Roman drinking cup. It was this inscription. "Made by Ennion. Let the buyer remember."



LAW for the BUILDER

When Acceptance of Check by Contractor for Less Than is Claimed to be Due Upon a Disputed Account May Amount to a Settlement in Full

By LESLIE CHILDS

THE question of when the acceptance of a sum of money, which is less than is claimed to be due upon an account will amount to a settlement in full is, in some situations, of great importance to building contractors. And, generally speaking, where an account is disputed the acceptance of a sum less than is claimed to be due, which is tendered as "settlement in full," will constitute payment in full of the account.

It follows that in cases where the contractor has completed a given piece of work, and there is any dispute over the sum due in final settlement, care should be exercised in accepting a check for less than is claimed due, where such check is tendered in full payment. If the contractor does not want to accept the check as settlement in full he should return it; for if he does accept it, by the weight of authority, he will be deemed to have taken it in full, and he may not be able thereafter to enforce any balance he may claim as due.

This point is one of great importance in situations of this kind, and its application is illustrated in a long line of court decisions. Of these decisions *Policastro vs. Pitske*, 120 N. Y. S., 743, is perhaps one of the clearest the books contain involving the point in relation to a building contract. The amount of money involved was not very large, but the application of the rule under discussion would have been just the same if the sum in dispute had been larger; so this fact does not detract from the value of the decision for illustrative purposes. The facts which led to the action were, in the main, as follows:

A property owner entered into a contract with a contractor whereby the latter was to make some alterations and repairs upon certain property at a cost

of \$1,775. The work, it seems, was completed but a dispute arose over a small balance that the contractor claimed was due upon final settlement. Considerable correspondence passed between the parties over the matter until finally the owner sent the contractor a check for \$7, accompanied by the following letter:

"Enclosed please find check for \$7, all that remains of the contract price after making deductions as per contract. There are a great many deductions that I am entitled to make, but rather than go into litigation with you I am meeting you more than half way. Hoping this will end the matter, I remain."

The contractor acknowledged the receipt of this check and notified the owner that he (the contractor) would not accept it as payment, but would retain it as evidence. Some time thereafter the contractor again wrote to the owner, in part, as follows:

"We are short of money. * * * We are going to deposit your checks for \$40 and \$7, * * * only with the understanding that these checks will be deposited only on account, and not as full payment, as the balance of \$28 will be still unpaid. If not satisfactory to you, kindly inform us, for we insist on getting the full amount."

All right. The contractor deposited and collected the checks. The owner, it appears, did not offer to take care of the alleged balance amounting to \$28 claimed by the contractor to be due, and thereafter the contractor filed the instant suit in an attempt to collect it.

The owner, it seems, defended the action upon the ground that the retention and cashing of the \$7 check by the contractor amounted to a settlement in full. The contractor disputed this and in the lower



When there is a dispute over the sum in final settlement, contractors must be careful in accepting a check for less than is claimed due. The court may consider it payment in full.

(Continued to page 113)

Illumination for Brazilian Fair

Novel and Striking Lighting Features Will Mark Centennial Observance at Rio de Janeiro This Fall

IN commemoration of the one hundredth anniversary of its independence, Brazil will hold a national exposition at Rio de Janeiro beginning September 7 and continuing for probably four months. More than thirteen nations, one of which is the United States, have accepted invitations to participate in it and will construct pavilions, many of which will remain as permanent embassies. The government of the United States has appropriated a million dollars for participation, and it is expected that its building, which will be permanent, and the display of products from this country will be one of the features of the affair.

Placed in a setting of remarkable natural attractions, the buildings will be both beautiful and unique, while the illumination, because of its concentrated nature, will in some respects exceed anything heretofore attempted and will cost approximately half a million dollars. The electrical department is under the management of Dr. Roberto Marinho, assisted by Dr. Eugenio Hime, both of whom are classed among Brazil's most eminent engineers. On account of the remarkable success of the illumination of the San Francisco Exposition, it was decided that a scheme along similar lines should be adopted for the Brazilian Centennial, and W. D'A. Ryan, director of the illuminating engineering laboratory of the General Electric Company, was invited, thru the Brazilian General Electric Company, to design the lighting features. Accompanied by J. W. Gosling, decorative designer of the laboratory, and the writer, Mr. Ryan visited the site of the exposition last winter. Two months were required to lay out the complete scheme, make designs, and an estimate of the total cost. Further details are now being prepared at the laboratory.

The complete installation will be made by the Brazilian General Electric Company and will be supervised by J. W. Shaffer of Mr. Ryan's organization. In so far as is possible, lamps and material made in Brazil are being used, but it will be necessary to import a large part of the electrical apparatus which will all be imported from the United States.

The principal features of the proposed lighting are described

under their respective headings. In general, light sources are concealed where floodlighting effects are possible, but in many instances this is impossible so that standards of a highly decorative type are used and in many cases the lamps themselves are colored.

Towers and Domes

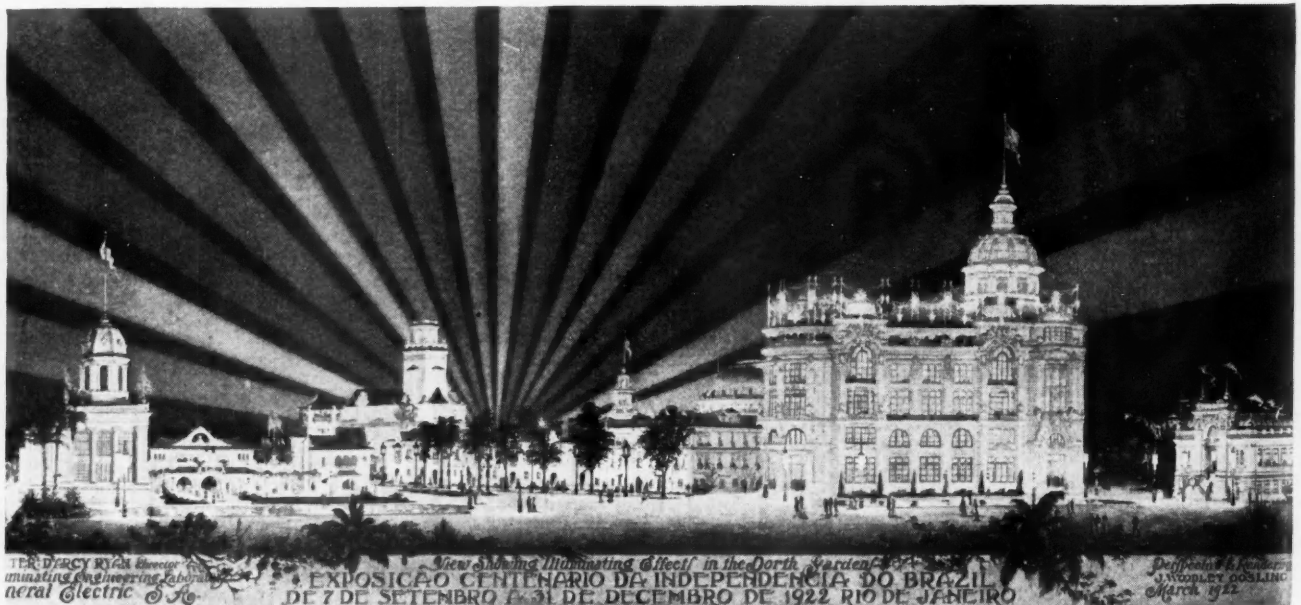
All towers and domes are floodlighted with a rising light and the shadows created by this light are illuminated in red by concealed lamps. This combination will give the structures a luminous effect and preserve the depth, or what is termed the third dimension in light.

The architectural lines and elements of the domed tower of the Palace of States will be ornamented with 40,000 Novagem jewels. The Novagem jewels are scientifically cut glass crystals of high index of refraction, made to imitate diamonds, rubies, sapphires and emeralds. Each is mounted in a suspension carrying a mirror at the apex of the stone which increases the spectra approximately 40 per cent. They will be mounted in such a way that a slight wind will keep them in motion. These will be lighted from batteries of incandescent searchlights and floodlights. The jewels will also be especially effective in the sunlight, making this tower one of the daylight attractions of the exposition.

Building Facades and Grounds Lighting

Standards supporting four 1000-watt lamps, shielded by translucent banners of painted canvas, will be used for lighting the facades of the Statistics Building, Industries Palace, the base of the tower and the gothic structure on Fiscal Isle. A similar standard with the lamps housed in a plaster cartouche will be located around Festival Hall. The Palace of States will be lighted by balustrade standards, a thousand-watt lamp on each being concealed in a staff bowl. Surrounding the bowl will be a ring of colored festive lamps. Floodlights will also be utilized in lighting the north facade of the building.

A double row of poles, each carrying a series of three rings with showers of colored lamps, suspended on nickel plated



Architect's Drawing of the Buildings and Lighting Effects of the Brazilian Centennial Exposition to be Held in Rio de Janeiro. The illumination is costing approximately half a million dollars and in some respects exceeds anything heretofore attempted. Two months was required to make designs and estimates.

tubes, will light the approach from the North Gate, the North Gardens and adjacent buildings. The "happy effect" produced by this lighting, together with the reflections in the pools of the illuminated facades and jeweled dome, will make a fairyland of this section of the grounds.

This festive effect will be further extended by balustrade lantern type standards at intervals of 30 feet along the entire North Seawall. Between standards will be strings of small colored lanterns.

The Avenida President Wilson, the facades of the Foreign Pavilions, and the adjacent parking will be abundantly lighted by a line of candelabrum type standards, on approximately 125-foot spacings, each carrying five lanterns equipped with 1000 candlepower lamps.

Both the North Gate and the Main Entrance Gate and the grounds in the vicinity will be lighted by the shower type standards.

Wherever shadows are created by white exterior lighting, red lamps will be concealed to relieve them. Cupolas, turrets, towers, domes, balconies, etc., will be so treated.

Interior Lighting

The exposition buildings will all be open at night and because of this fact and because of their permanent nature, the interior lighting will be of a high order with the fixtures in keeping with the elaborate interior finish. There will be some lighting from indirect sources, but for the most part the fixtures will be decorative diffusing globes or multi-lamp chandeliers. The main illumination of Festival Hall will be from cove lighting redirected from a light colored mural in the dome. This will be augmented by exposed fixtures in the boxes, foyer and passages.

Court Lighting

Courts and patios will, for the most part, be illuminated by standards or brackets with lanterns or other decorative fixtures. A large reflection bowl will occupy all of the central portion of one court surrounded by an arcade in the Palace of Industries. The enclosing piers and walls will be lighted by standards with the lamps shielded from the observer's view by staff ornamentation. Most of the courts are surrounded by arcades, the lighting of which has been designed for a harmonious effect rather than for strictly utilitarian purposes.

Large flags are to be illuminated by floodlight projectors, and small ones by weatherproofed metal reflectors.

Fiscal Isle

Fiscal Isle, a small rock isle, almost completely covered by a government building of gothic design, will be one of the most beautiful features of the exposition illumination. From the tower there will be an aurora of seven searchlight beams. The exterior walls will be lighted by banner standards and the many turrets, cupolas and balustrades will have red relief lighting. Each of the tall palms about the building will be illuminated by colored light projectors. On calm nights, when the reflections from the exposition will be best, this will be a veritable Fairy Isle.

The Electric Steam Color Scintillator and Fireworks

The scintillator will consist of the combination of systematic drills of white and colored searchlight beams and the production of colored effects on steam and special fireworks. The battery, which will be located on a breakwater 400 feet from the above, will consist of sixteen 30-inch arc searchlights, individually operated. Each searchlight will be equipped with a set of five color screens.

Nearer the shore, pits will be constructed for fireworks mortars. Special fireworks, electrically fired, will be used, similar to those of the Panama-Pacific Exposition.

Steam effects in the form of fighting serpents, giant plumes, banners, pinwheels and fans will be erected on one of the

Brazilian naval river monitors which will be anchored near the entrance to the yacht harbor. The searchlight beams will be projected in this steam in ever-changing colors. Streams of water from fireboats, and from submarine mines, exploded in the bay, will be similarly lighted. Sufficient color screens will be provided for every searchlight and floodlight, so that on special occasions the color scheme of the entire superstructure of the exposition may be changed. One of the "stunts" planned is the "Burning of Fiscal Isle" by means of large quantities of red fire and smoke pots. There will be many fireworks innovations that will add to the spectacular features of the illumination.



Law for the Builder

(Continued from page 111)

court the contractor was given judgment for the amount claimed and the costs. The owner then carried the case to the higher court on appeal, where, in passing upon the record, it was, among other things, said:

"If the plaintiff [the contractor] was unwilling to accept the \$7 check, its return to defendant [the owner] within a reasonable time was necessary. Its use could not by any act or purpose of plaintiff [the contractor] change the conditions imposed by defendant [the owner] upon its receipt, unless those conditions were modified by him. He remained silent, and the check was paid to plaintiff, and about a year later this action was brought. No fraud is claimed by either party. The dispute as to the performance of the contract, and as to the balance due, apparently were honestly contended by both parties. The long retention and final use of the \$7 check was, under the authorities, an acceptance of the condition accompanying its receipt, whereby an accord and satisfaction followed. * * *

In conclusion, the court reversed the judgment rendered in the lower court in favor of the contractor. Holding, as outlined in the opinion, that the acceptance of the \$7 check by the contractor, which had been tendered by the owner as the balance in full, constituted an accord and satisfaction that would preclude the contractor from enforcing payment of the balance he claimed to be due.

The foregoing New York case is a very clear one on the point under discussion, and its holding is without doubt in accord with the weight of authority. The decision furnishes an apt illustration of the danger involved in accepting a check for less than is claimed to be due where such check is tendered as settlement in full of a disputed account.

It follows that where the contractor is engaged in a dispute over the amount claimed to be due, he should be very careful about accepting checks for an amount less than he claims if such check purports to be payment in full. If he does not care to accept such a check as payment in full he should return the check within a reasonable time. For if he does cash such a check, by the weight of authority, he will be deemed to have accepted it as payment in full, and he cannot thereafter enforce payment of any balance he may claim to be due.



DESIGN of SAFE CONSTRUCTION

Tee Beams

How to Design and Figure This Important Factor of Reinforced Concrete Work

By J. F. MANGOLD

Associate Professor of Mechanics, Armour Institute of Technology

WE are familiar with the ordinary beam as a part of a structure, or as an element used by itself. For instance, a plank laid across a ditch is a simple beam, which serves to carry the workman from one side to the other. We have all seen floor beams. Now, up to this point we have worked with simple floor beams built of concrete. So far we have considered the floor as a series of beams one foot in width and have designed accordingly. The beam also has been considered by itself. If, however, the beam and the slab are built at the same time, we may say that the slab is built into the beam, and therefore a portion of the slab may be also considered as a part of the beam, and will act with it to resist bending. It is this combination of a part of the floor slab which acts with the beam, which constitutes the Tee-beam, and which we shall discuss in this paper.

In the design of a floor supported by beams and girders the floor slab will be assumed as a series of parallel beams one foot wide, and the reinforcement will be computed accordingly. The supporting beams may be built continuously with the floor slab, if steel is properly placed to connect the

beam with the slab. In this case a part of the slab may be considered a part of the beam and from the unity of action there results what we may call the typical Tee-beam. The web and flange of a Tee-beam are well tied together when the floor reinforcement crosses the beam, and the web steel extends up into the slab as high as possible. Near the middle of the beam the shearing stresses between the flange and the web are small and occasional vertical stirrups may be inserted. However, near the end of the beam the bonding should be carefully done.

Referring to Fig. 1 the shaded portions may be considered as Tee-beams. Since the total compression is concentrated in the flange, this part will offer much larger resistance than would be the case with a flange equal in width to the thickness of the web.

Proportion of Tee-Beams

The best width for the flange of the Tee-beam cannot be determined directly. The following rules assist in deciding how much of the slab may be considered as an effective part of the beam. The flange width may be five times the thickness of the web or ten times the thickness of the flange. It is evident that the flange of the Tee-beam should never exceed nor even equal the distance between beams, since in these cases the entire floor slab should also be considered as a part of the beam, involving on the whole rather doubtful action. The width should not be too great in proportion to the thickness of the slab, otherwise the shearing stresses on the vertical section of the slab at the edge of the beam will be excessive, and much greater than the stresses on the horizontal section between the flange

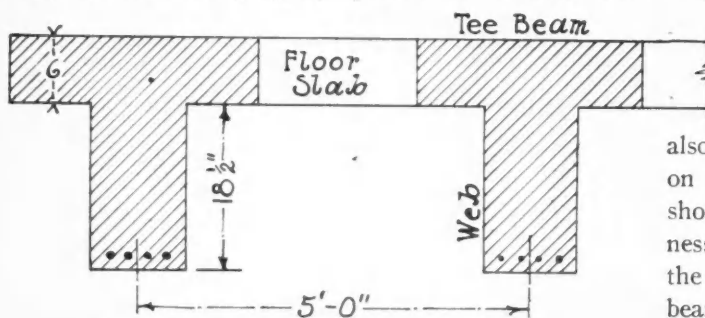


Fig. 1. Showing the Typical Tee Beam.

and the stem. It has been found by tests that it would be difficult to crush a flange as much as four times the thickness of the web without causing a failure by shear in the web. The following equation based on the idea of the most economical proportions and derived with the aid of higher mathematics may be used in getting dimensions for the web.

(a) $d' = \sqrt{\frac{rM}{St + b'} + \frac{t}{2}}$, where "r" is taken as the ratio of the cost of steel to that of concrete; "M" is the bending moment, and the other symbols are shown in the figure.

The relation $\frac{V}{100} = b'd$ is frequently used. That is, the average unit shear on the cross-section may be equal to 100 pounds per square inch when the web is carefully reinforced. Now ($b'd$) may be satisfied by a large number of combinations. In some cases, head room may be a limiting factor, or possibly (b') may need to have a certain value in order to provide room for the tension steel in the bottom of the beam. Otherwise the equation (a) may give some idea of

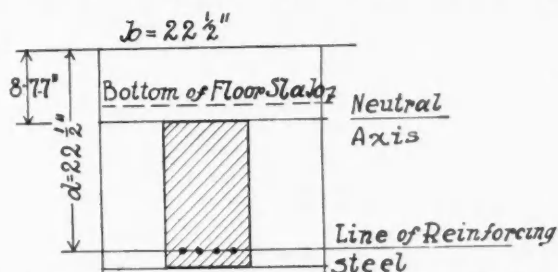


Fig. 2. Showing Simple Beam Previous to Modification into a Tee Beam.

the best proportions. In any case it is not possible to arrive at once at suitable proportions without the use of the "cut and try" method.

Suppose we are to design a beam 10 feet long for a bending moment of 100,000 pound-feet or 1,200,000 pound-inches. Let the concrete and steel stresses be respectively 650 pounds per square inch and 14,000 pounds per square inch. Then "p" will be found to be .0084; $k = .39$; $j = .87$. Solving for (bd^2) from the equation $M = \frac{S_c k}{2} j b d^2$ then $bd^2 = \frac{1,200,000 \times 2}{650 \times .39 \times .87} = 10,880$. Let "b" = "d" = 22 1/2 inches. The beam will appear as shown in Fig. 2.

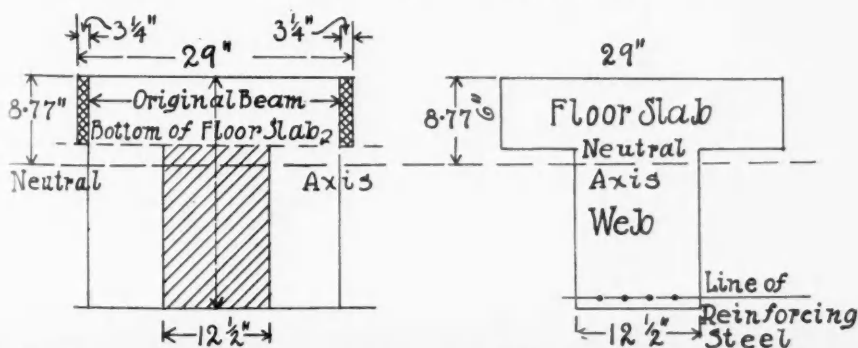


Fig. 3. Showing How a Simple Beam Is Converted into a Tee Beam.

It is evident that not all of the concrete below the neutral axis is needed. The shaded area would be sufficient to hold the steel in place. If all the concrete below the neutral axis except the shaded area is removed then the remaining outline will be a typical Tee-beam. The neutral axis passed thru the lower edge of the flange. For this case, or where the neutral axis passes thru the flange, all the equations for rectangular beams may be used. This difference should be noted. "A" the area of the steel is equal to (pbd) and not ($p'b'd$). It is further evident from the figure that a portion of the concrete just above the neutral

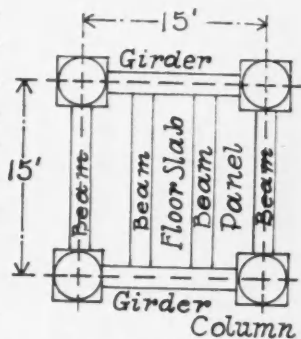


Fig. 4. Plan Showing Columns, Floor Beams, Girders and Floor Slab.

axis may be removed without increasing the stress in the concrete to any great extent. Let us assume 2.77 inches of the concrete above the neutral axis removed as shown and consider the remaining 6 inches as the thickness of the floor slab. In order not to increase the stress in the flange due to removal of a part of the concrete, the width of the flange may be increased enough to provide for this additional stress. If "V" = 28,000 pounds, then $28,000 \div 100 = b'd$ and (b') = 12 1/2 inches. Since the stress in the concrete is proportional to the distance from the neutral axis the stress at the bottom of the flange will be $S'_c = \frac{2.77}{8.77} \times 650 = 205$ pounds per square inch. The total stress, which would be taken by area removed will be $(\frac{205}{2} \times 10 \times 2.77) = 2,840$ pounds. It will now be necessary to widen the flange so as to provide for the stress of 2,840 pounds above. The average stress on the 6-inch flange will be $(\frac{650 + 205}{2}) = 427.5$. Then $\frac{2,840}{427.5} = 6.6$ inches will be the additional width required of the flange, making it $22\frac{1}{2} + 6\frac{1}{2} = 29$ inches. Fig. 3 shows the final Tee-beam.

Floor Slabs

A floor is a slab supported by a series of beams which are in turn supported by girders. (Fig. 4.) The slab supported between beams and from girder to girder is called the panel. If this is a rectangle the reinforcing rods will be placed in one direction only, altho transverse rods are often used to aid in binding the entire mass together. If the panels are square it will be advantageous to reinforce in two directions, assuming that one-half the total load

is supported by each set of reinforcing rods. No economy results from reinforcing in two directions when the relation of length to breadth of panel exceeds 1.2, while if this ratio is 1.5 then the transverse reinforcing will carry nearly all the load.

A type of floor which has been much used is known as the cantilever flat slab. It is usually of uniform thickness thruout, and is supported directly by the columns without beams or girders. The columns are widened at the top to increase the circumference, thereby enlarging the area supporting the slab. The reinforcement of the slab consists of rods extending in four directions as shown in Fig. 5. The structural action in the flat slab is not well understood and considerable reliance is placed on actual tests to aid design. A common method of analysis consists in considering

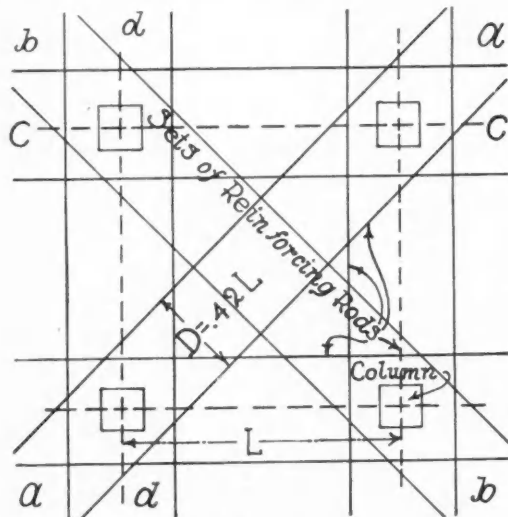


Fig. 5. Plan Showing Flat Slab Floor System.

the slab as beams or beam strips. This is the most logical method and will be the only one presented here.

In Fig. 5 let (a, a), (b, b), (c, c), (d, d) represent sets of rods, the width of each set should be sufficient to insure reinforcing for every part of the slab. It is assumed that each of the four sets of rods carries one-fourth of the total load. For a continuous beam of span "L" carrying a uniform load "W," the moment over the columns will be $\frac{WL}{12}$ and at the middle of

the span $\frac{WL}{24}$. Since the

load is supported by four sets of rods, the formulæ

may be written as $\frac{WL}{48}$ and

$\frac{WL}{96}$ If "D" is taken as .42 L, then the moment per foot of width is $M = \frac{WL}{.42 L 48} = \frac{W}{20}$. The slab and reinforcing will then be designed as a beam 12 inches in width.



Good Roads Show Announced

THE Thirteenth American Good Roads Congress and Fourteenth National Good Roads Show will be held in Chicago, January 15, 16, 17, 18 and 19, 1923.

It is the intention to separate the congress and show, by holding the former at the Congress Hotel and the latter as usual at the Coliseum. It is believed this arrangement will be more satisfactory as it will obviate the necessity of shutting down the operating machinery during the sessions and will eliminate the noise that has proved so annoying to speakers and delegates at the convention. The new arrangement is also expected to increase the attendance at each session of the congress.



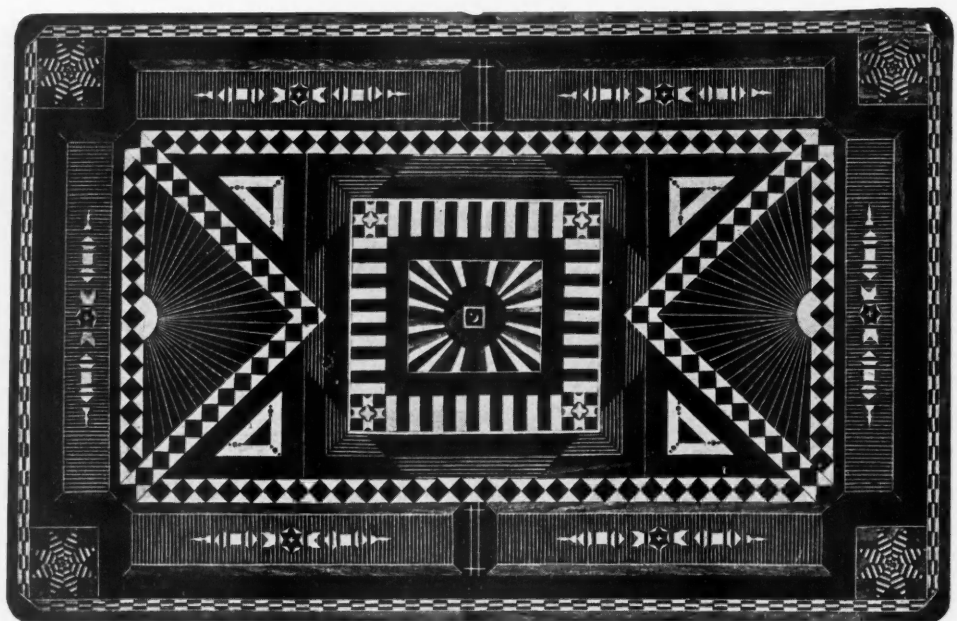
A Five Thousand Piece Table

THE table top shown in the photograph was made from more than 5,000 different pieces of wood. The wood was gathered from various parts of the world, several kinds being used including rosewood, mahogany, boxwood, ebony, cocabolo, and a few small pieces of ivory and mother of pearl.

The table is the work of George Eger, who has been connected with the Stanley Rule & Level Plant, New Britain, Conn., for more than forty years. Assembling the thousands of pieces so attractively required expert workmanship and artistic ability. In constructing it he used the following tools: a mitre box, a plane, a square, a bevel, a hammer, a chisel, a bit brace and a cabinet scraper. It is 42 inches long by 26 inches wide.



MORE than 25,000,000 feet of 32 species of wood are consumed annually in the United States for equipment for sports and games.



This Table Top Is Composed of 5,000 Different Pieces of Wood Gathered from All Parts of the World. It was made by George Eger, of New Britain, Conn., and contains rosewood, mahogany, boxwood, ebony, cocabolo and small pieces of ivory and pearl.

FREE—This Book on Wood Finishing



This book is full of practical information on finishing new floors and trim and refinishing old work of this kind. Written by experts—profusely illustrated—contains color charts—gives covering capacities, etc. We will gladly send it free and postpaid to contractors and builders.

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The use of Johnson's Artistic Wood Finishes insures satisfaction, both with the appearance and wearing quality of your work. The Johnson Line of interior finishes includes Perfectone Undercoat and Enamel—Wood Dye—Paste Wood Filler—Floor and Finishing Varnish—Prepared Wax—Permacote—Wall Finish—and everything necessary for floors, trim and walls.

JOHNSON'S ARTISTIC WOOD FINISHES JOHNSON'S

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Decorative Finish Covers Wall-board Joints

After Fifteen Years of Experimenting a Material Has Been Developed Which Facilitates to a Remarkable Degree the Successful Finishing of Wall Boards

By ARTHUR D. GROSE

THOSE interested in wall finishes, whether from the standpoint of decoration or redecoration, may well afford to investigate a new plastic preparation which is becoming increasingly popular because of the unlimited variety of texture and color effects it offers.

This material is neither a paint nor a plaster but has the qualities of both. It comes in powder form (having approximately twice the bulk of plaster of Paris) and is mixed with warm water to the consistency of a paste. In this form, it is applied to the surfaces to be covered. Being of this consistency, it is admirably suited for the finishing of surfaces that are slightly irregular or that contain imperfections. It will adhere to practically any surfaces, and will moreover maintain its structure, neither chipping nor peeling with time. Installations made ten years ago are still intact after having been subjected to the usual residential and public building service.

This new finish is not expensive nor is the applying of it difficult or expensive. In new construction work, where plaster is used, it may be applied directly to the "brown" coat, eliminating the necessity and the subsequent cost of the skim coat. With one coat over the "brown" coat of plaster, a finished wall may in this way be obtained.

The present day trend toward a permanent textured wall has brought a marked popularity to this product. The restful relief obtainable, together with its excellent enduring qualities, bids fair to make it one of the most attractive and economical investments in interior decoration for the building owner.

The aesthetic appeal offered by this product is remarkably good because by its use it is not only possible to obtain an unlimited range of texture and color, consistent with Italian, Spanish, Colonial, or other popular

styles of architecture, but it is also possible to develop the individual ideas of the architect or interior decorator. If one desires an antique wall finish, for example, he does not have to send for Style No. 5678 or any other stereotyped sample. He, himself, can determine exactly what blending of color tones and texture will best satisfy his desires. Thus the architect or decorator is afforded a splendid opportunity to develop unique wall finishes that bear the stamp of his individuality.

For Wall Board Joints

Wall board is becoming increasingly popular in various types of building construction, and many effective results have been obtained in panelling with them. Very often, however, panelling is not desired and under these conditions difficulties have been encountered in the satisfactory covering and concealing of the joints. This plastic decoration has proved to be an excellent medium for concealing these joints, inasmuch as it has sufficient body to produce an unbroken surface. In fact, the facility with which it can be used to conceal any wall irregularity or imperfections, appears to be unsurpassed in the field of present-day interior decorating. One coat is sufficient to cover a surface, and where the multi-colored effects are desired, one coat applications are just as feasible as with the plain flat color.



Contest on Small Hospitals

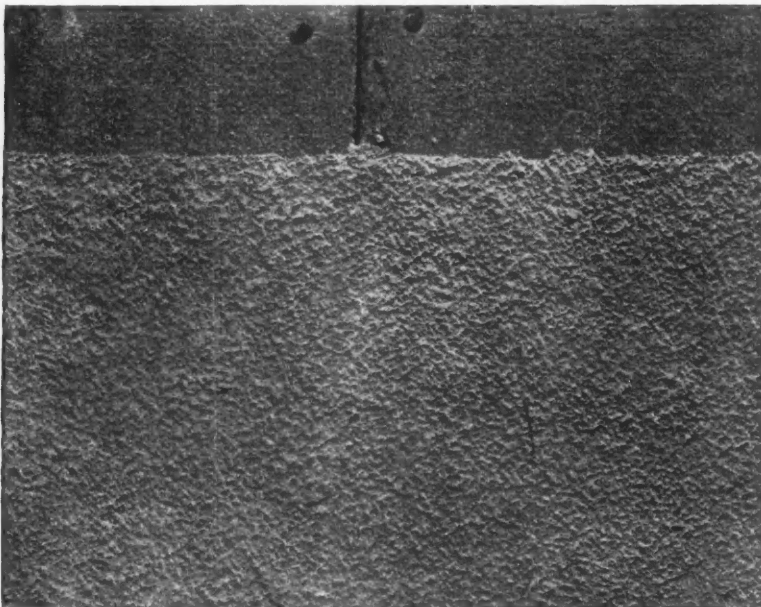
TO obtain for the typical small community in America a hospital building which is at the same time efficient in arrangement and creditable in architecture, a leading journal in that field. "The Modern Hospital," has recently issued the formal program of a prize competition, open to all architects.

Prizes amounting to \$1,000 are to be given to successful contestants, and altho certain definite requirements are set forth in the program, the avowed intention of the competition is to bring out new thought in hospital construction.

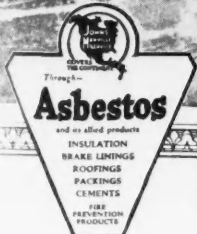
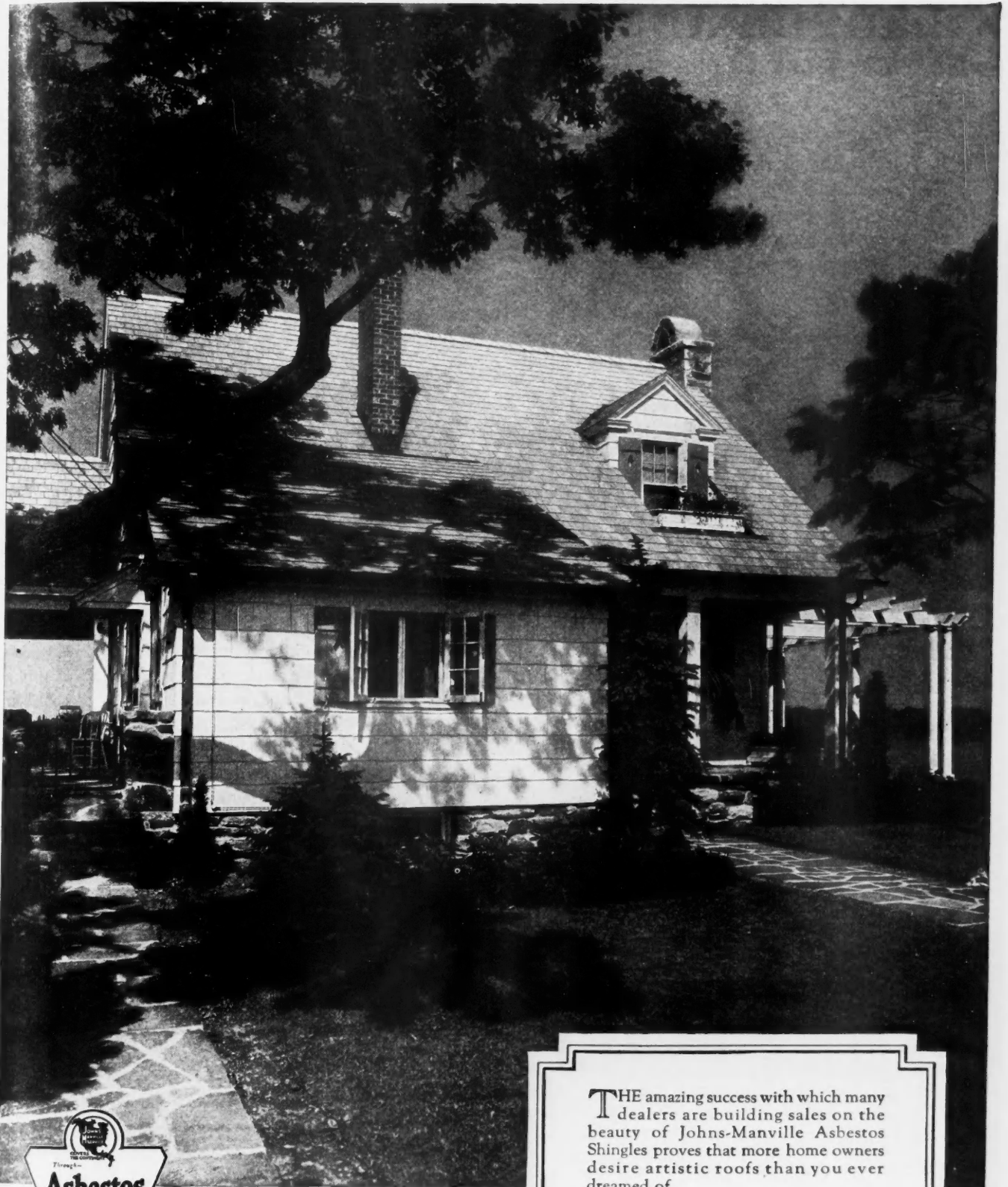
The Illinois Chapter of the American Institute of Architects, to which the general program of the competition was submitted, has approved it as form and method of procedure. Richard E. Schmidt of the firm, Richard E. Schmidt, Garden & Martin of Chicago, is the architectural advisor. The jury of award is to be composed of two architects, two hospital superintendents and a graduate nurse who has had experience as superintendent of a small general hospital.

The competition calls for a set of plans of a general hospital of from 30 to 40 beds. Registration for the contest must take place on or before Dec. 15, 1922, and the final date for submitting designs is Feb. 1, 1923.

The general program of the contest may be had by addressing the Chicago office of "The Modern Hospital."



Close-up View of Wallboard Joint Completely Covered by Plastic Decorative Finish.



*Johns-Manville Colorblende Asbestos Shingles
Residence of Henry F. Keil, Rye, N. Y.
Architect, Henri Vallet*

JOHNS-MANVILLE Asbestos Roofing

THE amazing success with which many dealers are building sales on the beauty of Johns-Manville Asbestos Shingles proves that more home owners desire artistic roofs than you ever dreamed of.

The idea that roofing beauty is of sole interest to mansion owners is costing some dealers a lot of business. The number of Johns-Manville Asbestos Shingle Roofs on modest homes has long since proved it wrong.

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Madison Ave. at 41st St., New York City
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Changing the Exterior Appearance

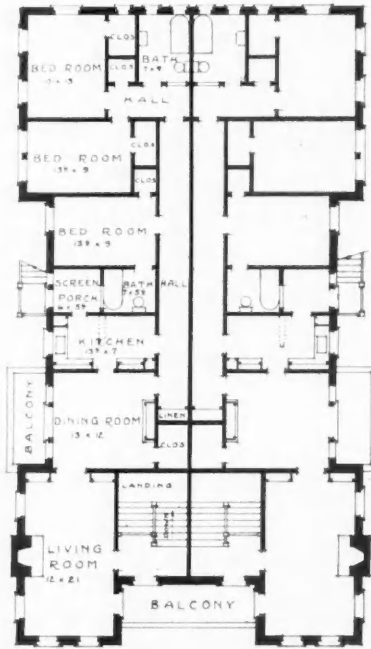
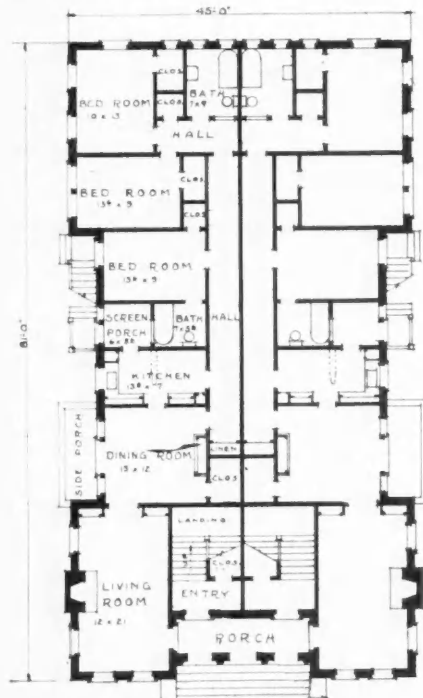
While These Two Examples of Apartment Buildings Have Identical Floor Plans, th
Exteriors Vary Decidedly

By CHARLES ALMA BYERS

THE two flat buildings shown in the accompanying photographs present, as will be seen, exteriors of very pronounced difference—at least in so far as general appearances go. They differ from each other, for instance, in wall designing, in style or character of roof treatment, in the handling of the front windows, and, to a rather marked degree, in color schemes. Despite their dissimilarity in these respects, they, however, possess floor plans that are exactly alike, both in size and in arrangement thruout.

Both also, as regards outside walls, are, in the main, of brick construction.

The buildings have, each, a frontage of 45 feet and a maximum depth, exclusive of the front steps, of 82 feet. Each contains four flats of six rooms and two baths each, or two apartments of six rooms on each floor. The two improvements, incidentally, occupy adjoining lots, and were built at the same time. They are located in Los Angeles, Calif., and were designed by E. B. Rust, architect, of that city.



While Presenting Different Exteriors, the Floor Plans of These Two Apartment Buildings Are Exactly Alike.

Each Building Contains Four Flats of Six Rooms and Two Baths Each, or Two Apartments of Six Rooms on Each Floor.



The Exterior of This Attractive Apartment Building Is Red Brick. The walls of the front portion are finished with white cement-stucco and artificial stone corners and over-window slabs.

The building shown in the first illustration, as regards the exterior, is constructed of bright red brick of very smooth texture, in respect to the walls of the front and sides back to the beginning of the side recesses, and of ordinary red brick for the remainder of the sides and the rear. The walls of this front portion are, however, finished with white cement-stucco up to the water-table at the bottom of the first story windows, producing a high base effect, and with white artificial stone corners and over-window slabs. The brick also is laid in white mortar. The roof is of the flat kind, consisting of a good grade of roofing composition, and is enclosed by an attractively designed railing. The top of the walls, back to the side recesses, is further finished with a neat metal cornice, which, including the roof enclosure, as well as the window frames and sash, is also painted white.

The other of these buildings has its front walls, back to the recesses on the sides, constructed of rough-texture brick of soft brown and buff colors. Like the first, its remaining walls, however, are of common red brick; and it is likewise finished, on the front, with a high cement-stucco base and with artificial stone slabs over some of the windows—a window treatment which here is accorded to the second-story windows instead of those of the first story, as in the first instance. The roof of this building

(Continued to page 124)

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Door Beds

The Perfectly Balanced Door Beds—Built on the New Principle, the Convolute Spring Balance—A Revelation in Good Appearance and Smooth Operation.

"White" Door Beds are in every respect *real beds* mechanically adjusted to smaller space. In comfort, convenience and appearance they set an entirely new standard of excellence. They are the only space-saving beds that are regularly equipped with box springs and this fact alone serves to emphasize the difference between them and the ordinary folding or disappearing beds.

The operation is effortless and noiseless—only one easy motion is required—no pulling or adjusting of legs or head board. *At all times, the beds are perfectly balanced.* Simplicity is a feature especially to be noted. There is no complicated mechanism, no exposed springs, no clamps or movable parts to tear the bedding. "White" Door Beds are built with fewer parts than has ever been possible before. They are constructed of square steel tubing for lightness and durability in the most modern designs, with regulation height head and foot ends; finished in wood or enameled colors. "White" Door Beds afford perfect concealment, without the use of the unsightly oversized door, and give access to the dressing room behind them whether bed is folded up or is down in room. From the builder's standpoint the "White" Door Bed is especially valuable because it requires less room space when used, as well as less closet space.

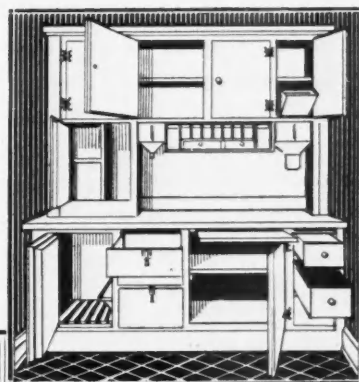
"White" Space-Saving Devices

In connection with the "White" Door Beds we are presenting a complete line of built-in fixtures. These afford the builder every advantage of decreased space and lower construction cost, but are so ingeniously designed that the convenience and attractiveness of the bungalow or apartment is actually enhanced by their use. The fixtures comprising the line are the "White" Built-In Kitchen Cabinet, Dressing Cabinet, Dressing Table, China Cabinets, Ironing Board and Medicine Cabinets.

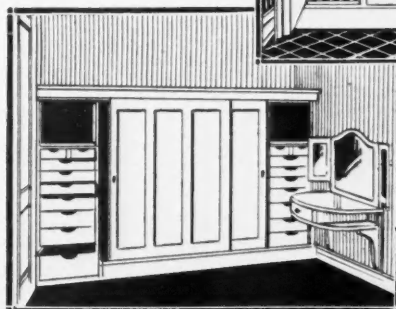
We offer special and consultation service to architects and builders without obligation. Write us and state in detail the project you have in mind and we will supply any information or assistance you desire, together with specifications and prices.

Ask for Book L1300.

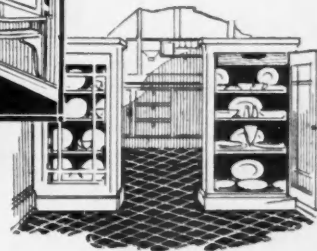
Notice: We are establishing agencies throughout the United States. Some territories are still open. If interested, write us, giving full details of your business and qualifications.



The "White" Built-In Kitchen Cabinet.



The "White" Built-In Dressing Cabinet and Dressing Table.



The "White" Built-In China Cabinets.

PICK & COMPANY

RANDOLPH ST. CHICAGO

(Continued from page 120.)

is comprised of dark green roofing tile for the front portion and of composition roofing for the back part.

Casement Windows

The first floor windows on the front, it will be noticed, are designed with arched tops and are of the casement type. The trimming is done exclusively in white.

The buildings have, in common, a small recessed entrance porch on the front, off from which opens a separate door to each apartment. This porch is designed with three arched doorways on the front,



While Its Exterior Appearance Is Different from the Apartment Building on Page 120, the Interior Arrangement is Exactly the Same. They are located in Los Angeles, California, and designed by the same architect.

which are formed with white artificial stone, and with a small railing-enclosed balcony, accessible from each second floor flat, overhead. The porch, in each instance, is floored with cement, and the doors that open off from it, in both cases, are of birch, with a small pane of glass in the upper part. In addition to the porch and balcony on the front, each flat is also provided with a small private porch or balcony on the side off the dining room, as well as with the usual kitchen entry porch.

The interior planning of all the flats is uniform to the minutest detail—except, of course, that entrance to the ones of the first floor is direct to the dining room, while those of the second floor are naturally reached by way of private stairway halls. Further, by virtue of this stairway requirement, the upstairs flats are given an entrance hall closet additional.

Each apartment contains living room, dining room, kitchen, the customary kitchen-entry porch, three bedrooms and two bath rooms, besides an excellent equipment of closets and built-in features.



Record September Construction Activity

BUILDING contracts awarded during September in the twenty-seven Northeastern States (which include about three-fourths of the total construction in the country) amounted to \$271,493,000, according to the F. W. Dodge Company. This figure is 11 per cent greater than

that for September, 1921, and is the highest recorded September total. The seasonal decline is still under way, last month's construction activity being 16 per cent under that of the preceding month.

The year to date has broken many records. The total construction started during the first nine months, which has amounted to \$2,634,365,000, is greater than the total for any entire year previous to 1922. On the 9 months' basis this year is 51 per cent ahead of last year.

Residential building showed a slight increase in September, amounting to \$101,428,000, or 37 per cent of the month's total. Public works and utilities amounted to \$50,379,000, or 19 per cent; business buildings, \$45,907,000, or 17 per cent; both classes showing increases over August. Industrial buildings amounted to \$26,384,000, or 10 per cent of the total; and educational buildings, \$21,213,000 or 8 per cent.

Contemplated new work reported during the month amounted to \$330,801,000.

While the seasonal decline may be expected to continue, it is likely that the remainder of the year will show a volume of activity that is high in comparison with like periods of previous years.



Making the Best of It in the Worst of It

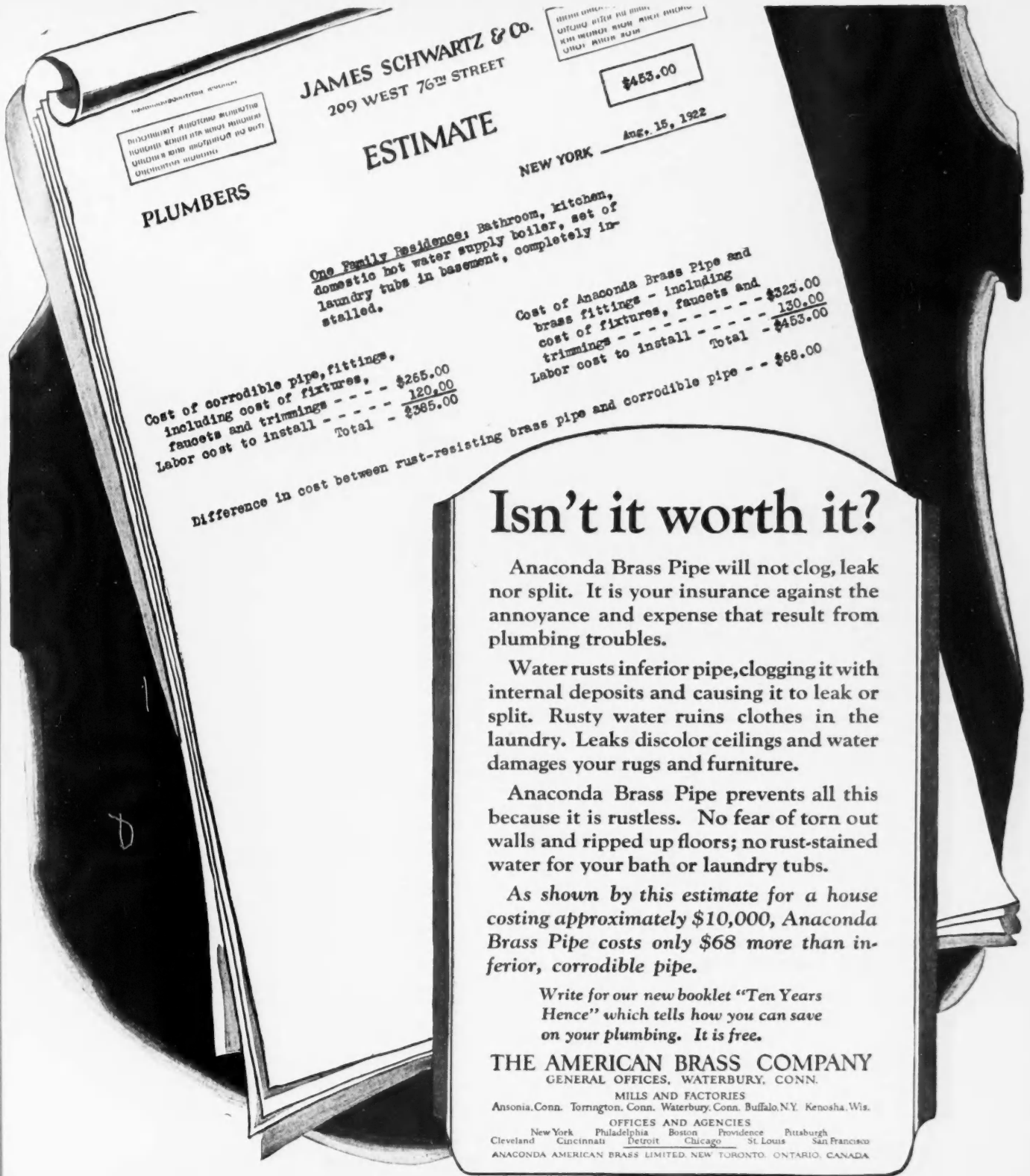
ACCORDING to George Barribal of Cleveland, Ohio, who operates the 3½-ton truck shown with a load of concrete blocks in the illustration below it is not only necessary to make good concrete products, but it is equally necessary to put them on the job.

As indicated by the picture, a motor truck, provided, of course, that it has the necessary power and a capable driver, can be depended upon to deliver its load regardless of weather and road conditions. Mr. Barribal says that this dependability of motor trucks that enables him to give service in the full sense of the word, is one of the biggest factors that make success for a building supply manufacturer or dealer.

In this instance, the picture testifies to the fact that the going was bad, since the wheels are almost up to their hubs in mud. In spite of this, the delivery was made in good time and doubtless the customer was well pleased with the service rendered under such adverse conditions. There is an obvious moral in this incident for every builder, contractor, building supply manufacturer or dealer.



Regardless of Weather Conditions and Bad Roads, Successful Building Supply Manufacturers and Dealers Must Deliver Their Products. This is what George Barribal, of Cleveland, had to contend with.



JAMES SCHWARTZ & Co.
209 WEST 76TH STREET

WRITE OVER...
CHECK WITH US FIRST
WE WILL BE GLAD TO HELP YOU
GET THE BEST

\$453.00

ESTIMATE

NEW YORK Aug. 15, 1922

PLUMBERS

*One Family Residence; Bathroom, Kitchen,
domestic hot water supply boiler, set of
laundry tubs in basement, completely in-
stalled.*

Cost of corroddible pipe, fittings,
including cost of fixtures, - \$265.00
faucets and trimmings - 120.00
Labor cost to install - 120.00
Total - \$365.00

Cost of Anaconda Brass Pipe and
brass fittings - including
cost of fixtures, faucets and
trimmings - \$323.00
Labor cost to install - 130.00
Total - \$453.00

Difference in cost between rust-resisting brass pipe and corroddible pipe - - \$68.00

Isn't it worth it?

Anaconda Brass Pipe will not clog, leak nor split. It is your insurance against the annoyance and expense that result from plumbing troubles.

Water rusts inferior pipe, clogging it with internal deposits and causing it to leak or split. Rusty water ruins clothes in the laundry. Leaks discolor ceilings and water damages your rugs and furniture.

Anaconda Brass Pipe prevents all this because it is rustless. No fear of torn out walls and ripped up floors; no rust-stained water for your bath or laundry tubs.

As shown by this estimate for a house costing approximately \$10,000, Anaconda Brass Pipe costs only \$68 more than inferior, corroddible pipe.

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

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**ANACONDA
BRASS PIPE**

CORRESPONDENCE

*Questions Answered—
Ideas Exchanged*



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

Interesting Words From Scotland

To the Editor: Logie, Dundee, Scotland.

I have had occasion to apply to some of the advertisers in your magazine for certain articles which I could not get on this side, but the cost of carriage on a few tools is very prohibitive and I am not in a position to handle big quantities as yet.

Nevertheless, I must say that I have been kept up to date with the newest in the woodworking line. I was especially interested in the descriptions of small woodworking machines, given from time to time. There is always the difficulty on this side of knowing exactly what an article would actually cost delivered on this side. I have an idea there is a market for these small machines over here.

Again, I would very much like to be the proud possessor of one of those books advertised by the Morgan Door people (Building Assurance) but as they say in their advertisement that they do not wish to issue it broadcast to everyone, I have denied myself. Of course, this old out of date country still sticks to the old fashioned doors; it is a habit here, altho I think that if the Morgan people were to introduce their product over here it would have a ready sale.

The present is an inopportune time, however, as the building trade is at a very low ebb here. Plenty houses are required but the cost of building is still prohibitive. Contrary to your country, there is very few that own their own home in this country and there is very little encouragement for anybody to try to own a home unless they are war profiteers. We, on this side, envy your people very much, the facilities they have for owning a home if they want to.

I send these remarks thinking perhaps they may be of interest to you. I am a carpenter myself and consequently know good tools when I see them and am always on the lookout for anything new in that line.

ROBERT C. JAMES.



Interested in Rabbit Hutches

To the Editor: Oakland, Calif.

I would like to have you send me a drawing and details of a practical rabbit house and hutches; also the self-cleaning arrangement. I would like to go in on a propo-

sition if it will pay; but the matter of time it takes to clean, etc., for sanitation is a great factor; also the feeding arrangements. If you have anything along that subject I will be glad to see and know about it.

Another question I would like to ask and that is, what do you consider the best deafening or sound-proofing for a two-story dwelling or apartment house, frame building, with frame partitions; in fact, wood throat?

C. J. HEMEMANN.

Answer.—The National Lumber Manufacturers Association, Chicago, got out a few years ago an illustrated booklet on rabbit hutches. It was for free distribution. Write them.

EDITOR.



Waterproofing a Cellar

To the Editor: Manhattan, Mont.

I would like to know how to make a cellar water tight in order to keep the water out. The wall and floor are of concrete about nine inches thick. I have plastered the wall and floor with one part sand and three parts cement but the water still comes in.

WILLIAM VAN DER SCHAAF.

Answer: The best time to waterproof a cement wall and floor is before they are poured. First see that the drainage is right around the building on the outside and then see that a good, dense mixture of concrete is used. If for every ten pounds of portland cement used one pound of hydrated lime is added to the mixture a very dense waterproof mix will be had.

Now, your problem is complicated by the fact that the wall and floor are already in. If you can get at the outside of the wall, mop it thoroly with hot tar. This will keep the water out of the wall. If you are not able to get to the outside of the wall you will have to depend on applying waterproofing to the inside and for this purpose one of the commercial waterproofing compounds would serve the purpose nicely.

In most locations outside drainage around the building is very important. Dig a trench about a foot out from the wall all the way around, running it down to the bottom of the footing, and lay drain tile. Let this line of tile empty into the sewer or carry it well away from the building down a hill, if possible, to a discharge end.—EDITOR.



Profits and Good Will in Cornell-Wood-Board

IF you're building a permanent business, you're interested mainly in two things—Profits and Good Will. Every thought and effort you give to creating and strengthening your Good Will, pays you in profits; not only in the immediate profit, but in future profits. They're the important ones.

Cornell

Wood Board

is material of the kind that makes for future profits. It means sturdy, satisfying construction that builds Good Will for you. It is radically different from ordinary wall-board in several important respects. It's all wood. You know what that means; for good wood gets better in service. It's *triple-sized*. That's an important fact, too; it means resistance to moisture, heat, and cold.

For permanent good looks and adaptability, Cornell is an ideal material. Its *oatmeal-finish* lends itself to a great variety of treatments; and it's always attractive. Or there's a variety of tile finishes for kitchens and bathrooms. Cornell is always *mill-primed*, ready for paint or calcimine.

"165 Uses for Cornell-Wood-Board" is a booklet telling how you can make many useful things for the home. You can have it for the asking. Phone, write or call for it.

CORNELL WOOD PRODUCTS COMPANY
General Offices: 190 North State Street, Chicago
Mills, Cornell, Wisconsin

"The Seed is Sown"

To the Editor: 1525 Spruce Street, Philadelphia.

Thank you most cordially for your reference to "A Chapel in Every Home," in your wonderful paper. I have heard from it from several directions. The movement for the sanctuary in every home is assuming an international character. I may not live to see a realization—but the seed has been sown.

Faithfully yours, JOSEPH R. WILSON.



For Better Suspended Ceilings

To the Editor: Chicago.

The undoubted economy of metal lath when used as the plastering base for suspended and vaulted ceilings has resulted in an ever-increasing use of this form of construction. It is emphasized for decorative purposes in the better residences, theatres, schools, institutions, public and office buildings. Altho its use is most widespread in certain cities such as New York, Chicago, Detroit and Cleveland, its undoubted economy as compared with any other method of obtaining equal effect has resulted in greatly extending its use in other localities thruout the country.

Probably lack of realization of advantages by local lathing and plastering contractors in places where the use of suspended ceilings is comparatively new has been the principal hold-back.

We are anxious to have full recognition given to the importance of the suspension features of all suspended ceilings, and have provided a specification providing safe, minimum allowable construction. The necessity for such rules has received the particular attention of the plasterers' union.

Safe workmanship will be assured by careful inspection by the architect and the plastering contractor when the lather has completed his work, and before the plaster is applied.

STANDARD SUSPENDED CEILING SPECIFICATIONS
Approved by the Associated Metal Lath Manufacturers
July 11, 1922

After much research in connection with the common practice in the different localities thruout the United States, the following specifications have been approved as being the minimum safe specifications for suspended ceilings.

It is regretted that much suspended ceiling work is being erected in a sub-standard manner, and if failure occurs, it will be thru no fault of the manufacturers.

HANGER—The vertical member which carries the steel framework.

The minimum size for hangers shall be No. 8 galvanized wire, 1 3/16-in. flats or 7/32-in. round mild steel rods. The wire is to be attached by twisting three times, flats attached by bolting with 3/8-in. bolts, rods by twisting twice, or by right angle bends and wiring. They shall be spaced not to exceed 4-foot centers in either direction.

RUNNER CHANNEL—The heaviest horizontal member. Runner channels are to be not less than 1 1/2-in. channels with a minimum of 442 lbs. per lineal foot. They shall be spaced not to exceed 4-foot on centers.

FURRING CHANNEL—The smallest horizontal member, to which the lath is attached.

Furring channels shall be not less than 3/4-in. channels with a minimum weight of .276 lbs. per lineal foot, attached to runner channels by at least three loops of No. 16 galvanized wire at each crossing. They shall be set on various centers, depending upon the lath to be used. A maximum of 11 3/4-in. centers shall be used for 3-lb. flat lath, 15 3/4-in. centers maximum for 3.4-lb. flat lath, 19-in. centers maximum for 3-lb. Rib Lath.

METAL LATH—The plastering base and reinforcement. Metal Lath shall weigh not less than 3 lbs. per square yard. Metal Lath shall be attached to the furring channels by No. 18 gauge annealed galvanized lather's wire, every 6 inches along the furring channels.

ASSOCIATED METAL LATH MANUFACTURERS,
Wharton Clay, Commissioner.



Mounts Mixer on Truck

To the Editor: Woodmere, L. I.

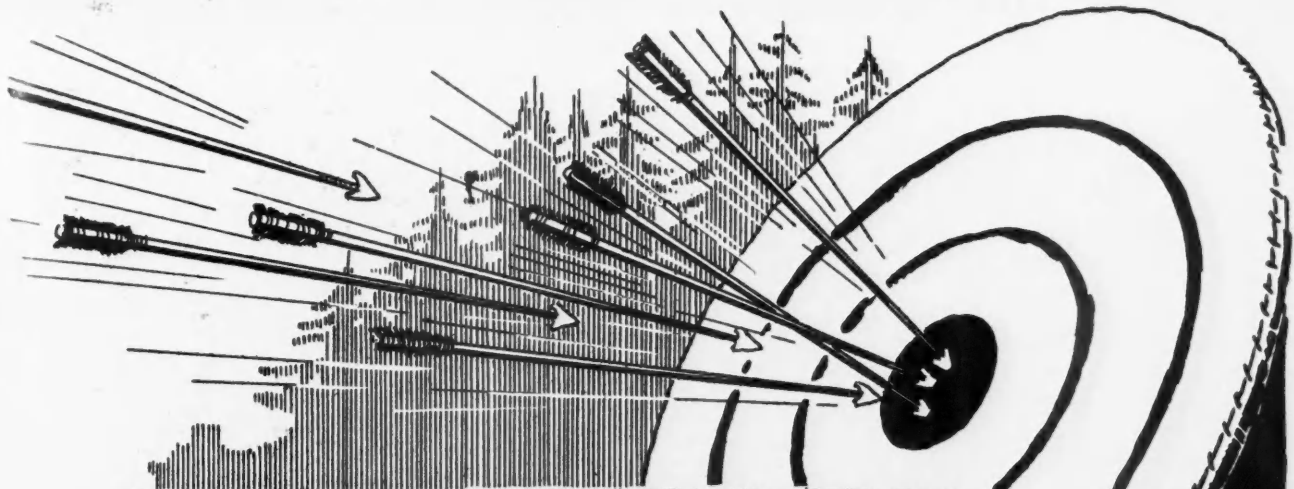
When I tired of the difficulty of the transportation of my concrete mixer, I hit upon the idea of mounting it on my truck. I put 10 inch steel flanges on the front wheels of the truck and 12 inch flanges on the rear wheels. These enable the truck to go over soft ground which is frequently encountered in going onto many jobs.

When I am ready to move the mixer from one masonry job to the next, I merely crank the truck and away we go. The motor truck cuts down the moving time between jobs considerably and facilitates the placing of equipment in just the location where it can be used to the best advantage on the job.

STANLEY CARMAN,
Masonry Contractor.



The Concrete Mixer Is Mounted on an Auto Truck. It facilitates moving the mixer for all that is necessary is crank the truck and drive away to the next job. Mr. Carman has put 10-inch steel flanges on the front wheels of the truck and 12-inch flanges on the rear wheels which enables the truck to go over soft ground.



A HIT!

The popularity of Flint Rock Products has its beginning in their manufacture. Permanence is the first requisite, therefore only those ingredients are used which will give that result.

Flint Rock Products are entirely mineral throughout—nature's products suitably refined, then scientifically combined in proportions which have proven correct to give the desired effect.

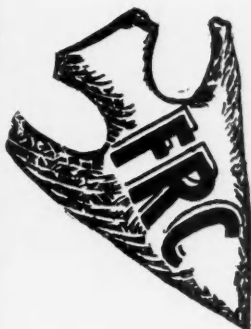
No artificial methods are used. It is the natural material which gives Flint Rock Products the maximum of tensile strength, elasticity, resiliency and moisture proof qualities.

Ask Your Dealer

to show you samples of Flint Rock Products. Investigate thoroly to learn why Flint Rock Products are different and better. If your dealer can't supply you, send direct, giving your dealer's name, and complete information, together with desired samples will be furnished immediately without obligation.

"Flint Rock Products produce a covering which the elements cannot destroy."

'T will pay you to get further information. Write today.



The Flint Rock Corporation

207 Fulton Bldg., Pittsburgh, Pa.
220 W. 42nd St., New York City
Main Office and Factory
INGOMAR, OHIO

Unusual Celebration at Disston Works

Veterans Witnessed Ceremony Commemorating Breaking of Ground Fifty Years Ago for First Building On Present Factory Site

FIFTY years ago, 1872, the 27th of September fell upon a Friday. This day had been planned for breaking ground for the Disston factory at Tacony, a suburb of Philadelphia. Mr. Henry Disston, founder of Henry Disston & Sons, Inc., who, needing room for expansion, was planning to build a new factory in Tacony, suddenly decided that Friday was no day to start such a venture. He immediately got in touch with Mr. Samuel Bevan, his chief engineer, and Mr. William Smith, who afterwards became his chief engineer. These three gentlemen made the trip to Tacony one day before schedule—on Thursday, the 26th of September, and started the first excavation on the present Disston site.

No time was taken to lay a corner-stone. This event was celebrated at the present Disston plant, half a century later. Laying aside for a moment the historical interest of this occasion to the entire saw, tool and file industry, there was one event at the celebration which would probably not occur in any other manufacturing organization in the country.

Assisting Mr. Jacob Disston, Sr. (the only surviving son of the founder of the works) in the laying of the corner-stone, was Mr. William Smith, who 50 years before had assisted Mr. Henry Disston in the original breaking of ground. And, of equal and even more unusual interest, in seats of honor around the corner-stone, were 54 Disston employees who, as young men, were working for Disston upon the day the Tacony plant was started half a century ago.

Each of these 54 men has to his credit 50 or more years of continuous service in the various departments of Henry Disston & Sons, Inc. This is a record of which the firm is justly proud and one which would be hard to duplicate by any other manufacturing firm in the United States.

No meeting of veterans in any industry could look back over more events of interest than these saw, tool and file making experts. They reviewed the history of the development of the Disston Works.

Briefly—in 1840 Henry Disston, single-handed, manufactured saws in a small cellar on Broad Street, near Second Street, Philadelphia.

Thirty-two years later, in 1872, on Thursday, September 26, plans were completed and ground broken for the first



building on the Tacony site—the first of the present 68 factory buildings now covering the 65 acres of the present Disston plant. Mr. William D. Disston, grandson of the founder of the Disston Works, voiced the sentiment of the firm when in his address he turned to the remarkable assemblage of loyal, long-service workers and with real emotion said: "We are proud of the fact that we are in the presence of you 50-year veterans who by your loyalty and efficient workmanship have had a great deal to do with the expansion of the plant."

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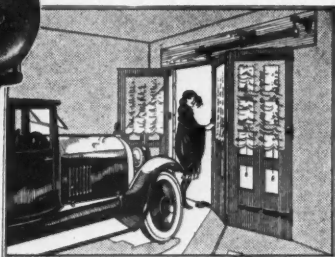
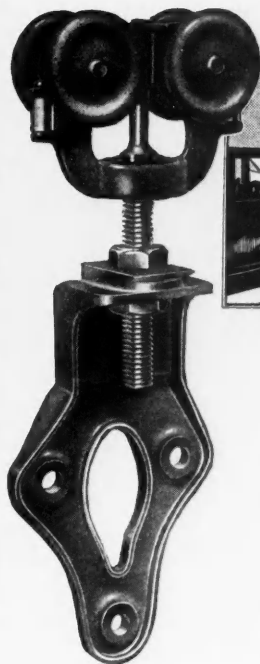
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A Most Unusual Photograph. Each of the 45 men shown has a record of 50 years or more of continuous service with Henry Disston & Sons, Inc. There are 54 men on the Disston "50 year" honor roll.

ALLITH-PROUTY

**GARAGE
and
FIREDOOR
HARDWARE
and
BUILDERS'
HARDWARE
SPECIALTIES**



“1080” For FOLDING-SLIDING DOORS

Of the same identical excellence of material and workmanship, ingenious adaptability of design and extreme ease of installation and operation that have so firmly established Allith-Prouty products as superior.

“1080” Trolley-swivel sets for folding-sliding garage doors are demanded by the foremost dealers, builders and users everywhere.

*Write TODAY for Garage Door
Hardware Catalog No. 91*

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New Home Building Saw Rig

A NEW saw rig, operated with a three horse power gasoline engine, that can be handily moved around on the job, or from job to job, is now being manufactured.

The outfit has a number of attractive features and will appeal to carpenters and contractors engaged in home building as it is especially adapted for this type of work.

The illustration is a photograph of the saw rig on a house job showing some frames that were made with the outfit. It is strongly constructed, having a hot riveted steel frame, which makes it rigid. The three horse power, water cooled engine is mounted on channels back of the table. This table can be raised and lowered with a raising screw. The arbor bearings are wick oiling. The machine is designed so that extra attachments may be put on and taken off easily. Provisions have been made for the jointer, boring

and hollow-chisel mortising attachment, the sander, emery wheel and dado heads.

The twelve inch saw has a ripping capacity of fifty lineal feet per minute and by feeding reasonably, three inch lumber at the rate of thirty lineal feet per minute. The rip gauge is adjustable from square to 45 degrees, and the cross cut gauge, adjustable from square to mitre.

The outfit weighs 700 pounds and is 70 inches long and 30 inches wide.

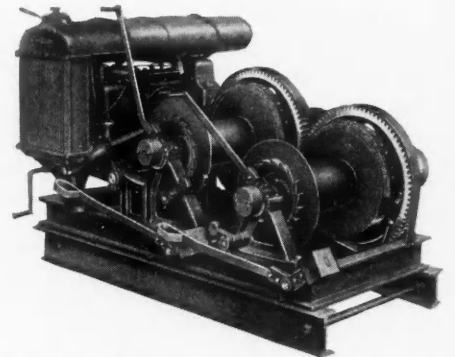


Use Fordson Tractors in Hoisting

A NEW field has been found for the Fordson tractor engine as a result of recent tests and experiments. It is now successfully being used in hoisting work and has been adopted by a manufacturing concern as the standard power plant for their 15 h.p. gasoline hoist.

Like other truck and tractor type engines, the Fordson is a heavy duty engine built for continuous service and is excellently designed for this work. In the United States alone Ford has more than 8,000 dealers who give service on and carry a full line of repair parts for this engine.

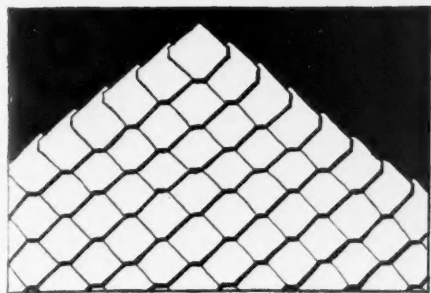
It develops 22 h.p. and therefore has a generous over-



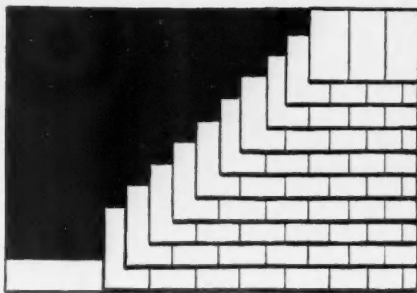
Fordson Tractor Engine Successfully Operates 15 H. P. Gasoline Hoist.



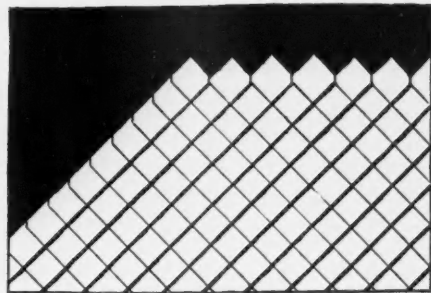
This Saw Rig Is Particularly Adapted for Home Building for It Can Be Handily Moved Around on the Job or from Job to Job. The frames in the picture were made with the outfit. It is designed for extra attachments and the saw has a ripping capacity of 50 lineal feet a minute.



Honeycomb



American



French

Three styles—Newport Gray, Indian Red, Moss Green, Blue-black and other permanent colors

LAST FOREVER

Made of two indestructible materials—
asbestos and cement rock, which Mother
Earth has perfected through centuries—
Ambler Asbestos Shingles, Ambler Asbestos
Building Lumber and Ambler Linabestos
Wallboard combine two great essentials of
modern building materials—fireproofness
and permanence.

There are no fancy frills about Ambler

Asbestos Shingles—no loose surfaces to
flake off, no warping or curling—just sturdy,
substantial slabs properly punched for
nailing. They have proved their merit
through a generation of use. They “stay
put”. Their recommendation by you gains
the respect of the home-owner.

Send for instructive literature showing
application to the building in which you are
interested.

ASBESTOS SHINGLE, SLATE & SHEATHING COMPANY

Department A

AMBLER, PENNA.

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

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

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

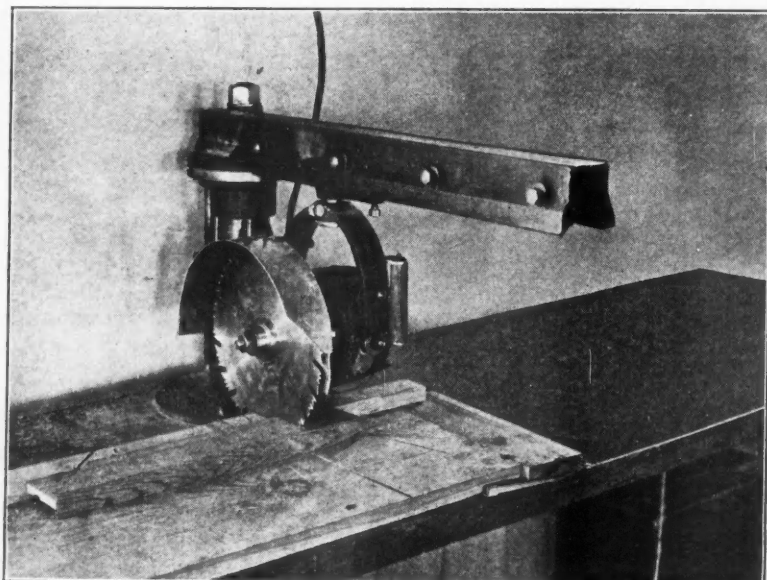
capacity for 15 h.p. requirements. It will operate on gasoline or kerosene.

The hoist shown in the accompanying illustration is the double drum friction type of hoist equipped with the Fordson tractor engine. It has a solid cast bed, channel mount, machined winch heads, bronze bushed drums and cut gears. It is also built in other types to suit the particular requirements of the building construction field, quarries, pits, mines, etc.



Wood-Working Machine Without Belts

THE new woodworking machine shown in the accompanying illustration will be interesting to carpenters, contractors



Made to do Fine, Exact and Close Work This Wood-Working Machine Is Adaptable to a Wide Variety of Operations, Requires Small Space and Is Quickly Adjusted.

and builders. It is a multiple bench machine, adaptable to a wide variety of operations, requiring small space and is quickly adjusted from one kind of work to another.

The motor is especially built for the machine, with projecting spindles at both sides on which the different tools are mounted, thereby doing away with belts and belt-friction, and getting a maximum of power at the minimum of cost, for electric current.

It is a compact precision machine, made to do exact, fine and close work, and as the tool is fed over the work, it is possible to handle longer material than that which could be fed over a stationary saw or shaper, such as routing stair horses or dadoing frame material. The marks are always on top of the material in plain view of the operator.

It can be bolted to a work-bench close to the wall, occupying small space, as it requires no clearance back of the machine. It is built of iron and steel and machined to modern exactness.

The machine is equipped with a ten-inch smooth cutting saw, which will cut thru material 1 3/4 inches thick by 15 inches wide. Either direction of rotation can be secured for cutting.

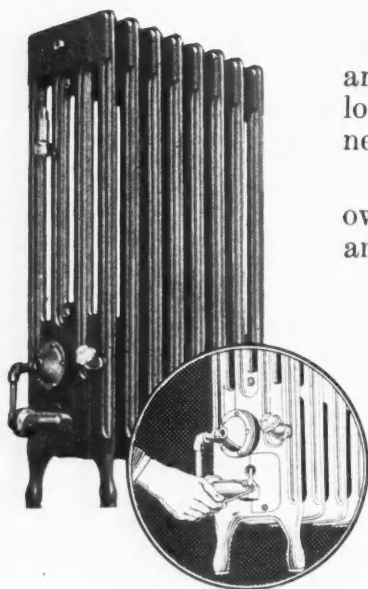


Scaffold Bracket Has Safety Features

A NEW folding scaffold bracket has a number of excellent "safety first" features that makes it desirable to work upon and without any fear of its collapsing, slipping or falling away from the building.

One important feature can be seen at safety point No. 1 in the accompanying illustration. The "T" iron is notched on one side which permits the opening of the brace cord should the hanger break. The lower brace or cord is also made of a "T" iron.

PART-TIME BUILDINGS



Most commercial buildings—stores, offices, factories—are in use only part of the time. The same is true of lodge halls, schools and churches. It follows that they need heat only part of the time.

By heating them with CLOW GASTEAM radiators the owner does not waste heat. He saves the cost of boiler and chimney—even cellar excavation. He has no fuel to store, no ashes to remove. And his heating plant needs no attention.

Send for more information about CLOW GASTEAM—gas fired radiators, generating *Steam* heat.

JAMES B. CLOW & SONS

General Offices: 534-546 S. Franklin St., Chicago
Sales offices in the principal cities

CLOW

James B. Clow & Sons
534-546 S. Franklin Street, Chicago
Send me details of CLOW GASTEAM.

Name _____

Address _____

We Are Revising Our Agency Lists.

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

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

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

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

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

Write Today—Now, Before You Forget

ADDRESS

Sales Department

The Diamond Metal Weatherstrip Co.

626 KERR STREET

COLUMBUS, OHIO

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

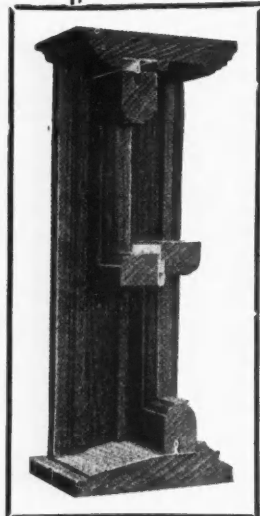
To Readers of This Advertisement

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

C. J. PARSONS,
Gen'l Mgr.

Carpenters—Contractors

Make This Your Harvest Year
Become Weatherstrip Agents



**300,000
Tons Chicago's
Coal Shortage---**

empty coal bins nation wide create a big demand for heat conserving equipment.

A Profitable Business

All metal weatherstrip is easy to sell and simple to install. All Metal Weatherstrip contractors agents make good money—\$5,000 per year up. Many were carpenters who wanted a business of their own. They are now independent and happy. Don't be a

plodder through life on an uncertain income.

Building Breaks Records

Building is exceeding all records and will for years to come. Now is the time to jump in and clean up big. We assist our agents to land contracts, furnishing selling helps, advertising material, demonstrating models, etc. You get fullest co-operation if you are an Allmetal agent.

Architects are including more and more weatherstrip in their plans. Property owners are easily shown that weatherstrip is a money-saving equipment. It cuts coal bills way down.

Carpenters — Contractors —

if we do not have a representative in your territory, we have a splendid opportunity to offer you. Send for our plan. You will not obligate yourself in any way.

Allmetal Weatherstrip Company
124 West Kinzie Street
Chicago

Mail

Without obligation send your agency proposition and complete information on your agency plan.

This

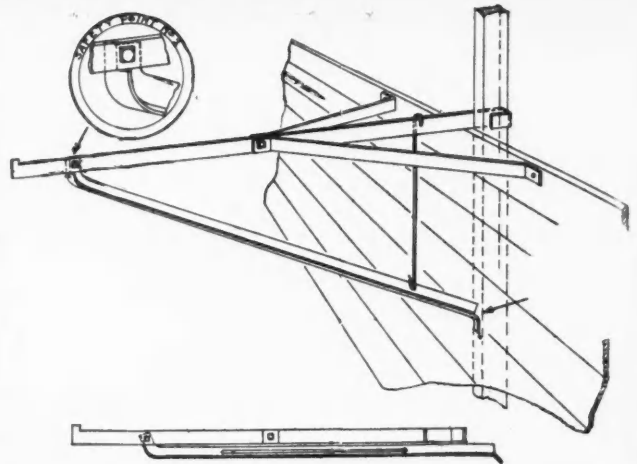
Name.....

Address.....

Today

Town.....

State.....



"Safety First" Features Make This Scaffold Bracket Desirable to do Work Upon. Will not slip, collapse or fall away from the building.

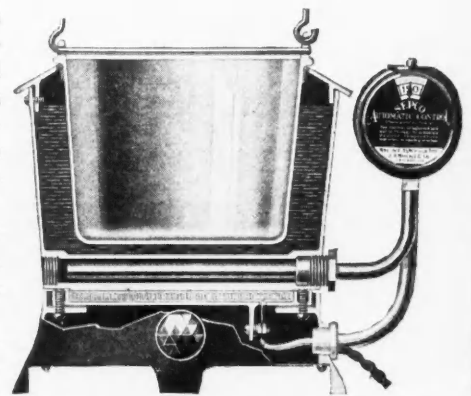
Its folding features are very compact as illustrated. The sway braces keep the bracket at right angles from the building and prevent the swaying of the scaffold. The bracket is attached to or detached from the building by either lifting up or pushing down on the sway braces to allow clearance for the stud hook on the top cord. It is strong and light, weighing only 12½ pounds.



New Automatic Glue Pot

A NEW electric equipped glue pot with an automatic electric heat control device has recently been placed upon the market. The new pot is adapted for heating any substance which requires a definite working temperature, such as heating or melting glue, wax, pitch, tar, sealing compound or resin. Thru the automatic control the temperature of the substance can be kept between 140 and 150 degrees at all times—at which heat it possesses the greatest holding quality.

The pot operates from any electric light circuit and is put in operation by turning on a switch. It functions either as a water



Sectional View Showing Construction.

bath, hot air or dry heat pot. It cannot cause fire from being left on overnight. The insulation and control of the current for fire protection have been approved by the Underwriters Laboratories.

There is a durable cast aluminum glue container supported by special retainer lugs which prevent floating when the pot is but partly filled. As seen in the accompanying illustration there is a tube immediately above the heating element that contracts and expands with the slightest change in temperature and provides a dependable action of ample power to actuate the control of the switch. When the heat reaches the proper temperature the control turns off the current. When the temperature falls a few degrees the heat is turned on again.

The pots are made in two, four and eight quart sizes and range in weight from 20 to 40 pounds.

How Men in the Building Trades Get Into the Big Pay Class

Opportunities Everywhere for Those Who Can Read Plans, Make Estimates and Superintend Work

NEVER in the history of this country have men in the building trades had the opportunities for money making that are offered today. Building is on the boom. Able men are needed on work already started and on work for which the plans are ready.

There is big money ready for men who can read plans, make estimates and superintend construction—and this is where the ambitious man who will train as an expert will find his chance.

As a workman, a man draws pay for what he can do with his hands. As a foreman or superintendent he gets paid for what he knows. And the contractor taking small jobs who gets posted on the higher branches of building can take on the big propositions which pay the largest profits.

Some men have reached the big money class only after years spent in picking up information as they went along. This is the slow way to success and comparatively few men get very far by depending upon their experience and hard work alone. The man who trains under experts and gets the benefit of their knowledge saves years of waiting—he gets quickly to the front.

There, for instance, is a man in Oklahoma. His name is Woodside. He worked for years just as thousands of other carpenters are working, taking a job here and a job there, making a journeyman's wages and no more. He did the sawing and nailing and joining while other men did the planning and directing and made the real money.

Fortunately for Woodside he saw an advertisement of the Chicago Technical College which offered to train him by mail in his spare time to do the very things which these successful men were doing. He wrote for the catalog, got information about the Builder's Course and enrolled. Read what he says.

"I was working as a carpenter receiving \$6.00 per day when I took up the course. In less than three months I got a job as foreman on a big apartment building at \$8.00 a day. Five months later I was superintending a reinforced concrete job covering nearly half a block. I am now in business for myself specializing in theatre construction."

And there is P. Marchand, a contractor in Louisiana who writes: "My income increased 100% and have more work than I can do. Have three churches, and several other buildings to construct."

Another man with Chicago "Tech" training is S. J. Dickerson of Rhode Island who says: "When I started your Builder's Course I was making \$50 a month on the average. Now making \$150 a week."

These are only three examples of what this training has done for ambitious men who saw that "the big pay goes to the man who knows" and who put in some of their spare time to get the instruction of the Chicago "Tech" experts.

Let America's Oldest and Largest School for Builders Give You the Training that Means Greater Success and More Money

Hundreds of carpenters and men in other building trades attend our Chicago school.

For twenty years we have been training ambitious men who are now foremen, superintendents and independent contractors, making big money while other men who started with just as good chances as they had are still at the bench. You can get this same training at home in your spare hours for

we teach the same courses by mail and you get the supervision of the same experts. No special, previous education required to take up this course. Send the coupon below and get the catalog with full information about our courses and about our small fees and easy terms of payments.

Some of the Subjects We Teach

PLAN READING—How to read a building plan. Floor plans and elevations. Use and meaning of different lines on the plan. Sections and section lines. Cross Sections. How different materials are shown on the plan. How to read dimensions. Detail drawings. How to lay out work from the plans. Tracings and blue prints—How they are made. Contracts and specifications. Practice in reading complete plans from basement to roof, etc., etc., etc.

ESTIMATING—Figuring amount and cost of material, time and labor for all classes of buildings. How to figure all kinds of carpenter work—stairs, roofing, rafters, mill work, window and door frames, mouldings, cornices, etc., etc. How to figure brick, stone and concrete work. Sheet metal work, glazing, plumbing, heating, wiring, etc.

THE STEEL SQUARE—How to use the square to solve building problems, such as figuring common rafters, hip rafters, jack rafters, etc., etc.

SUPERINTENDING—Methods of work on all classes of buildings. Uses and preparations of all kinds of material. Hiring and handling men.

Also complete home study courses in architectural and other branches of **DRAFTING**. If interested in any branch of Drafting ask for special catalogue.

FREE! 2 BOOKS AND BLUE PRINTS

Your request brings our 2 Books one on "How to Read Blue Prints" containing a lesson in Plan Reading with which we send blue prints, drawings, etc. With this lesson you can test yourself and see how easily you can learn by our method before you decide about enrolling. The other book explains the Chicago "Tech" Method of Training by mail.

Send the Coupon

Get these free Books and Blue Prints and see for yourself how Chicago "Tech" training will put you ahead. Just sign and mail the coupon today to Chicago Technical College, 1136 Chicago Tech. Bldg., Chicago.



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1136 Chicago Tech. Bldg., Chicago, Ill.

Please send me your 2 Free Books and Blue Prints for men in the Building Trades. Send postpaid to my address below.

Name.....

Address.....

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

Occupation.....

Steel Cellar Sash Win

Past Season Sees Entire Building Industry Adopt Modern Basement Daylighting Windows

NO innovation in years has aroused the interest of residence builders like the advent of steel basement windows.

In the four months that this product has been on the market the demand has grown from nothing to

a point where thousands of these windows are being used daily.

They are so easy to handle and install and their advantages over ordinary basement windows are so numerous and obvious that the building profession



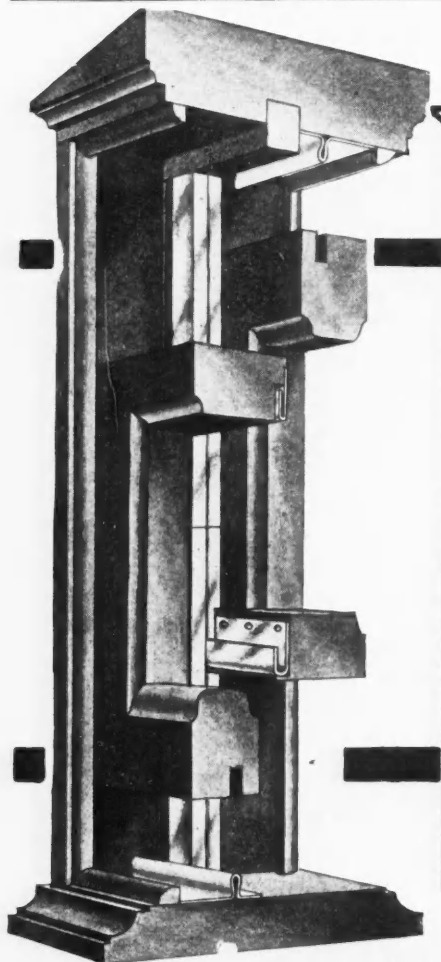
Fig. 1. Steel Windows Being Installed in Brick Veneer. Windows may be built in either before or after veneer is put up.



Fig. 2. More Windows Are Installed in Basements Since the Steel Frames Have Come Into Use. This single home provides for thirteen.

including architects and contractors as well as home owners have welcomed steel windows almost instantaneously.

One of the features most appreciated by builders is the fact that these windows stand up on the sill without bracing as shown in the photographs. This makes it easy for the mason to spread his mortar,



Sager Metal Weatherstrip

The fastest selling weatherstrip of them all. It's sound, apparent real value make it the best strip for the new contractor to begin with. Our fair and square dealers policy make it the all-time favorite of every Sager dealer.

We want a man in every locality who will maintain a selling and installing agency.

Now is the time to begin while the demand is greatest.

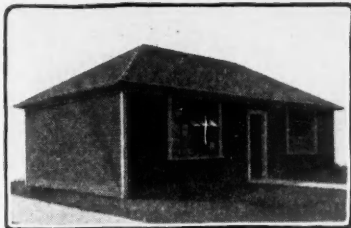
The demand was created by the coal shortage.

It is met with Sager Metal Weatherstrips that reduces the coal cost $\frac{1}{3}$.

Those far-seeing men who are going to answer this ad will be the ones to benefit by this unusual opportunity.

Write now for full details

Sager Metal Weatherstrip Co.
162 West Austin Ave., Chicago



Low Cost Makes Steel Windows Economical for Small Buildings

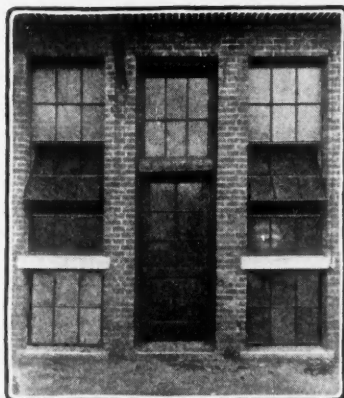
The startling fact about Fenestra Standard Steel Windows is that they frequently cost less than wood windows, even for small buildings!

Stores, garages, warehouses, farm buildings, creameries, community centers, all can afford walls of glass and steel. Fenestra Standard Steel Windows:

- admit 30% more daylight
- provide better ventilation
- last as long as the building
- cannot rust, warp, swell, or stick
- resist fire
- are quickly and economically installed



You can secure immediate delivery of Fenestra Standard Steel Windows from your local building supply or lumber dealer.

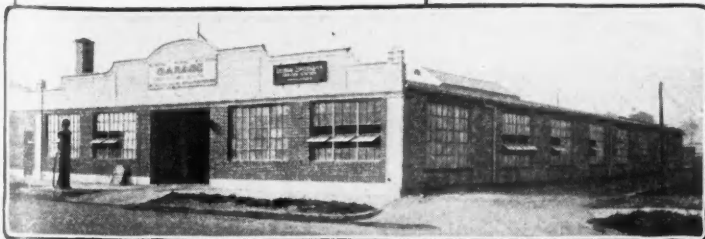


Learn more about Fenestra! Sign the coupon and get your copy of "How To Install Fenestra Sidewall Units". This book contains a wealth of practical information on window installation. It's FREE! Mail the coupon TODAY!

Fenestra

Steel Window Walls

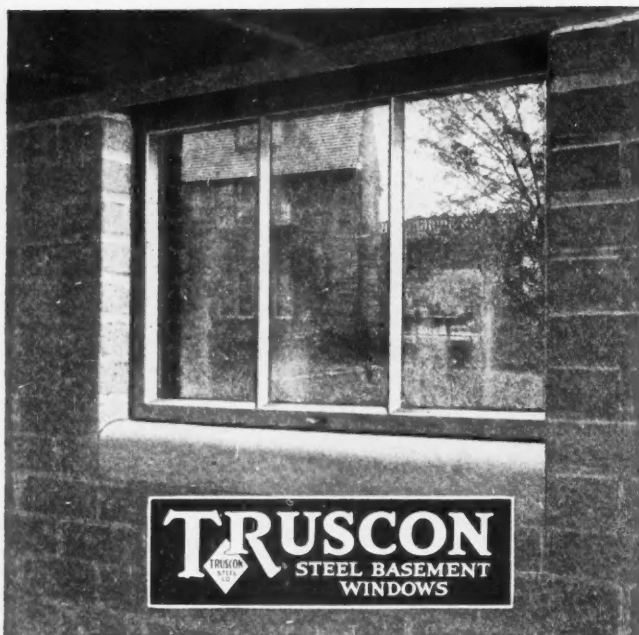
Detroit Steel Products Company
 2303 East Grand Boulevard Detroit, Mich.
"The World's Largest Manufacturers of Steel Windows"



Detroit Steel Products Co., **MAIL NOW!**
 2303 East Grand Blvd., Detroit, Mich.

Gentlemen: Send me a copy of "How To Install Fenestra Sidewall Units." This incurs no obligation on my part.

Signed.....



When You Build a Home Start Right

Compare the daylight area of a Truscon Steel Basement Window with a wood window of the same size and you will find there is a gain of 50% to 80%, depending upon the size of the window. This is one reason why home-builders are using them to build daylight into their cellars.

Truscon Steel Basement Windows won't stick or warp. They are always easy to open and close; they lock automatically. Double contact weathering effectively keeps out wind, rain and snow. They are easy to install.

In making comparisons remember that Truscon Basement Windows come complete with the Sash accurately fitted to the frame and heavy hinges and lock attached.

Building supply and hardware dealers practically everywhere carry Truscon Steel Basement Windows in stock for immediate delivery. If your dealer does not handle them send us his name and ask for complete information.

TRUSCON

You will find this name on every window

TRUSCON STEEL COMPANY
YOUNGSTOWN OHIO

*Largest Manufacturers of Permanent
Building Products in the World*

set his window and then brick up around it. One contractor figures that this feature saves him 15 minutes' time on every window.

Photograph No. 1 shows how the steel basement windows are installed in brick veneer. In these pictures the windows were installed at the outer edge of the inner brick work before the veneer was put, tho it is equally feasible to leave the windows out until later and install them with the veneer.

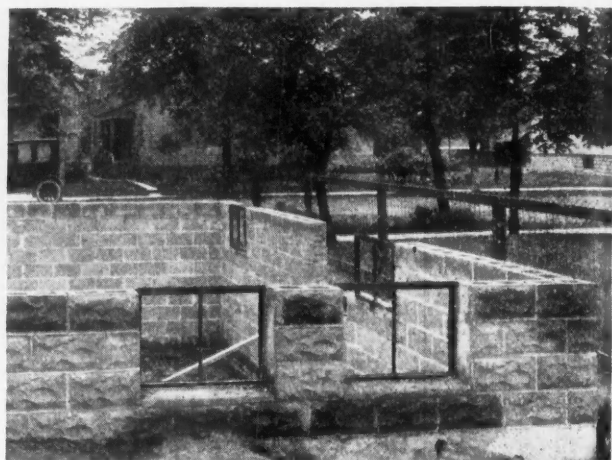


Fig. 4. Steel Basement Windows Are Installed in a Block Wall as Efficiently as in Brick.

Along with the adoption of the steel basement window is coming an increased disposition to put more windows in the basement. A few years ago when basements were known as "cellars" a window at each end—just enough to let the air circulate—was considered sufficient. Today six and seven are common.

One of the first questions asked by builders was "How will they work in concrete block?"

One answer is shown in photographs 4 and 5 where windows accommodating 14-in. by 20-in. glass (two lights) are laid up with very pleasing effect in the height of three standard 8-in. by 8-in. by 16-in. concrete block, with room left for a 1 $\frac{3}{4}$ -in. troweled sill.

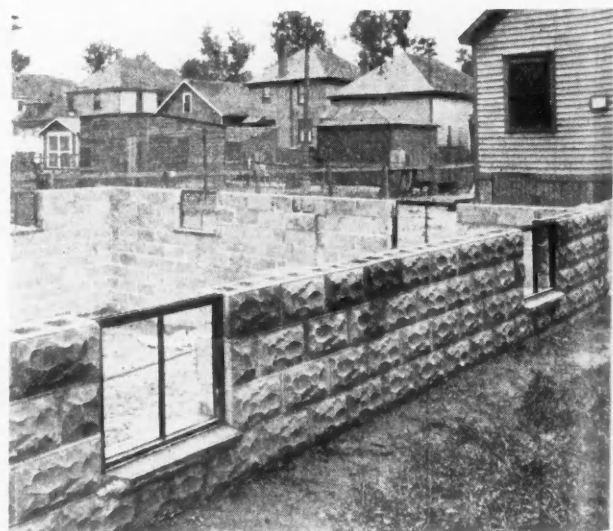
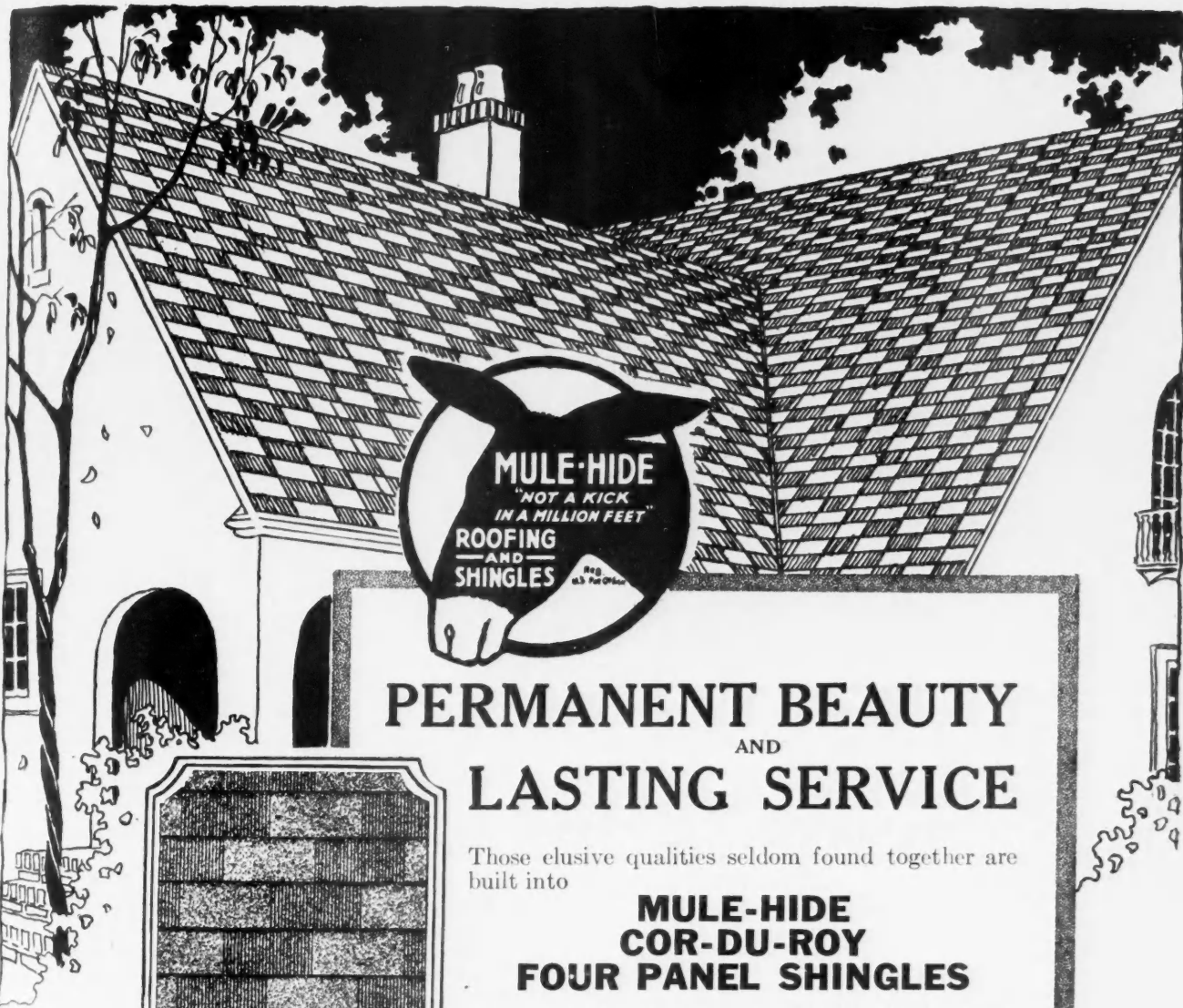


Fig. 5. Windows With 14 by 20 Inch Glass Make a Pleasing Effect When Laid in the Standard 8 in. by 8 in. by 16 in. Concrete Block.



**PERMANENT BEAUTY
AND
LASTING SERVICE**

Those elusive qualities seldom found together are built into

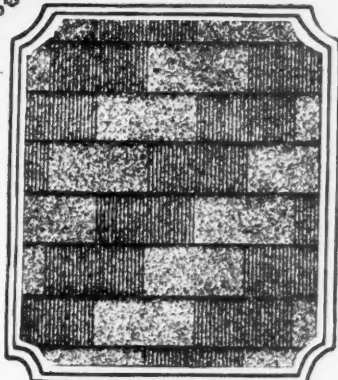
**MULE-HIDE
COR-DU-ROY
FOUR PANEL SHINGLES**

A most artistic effect can be created by laying Four Panel Shingles to produce a checkered effect. The diagonal shadow pattern is another attractive way of laying the Four Panel Shingles to give the appearance of tile. From an artistic and practical standpoint, the Cor-Du-Roy Four Panel Shingles is a fast winning favorite with home owners everywhere.

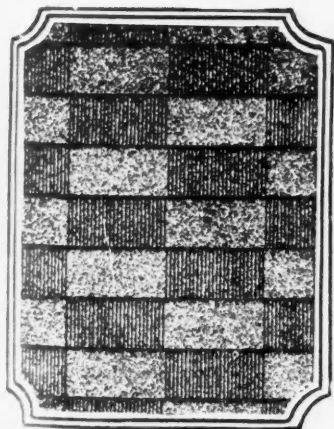
Cor-Du-Roy Four Panel Shingles

eliminate the ordinary slot of the Four Unit Shingle and with it all possibility of this shingle blowing up in the wind. The solid block construction prevents curling and assures a complete two-thickness over the entire roof. The combined advantages of this Four Panel Shingle provide the most attractive, enduring and satisfactory shingle on the market.

"NOT A KICK IN A MILLION FEET"



DIAGONAL EFFECT



CHECKERED EFFECT

**THE LEHON
COMPANY**

Dept. A. B.

44th-45th on Oakley Ave.
CHICAGO, ILL.

THE LEHON COMPANY

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

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

Check whether—

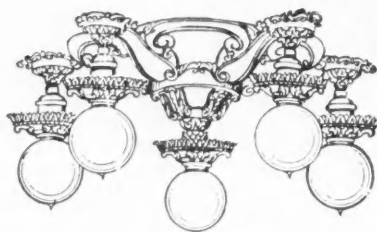
Dealer Contractor Architect

Name

Town

State

Riddle
 DECORATIVE LIGHTING FITMENTS



Design patent pending

The RIDDLE FEATURE FITMENT

*Beauty—low cost—high quality
 —full profit*

- a revelation in the lighting world
- designed by regular Riddle designers
- made by regular Riddle artisans
- priced for volume sales
- full margin of profit
- regular Riddle Silver Estofado and Gold Estafado Decoration

In nine styles, for all major rooms of residence or apartment. Mail coupon below for folder in actual colors and full details of the Fitment that is the sensation of the day.

The Edward N. Riddle Company
 TOLEDO, OHIO

Makers of lighting fitments since 1892

The Edward N. Riddle Co.
 Dept. 312, Toledo, Ohio

Please send folder and full information about the Riddle Feature Fitment.

Name.....
 Address.....
 Business.....



A Ten Years' Climb

TWO unknown young men in a small town. Small capital. A comparatively new and unknown product. Such is the first chapter of the story of the Upson brothers of Lockport and their success in the industrial field with a new product, Upson Board.

The Upson "boys" as they are known in Lockport, figured that their chance of success rested on their potential ability to produce a wallboard of unusual merit—something that would raise their wallboard from the class of hack lumber for cheap repairing to a beautiful material out of which the walls of the finest homes could be made.

So with this fixed idea they labored to produce such a wallboard, always emphasizing the preeminent idea of quality.

Soon the business outgrew the small, rented plant where they made their beginning. A new plant was needed. Money to finance the building of this new plant was raised largely in Lockport.

Still the business grew. The new plant was enlarged more and more, until today, the Upson Company stands at the forefront of the wallboard industry, shipping its product to all parts of the United States and to foreign countries.

In the October 7 issue of the Saturday Evening Post appeared an advertisement of the Upson product—a double page in colors—one of the largest and most impressive single wallboard advertisements ever run in any publication. To the founders of this vigorous young organization, this ad represents another definite milestone in their progress.



Builders' Service Bureau Opened in Chicago

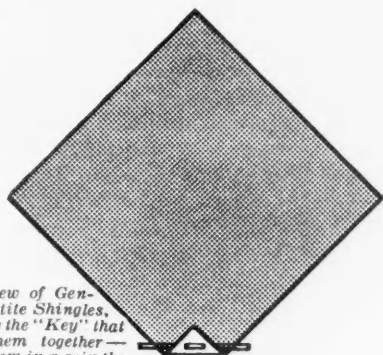
THE Building Material Exhibit, 15 East Van Buren Street, Chicago, recently announced the opening of their Bureau of Service at that address. According to the manager, F. Ross Cox, in his opening announcement, this department is established with a desire to contribute to the promotion of the building industry.

The service is free and open to all members of the building industry. It affords an opportunity to all out-of-town architects, engineers and builders to have a Chicago office. If they will notify the Building Material Exhibit in advance of their coming it will arrange hotel accommodations make their appointments and secure transportation reservations. A number of private conference rooms, fully furnished, are available for consultation between the professions, their clients and material dealers. There is also an excellent library kept up to date, containing the catalogs and specifications of building material manufacturers and dealers.

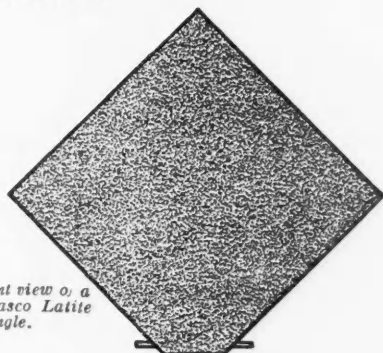
Genasco Latite Shingles

weather all weather!

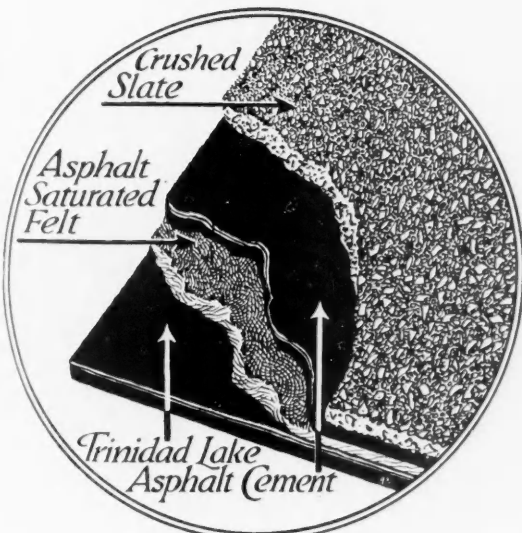
- hurricane winds can't blow them off.
- driving, slashing rain can't get through.
- scorching, blistering heat can't faze them.
- they *lay* tight and *stay* tight in all kinds of weather.



Back view of Genasco Latite Shingles, showing the "Key" that locks them together—holds them in a grip the weather can't break.



Front view of a Genasco Latite Shingle.



Genasco Latite Shingles—like all roofing of the Genasco Line—are made of super saturated asphalt felt heavily coated on both sides with Trinidad Lake Asphalt Cement—a product of the Ages.

Genasco Latite Shingles are locked tightly to each other. No warping or curling by the sun. No flapping or turning up by the wind. No openings for rain, snow and cold to get through.

That's why these remarkable shingles—with their great beauty, durability, and low cost—have created such a sensation in the roofing trade.

Builders have been quick to recognize the many advantages of using and recommending them. They realize especially their tremendous value in building good will and future business.

Genasco Latite Shingles can be laid over old, weather-battered wooden shingles as easily and effectively as over new boards. Their colors—red, green and blue-black—are natural, therefore, unfading. They require no paint or stain to keep them permanently beautiful.

Why not put a Genasco Latite Shingle roof on your next building and prove for yourself their economy and all-around superiority? Write for our illustrated booklet.

New York
Chicago
Pittsburgh

THE BARBER ASPHALT COMPANY
PHILADELPHIA

St. Louis
Kansas City
San Francisco
Atlanta

Genasco

Asphaltic Roofing, Flooring, Paints and Allied Protective Products

Death of Chicago Manager Chain Belt Co.

HERBERT C. FOLLINGER, manager of the Chicago Office of the Chain Belt Company, died of pneumonia, at his home in Chicago on September 27th. He had been ill but a few days and the announcement of his death will come as a shock to his many friends in the industrial world, where he was well known.



Companies Are Consolidated

THE Winchester-Simmons Company, St. Louis, Mo., has been formed by the consolidation of the Associated Simmons Hardware Companies and the Winchester Company. The capital stock is \$22,500,000. The Winchester people will control the two Simmons trademarks and slogans, "Keen Kutter" and "The recollection of quality remains long after the price is forgotten."



Build Co-operative Home

THE Builders' Exchange, of Akron, Ohio, an organization of men engaged in the building industry, successfully carried out an unusual and effective advertising campaign recently to arouse the public's interest in home building and encourage people to own their own homes. The demonstration also showed what exchange members can and will do for home builders.

The exchange built a modern home in one of the best residential sections of Akron and for two weeks, September 23 to October 7, it was opened to the public for inspection. A sale was later closed with one of the visitors.

The house contains eight rooms, and cost \$14,756. All contracts were executed by the members at cost.

Johns-Manville for Protected Metal

THE successful growth of the demand for corrugated metal roofing and siding protected with asbestos and asphalt is such that this material is now recognized as standard roofing and siding for skeleton frame structures. In order to promote this demand and afford better service to clients, Johns-Manville, Inc., has been appointed joint selling agents by the H. H. Robertson Company.

Asbestos Protected Metal is largely used by all industry for all conditions where an unprotected metal or other equally perishable roofing material would quickly disintegrate. Such conditions are frequently found in foundries, steel mills, chemical plants, fertilizer plants, fertilizer works, metal and coal mines, ocean piers, railroads, and almost all in tropical countries.

Wanted—Carpenters and Builders \$120 a Week—



Putnam made this selling Myrtle, the patented vest-pocket windshield cleaner; needed by every autolst, motorman, engineer; prevents rain or snow blur; works like magic; one rub, prestol glass stays clear 24 hours; chemical-felt does trick; cleans entire shield; guaranteed for one year; sells for \$1.00; not a cloth; enameled steel mountings; fits pocket; a sensation wherever shown; agents amazed; Trippe made \$113 in 3 days; Chase sold 5000; season now on; exclusive territory worth fortune; details free; write or wire today.

Security Manufacturing Company, Department 656, Toledo, Ohio

Whatever Your Question

Be it the pronunciation of **Bolsheviki**, the spelling of a puzzling word—the meaning of **blighty**, **fourth arm**, etc.

Webster's New International Dictionary contains an accurate, final answer. 400,000 Words. 2700 Pages. 6000 Ills.

G. & C. Merriam Co., Springfield, Mass. Write for specimen pages. **FREE** Pocket Maps if you name *American Builder*.



Get a Parks!

"I never had a job my Parks didn't help me on!" says M. Cooper, Guthrie Center, Iowa.

Your Parks won't stand idle in your shop. You'll quit doing hand-carpentering at a bench. You'll turn out your work on your Parks.

No matter how good a hand-carpenter you are, no matter how fast you work, you'll never be able to beat your Parks. And the best workman you know can't turn out a better job. Get your Parks!

8 machines in one. Always ready to go. Never quits. Double Table Circular Saw, Rip and Crosscut Saw, Swing Cut-Off Saw, 12-in Joints, Tenoner, Band Saw, Upright Hollow Chisel Mortiser and Borer, Reversible Spindle Shaper and Sander.

THE PARKS BALL BEARING MACHINE CO.

Fergus Street & C. H. & D. R. R.
CINCINNATI, O.

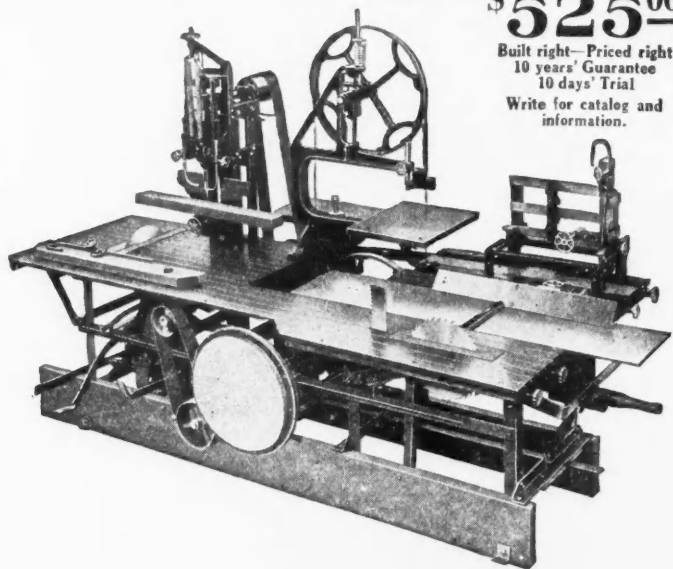
Canadian Factory - - - - 200 Notre Dame East, Montreal, Canada

PARKS Planing Mill Special 8 Machines in 1 - Complete Machinery equipment for your woodworking shop -

\$525⁰⁰

Built right—Priced right
10 years' Guarantee
10 days' Trial

Write for catalog and information.



41

WOODWORKING PARKS MACHINES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Building Reputation and Profits



Long and satisfying service from sanitation and heating installations is a factor in developing a reputation which will pay added profits by attracting new business while holding your present trade. Crane valves, fittings and fixtures give this service because they are designed and produced in accordance with the highest engineering and plumbing standards.

Lower installation costs follow the specification of Crane equipment. All parts are manufactured with the greatest precision—nipples are chamfered to make the threads start more readily and all fittings are machined to insure tight joints at the first assembly. The wide variety afforded in Crane bathtubs, lavatories, closets, kitchen sinks and laundry fixtures assures pleased customers.



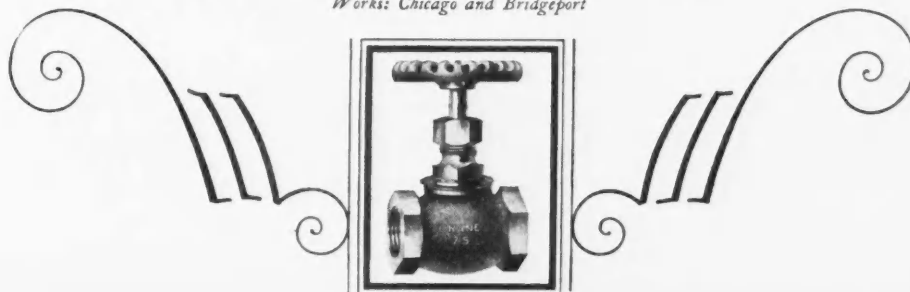
CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Thirty-five Cities

National Exhibit Rooms: Chicago, New York, Atlantic City

Works: Chicago and Bridgeport



Crane 75 Low Pressure Globe Valve

From Clams to White Plaster

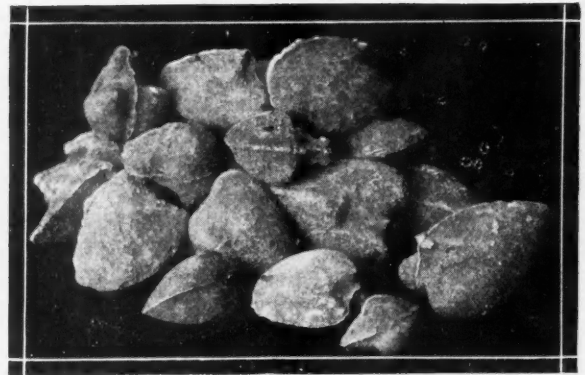
Some of the Very Interesting Information Contained in the Very Unusual Book, "A Job That Took a Million Years" Issued by the Ohio Hydrate & Supply Co.

ORDINARILY, most of us look upon lime as a very commonplace article. In fact, to many of us it merely means "plaster," and there we let our thoughts stop. Briefly stated, lime is the product derived from heating raw limestone rock, until all carbon dioxide gas has been expelled. And geology tells us that limestone rock is the calcareous deposits of various forms of marine life resembling our present day clam and oyster. These masses of shells and animal remains were stratified and compacted upon the bottom of the sea by the never-ending and untiring action of the water.

Thus Nature has carried on her work for centuries and centuries, a period of years far beyond the comprehension of man. Finally, however, thru an upheaval of the earth's crust, these deposits appeared above the sea level as limestone ridges and out-croppings.

From a purely chemical standpoint, there are two kinds of limestone. One is made up largely of carbonate of calcium while the other consists of carbonate of calcium and magnesium.

This last with its high content of magnesium, is known as dolomitic limestone. It is from this dolomitic formation that the best grades of finishing lime are made. It is generally recognized that the hydrated lime made from this rock is noted for its whiteness, purity, plasticity and easy-spreading qualities.



Carbonated Clams

Geological surveys have shown that the section in and around Woodville, Ohio, is particularly rich in deposits of dolomites. Many thousands of fossils are found in the rock, of which the *Canadensis megalomus* is one of the best preserved and most common. Samples of this fossil are shown in the photo, which you will notice, bear a striking resemblance to the common fresh water clam.

Advantages of Hydrated Lime

The question is sometimes asked—Why is hydrated lime preferred over lump lime? Several reasons exist for this preference, depending somewhat upon the purpose involved.

The use of lump lime necessitates the aging of the putty or mortar, before it can be used. The use of hydrated lime makes this aging unnecessary because the lime comes to the job already slaked. Guess work and careless workmanship are almost entirely eliminated thru

CONTRACTORS AND BUILDERS — INSTALL A HARDIN-LAVIN PIPELESS FURNACE IN YOUR NEXT BUILDING

Our Pipeless Furnaces Are Superior Because —

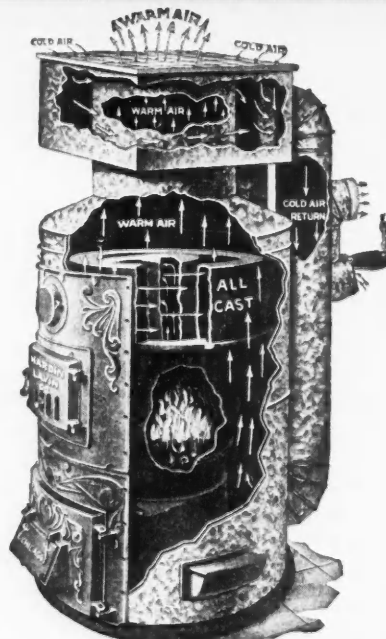
The interior and large front are all heavy cast.

Long circular fire travel saves fuel.

Improved air cleaning humidifier eliminates dust.

Reinforced dumping grates, burns hard coal, soft coal or wood economically.

Has adjustable throat to fit any basement.



Our Improved Pipeless Furnaces "Beat Them All"

Other furnaces take the cold air down inside an outer casing. Notice we take the cold air down through two large separate cold air ducts outside of casing at rear of furnace. This distinctly better method of cold air circulation prevents back draft, warped casings, dust in your home, etc.

SPECIAL ATTRACTIVE PRICES TO BUILDERS

Send today for our pipe and Pipeless Furnace Catalog

500,000 PLANTS BEHIND OUR GUARANTEE

SEE OUR FULL PAGE ADV. ON PAGE 202

HARDIN-LAVIN CO. 50 Years at 4522-34 F Cottage Grove Ave., CHICAGO



Cut Roofing Costs WITH SERVICISED PRODUCTS

Our products and improved method of roof construction enables contractors and builders to put on a **BETTER ROOF** at **LESS COST**.

Every contractor should at once investigate these quality products. They mean satisfaction to the home owner and good profits to the contractor.

The illustration shows our Shingle Span Open Sheathing Method of laying and Individual Interlocking Shingles. This simple and effective method will save better than three dollars per square and assures a dependable roof.

The spurs are quickly and easily spaced and shingles laid over them in a jiffy. The shingle ends are locked to prevent blowing up in the wind and at the same time imparts a beautiful interwoven pattern. The expansion and contraction is taken up from one row to the other over the entire roof surface, through the interlocking ends. These shingles are self-spacing and can be laid a greater length to the weather.

Servicised Products Every Builder Should Use

Individual Shingles, Giant Shingles, Mammoth Shingles, Four-in-one Shingles, Tar Products, Sheathing Paper, Plastic Composition, Slate Surfaced Roofing, Asbestos Cement Shingles, Cement Tile Roofing, Asphalt Expansion Joint, Asphalt Filler and Roof Paints.

*If your dealer cannot supply you with
Servicised Products, write*

SERVICISED

First National Bank Building



PRODUCTS ©

CHICAGO, ILLINOIS

the aid of mechanical processes of scientific accuracy which insures uniform quality of the results.

Then, too, hydrated lime is more convenient to handle, hence reduces labor cost to both the dealer and contractor, with little or no danger of waste. It can be stored indefinitely in a dry place with no resultant fire hazard. Because of the method of hydration it is uniform in quality and is practically free from "core" and over-burned particles.

Another very distinct advantage is the elimination of any possibility of "drowning" or "burning" the lime in the slaking process. Such disastrous results are not at all uncommon where the required quantity of water used is a matter of guesswork on the part of the workman.

That is one reason why hydrated products are uniformly dependable. Mechanical methods of hydration (or slaking) insures a uniformity of product that is vitally important to the user.

Every workman likes to feel that he can depend upon his lime for uniform results. Otherwise, much of his care and honest effort is lost thru no fault of his own.

The following simple instructions regarding the prep-



White Coating.

aration and use of hydrated lime for white coating are given to make it easy for the plasterer to get both a uniform mixture and uniform results.

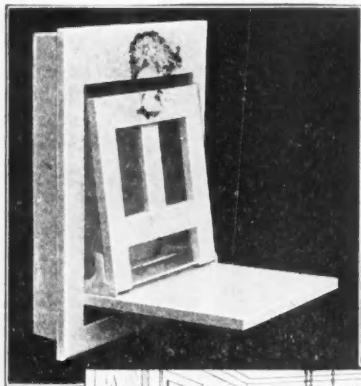
First of all it is important that a clean, tight soaking box is used. Pour the water in the box, then dust the lime into the water, being particular to see that sufficient water is used to satisfy the thirst of the lime. This is the only way by which the full lubricating or plastic qualities of the lime can be brought out successfully. When the proper quantity of lime has been put in the water, let it soak from 10 to 24 hours, depending upon the quantity prepared, without agitating the mixture. When thoroly soaked in this manner, it is ready for use on the board.

After it is placed on the mixing board, hollow out the center and sprinkle water therein, then add from 15 to 20 per cent plaster of paris, or calcined gypsum. After mixing thoroly, it is ready for spreading on the wall.

There is another important feature about hydrate lime white finish that is worthy of consideration.

If you were to closely examine with a microscope the white coating you would find it filled with minute pores. Peculiarly enough, these pores play a very important part in the successful acoustics of a room. Altho too small for the naked eye to see, yet they are large enough to break up and absorb the sound waves, preventing the rebound which is the reason for the echo nuisance where this porosity does not exist.

Another distinct advantage realized is in the permanency of the walls which affords a like degree of permanency in the decorations. If white coated walls are allowed to stand undecorated for at least one year, this permits the building to settle so that any cracks which may result from the settling, can be properly filled and allowed to harden.



Built-in Units for Modern Kitchens

Below is the "disappearing breakfast nook"—four chairs and a table which fold into the walls when not in use. Over one of the seats is an ironing board which may be dropped down when other equipment is out of the way. At the left is a photographic illustration, showing the fine quality of workmanship used in all

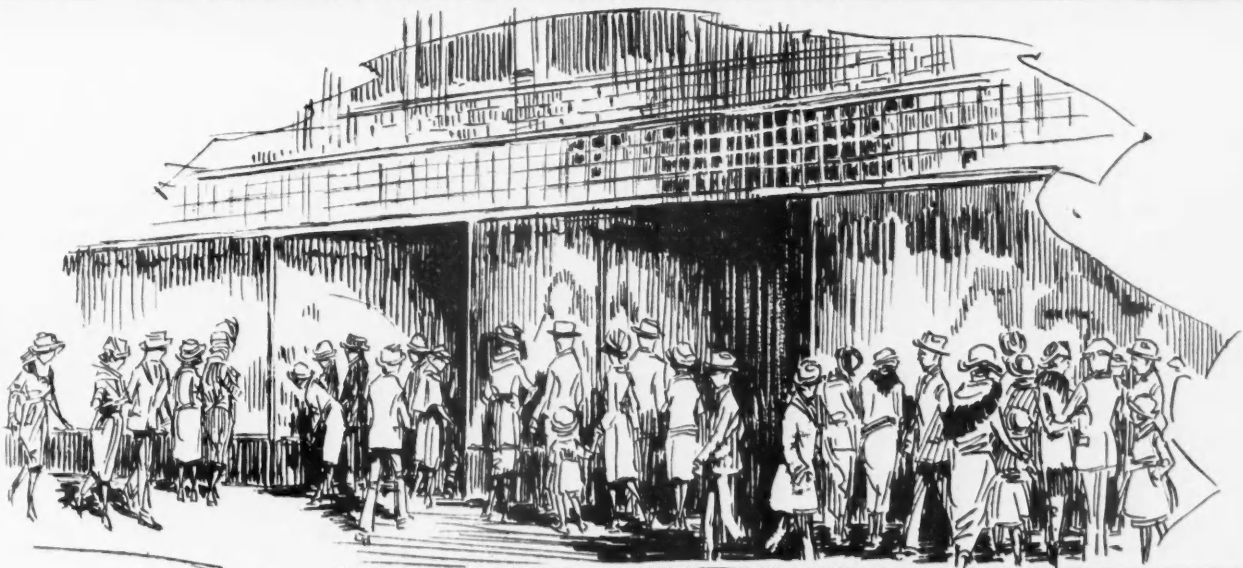
KITCHEN MAID

STANDARD UNIT
SYSTEMS

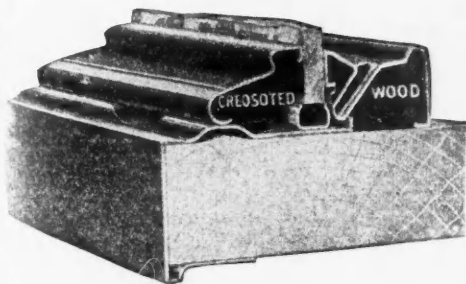
*These efficiently made units can be installed
for less than the average built-in cupboards*

Write for 12-page pamphlet, illustrating kitchen cabinets, tables, dish cupboards, broom closets, cereal and plate warmers, and other conveniences which will be appreciated in an apartment or a private home.

WASMUTH-ENDICOTT COMPANY - *Andrews, Indiana*
301 SNOWDEN STREET



*Send for this
Catalogue*



Brasco

**COPPER
STORE FRONTS**

**STEADY PROFITS
FOR THE BUILDER**
One Job Means Another

The demand for Brasco Fronts grows with every installation, keeping Brasco men busy the year-round. The popularity of Brasco Copper Store Fronts is due to superior construction, great selling power and low cost.

More Builders Needed

to install Brasco Fronts. They are easy to install and there is a good profit for every installation. We have an interesting proposition for live builders. Clip out the coupon and mail it today for booklets and information.

Mail this coupon today

Brasco Manufacturing Company
5029 South Wabash Avenue, Chicago

Send me your booklets on Store Front Construction.

Name _____

City _____

State _____

A. B.-11-22

To Make Study of Redwood

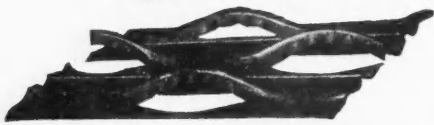
THE Forest Products Laboratory, Madison, Wisconsin, recently received from the California Redwood Association \$5,000 as a co-operative fund to make special study of redwood.

This study of redwood will be conducted largely in the wood-using field, thru personal investigation, questionnaires and correspondence. The investigation will seek out all the present uses to which redwood is put with the idea of developing the newer and more peculiar uses to which this highly specialized wood is adapted.

Now Its Mr. Murphy in New York

ANNOUNCEMENT is made of the appointment of A. A. Murphy as resident sales manager of the Industrial and Railway Paint and Varnish Division of the du Pont Company, with headquarters in New York City. He will be located at the new office of the Paint and Varnish Division has opened at 30 Church Street, where there are improved facilities for handling the demands of the trade. Mr. Murphy has been with the du Pont Company for many years and is an experienced paint and varnish man.

Bostwick
"TRUSS LOOP"



BOSTWICK "Truss Loop" effects an actual saving of money for the Contractor and Builder in five distinct ways, viz.: In Time, Labor, Studding, Lath and Waste Plaster. While more expensive in first cost, Bostwick "Truss-Loop" is the cheapest in finished wall cost per square yard, and it endures.

The Bostwick Steel Lath Co., Niles, Ohio

The Complete Bostwick Line

- "Truss-Loop" Metal Lath
- "Diamond A" Expanded Metal
- "Niles" Expanded Metal
- "Lock" Expanded Metal
- "Truss-V-Rib" Re-enforcement
- Channel Iron
- Corner Bead—Rail
- Standard
- Truss-Wing
- Base Bead
- Wall Plug
- Wall Ties—Y, No. 1, No. 2

Write for prices and full information

Bostwick
BUILDING MATERIALS

"QUALITY"

thy name is **BOMMER** in all that relates to *Spring Hinges*.

Your door is the entrance to your "Sanctuary" in business and at home; "there's no place like home."

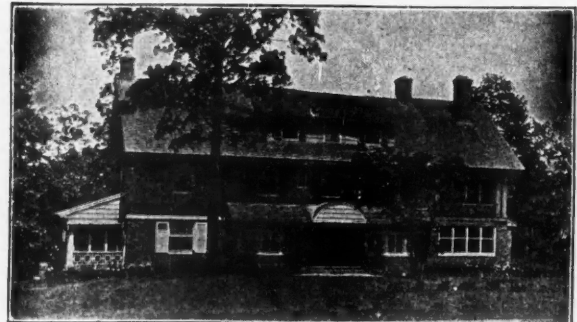
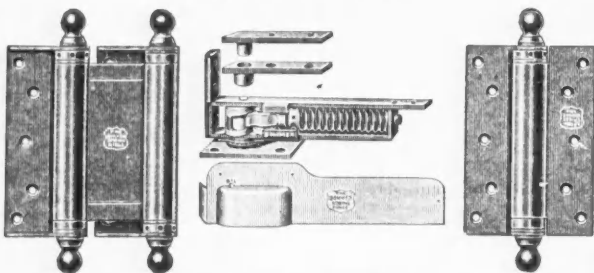
Let **BOMMER Spring Hinges** close your doors.

"They are the best."



BOMMER SPRING HINGE CO., Brooklyn, N. Y.

ESTABLISHED 1876



Stained with Cabot's Creosote Stains
B. V. White, Architect, New York

Save Half Your Painting Bill

You can actually save more than half the cost on both material and labor, and get better results in beauty of coloring, wearing qualities and wood preservation, by using

Cabot's Creosote Stains

Instead of paint, on shingles, siding and all similar outside wood-work. The colors are rich and handsome, not "painty." They wear as long as the best paint and wear better, and they are made of creosote, which penetrates the wood and thoroughly preserves it.

Cabot's Quilt

A genuine house-warmer. It's a cushion of dead-air spaces and is 80 times warmer than building paper. Quilt will pay for itself in a short time in saving coal, to say nothing of making the house comfortable for all time. Also a complete sound-deadener.

You can get Cabot's Stains and Quilt all over the country. Send for samples and names of nearest agents.

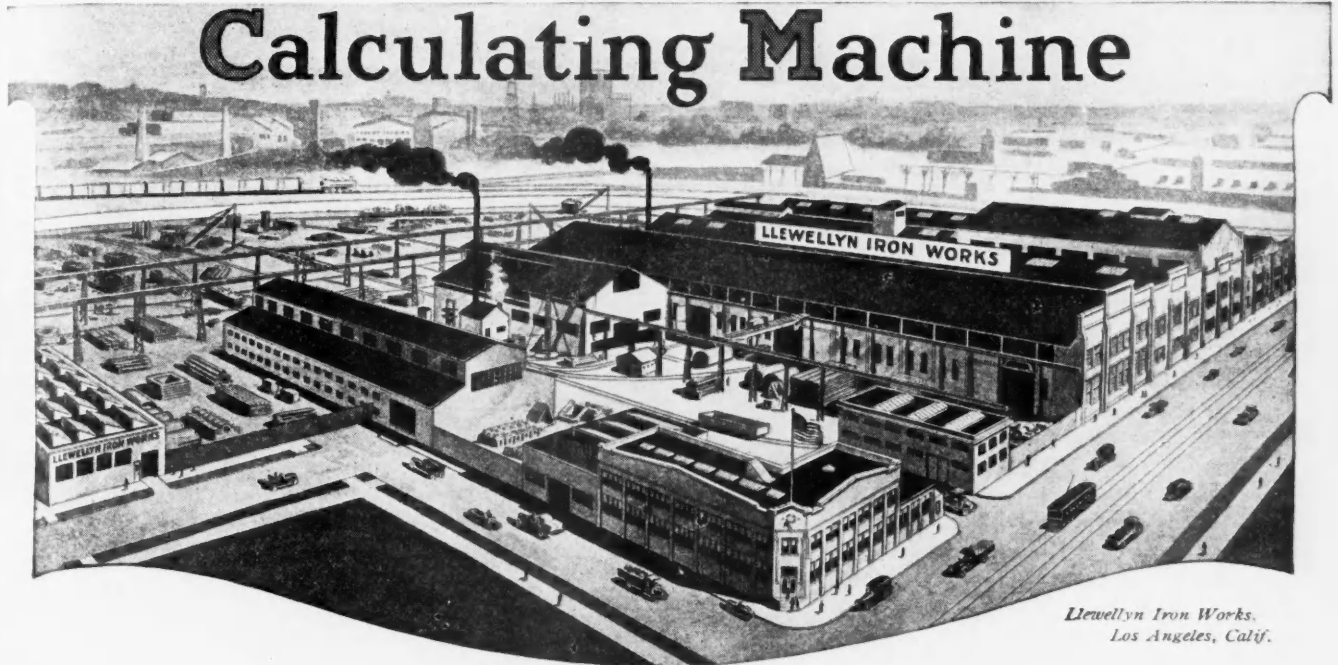
SAMUEL CABOT, Inc., Mfg. Chemists
BOSTON, MASS.

342 Madison Ave., New York 24 W. Kinzie St., Chicago
Cabot's Conservo Wood Preservative, Stucco Stains, Brick Stains, Damp-Proofing

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Llewellyn Iron Works.
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“We Are Using Monroes Because They Earn Money For Us”

—H. W. CLEMENT, Auditor, Llewellyn Iron Works

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Three sizes—
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If you need Accuracy in your figure-work—
The Monroe gives a Proof at every step.

If you want simplicity of machine operation—
You merely set the numbers on the Monroe keyboard and turn the crank.

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It's “Write” the numbers—Read the answer.

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It will pay to investigate the Monroe.

If you CAN save considerable time, and all of the decimal errors, and the larger part of mental fatigue, and DON'T—
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You can effect these economies by letting the Monroe Calculating Machine serve you as it is serving and saving for the Llewellyn Iron Works and thousands of others, large and small.

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Without obligation (check items desired):

Arrange for a Free Trial in our office on our own work.

Send us literature about the new Model K Monroe.

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States Spend Big Sums For Building Purposes

MORE than a third of the total outstanding indebtedness of all the states, has been incurred for highway projects, according to a nation-wide survey of state debts and securities, just completed by the Bank of America, New York. Another 20 per cent of the total of \$1,071,506,981.28, represents bond issues for waterways and harbor improvements.

The construction of highways and bridges is by far the leading single purpose for which the outstanding debts were incurred, \$367,687,100, being appropriated for these improvements.

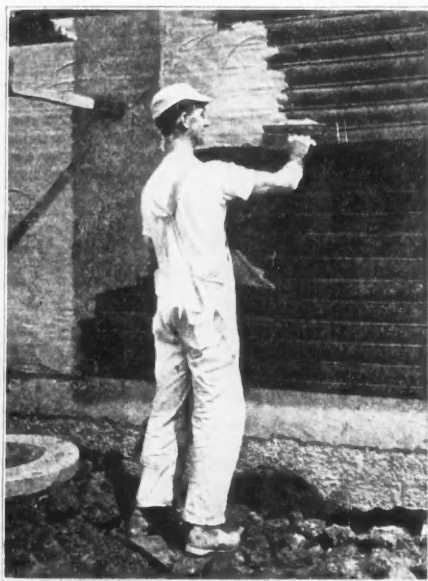
The figures are encouraging to contractors and builders for the greatest portion of this money is spent on building projects that states have only recently started developing extensively. Also a large proportion of these sums are doubled by federal aid. State building programs offer a fertile field to the live contractor who will go after such contracts.



Using Ore Copper in Building

THE total consumption of copper in the building industry during 1922 is estimated at 150,000,000 pounds, comprising copper, brass and bronze in the form of sheets, piping, hardware, lighting fixtures, wire, etc.

This is an increase of 100,000,000 pounds as compared with 1921; of 96,000,000 pounds as compared with 1920; and 73,000,000 pounds as compared with 1919, in which years the amount of copper used in the building industry varied between 4 per cent and 6 per cent of the total copper consumption of the United States.



Applying scratch coat to E-Cod Fabric

FOR ALL PLASTERING

Exterior and Interior

E-Cod Fabric builds better for less. It costs less and saves money in every operation. E-Cod Fabric is

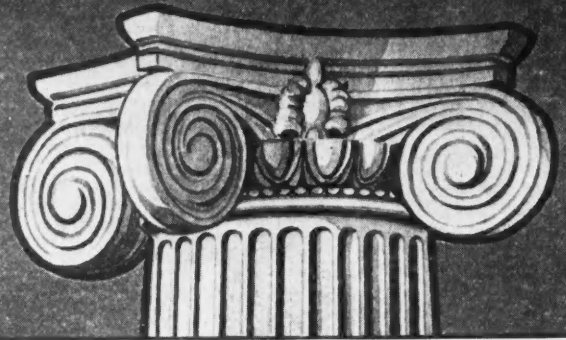
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Sound Deadening, Cold and Heat Proof**

It saves 40% to 60% of the plaster which goes to form the key on any ordinary open mesh lath.

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