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The
**World's Greatest
Building Paper**

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American Carpenter and Builder

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VOL. XV.

JUNE, 1913.

No. 3

DON'T envy the brilliant man; envy the steady worker.



Pioneer Saw Manufacturer Dies

MR. Daniel Simonds, president of the Simonds Manufacturing Co., makers of saws, succumbed to a lingering illness on May 5th. The death of this noted man is greatly regretted by the entire business world in which he was an active character.

Mr. Simonds was born in Hitchburg, Mass., September 18th, 1847. In 1868 just shortly after he had finished his schooling and had gone to work for his father making scythes and edge tools, the Simonds Mfg. Co., was incorporated. Starting out as a mere clerk in the employ of the company, Mr. Simonds gradually worked his way up to a position as superintendent of the works. After he became vice president and in 1888 was chosen



DANIEL SIMONDS
Late President Simonds Mfg. Co.

president. The growth of the company under this man's able leadership is a strong indication of what his masterful mind accomplished. His personality and firm business ideas dominated the field. He strengthened the weak spots in the business, building up policies that have placed the Simonds Mfg. Co. in the foremost ranks of manufacturing industries. From a modest beginning the company has increased its holdings until branch offices stretch across the country and plants have been installed in Chicago, Lockport, N. Y., and Montreal, Canada.

As a man, Mr. Simonds was greatly admired by a host of friends and business acquaintances. He was closely affiliated with the Calvinistic Congregational Church. Possessed of a character of sterling worth, and having broad humanitarian ideas, he provided for the welfare of every person the company employed. Rest and recreation rooms, libraries, etc. were provided to accommodate the employees and a special fund to take care of them in cases of sickness or death was created.

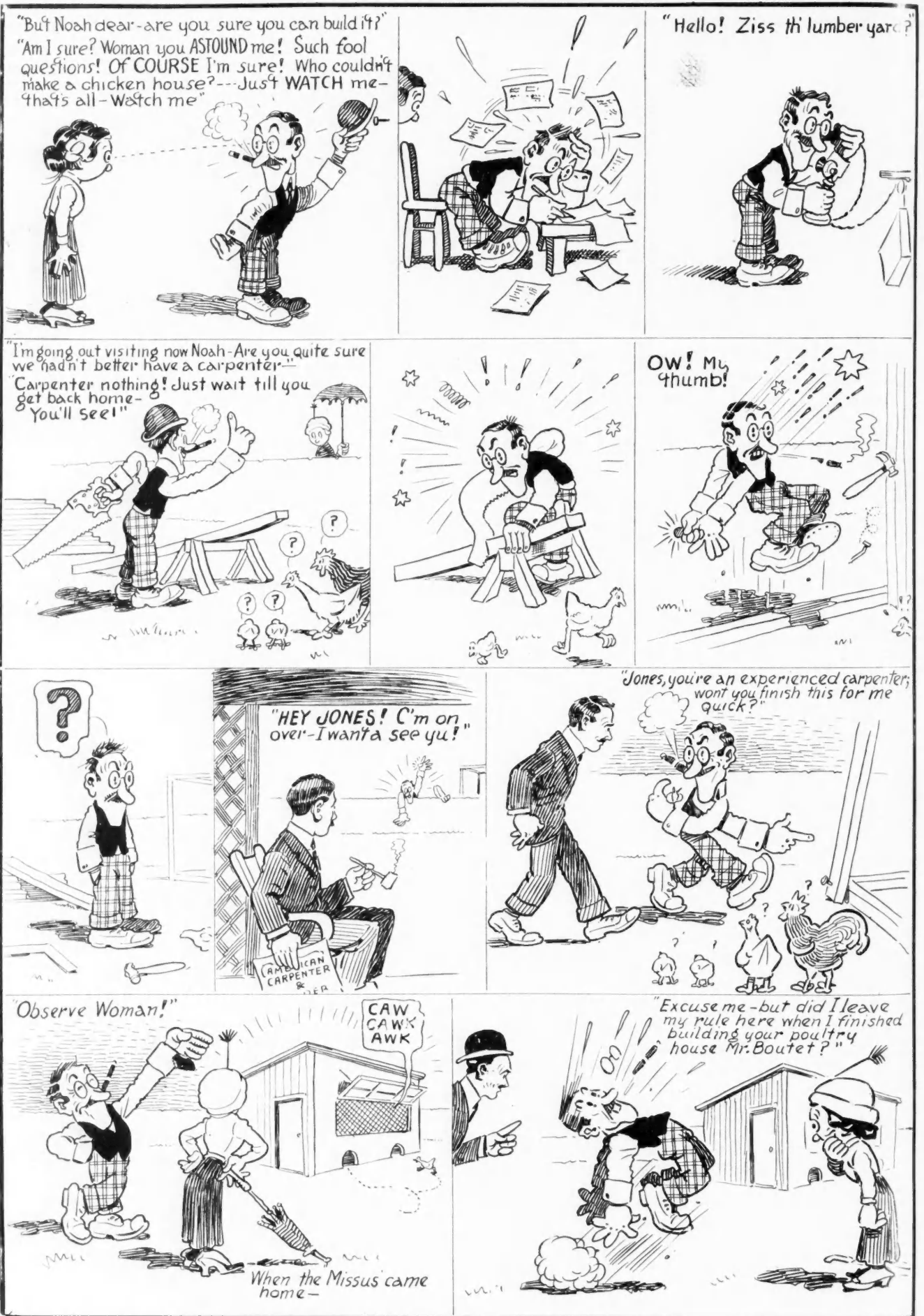
Mr. Simonds also took great interest in the co-operative system of industrial education. In fact a great deal of his time was devoted to uplifting his fellow men.

A wife and three sons are left to mourn the demise of an honored and highly esteemed husband and father.

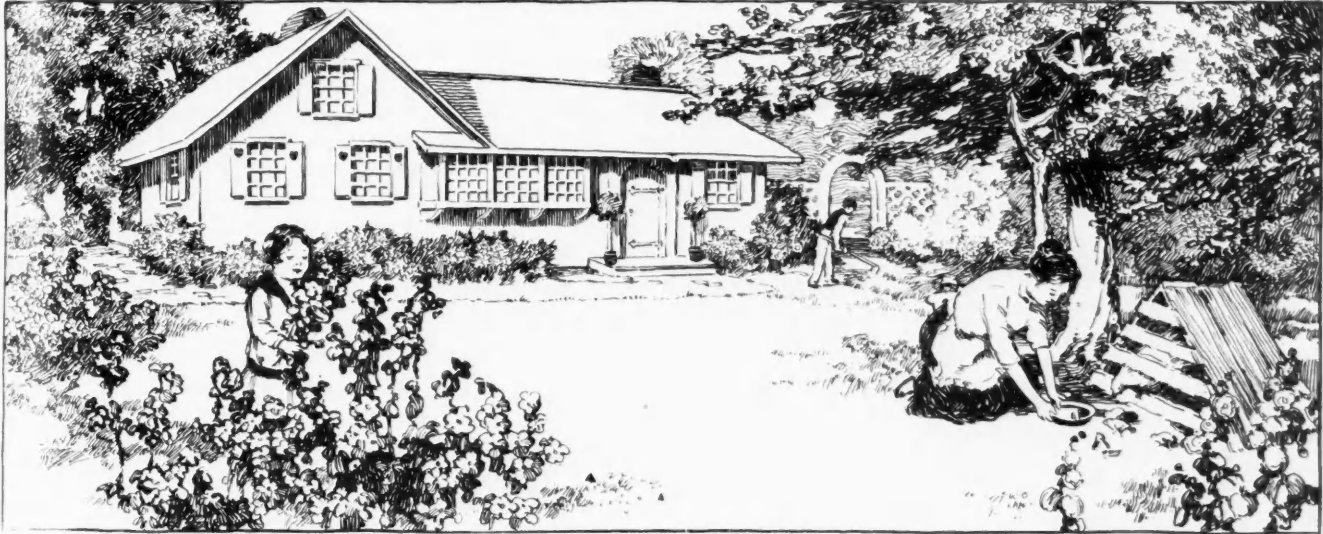


THE Home Builder's Section will bring you business. Use it.

Mr. I. Noah Boutet Builds Him a Hen House



HOME BUILDERS SECTION



A Timely and Reliable Guide to All that is Practical, Satisfactory and Attractive in the Planning, Building, Finishing and Furnishing of the Up-to-Date American Home

The Why of This A friend—we'll call his name Smith—has been remodeling an old house this spring; making it over into a stylish two-flat apartment—and something pretty nifty it was to be.

Of course, the first thing Smith and his goodwife did was to go on a still hunt for ideas—workable schemes for modernizing the place.

They went to the news stand and looked through the picture magazines; but everything illustrated was way out of sight—impractical.

FINALLY they ran onto the "A.C. & B." (they had seen it before); and strange as it may seem to some, it gave them the help they wanted. They had to hunt a little it is true; but the stylish finishing schemes and the practical homebuilding ideas were there nevertheless.

Smith said they were too hard to find.

Thousands of homebuilders, he said—and we allow he's right—are hungry for just such plain, straight-from-the-shoulder home planning and building advice as the *AMERICAN CARPENTER AND BUILDER* contains every issue; and would eagerly study it if they could only know it is there for them.

So here it is.

Beginning with this issue we have added ten new departments of timely and reliable pointers for homebuilders—written without technical terms for lay

readers. Besides these there are all the other popular departments, the building plans and designs, that have proved so valuable in the past.

In offering a Home Builders' Section in a Contractors' and Builders' magazine we do so in full confidence that their interests are identical. Successful, satisfactory building can only result where builder and owner work together in perfect harmony and mutual understanding.

The experience and practical knowledge of the Carpenter-Builder guiding the homebuilder in the exercise of his undoubted right to have what he likes, will produce the best results every time, and the home builders can place all dependence on what his builder advises—He has your best good at heart.

We hope you will all—both builders and prospective home owners—we hope you will all like this Home Builders' Section. We want to make it very helpful, very close to the people, and very cheerful, for we believe in homebuilding. As the *AMERICAN CARPENTER AND BUILDER* was able to help our friend Smith, (and he, with his builder's help, is fixing up a place to be proud of) so we want it also to help thousands of other seekers after dependable home planning, building and finishing ideas.

"If I Should Build Again"



If I should build again, I would have a large sheltered porch off the living or dining room, to be screened in summer and glassed in for a sun parlor in the winter.

A west-facing porch is sunny in the afternoon, just when the housewife is freest to enjoy it. East, southwest, and south are the best exposures.

I would make it a two-story porch, the second floor for out-door sleeping. There is nothing more healthful.

My front door would open into a vestibule or a hall, not directly into the living room.

I have found that a stairway ascending from the living room is more picturesque than useful. I wouldn't build that way again.

I would arrange it so the plumbing wouldn't cost so much,—kitchen sink over the laundry tubs and directly under the bath room; thus keeping all the piping straight and simple.

Composition flooring is easy to keep clean. I would have it in the bath-room, also in the front vestibule.

A Partnership for Satisfaction



Financing The Home

\$5,500 Homes at \$37 per Month for 20 Years

By Lee K. Frankel

THE problem of financing ownership in his home is one that constantly confronts most intending home builders. The difficulties which lie in the way of such ownership have frequently forced wage earners to continue payment of monthly rent rather than to assume responsibilities of ownership, which they fear they may not be able to control.

Financing the small house has in the past been possible in many sections of the country through the so-called Building and Loan Associations. These associations have served a useful purpose and have no doubt aided and assisted many a wage-earner to own his home who without the aid of the association could not have accomplished this result. Where such associations are carefully supervised and where the laws under which they come into being safeguard the interests of the members, the building and loan association offers an excellent opportunity for the wage-earner to invest his savings.

The question has frequently been raised whether it is not possible for insurance companies in the United States to lend funds for building purposes. On its face, this would appear a perfectly simple problem. Indeed, the Metropolitan Life Insurance Company, about ten years ago, agreed to advance approximately \$650,000 for building of small homes in the Borough of Brooklyn. The real estate company, who took this loan, contracted that the building plan should be submitted to the insurance company for supervision and that the cost of the houses to the purchaser should include only a fair profit over the actual cost of the land and the construction of the building. This condition which the insurance company imposed made it plain at the outset that the purchaser of such a home would obtain a well built house and that the price he would pay for it would not include any exorbitant or extravagant profit for a speculative purpose.

*From a paper read at the National Conference on Housing, Philadelphia, December 4th, 1192

The houses which have been built under this plan sold at \$5,500 each. The Metropolitan, however, believes that if houses of this kind can be sold, that is, if demand were shown for them under the conditions of the scale, smaller houses at lower cost could similarly be built in other sections of the city and in other parts of the United States.

The particular value to the purchaser of the houses which are offered for sale in Brooklyn depends upon the fact that he is not required to renew his mortgage at the end of five years. It is indicated from the experience gained at the time of the depression in 1907 that many small owners were unable to renew second mortgages and in some instances even first mortgages. It furthermore appeared that in certain instances, where such mortgages were renewable, a very considerable premium had been paid. Under the plan, the Metropolitan takes a first mortgage of \$3,250. The said mortgage is payable in semi-annual installments in twenty years. After the first mortgage, the building company takes the second mortgage which is payable semi-annually in 12 years. A payment of \$750 is asked from the purchaser but this need not all be paid at one time. As the plan was finally evolved, payments are made as follows:

Price of New Aleo Home	\$5,500.00
Initial payment which need not all be made at one time.....	750.00
<hr/>	
Balance consists of the two fully insured mortgages.	
The 1st runs 20 years..	\$3,250.00
The 2nd runs 12 years....	1,500.00
Balance	\$4,750.00

FIRST TWELVE YEARS

Interest and principle on 20 year 1st mortgage payable semi-annually, Feb. 1st and Aug. 1st.....	\$281.20
Interest and principle on 12 year 2nd mortgage, payable quarterly, Jan. 1st, Apr. 1st, July 1st, Oct. 1st..	176.28
Taxes and water (about)	60.00
Fire Insurance	5.50

Total per annum for first twelve years

years	\$522.98
Which is equal to an average of \$43.58 per month for the first twelve years.	

LAST EIGHT YEARS

The second mortgage being now paid up, payments during the remaining eight years are \$176.24 less per annum, as follows:

Interest and principle on 20 year 1st mortgage	\$281.20
Interest and principle on 12 year 2nd mortgage which is now fully paid up and cancelled.....	000.00
Taxes and water (about)	60.00
Fire Insurance	5.50

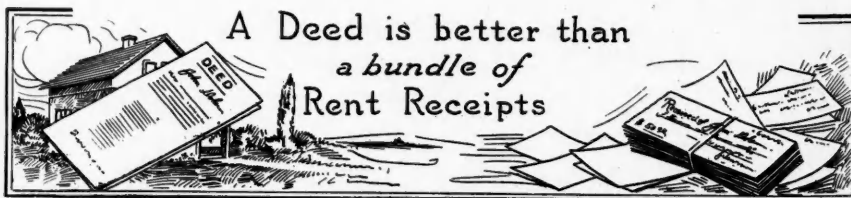
Total per annum for last 8 years.. \$346.70 or an average of \$29 per month for the last eight years. Making the total average for the entire twenty years, only \$37 per month.

It is the impression of real estate men that houses similar to these in the

Borough of Brooklyn ordinarily bring from six to seven thousand dollars. The character of the construction has been carefully supervised by the insurance company and it is safe to say that these houses are well built. It should be added that the cost of \$5,500 includes the single premium on a life insurance policy under which if the owner dies before the mortgage is paid up, the property reverts free and clear of all encumbrances to his estate. This form of policy is novel in that a single premium is asked and the amount of insurance from year to year exactly covers the amount of mortgage still outstanding. Under this scheme the lowest possible premium necessary to protect the property is secured. For a purchaser at age thirty, it may for our purpose be assumed, that the premium for the mortgage of \$3,250 approximates \$300. This, as stated above, is included in the original cost of the house. The insurance, however, is not compulsory. If the purchaser does not desire this protection, the house is sold to him for \$5,500 less the cost of the single premium.

Under the original arrangement with the building company, it was planned to build 200 houses, on each of which the company was to place a mortgage of \$3,250 if desired. Twenty-seven houses have been completed and sold. On ten of these, a loan of \$3,250 has been made, the latter sum included an insurance policy. On three additional, loans of \$2,900 have been made, as the purchasers did not desire insurance. Fourteen houses are ready for sale and twenty-seven are in course of completion. The interest on both the first and second mortgage of these houses is 6 per cent.

From the standpoint of the owner, the particular merit of this plan is the freedom of worry regarding renewal of mortgage. While it is understood that an initial payment of \$750 should be made, this is a rule not adhered to and if the prospective purchaser is not in a position to pay this amount, a smaller initial payment is taken. After the deed has once been placed in his hands, he has no further concern than to meet the principal and interest payments as they mature. These have been so calculated that the borrower pays a similar amount at each payment period during the term of twenty years. If, in addition, he desires it, he can have the satisfaction of

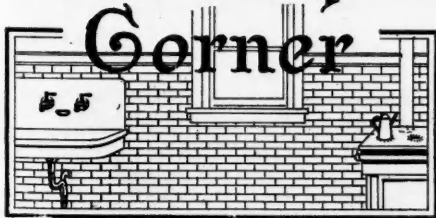


knowing, that should he die before the installments are fully paid, the property, owing to the insurance policy which covers it, will revert to his estate free and clear of all encumbrances.

It is evident that the cost for examination, appraisal, supervision of the architect, and the other incidental expenses in lending a Million Dollars on several hundreds of small mortgages would be considerably larger than to place one such mortgage on a large office building in the heart of New York City or any other large city, whose present value and whose future value during the period of the mortgage can be definitely determined. The practice of having a mortgage fall due at the end of three or five years is generally a necessary protection to the lender. Under the principal of amortized mortgage adopted in the Alco property development referred to in Brooklyn, only 15 per cent of the principle has been paid off at the end of five years. Real estate men generally are of the impression that this is too little.

These are some of the difficulties which are mentioned here, which must be considered by any insurance company, which is primarily responsible to its policyholders for the careful and sane investment of their funds. The officers of the Metropolitan are, however, strongly of the impression that since these funds come to a greater or lesser extent from policyholders who wish to own their homes, that every legitimate opportunity should be fostered to enable them to become such owners.

Home Keepers' Corner



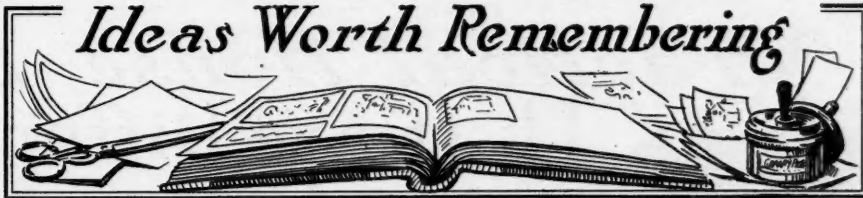
A seat with hinged cover for the vestibule is a great convenience. It is a handy place for rubbers, porch cushions, children's playthings, etc.

Glazed Dutch doors (cut horizontally through the middle into two parts) are better than French windows to open out onto a sleeping porch. The half doors permit a nicer regulation of cold air.

By all means have a laundry chute from the bedroom floor to the basement. It is the greatest convenience in the house.

The Home Builders' Scrapbook

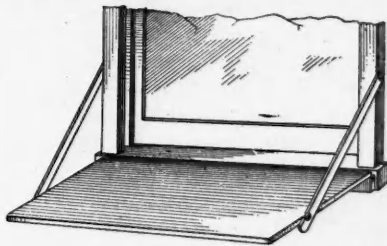
Ideas Worth Remembering



Convenient Folding Window Shelf

THIS shelf, originally intended for a drawing board in a room where space was at a premium, was found useful for so many purposes that it has been introduced into almost every part of our house, writes Ida D. Bennett in *American Homes and Gardens*.

Placed between two windows in a bedroom, it forms, when properly draped, a most attractive toilet table. Given a four-inch border to match the



Shelf drops down when not wanted.

woodwork in the room, and with the center covered with green felt, finished with furniture gimp, it proves just the place for magazines—a permanent place where they are out of the way.

In the kitchen it furnishes an extra table when needed and is dropped down out of the way, inconspicuous when not in use.

The drawing shows the construction of the shelf and the manner of attaching it to the wall. Its size varies with the use to which it will be put. If under a window, it should be as long as the window casing and wide enough to come to the top of the baseboard, or even to the floor. It should be made of smooth lumber and should, if possible, be glued together rather than nailed to cleats; this gives a top surface which may be finished to match the woodwork of the room.

Good in Stores and Factories, Why Not in Dwellings?

A very good suggestion has been made for simple fire protection in homes; it is worth adopting. Near the head of the stairs, build a small closet containing three shelves each eighteen inches square. On these shelves keep three fire pails painted red,

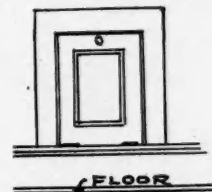
always filled with water. Mark the door of the closet neatly but unmistakably so as to inform the public that they are there. Fire pails are unsightly, but no house should be without them.

The little space sacrificed to this purpose would be put to no more important use. Needless to say, the door of this closet should have no lock and no one should be permitted to put anything else in the place.

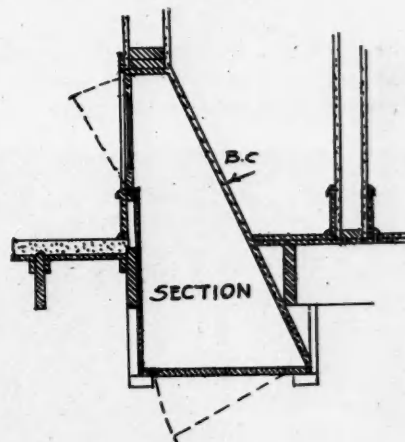
Clothes Chute for Cottage

A convenience which every housewife will relish and which neither takes up much space nor costs very much, is illustrated in the accompanying drawing.

This clothes chute opens out of a bath room through a small square door, hinged at the bottom. The box is big enough to hold the week's accumula-



ELEVATION



Handy Clothes Chute Box.

tion. The bottom of the box is a hinged door.

In one house where this was used, a shallow wardrobe just back of the clothes chute box, permitted the required space at the base board to be stolen away without being noticeable. As the bath room was right over the laundry, the chute was very convenient.

The Plan Shop

Practical House Designs "That are Different"



Three Summer Cottages

PHOTOGRAPHS AND FLOOR PLANS OF SOME INTERESTING CAMPS AND COTTAGES THAT TURNED OUT WELL

THERE is no more absorbing recreation—especially along toward vacation time—than the planning of a rough and ready camp or cottage. Most any sort of a shack is better than tenting it. And there is considerable satisfaction in having a vacation retreat you can go to year after year and be comfortable. Such summer cottages don't need to cost very much either. Here is one for instance.

For \$600

These photos, together with the plan shown here are of a beautiful little bungalow in the "Rustic Lodge" order which O. S. Lang, "Bungalow Specialist," one of our Buffalo, N. Y., readers, recently built upon the St. Lawrence River at Westminster Park; the setting among rocks and trees is ideal, with a rocky slope from the cottage to the water.

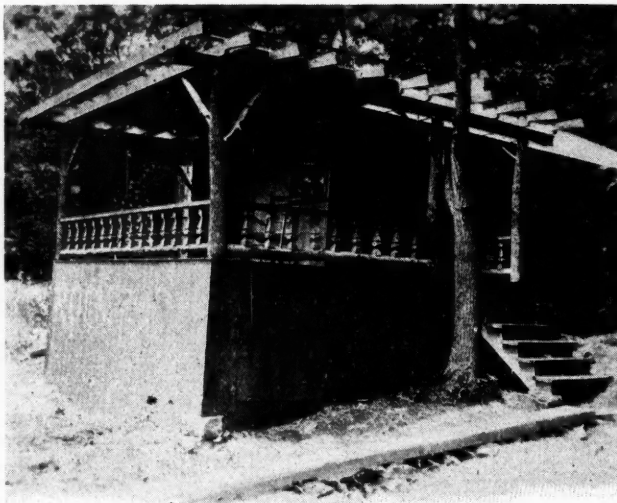
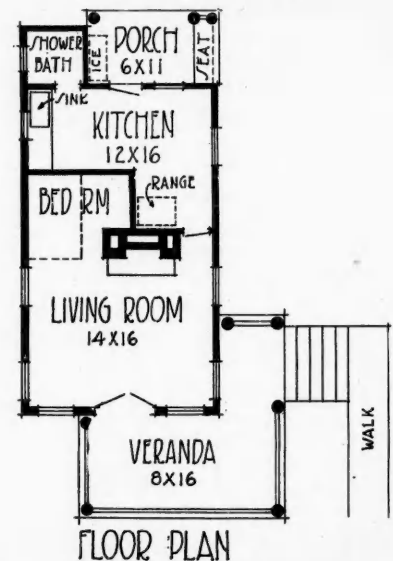
The frame work is of dressed, clear hemlock, which shows inside; siding of matched and dressed pine; all of the exterior is stained in a shade of brown to harmonize with the rocks and trees.

The veranda is of the rustic—columns, rails and braces having been cut right on the building site. The floors are good matched pine.

Notice the practical arrangement of room interior; a large living room with a fireplace of stone, built from stone upon the lot; the bed room in a niche off from the living room, with the bed built in, and in such a manner that the curtain at the foot board, drawn to the chimney breast, closes it off entirely and giving plenty of room for hook strips and dressing space back of fireplace. A door shuts off the kitchen, which is arranged with cupboards, sink, range, etc., with plenty of room in which to do the work.

The shower bath, next to the kitchen, near the sink, has a concrete floor, with drain, and is arranged with a hose and spray attached to the sink. A large tank set just outside, and above the sink has a pipe to the sink, and hose bibb. The tank is supplied with rain water from the roof; and river water through a pipe and force pump in dry weather. The seat and ice box are built in, upon the

rear veranda; which has a concrete floor resting upon the rock foundation. This cottage was built complete, including the plumbing and connections to the river, walks to the front bank, fireplace, art glass windows, and staining wood work for six hundred dollars.



Detail of Front Porch



View from the Rear

Commodious Rustic Lodge on the St. Lawrence, Built Complete for \$600



The New 12-Room Fishing Lodge of Lord Strathcona, on the Tobique River, New Brunswick—A Smaller Camp Could be Arranged to Advantage Along the Same lines

Lord Strathcona's Fishing Lodge

Last February, one of our subscribers, Howard P. McLaughlan, a contractor and builder of Perth, N. B., was called upon to build a large fishing lodge at Seven Mile Pool on the Tobique River, New Brunswick, for Lord Strathcona.

In telling of this work, which presented some difficulties, he writes:

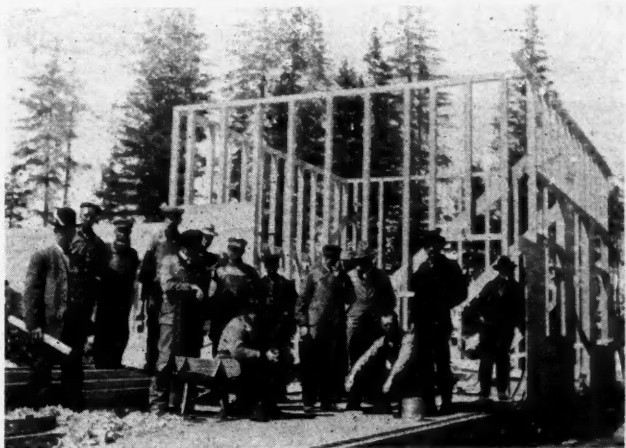
"As the site was inaccessible for teams in the summer I had to haul all the material in the winter, forty-five miles mostly over rough forest roads, and on the river ice.

"I had everything on the spot by April 1st, when I started building with fifteen men.

"We had to clear the site of trees, and four feet of snow before we could put in our foundation piers of rock.

"The lodge is one story, bungalow style, main part 138 feet long, with an 8-foot 6-inch rustic veranda running the whole length.

"The living room is in the center, with a large stone fireplace, and a 14-foot ceiling. On either side of it are the bedrooms, sitting room, and two bath rooms, all entered from the veranda.



Contractor McLaughlan and His Crew on the Strathcona Lodge

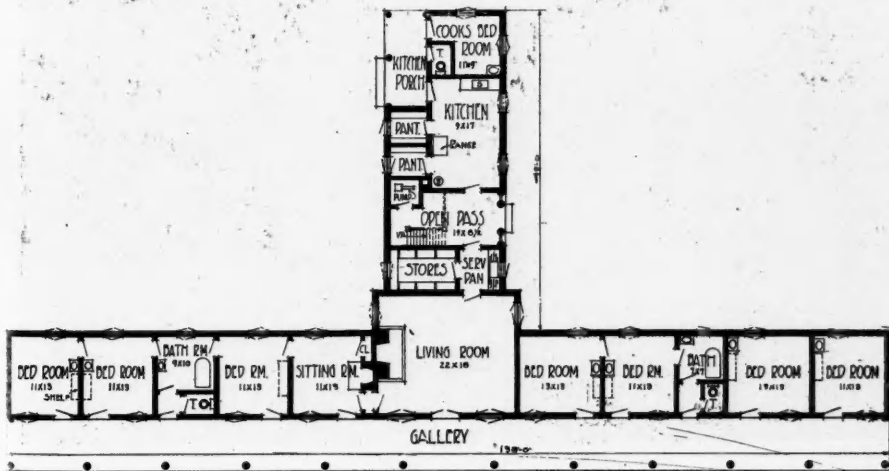
"A wing runs back from the center 43 feet, forming the kitchen, pantries, and servant's room.

"Cedar shingles were used on the walls, both exterior and interior, and left to weather, 70 M. being used.

"The roof took 61 squares of ready roofing, of a green color. The building has up-to-date plumbing, hot and cold water in all the rooms, and is lighted with acetylene gas.

"We were forty-eight days doing the job. Then loading our tool chests on a raft, we had a merry ride home on the swollen waters of the swiftly flowing Tobique."

This fishing lodge was designed by Marchand & Haskell, architects, of Montreal.



GROUND FLOOR PLAN OF FISHING LODGE

A Model Adirondack Camp

To succeed in constructing a model bungalow in a region notable for its camps and summer cottages, many of them put up on the "spare-no-expense" plan, is something of an achievement!

When Mr. William F. Roberts, a prominent real estate and business man of Saranac Lake undertook the problem of "building a camp" he had little thought of the honors that would be accorded him, for his bungalow has repeatedly been commented upon by visitors as "remarkably charming." He was actuated solely by the wish, as he modestly expresses it, somehow to manage to get a camp set up that a fellow

could take some comfort in.

A few miles up beautiful Lake Saranac, on the tiniest of round islets, Mr. Roberts began to build after plans prepared by local architects, Scopes & Feustmann.

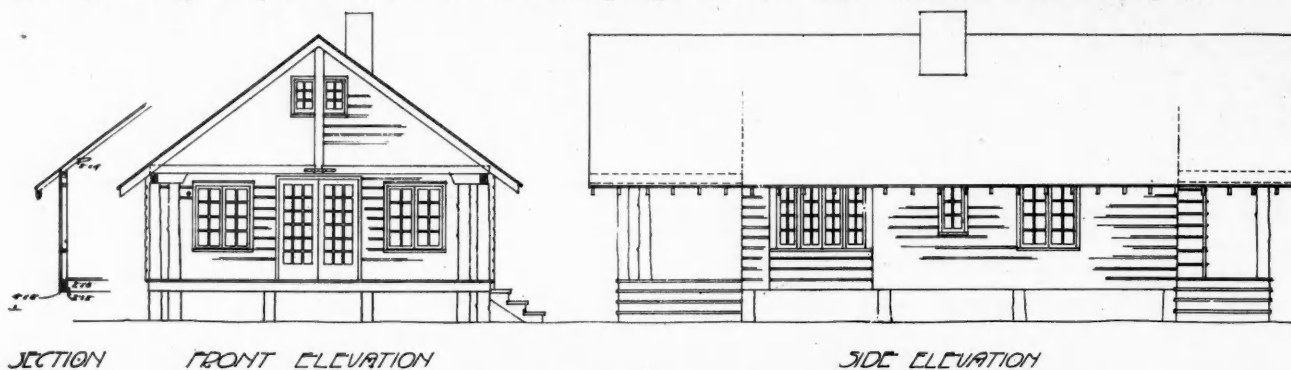
"Although," says Mr. Roberts, "I started in, as almost every chap does, by planning on 'a mere, simple contraption to cost a few hundreds,' before I got through or rather, I may say, before I had things at all to satisfy me, I had expended about \$1,300 on the 'camp' proposition."

As the architects' drawings will show, there is every convenience and that, too, on an inexpensive and unpretentious plan, for living, preparing simple meals and entertaining a guest or two. The

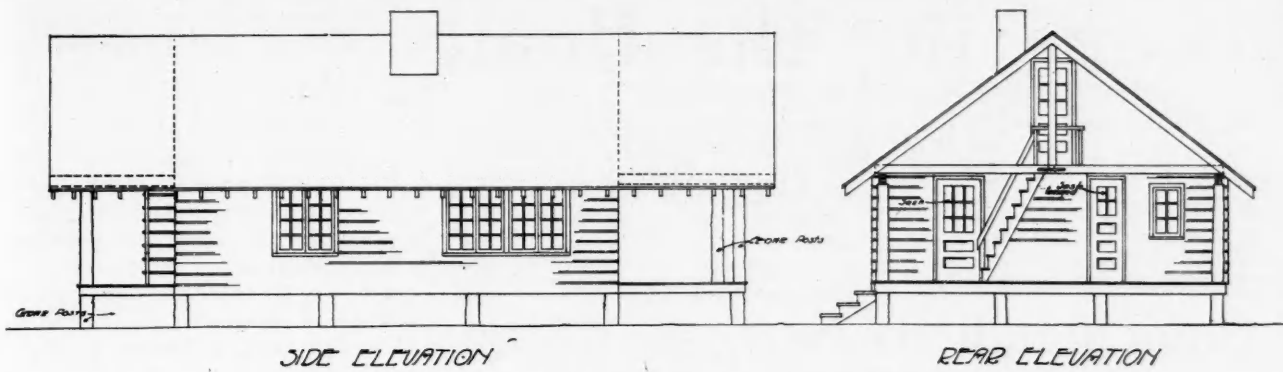
two chief attractions to visitors and regular occupants, as will be readily noted, are the main lounging-room, with its fascinating boulder-fireplace, and the commodious veranda with its broad, overhanging shelter.

The picture which "Camp Juanita," as Mr. Roberts has christened his woodland retreat, presents is that of "cosy roominess" which the ideal bungalow should present.

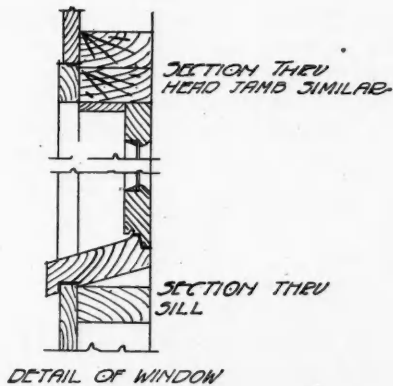
The extremely broad eaves effect is a strong feature in picturesqueness and also a very practical detail for the sun descends upon the North Woods country with terrific force at times. The ground floor shows a careful kitchen and dining room arrangement. Above there is a cosiest sleeping loft.



This Cottage has four Rooms besides the Sleeping Loft and the Two Big Porches. It has been pronounced one of the best designed small camps in the New York Mountains. Cost, Complete \$1,300



Part of the Architects' Drawings of the Model Adirondack Camp



It Wouldn't Ring

"Why didn't you send your man to mend my electric bell?"
 "He did go, madam; but, as he rang three times and got no answer, he concluded that there was nobody at home."—
 London Opinion.

Try This on Your Floor Mat

Teacher—Bobby, give me an example of the word "damper."
 Bobby (after a moment's thought)—Paw says maw is too damperticular about his feet bein' wiped.—Boston Transcript.

The High Cost of Living

A grouchy butcher, who had watched the price of porter-house steak climb the ladder of fame, was deep in the throes of an unusually bad grouch when a would-be customer, 8 years old, approached him and handed him a penny.

"Please, mister, I want a cent's worth of sausage."
 Turning on the youngster with a growl, he let forth his burst of good salesmanship:
 "Go smell o' the hook."

It Made a Difference

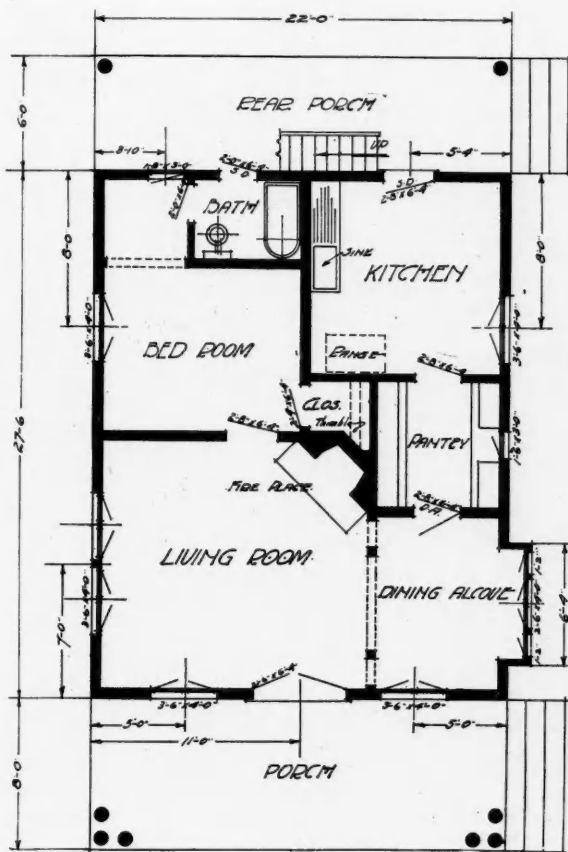
"How's your garden coming on?"
 "Why do you ask that question?" demand the suburbanite suspiciously.
 "Just out of politeness."
 "Glad to hear that. I thought maybe I had promised you some vegetables."

Second Nature

"He married a widow with three children."
 "That's just like Einstein; even his children are in his wife's name."

Next Time He'll Get Hurt

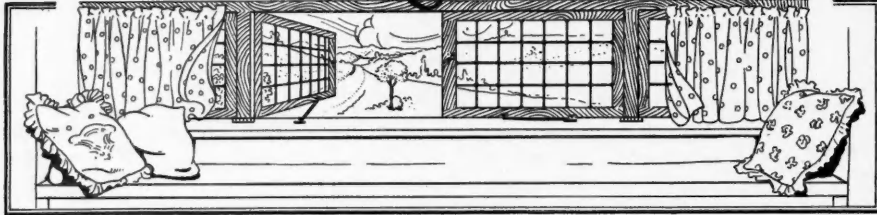
Murphy—"What's that in your pocket?"
 Pat (in a whisper)—"Dynamite. I'm waiting for Casey! Every time he meets me, he slaps me on the chest and breaks me pipe! Next time he does it he'll blow his hand off!"



FLOOR PLAN

Interior Arrangement of Adirondack Camp Illustrated on the Opposite Page

Decorating the Home



Quiet Simplicity Now the Thing

Cozy Corners in Bad Repute and Even Beamed Ceilings
Becoming Oppressive

THE crimes that have been committed—and maybe in some places are still being committed—in the name of interior decoration have been enough to break up many a happy home. We recall with a shudder the day of the over decorated, stuffy “den,” which at one time was considered the acme of elegance. The usual color of the den was red, brilliant and warm, and it was called cozy and comfortable because of this warmness of coloring. Heavy draperies and dark furnishings added to this “warmth.” Walls were hung with pipes, brasses, plaques and oriental lanterns. Ginger jars and wooden shoes were used for match receivers, and in some in-



“Den” was an appropriate name for this sort of room

stances, where great originality was striven for, a gruesome replica of the skull of poor Yorick, or some other member of the human family, grinned at one from some dark corner where it served the lowly purpose of holding tobacco. In fact, in every conceivable corner something was hung up to be ornamental regardless of its fitness.

“Den” was an appropriate name for this sort of room—“cozy corner” a misnomer, while “chamber of horrors” would have been more fitting than either.

Most of us followed this extreme of fashion. The pendulum of progress had swung too far. It had produced the grotesque. Fortunately the past few years have brought about great changes in individual taste in homes both on the exterior and the interior. Builder, decorator and architect have done great service in educating the people up to the

higher standards and much attention is devoted to harmonizing the interior decoration with the type of home

We are getting away from the “Ornate Age” with its elaboration both in decoration and furnishing, its bright colored wall papers with their large, bold designs, and its elaborate and extreme effects in furniture and architecture.

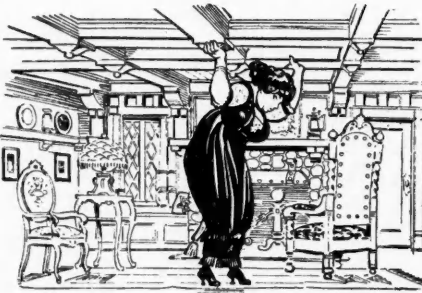
The homebuilder who has not followed this change and who does not realize that the age of simplicity in all forms of decoration is upon us, has missed the handwriting on the wall.

Dwellings now have a certain individual type and artistic interiors are demanded. Artistic feeling is the keynote of success now, both within and without the home.

Extreme types of decoration may have their place, but one soon tires of them, and the home must be of a type that will stand the test of time and still be beautiful

Also the houses built to-day are dependent upon the skill of the decorator both outside and inside, for their real beauty. Appropriate colors for outside painting are just as essential as the colors chosen for the wood trim or walls inside.

Surroundings should be considered as well as the type of house for exterior painting. Never use a color because you like it nor because it is desirable alone, but consider its relation to other houses nearby. If this is followed out it will make certain localities very artistic and beautiful.



The feeling of weight overhead creates an unpleasant effect

Craftsman houses and odd bungalows will have their day. People may like them now, but it is an extreme type and will become tiresome in course of time. The uncompromising squareness in the craftsman style, with its small wall space does not permit of much artistic decoration.

Interiors with heavy woodwork and heavy rafters, unless in spacious buildings, will become depressing. Imagine living in a room with heavy beams over one's head, and at no greater height than nine or twelve feet! Such rooms are contrary to nature. They are confining and in small interiors the feeling of weight overhead creates an unpleasant effect.

Interiors should be handled so as not to impart the feeling of limitation or confinement. Walls should not be treated as boundaries but as backgrounds for the furnishings (just as in a picture the background should never seem to be there). Walls should serve as a setting for the rest of the room.

This is a most important feature in decorating. Study carefully this first principle.—“The Dutch Boy Painter.”



Following Perfectly Good Advice

PEOPLE who have not read the Perfect Ladies' Own Magazine and similar publications can have no idea of how a common, ordinary house can be rebuilt so as to become a thing of beauty and a joy forever. One can take almost any kind of a house, even packing, or smoke, and reconstruct it into a palatial mansion

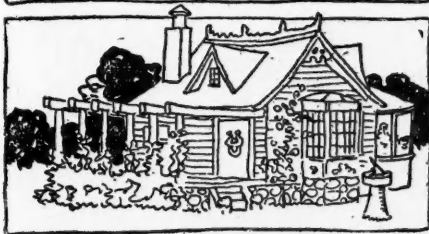
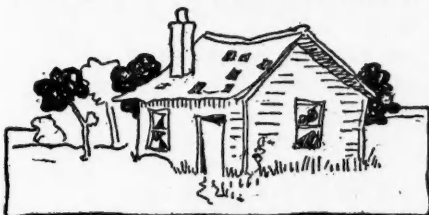
A dwelling which seems plain and is possessed of rotting sills, crumbling roof, and a mortgage, can, by the expenditure of a few pennies in nails and paint and with a few simple instructions from the Perfect Ladies' Own Magazine, be fashioned into quite as handsome a home as any mansion of the idle rich at Newport. We show in our first illustration a house as it appeared before the new owner by the exercise of a little ingenuity made it over into a dwelling which is now one of the show places of the North Shore.

The original house was of simple, almost childish construction, containing

only one room with walls around the four sides. Overhead it had a roof. The floor was on the bottom of the house. Originally this structure had brick foundations, but the husband and wife who first occupied the dwelling were simple folk who used to hurl the foundations of the house at each other's head whenever they were tired and cross.

After this happy couple moved away the dwelling was used by the nearest neighbor as a combination hen roost and covey. The cow never liked the house and at times the wild thought of freedom would surge through her bosom and she made a dash for liberty, carrying the house with her.

Hence it was moved some distance from its original location when the present proprietor bought it and decided to make it into a nine room bungalow with broad verandas and a patent meat chopper in the kitchen. Friends to whom the new owner confided his plans attempted to have him sent to Kankakee, but he



—and quickly made it into one of the show places of the North Shore

read all of his wife's magazines to them and showed that his case was hopeless and that nothing could be done.

The man secured the services of the Lake Forest carpenter and then told him exactly what he wanted. Too many people tie their builders up with a multitude of instructions. This man simply said, "Put nine rooms in that house and a veranda, and an ormolu clock."

So the trusty carpenter went to work and by building additions to each end of the house, as well as in front and at the back, and pushing the roof up about fifteen feet and hanging the canary on the porch, he succeeded in reconstructing the dwelling so that it is the perfectly sweet structure shown in the picture.—Dick Little in "Round About Chicago."

"**N**OTHING makes me soar," said the amateur aviator wearily as his 19th engine failed to get the machine off the ground.

Warding off the Fire Fiend



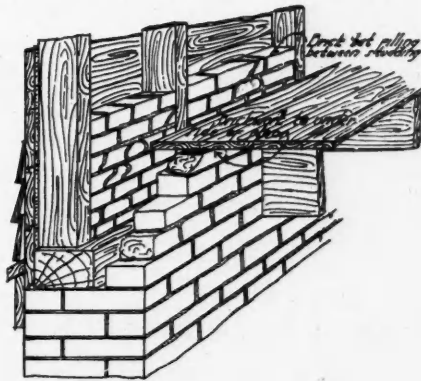
Recommended Structural Safeguards

WHILE most of us cannot afford to build absolutely fireproof houses, there are several little precautions which cost very little but which lessen materially the fire risk on ordinary frame dwellings. These are worth a thousand times more than they cost and every home builder should see that the construction of his house includes them.

So important are these considered for preventing fires, retarding the spread of the flames and protecting human life, that the National Board of Fire Underwriters have recommended them.

One of the first points to be considered in protecting a frame house is to stop off the hollow spaces in the walls and partitions which allow smoke and fire to travel quickly from one story to another. It is not uncommon to have a fire start in the cellar of a frame dwelling and be in the attic before the fire department arrives. The following requirements quoted from the building code which the underwriters recommend shows what is required to close these draftways in frame dwellings:

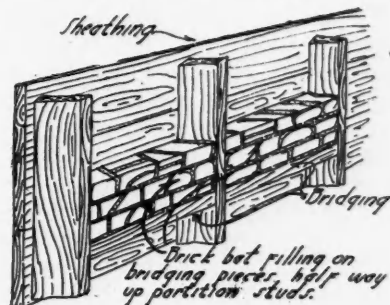
"In all frame buildings which are to be lathed and plastered or otherwise sheathed on the inside, the spaces between such parts of the floor joist or beams that rest upon the stud walls or upon partition heads shall be filled in solid for the depth of the joist or beams, and between the studs or uprights to the depth of the latter, to a height of six inches above the top of the floor joist or beams, with suitable incom-



Always have a Brick Fire Stop at the Floor Lines

combustible materials. The fire-stop shall extend around all the stud walls of the building, supporting the filling material, where necessary, on strips of wood nailed between studs, and in all stud partitions that rest directly over each other, and thus form a horizontal line of incombustible material to effectually cut off draft openings from story to story through floors, stud walls, and partitions."

In practice, the stop at the sill is made by neatly laying bricks in lime mortar from the sill, extending two or three courses above the tops of joists and to completely fill the space between the studs and joists; and part of this work shows in the cellar. The other



Recommended Construction of Intermediate Fire Stops

places are out of sight, hence a neat appearance is not necessary, and "suitable incombustible materials" usually means broken bricks and lime mortar, the only essential being to fill the space. The reason for carrying this filling six inches above the top of the floor joists is to cut off the crevice between the floor and the baseboard.

In brick houses, the same treatment applies to partitions, but the walls have no troublesome hollow spaces except where the finish is set out from the wall on furring strips, which is usually the case, and the method in such a case is expressed as follows:

"In all walls furred with wood, the brickwork between the ends of wood beams shall project the thickness of the furring beyond the inner face of the wall for the full depth of the beams."

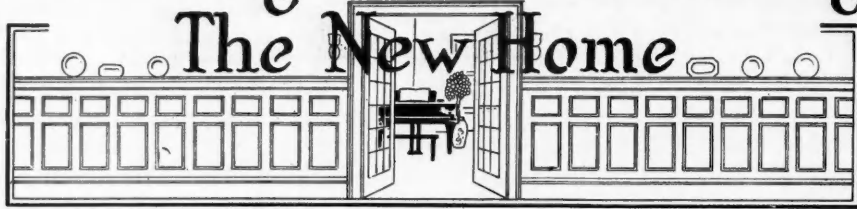
And to stop the openings around pipes in recesses in a wall, this requirement is drawn:

"The chases around said pipe or pipes shall be filled up with solid masonry for the space of one foot at the top and bottom of each story."

When pipes pass through floors, any superfluous space around them should be stopped as recommended for partitions.

Several more fire protection ideas will be presented next month.

Finishing and Furnishing The New Home



Individuality in the Fireplace

Brick and Tile Growing in Favor—Stock Wood Mantels Improving

By E. I. Farrington

NO feature of the house can be made more expressive of individuality and character than the fireplace, for which reason it seems a pity that so many are found which are both commonplace and unsatisfying.

There really is no reason for architectural sinning of this kind. There are even very cheap stock mantels in excellent taste and common brick can hardly be improved on for a fireplace.

It is all true, of course, that many stock mantels are abominable—tawdry and ugly in design and finish. They would not be offered for sale, though, it there were not people to buy them,

and there is a commendable tendency on the part of manufacturers to improve their designs along the lines of simplicity and good taste.

Nobody, though, who builds a house needs to have a fireplace which is not a credit to the man who designed it or selected it from a catalog or adapted it from one he had seen elsewhere. There are plenty of good designs and materials in abundance.

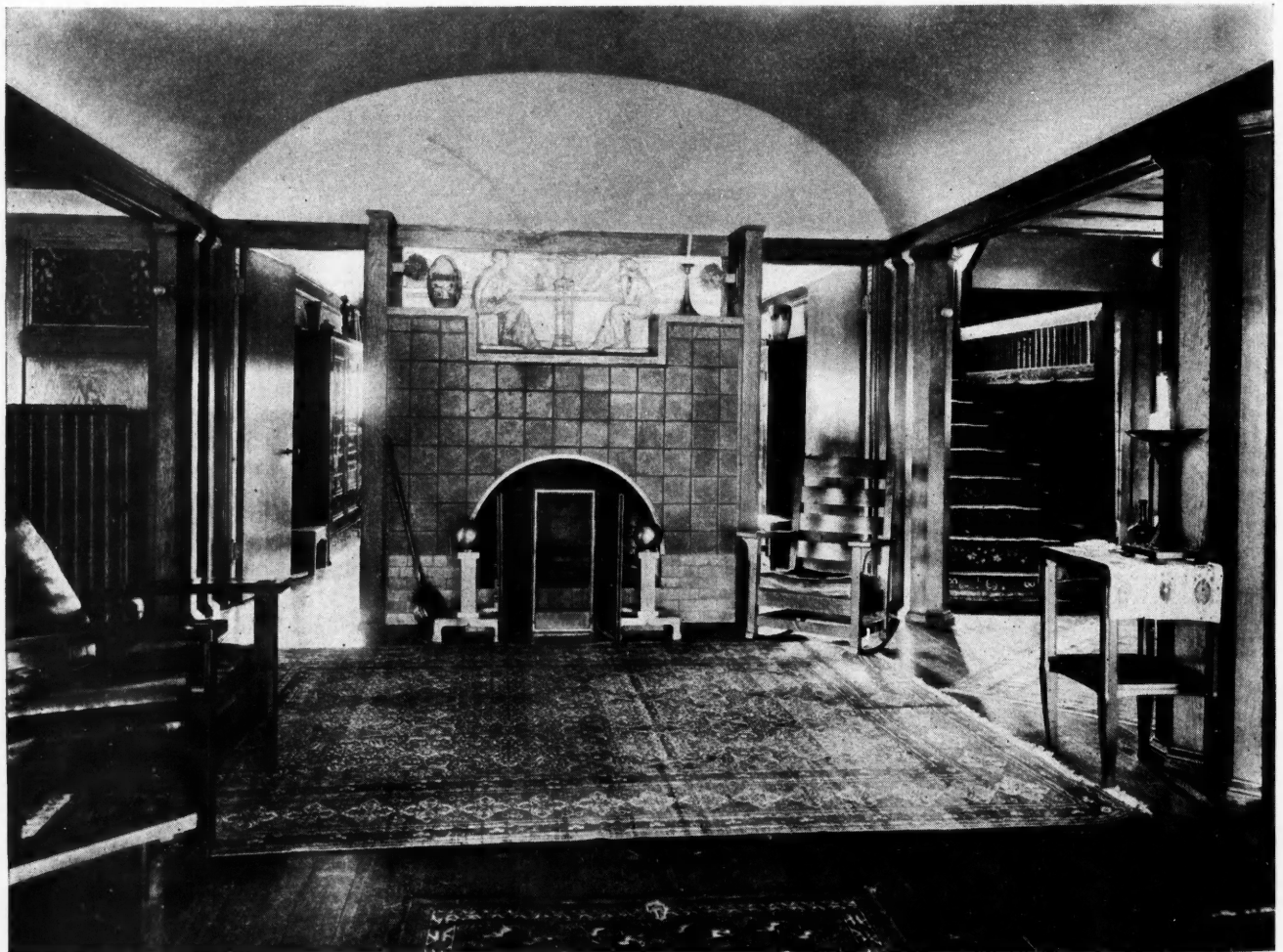
The best modern bricks are full of light and shade, with great textural richness. They offer endless possibilities in the material itself, and the bonds

in which the bricks may be laid. The running bond is giving way to such variations as the Flemish, English and Dutch, and in this way and with practically no increase in cost, it is possible, easy, indeed, to secure surprisingly novel and artistic effects.

If one likes the designs he finds in catalogs, he can buy the fireplace ready to set up with a diagram showing where each brick goes.

As a rule, some wood is used with brick fireplaces, although it may be but the mantel and brackets. The woodwork should match the other trim of the room and contrast pleasantly with the bricks.

Tile has been growing in favor for several years as its decorative value has been developed. The dull matt-glaze of modern tiling is soft and rich and harmonizes especially well with strong decorative schemes. The arched fireplace illustrated is a striking example of character in a fireplace. The design is unusual and the decorative features are worked out with no little skill. Yet the fireplace does not dominate the room to an unpleasant degree. It simply takes its place as a distinctive part of an harmonious whole.



Living Rooms in an Oak Park, Ill. Residence, Showing Most Modern Ideas in Finishing and Furnishing the Home.



Some Steam Heating Experiences

HOW I LEARNED TO PLACE THE RADIATORS AND TO PROVIDE AGAINST THE SETTLING OF BUILDINGS—METHODS OF FIGURING RADIATOR SIZES

By Cecil F. Herington

"IN spite of its many advantages," began the Old Builder, "some persons prefer other types of heating apparatus to the solid, substantial and reliable old furnace. Some of this preference is due to the general perversity of human nature, some to the fact that a furnace is not likely to give perfect satisfaction for exposed locations where a building is subject to very high winds—and some to the fact that a furnace is out of its proper element in buildings over two or three stories in height and of large area. The combination of these three facts coupled with perhaps an unfortunate experience with an improperly designed furnace installation has resulted in some people's demanding an absolutely positive heating system regardless of increase in cost and greater attention in operation.

"Every builder must aim to please his customer and so I did some experimenting with steam heat. I was soon to learn that steam heat had marked differences over a furnace installation, and the experience was costly.

"In my first house I put the radiators in the place where I had always placed the registers—viz., near the inside wall of every room, and as a result all the cold air coming from the windows and outside wall dropped to the floor, crossed the entire room toward the radiator (still cold), was heated by the radiator rose up to the ceiling and crossed back near the ceiling to the windows and outside wall where it was again cooled, dropped to the floor and repeated the cycle of movements.

"Needless to say the radiators did not give satisfaction and I was under the painful necessity of tearing them out and moving them over as close to the windows as it was possible to get them. After this was done the cold air dropped on to the radiator at once and was heated before circulating across the room, giving much better results.

"On my next job I carefully fixed the radiators along the exposed walls of each room but the pipes, run up from the cellar to the second floor, were placed

with the bottom resting tight on the foundation wall. Apparently there was not the slightest harm in this; but in a year or so the house had dried out and the timbers shrunk sufficiently to leave the second floor radiators floating around in some places by a good inch above the floor on which they had originally rested. So I had the pleasure of either putting blocks under them and making a patched-up looking job of it, or of disconnecting them and cutting off the supply pipe riser so as to bring them on the floor again.

"These little experiences combined with some good hard study on the subject soon put me in a position to tell the steam fitter where he was wrong several times.

How to Figure Radiator Sizes

"By a strange coincidence I built a house some time latter from the same plans as the furnace heated one I have been speaking about and in this second house the owner wanted steam heat, so I was thus able to make an accurate comparison of the two systems.

"In figuring the size of a steam boiler it is useless to figure the heat loss on the entire house and to design the boiler and radiators separately owing to the fact that the steam system is so inflexible. By that I mean that the capacity of your boiler is based on its ability to supply steam to a certain amount of radiating surface as fast as that surface will condense it. Therefore after you get the size of your radiators and pipe it is simply a process of addition to see how large a boiler you need. I will have more to say on this subject when I get down to the point of picking out my boiler size.

"Now to get the size of a radiator required for any room it is necessary to get the heat loss in heat units exactly the same way as for furnace heating. As I had saved my figures on the first house I easily turned to them and did not find it necessary to figure the losses a second time.

"But here enters a factor which previously I had not considered in furnace work—this is the element

of ventilation. After carefully figuring the heat that would radiate through the doors and windows I had also to consider the fresh cold air that would leak in through cracks, under doors, and around the window sash, which amounts in the ordinary residence anywhere from two to three complete air changes per hour. Without this natural leakage the air within would soon become so foul that the occupants would suffocate in a short time.

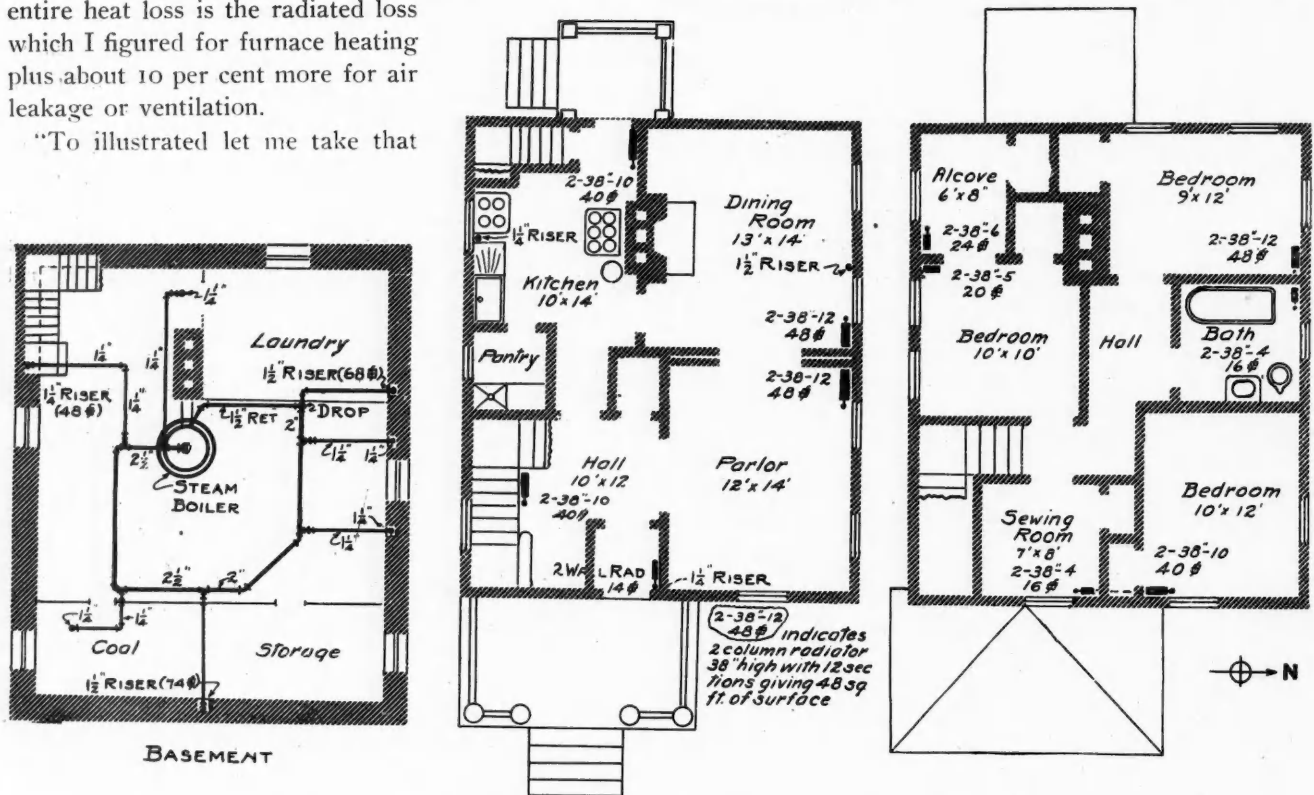
"Every square foot of radiator surface when supplied with steam at less than 5 pounds pressure varies in temperature from about 212 degrees to 220 degrees Fahr., and this is all the variation or control of the heat that there is in a steam system. With the air in the room at 70 degrees Fahr. (normal temperature) each square foot of radiator surface gives off about 275 heat units per hour and to get the number of square feet of radiator required I divide the entire heat loss by the amount supplied per square foot and the result is the number of square feet I must have to keep up a temperature of 70 degrees. But the entire heat loss is the radiated loss which I figured for furnace heating plus about 10 per cent more for air leakage or ventilation.

"To illustrate let me take that

"Of course you know that radiators come in different widths and heights and any radiator catalog will tell you just how many square feet there are to each section; they are pretty accurate in this respect. Then it is easy enough to figure how many sections of a certain type and size are required to make up a given number of square feet of radiation.

"There, I hear somebody asking that old question for a shorter method of figuring than the one I have given! Yes, you can figure an easier way and then a still easier way; and the farther you go the less accurate you become! I know a great many heating men who get pretty good results with what is known as the 2-20-200 rule—used with a little common sense. This rule is not strictly accurate in its assumptions and neglects the factor of exposure entirely, thus making the application of common sense necessary to its successful use.

"To find the amount of radiator surface by the 2-20-200 rule I divide the glass surface by 2, the wall surface by 20 and the cubic contents of the room by



Plans of Residence Showing Steam Heating System as installed by the Old Builder

upstairs bedroom which I previously found required a 6-in. furnace pipe and had a radiated loss of 5,110 heat units. Adding 10 per cent to this, for ventilation or air change, I have a total heat loss of 5,100 plus 500 or 5,600 heat units which divided by 275 heat units gives 20 sq. ft. of radiator surface. In the downstairs parlor which had a radiated loss of 13,000 heat units and which required a 12-in. or 13-in. furnace pipe I add 10 per cent for air leakage and get a total loss with steam of 13,000 plus 1,300 or 14,000 heat units. This divided by 275 gives 51 sq. ft. required for the radiator.

200. Then the sum of the three quotients thus obtained is the number of square feet of radiator surface required. Trying this on the upstairs bedroom for purpose of comparison we have by this rule:

Glass Surface.... 30 divided by 2 equals 15
 Wall Surface.... 70 divided by 20 equals 3½
 Cubic Contents
 10x12x9.....1080 divided by 200 equals 5

Radiator surface required in sq. ft. equals.....23½
 By the other method I got 20 sq. ft.

For the downstairs parlor I have
 Glass Surface..... 45 divided by 2 equals 22½
 Wall Surface..... 215 divided by 20 equals 10¾
 Cubic Contents
 14x12x9.....1512 divided by 200 equals 7½

Total Radiator Surface required in sq. ft.....40¾

"If the 41 sq. ft. is increased by common sense (on account of the room being on the north side of the house) by about 20 per cent I would have 49 sq. ft. as against the 47 I previously figured.

"Still easier than this rule is the plain one of 'cubic divisors' in which nothing is considered by the size of the room. For example all living rooms with one wall exposed take a divisor of 60 to 80, and with two walls exposed of 50 to 60, while bedrooms use 50 to 70 and halls and bathrooms 40 to 50.

"To illustrate, on the upstairs bedroom I have one wall exposed, it is on the south side (so I use the largest divisor) and has cubic contents of 1080 cu. ft. This divided by 70 gives 15½ sq. ft. of radiator surface required as against 20 and 23½ found before by the other methods. On the parlor with a cubic contents of 1512 I use a divisor of smallest size (because of its northern exposure) and 1512 divided by 50 equals 30 sq. ft. of radiator surface required as against 47 and 49 figured by the more accurate methods.

"After getting my radiator sizes proportioned to the various rooms I next had to consider the piping system and this is a subject on which there is more argument expended than any other one point in heating."

Heating Questions Asked and Answered

Locating Hot Air Registers

To the Editor: Santa Cruz, Calif.
 What is the reason that most heating plans—hot air systems—make the entrance and exit of warm air through the base of the room, avoiding the following described plan:

Entrance of warm air at side of room and at about eight feet from the floor with the exit through the base on the same side of the room? Our public schools use this system with the addition of forced circulation. My question is to apply as to residences as well. WM. E. CLAPP.

Answer: Mr. Clapp's inquiry is a very natural one as it would seem quite likely that the same air to accomplish the same results should enter the room at the same point no matter whether supplied by a furnace or by a fan.

There is this marked difference, however, between furnace and hot blast heating—the furnace supplies only enough hot air to heat the room (no great amount of ventilation from such a source being obtained) but a hot blast system is usually designed *first* so as to supply a certain amount of ventilation and then the quantity of air required for this purpose is heated only enough to keep the room temperature from dropping *when occupied*.

Therefore, the relative quantity of air supplied to a room by a furnace and by a hot blast system will be much greater in the latter. This means that a room which would be merely heated by an 8-inch furnace pipe might possibly have a 16-inch hot blast pipe delivering four times the quantity of air but at a lower temperature.

The arrangement of the inlet register 8 feet above the floor is for the purpose of getting this larger quantity of ventilating air into the room above the head level so as not to subject the body to the disagreeable feeling of having such a large current of hot air blowing against it. By taking off the exhaust at the floor a very good circulation of air throughout the room is effected, much in the manner indicated by the arrows in Fig. 1.

With a furnace, however, there is no such exhaust connection unless a "re-circulation" inlet is provided. It certainly would not pay to run branches of the "re-circulation" pipe to every room in place of an exhaust outlet and unless this were done a furnace register located 8 feet above the floor would leave a pocket between it and the floor in which

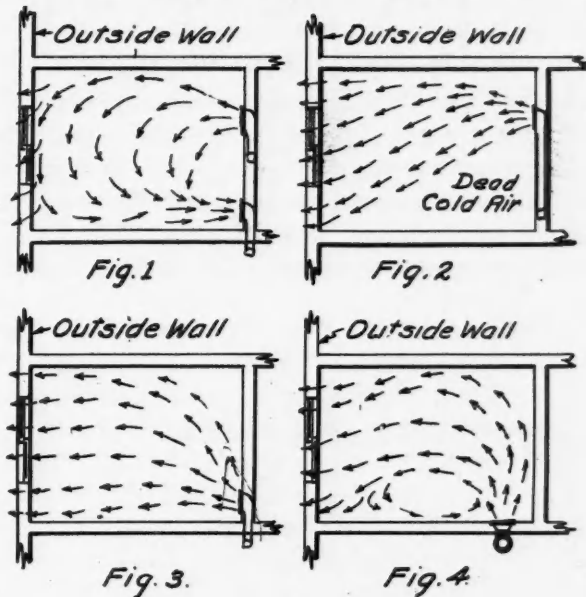


Fig. 1... Circulation with hot blast and exhaust registers..... Good
 Fig. 2... Circulation with furnace register, 8'-0" up..... Bad.
 Fig. 3... Circulation with furnace register, 12" up..... Good.
 Fig. 4... Circulation with furnace register in floor..... Good

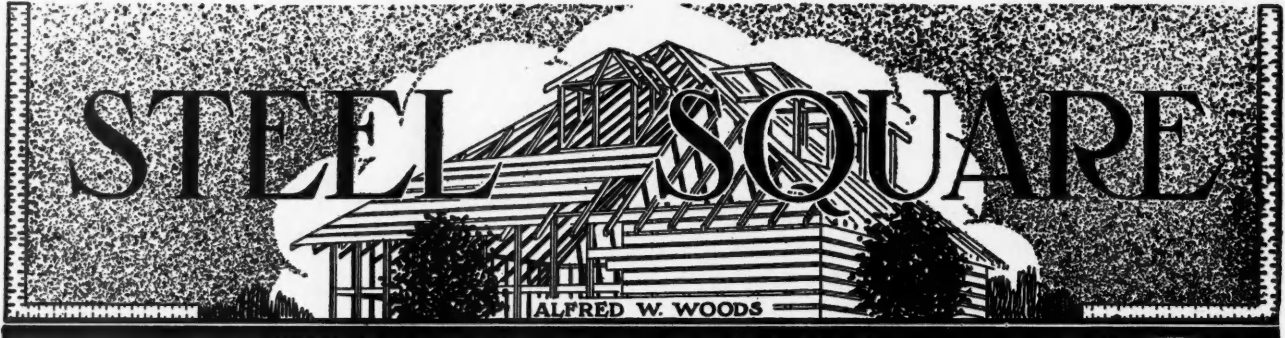
the cold air would settle as is shown in Fig. 2 with nothing to disturb it. This is partially because the amount of air supplied by a furnace is so small as to find ample space around the doors and windows to leak out of the house.

Another reason for putting furnace registers in floors is the additional cost, for in a house with say 10 registers adding 8 feet to each line would mean 80 additional feet of furnace pipe, and the possible increase in the thickness of partitions in the second floor as well as the first to accommodate the pipes.

There is also an advantage in floor registers in the second floor where the second floor partitions do not line up with those below. By running up through the first door partition it is only a matter of cutting a hole in the second floor at the top of the pipe and setting a register there, while to put a register in the *wall* or *partition* of the upper room might mean a horizontal run of considerable length to reach such a point.

Therefore, while the results would probably not be quite as good with a register 8 feet above the floor the cost would be considerably more and for this reason the furnace inlets are always kept at or near the floor and the approximate circulation when so located is as shown in Figs. 3 and 4.

CECIL F. HERINGTON.



Backing the Hip for Unequal Pitches

HOW THE STEEL SQUARE SHOULD BE USED TO SOLVE BOTHERSOME PROBLEMS OF THIS SORT

LAST month we talked on the backing of the hip for regular pitches—that is, where the adjoining pitches are of the same incline. We are going to continue the subject a little further and talk about roofs where the adjoining pitches are of different incline.

There are a number of ways of arriving at the pro-

portion of the wood that should be removed from the corners of the hip to the center line on the back to form a bevel on same that will bring the top of the rafter in plane with the backs of the common rafters for the respective sides.

Now we are fully aware that the backing is not always done. In other words, it is not done as much as it should be done, and furthermore it is not often done right (all things considered) when it is done.

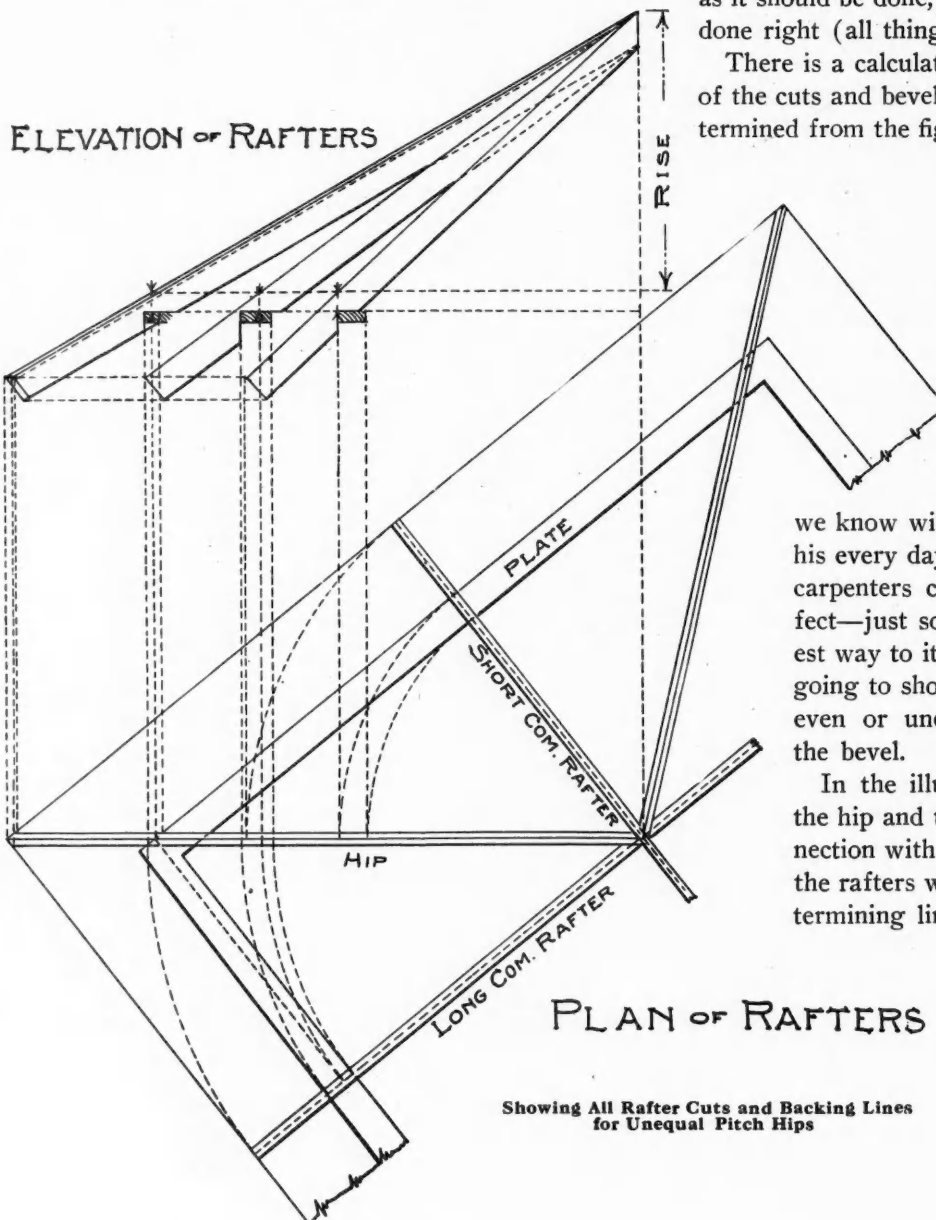
There is a calculating basis that runs through all of the cuts and bevels in the roof which may be determined from the figures that give the miter of the

corner on which the hip rests; that is, it has its beginning in those proportions because they furnish the plan, but when the adjoining pitches are uneven the manner of procedure becomes more complicated and for that reason is not practical to burden the mind with something that

we know will not be used by the builder in his every day work. The great majority of carpenters care nothing for cause and effect—just so he gets there; and the quickest way to it suits him the best. So we are going to show a simple way that applies to even or uneven pitches alike for finding the bevel.

In the illustration we show the plan of the hip and the common rafters and in connection with same we show the elevation of the rafters with all of their cuts and the determining lines for the backing. Note the

plates are all on the same level and the plumb line over the edge of the plate for the different rafters are all of the same length, but in order to get this it is necessary to vary the depth of the seat cut to bring the perpendicular height above



the corner of the plate the same. On the other hand, if this cut is made all the same on these three rafters, then it is necessary to build up the plate because there would be three different levels to work to. Usually in cases of this kind, after it is found that something is out of gear, the cut and try plan is resorted to; or a block (dutchman) is slipped under here and there and the trouble for the time is ended, only to reoccur on the next similar occasion.

We have tried to make this illustration so plain that it would relieve us of even using the A B C's to illustrate the different parts.

As a parting shot, we will say: look at the picture. Read it, and put it in that upper store house for future use.



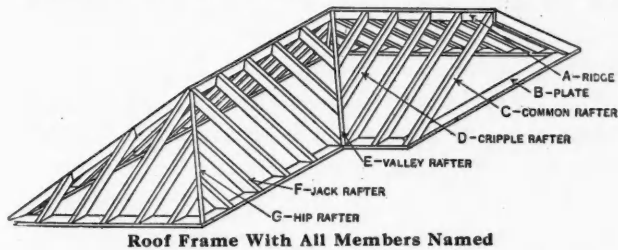
A Roof Framing Primer

We are glad to pass along to our younger readers these simple and clear steel square and roof framing explanations taken from a booklet recently issued by Sargent and Company.

Common Rafters

The *rise* of the roof is the distance found in following a plumb-line from a point on the central line of the top of the ridge to the level of the top of the plate.

The *run* is the shortest horizontal distance from

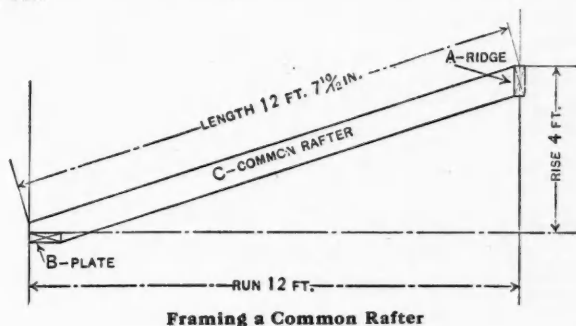


said plumb-line to the outer edge of the plate. The diagonal from this point on the plate to the nearest point in the central line of the top of the ridge is the length of the common rafter.

Because the rise must be measured at the central line of the roof, the run is always half the outside width of the building.

A roof of 4 feet rise on a building 24 feet wide is called a roof of $1/6$ pitch. This roof will have a run of 12 feet, or for each 12 inches of run, the rise is 4 inches.

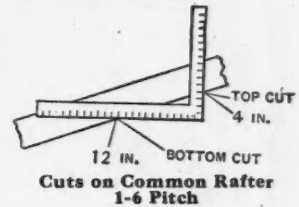
We, therefore, have as common pitches, $1/6$ pitch or 12 to 4, $1/4$ pitch or 12 to 6, and $1/3$ pitch or 12 to 8, etc.



Rafter Cuts

The rafter ends are cut to roof angles to rest respectively against ridge and plate. The cut against the ridge is called the *top cut* or *plumb cut*; the cut against the plate is called the *bottom* or *heel cut*.

The rule given for finding top and bottom cuts is to place the square upon the rafter so that a portion of one arm of the square represents the run and a portion of the other arm represents the rise; for common rafters, 12 and 4 for $1/6$ pitch, 12 and 6 for $1/4$ pitch, etc.



Hip Rafters

The hip rafter (G) represents the hypotenuse or diagonal of a right-angle triangle, one side being the common rafter (C), and the other side the plate (B), or that part of the plate lying between the foot of the hip rafter and the foot of the adjoining common rafter.

The rise of hip rafter is the same as common rafter. The run of the hip rafter is the horizontal distance from the plumb-line of its rise to the outside of the plate at the foot of the hip rafter.

This run of the hip rafter is to the run of the common rafter as 17 is to 12. Therefore, for $1/6$ pitch the common rafter run and rise are 12 and 4, while the hip-rafter run and rise are 17 and 4.

For the top and bottom cuts of the common rafter, the figures are used that represent the common-rafter run and rise, that is, 12 and 4 for $1/6$ pitch, and 12 and 6 for $1/4$ pitch, etc., but for top and bottom cuts of hip rafter use the figures 17 and 4 and 17 and 6, etc., the run and rise of the hip rafter.

Valley Rafters

The valley rafter (E), is the hypotenuse of a right-angle triangle made by the common rafter with the ridge, corresponding with the right-angle triangle made by the hip rafter with common rafter and plate; and, therefore, the rules for the lengths and cuts of valley rafters are the same as for hip rafter.

Jack Rafters

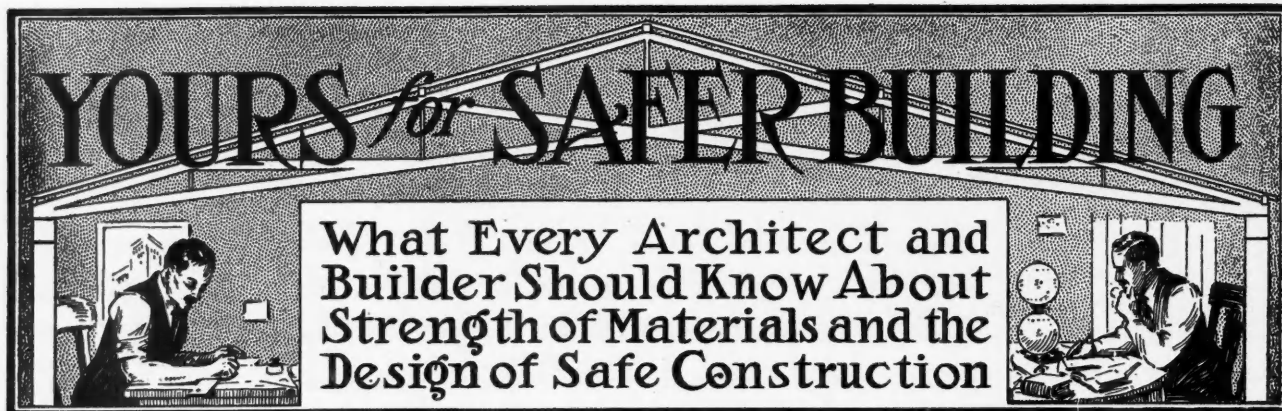
The jack rafters (J), are usually spaced either 16 inches apart or 24 inches apart, and, as they lie against the hip or valley equally spaced, the second jack rafter must be twice as long as the first, the third three times as long as the first, and so on.

A cripple rafter (D), is a rafter "having no foot," or no foot on plate, but resting top at ridge and bottom at valley rafter and running between ridge and valley; sometimes between hip and valley.

Cripple-rafter length is that of the Jack rafter plus length necessary for its bottom cut, which is a plumb cut like top cut.

Top and bottom (plumb) cuts of cripples are same as top cut for jack rafter.

Side cut at hip and valley same as side cut for jacks.



What Every Architect and Builder Should Know About Strength of Materials and the Design of Safe Construction

Noon Hour Talks by the Boss Carpenter

Talk No. 11

THE BOSS EXPLAINS ANOTHER FORMULA FOR LONG COLUMNS, AND GIVES A FORMULA TO BE USED FOR LONG COLUMNS WITH ECCENTRIC LOAD

WHEN we quit yesterday," said the Boss, "I told you that we would look at another standard formula for columns when we met today. This formula applies to *long* columns carrying central loads as described yesterday, and is used to a great extent by engineers. Possibly the values given by this formula will not agree exactly with those found by using our other formula, but if anything the results will be found to be a little more conservative. It will at least serve as a fair check on your work with timber, and will be used wholly for our calculations in steel and cast iron.

"The reason for the difference in the values given by the two formulas lies in the constants used by the experimenters who put these formulas into shape for our use. Do not distrust either formula because it does not check with the other, but use it as a guide for your work, as it is intended. You know that you could not expect two pieces of timber even out of the same pile to be *just alike* and to bear *just the same* load on account of knots or other defects which occur in all timber used in building. The constants given in the formulas are supposed to represent *average* conditions."

The Boss then wrote in the "log book,"

$$C = \frac{W}{A} \left[1 + K \frac{l^2}{r^2} \right] \text{ (Formula No. 8).}$$

He explained that C was the ultimate crushing strength of the building material in pounds per square inch; W , the central breaking load for the long columns in pounds; A , the area of the cross-section of the column in square inches; K , a constant which varies in value with the kind of material and the type of the column ends; l , the length of the column in inches; and r , the value of the *least radius of gyration* of the column cross-section. In order that they might identify the formula when in conversation, he told them that it was commonly called *Rankine's column formula*.

"We will find values of C ," said the Boss, "by turning back to the table of strengths given in Talk No. 7. The value of K will be given for each material as we come to it in our talks. Today, for timber, it is $1/3,000$. For cast iron or steel, K would have an entirely different value and will be given when we come to these materials. It is understood that the value $1/3,000$ is to be used *only* with square end or fixed end timber columns.

"The value of r^2 for any given case may be found easily by dividing the least value of I for the cross-section used by the area of the cross-section. The formulas for I and areas for common cross-sections were given in Talk No. 4. The half areas given in the table in Talk No. 4 should be multiplied by 2 for use in determining r^2 . For rectangular cross-sections such as a 4-inch by 6-inch timber, the *smaller* value of I should be used. For instance, the value of $1/12 \times 6 \times 4 \times 4 \times 4$ is less than $1/12 \times 4 \times 6 \times 6 \times 6$. This distinction is not necessary in the case of square or round sections.

"To see the difference in results obtained by the two methods of figuring, let us try the same problem that we worked yesterday, working it by Formula No. 8 instead of by Formula No. 7a.

"The length of our Georgia pine column was 10 feet, and it was 6-inch by 6-inch in size. Our central load for a factor of safety of 5 would be, according to Rankine's formula and using $C = 7,000$ from Talk No. 7.

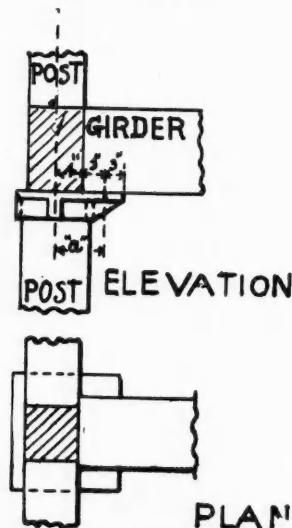


Fig. 17. Long Column Loaded with a Floor Girder on a Side Bracket and also Carrying Central Load from Another Column on Floor Above.

$$7,000 = \frac{W}{6 \times 6} \left[1 + \left(\frac{1}{3,000} \times \frac{120 \times 120}{\frac{1}{2} \times 6 \times 6 \times 6 \times 6} \right) \right]$$

$$= \frac{W}{36} \times 2.6 \quad \text{or,}$$

$36 \times 7000 = 2.6 W$ and $W = 97,000$ pounds (nearly). Dividing the breaking load 97,000 pounds by 5, we would get 19,200 pounds as our load for a factor of safety of 5. Thus it is seen that this load is considerably less than that obtained from the previous formula due to the constants used, but either load could be used with safety as desired. If the work was of great importance; if the timber was poor; or, if sudden loads or shocks were likely to come on the column, it would be better to use the smaller load, and also to use a larger factor of safety. A factor of 8 or 10 is often used with timber for sudden loads, or for unsteady or vibrating loads.

"Now," said the Boss, "I want to show you how to figure a long column with an eccentric load, or a load which is supported by the column as shown in Fig. 17. We will turn back in the "log book" to Talk No. 8, where we used this same figure in connection with short columns.

"First, suppose that we have a long column with a load supported off-center as in the case of the side bracket in Fig. 17. We will say at this time that there is no other load on the column. Later we will use a load coming down on the center of the column from above, in addition to that carried by the side bracket.

"The formula for finding the load to be carried by a square or round column of a given size when carrying a single load on a side bracket is as follows:

$$C = \frac{W_2}{A} \left[1 + K \frac{e^2}{r^2} + \frac{ae}{r^2} \right] \text{ (Formula No. 9).}$$

W_2 is the load carried on the bracket in pounds; a is the distance of the line of action of the eccentric load from the center line of the column, in inches; e is the distance in inches from the center of gravity of the cross-section of the column to the side of the column nearest the load; while the other letters in the formula are the same as explained in connection with Formula No. 8.

"For example, let us see what load could be carried with a factor of 8 by a 10-inch by 10-inch Georgia pine column 12 feet long with flat ends, fitted with a side bracket as shown in Fig. 17. As shown in the figure, the resultant line of pressure from the load on the bracket is 7 inches from the center line of the column, assuming that the girder rests evenly over all parts of the bracket. Filling in Formula No. 9 and solving for W_2 , we would have

$$7,000 = \frac{W_2}{10 \times 10} \left[1 + \left(\frac{1}{3,000} \times \frac{144 \times 144}{\frac{1}{2} \times 10 \times 10 \times 10 \times 10} \right) + \frac{7 \times 5}{\frac{1}{2} \times 10 \times 10 \times 10 \times 10} \right] = \frac{W_2}{100} \left[1 + .8 + 4.2 \right] = \frac{6W_2}{100}$$

$6 W_2 = 700,000$ or, $W_2 = 116,700$ pounds. Since this is the value of the breaking load, we would divide 116,700 by our factor of safety of 8 in order to obtain our answer; or, $\frac{116,700}{8} = 14,600$ pounds.

"If we compare this answer with the one which we would obtain by solving this problem for a central load on the same column, we would find that this load is considerably less than would be the central load. The fact that our load is off-center in the above problem is what causes the difference. The explanation given in Talk No. 8 and illustrated by Fig. 16 in that talk will explain this matter.

"Now suppose that we are to support a central load from another column above this one, as well as the eccentric load on the side bracket. Our formula would then read

$$C = \frac{W_1}{A} \left[1 + K \frac{e^2}{r^2} \right] + \frac{W_2 ae}{I} \text{ (Formula No. 9a).}$$

In this formula, W_1 is the total load on the column in pounds; I is the value of the moment of inertia of the square or round cross-section, and is found in the table in Talk No. 4; while all other letters bear the same meaning as in previous problems.

"Let us take the example that we just solved and consider that a post from above brings another load on the column as shown in Fig. 17. Suppose that the central load from this post above is 9,000 pounds, and we want to find out how much load could be carried by the bracket in order that we may still have a factor of safety of 8 in our column. In this case W_1 will equal 9,000 plus the unknown load, W_2 . Filling in Formula 9a, we have

$$\frac{7,000}{8} = \frac{9,000 + W_2}{10 \times 10} \left[1 + \left(\frac{1}{3,000} \times \frac{144 \times 144}{\frac{1}{2} \times 10 \times 10 \times 10 \times 10} \right) \right] + \frac{W_2 \times 7 \times 5}{\frac{1}{2} \times 10 \times 10 \times 10 \times 10}$$

$$875 = \frac{9,000 + W_2}{100} [1 + .8] + \frac{35W_2}{833}$$

$$16,200 + 1.8 W_2 = \frac{9,000 + W_2}{100} + .042 W_2$$

$87,500 = 16,200 + 1.8 W_2 + 4.2 W_2$
Solving, we find $W_2 = 11,900$ pounds.

"It is to be noticed that Formulas No. 9 and No. 9a as given are for square or round columns only. These formulas should be used for columns in which

the ratio of $\frac{1}{d}$ does not exceed 30 in value.

You will also see that in the last problem we divided the ultimate unit strength of the material by the factor of safety right at the start. This procedure is necessary in this case, and might have been done in preceding problems as well."



MAKING POWER

Watching Jimmie

Part VII

IN WHICH I GET WHAT'S COMING TO ME—AND SO DOES JIMMIE

By W. D. Graves

OF course I inwardly knew, when I said "Drat that woman," that I would have to apologize, retract and regret; all of which I have done with the utmost sincerity. Such remarks are of a piece with the profanity with which we of the passing generation were wont to pollute the atmosphere, at a direful waste of time and energy. I notice that Jimmie occasionally indulges in a mild expletive when suddenly tried (even Lorna sometimes says "My goodness" in a tone that a plain exclamation point would hardly express) but his most extreme ebullitions lack much of the piratical tang of those commonly heard in my younger days. It is better so. We always admire that sturdiness of which we are apt to consider coarseness and grime an indication; but we are coming to know that the coarseness and grime are not at all necessary adjuncts thereto. Blaysdell says that the mechanic of to-day is cleaner, morally, mentally and physically, than the one of yesterday; and that he is a better mechanic for it. Perhaps Blaysdell is right. He sometimes is. Harriet says, since I have apologized, that she likes the old style mechanic best; but I doubt if she does. I know that Lorna—but there, the Editor is like the boss of other times in that he insists that mechanical things take precedence of the girls. He is quite right—let us get down to business.

Sharpening Stakes on the Buzz Saw

Jimmie recently took the job of getting out a lot of short stakes for the city surveyor to use in indicating the surface height of the concrete on some streets which are being paved. They are eight or ten inches long by, approximately, one and a half inches square; so they served very nicely as a profitable outlet for a lot of odds and ends of two by fours. It

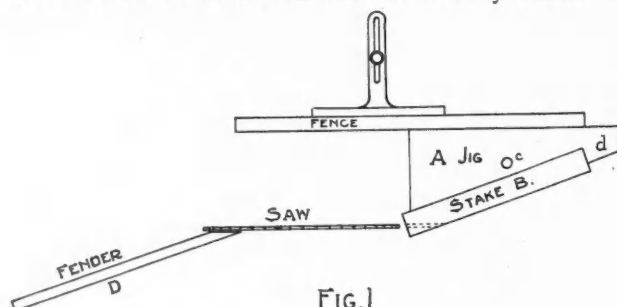


FIG. 1

Arrangement for Pointing Stakes on Buzz Saw

was required that they be evenly and uniformly pointed from all four sides, and his jig for sawing the points seemed to me very simple and effective. It is shown, in plan view, in Fig. 1.

A is a piece of board with a straight edge to run against the fence and with the other edge at the proper angle with the first to give the required taper to the points. At the rear of the latter edge is a stop, d, for the butt of the stake to rest against, and at c is a peg, or handle, which is grasped by the fingers of the right hand while the stake, B, is held up snugly by the thumb of the same hand. Not to be lightly neglected is the strip, D, which is clamped to the top of the table with its pointed end quite snugly

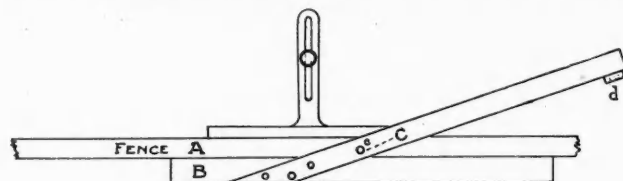


FIG. 2

Jig for Pointing Fence Pickets

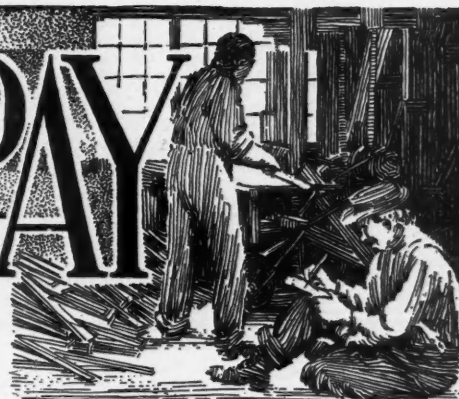
against the side of the saw at the rear. This is to fend away from the saw teeth the small wedge shaped pieces which come off, and to prevent them from becoming incorporated with ones anatomy by being thrown over the top. A circular saw has a peculiarly vicious way of throwing such scraps when they come in its way, and precautions against such accidents are not at all ridiculous, but a distinct furtherance of better work and more of it.

Jimmie decided, by the way, that inasmuch as the device served in itself to bring the stakes to equal lengths, it was only necessary to square one end. Also, when the stock was long, he cut it into double lengths and let the first cut sever each piece diagonally in the middle; thus making one side of the point on two stakes at one motion. This, of course, would be a small matter if but few stakes were being made; but in the case of several thousand it made quite a material saving of time on the whole job.

Saw Jig for Pointing Fence Pickets

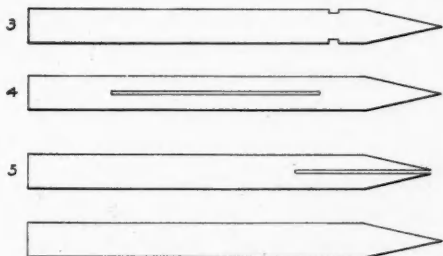
Jimmie and Lorna—well, never mind that now. The stake sharpening stunt led to the discussion of the best method of pointing fence pickets and the like,

WOOD WORKERS PAY



which are too long to handle conveniently on just this jig. We decided that for pointing pieces more than two feet long it would be better to remove the regular fence and clamp on the table, in its place, a straight edged piece of board, as A, in Fig. 2. Against this would slide the strip B, on top of which is screwed the strip C, at the required angle. The peg, c, and the stop, d, would be placed in the same relative positions as in the other jig. The strip C and the picket, would thus run over the top of the guide piece, or fence, and would not strike it, whatever their length.

With this jig one could make plain V shaped points or diagonal cuts at any desired angle, but we were unable to devise any very elaborate designs for picket points to the cutting of which the buzz-saw seemed to be well adapted. Figures 3, 4 and 5 are some which occurred to us in addition to the plain point, and which, while having little or no merit in themselves, may have suggestive value to more capable designers. Referring to Fig. 4, a word of caution may not be out of place. Dropping stock down on the top of a saw, as will be necessary in making a groove like the one shown there, is a somewhat risky operation, especially if a "wobble saw" is used, and should be attempted only with the utmost caution. It is well, where at all practicable, to place a very secure stop, or gage, so that the rear end of the stock may rest against it. This is essential to any particular accuracy, and an important safeguard against accidents.



Styles for Ornamental Fence Pickets

First place the butt *firmly* against the stop before it strike the saw, and *always* hold it firmly against the fence, never, *never* placing either hand or finger behind or underneath it. Also never grasp the stock with either hand beyond the saw, if you value your fingers. If the stock is so long as to make a rear stop impracticable it may be tilted over the front edge of the table, taking care to stand at one side and to grasp it so that it may be torn from your grip without passing through your person or removing any essential feature thereof; but it must be rested firmly and

pivoted on something before it strikes the saw, then lowered steadily, but with muscles not too rigid.

Wobble Saws for Grooving

Speaking of Lorna and Jimmie—er—speaking of wobble saws, they are a makeshift not at all comparable with dado heads for making grooves, but may be made to serve the same purpose on a pinch. They are not at all satisfactory for continuous use and their principal value lies in the fact that they soon lead one to appreciate the need of a dado head. There is nothing of novelty about them for old machine operators, but a word of description may not be nauseous to beginners in that line.

The wobble saw is simply a common circular saw, preferably small and stiff, fastened on the arbor in a tilted position, as shown in Fig. 6, so that the teeth, at each revolution, sweep across the width of the required groove. This will make the bottom of the groove slightly curved, but so little as to be hardly noticeable except in quite wide grooves, and not usually appreciable even in them. The tilt is given to the saw by the use of a wedge, a, a, on either side, between the collars. These wedges are as well made of wood as of anything elses. I have used many different kinds and don't know why even soft pine isn't just as good as anything else for them.

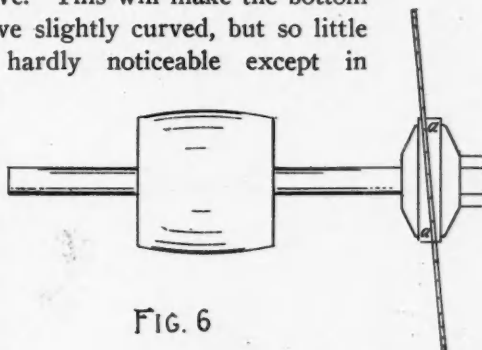
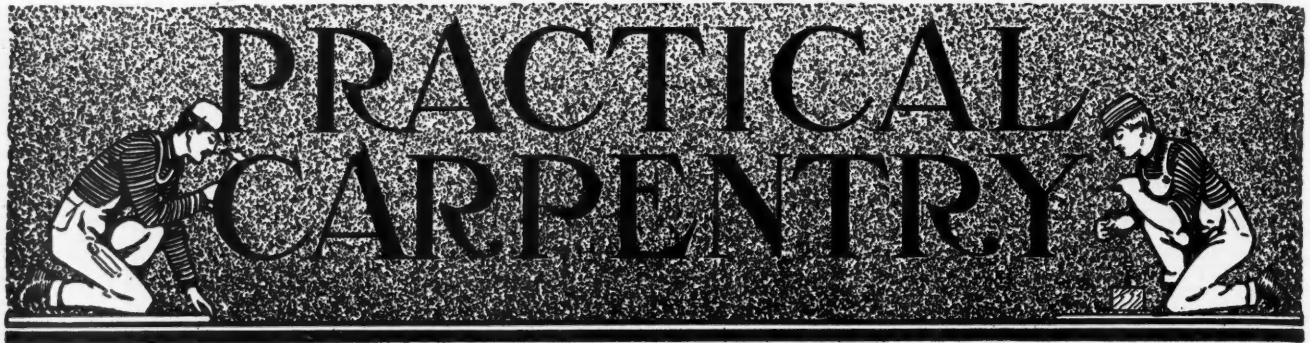


FIG. 6

Arrangement of Wobble Saw

If the hole fits the spindle snugly as it should for ordinary work it will need to be filed out a little at the corners on opposite sides, in order that the saw may tilt without binding. It will be seen that such a saw, removing as it does several times the normal amount of wood, must be fed slowly; the more so according as the groove is wider. Crowding the feed, especially with a limber saw or in hard wood, tends to make the groove narrower and irregular.

(Continued on Page 59)



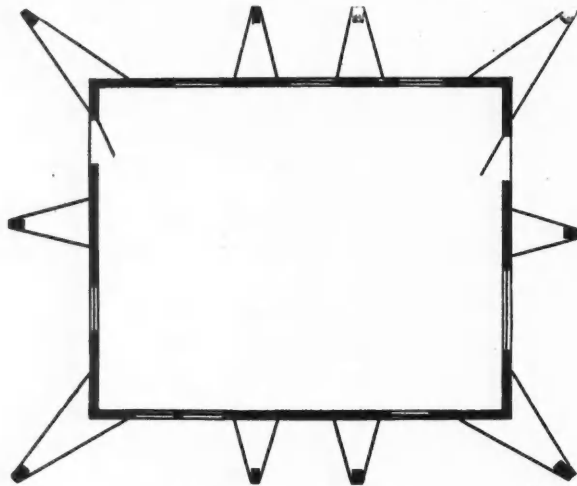
How to Do Work Fast

SIXTH PAPER—SCAFFOLDING

By I. P. Hicks

IN the art of doing work fast, the scaffolding often plays an important part. Where scaffolds are built of the ordinary 2 x 4's for poles and 1 x 6's for brackets I present the following plan for constructing the safest and best scaffold that can be built for the least expense for material and labor. We use double brackets on every pole and put them on so that every bracket braces the other, (see sketch). Scaffolding in this manner, the poles are thoroughly braced as soon as the brackets are nailed on and no long braces are required. The two brackets add to the strength of the scaffold, they always keep it thoroughly braced and it saves all of the long braces which the old system made necessary to have.

By this method you can always span a corner, a window or wide opening in good shape. Another advantage, this method requires but one pole on a corner where by the old custom two poles were



SCAFFOLDING

System of Bracing as Recommended by Mr. Hicks

always required on corners; besides by the old method there was often a gap at the corners, where there was no scaffold at all because the scaffolds would not quite meet on the corners and it was the custom to place a board across the corner diagonally. This would make the scaffold at the cor-

ner so close to the building as to greatly retard the workmen in working around the corner, the very place where they should have the best facilities for doing the work. Especially is this true in putting on cornice. By my method it is no trouble to get out to the farthest corner as easy as any place, and that with a feeling of perfect safety. As your building progresses in height, nail on more brackets and go on up. You can go to any height required without any bracing other than the brackets themselves. Anyone who has built high scaffolds knows how difficult it is to brace a high scaffold with long boards, also the large number of them that it takes.

In order to do work fast both brains and speed are required; the two must go hand in hand to get the best results. It should be the duty of the foreman to furnish the largest part of the brains. He should see that the scaffolds are put up at the proper height to work from to advantage. Keep the scaffold that you cornice from at a height the men can stand up to their work. Don't put it up so that the men have to crawl along on their hands and knees or lay on their backs to drive nails or saw boards, no one can work to advantage in this manner. Use your brains to take every possible advantage in doing the work, then if you are reasonably quick you can develop the speed. Always keep the cobwebs well brushed out of your head so that you can see ahead and not let something get in your way that you could have just as well avoided, if you had been working your brain a little just at the right time. Don't do something that will be in your way a little later on so that you may have to tear out a part of it in order to get at something else; or perhaps if you don't have to tear it out it may greatly retard your progress in working around it.

It is such things as this that should always be avoided, and they can be in every instance if the mechanic will just work his head at the proper time. Just for example, do not put the roof sheathing on a shed roof dormer until you have shingled the

main roof up along the sides of it; for if you do it is next to impossible to shingle the main roof under the cornice of the dormer. Of course you can sort of half way shingle it, but it will take you more than twice as long to do it. There are lots of similar things that come up in the course of erecting a building and it should be the duty of the foreman to watch these things and not let them happen; the men, too, should look ahead and not run blindly into such traps. Such things greatly retard the progress of work.

Frame Cornices, Returns and Roof Dormers on the Ground

These returns can be made and put together on the ground all ready to nail in place on the building much quicker and better than they can be nailed to the building in pieces. The whole thing can be made on the ground even to putting the rafters on; then all you have to do is to take it up and nail it on in its proper place; and it is done in half the time of the old method of a piece at a time, and is also more likely to be a truer and better job.

There are many times that small and medium size dormer windows can be framed on the ground. A good mechanic that is well versed in roof framing can cut every piece of timber that belongs to it and when framed can take it up on the roof and erect it just about twice as quick as he could cut and frame it up on the roof.

Work to Best Advantage

Where two men work together on cornice work put on the long boards and when it comes to the short ones, as on returns and the like, then divide up; each one take a short space.

The foreman should see that the men are placed to the best advantage on the building. Put as many men in a place as may be necessary to do the work required of them; but do not put any more than just enough. When the men get in each others way it is losing money for the contractor, for one will have to wait while the other does the work and this does not result in doing work fast. Paying two men for what one ought to do does not produce the results due to fast work. Fast work only comes to those who know just how to manage the work, backed up by mechanics who can get up the speed when they have a fair chance.

Watching Jimmie

(Continued from page 57)
The Story Will Out

But there; I must tell the news or burst. When Blaysdell and I came home from lodge, to-night, our pipes were just nicely under way as we reached his house, so he walked along with me. As we came in sight of Jimmie's new lot we saw, under the moon shadow of a big tree there, a couple standing close together—so close in fact that the girl's head rested on his shoulder as she gazed up into his eyes. Now

I'm old, and not inquisitive, but I'm not so blamed old as to fail of all interest in a case of that kind; so I could not avoid looking closely as we approached. We were not making much noise—and I doubt if they would have heard a freight train—so we didn't disturb them. Imagine the shock to me when I discovered that it was Lorna and Jimmie. I was just about to call out to them when Blaysdell pulled at my arm so viciously as to leave my pipe suspended in mid air while he dragged me away. As soon as we were well out of their sight he began pounding me on the back and dancing about like a child demented, while he kept repeating:

"They've made it up. They've made it up."

"Who's made it up?" I asked.

"Lorna and Jimmie, of course."

"Made what up?"

Blaysdell stopped his gyrations and looked at me, open mouthed.

"Didn't you know that they had quarreled?"

"No. What did they quarrel about?"

"Quarrel about! Didn't you even know that they were engaged?"

"Engaged in what?"

"Engaged to be married, you old chump."

"Engaged to be married! Those Kids?"

Then Blaysdell had one of those fool spells of his. He laughed till he toppled against a picket fence, then hung over that and vibrated till I pulled him off, lest, in his jelly-like condition, he be perforated. Angry and disgusted, I leaned him against a tree and left him. He may be out there yet, wabbling about like a gob of jelly on a shaky table, for all I care.

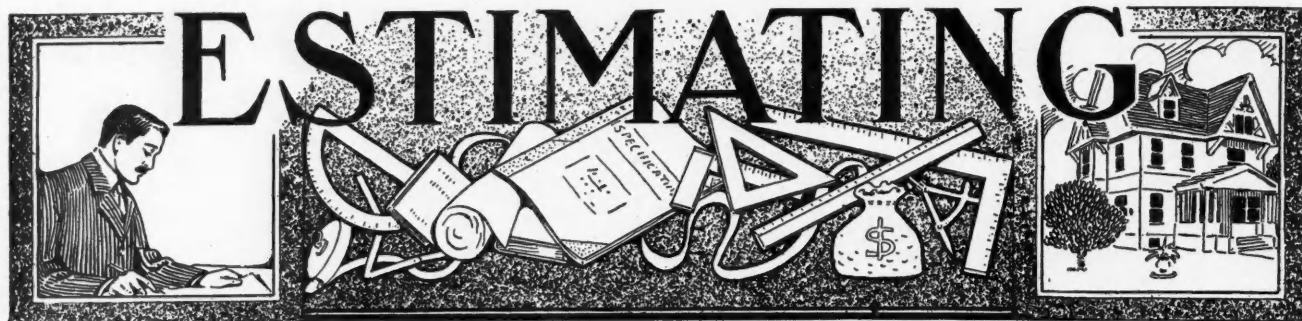
When I stalked into the house I found Lorna and Jimmie there ahead of me; and, before I had time to speak, Jimmie had an arm over my shoulders and Lorna was hanging on my neck, while Harriet looked happily on through misty eyes.

"It's all right, Dad," said Jimmie.

"Aren't you glad, Papa," asked Lorna.

As I looked down into that happy face how could I be otherwise than glad? Verily, I was the happiest old codger in Christendom.

Harriet says that, for all my watching Jimmie, I have overlooked the best part of his life. Possibly. Yet he and I have both been happy in our companionship and we could not have been had we not given close attention to sawing wood. The mist that dims my specs is not caused by sorrow nor regret. Through it I see Lorna and Jimmie happy in a nest of his building, I see him even more a son and companion than he has been in the past; and while I look forward to buying and sharpening the first jackknife for a possible littler Jimmie, I see no reason why the old Jimmie and I shouldn't keep right on with the study of new ways to utilize power in his business. Guess I'll have to look into the possibilities of that combination machine.



Mistake in Estimate—Who Stands the Loss?

THE LEGAL STATUS OF A BUILDER WHO MAKES A MISTAKE IN THE ESTIMATE ON WHICH HIS TENDER AND CONTRACT ARE BASED

By Elton J. Buckley, Atty. at Law

THE following letter comes to me through a Southern paper, and touches a matter of greatest moment to builders and material dealers:

Birmingham, Ala., April 5, 1913.

Elton J. Buckley, Esq.

Dear Sir:—We are in the midst of a situation, on which we would be glad to have your discussion. About six months ago we decided to build ourselves a new store building with a warehouse attached. We asked for bids for the building materials and when they were received we awarded the contract to a fairly well-known dealer in lumber and other materials, who, while not so long in business as some of his competitors, has a considerable amount of work and enjoys a good reputation. His bid was about 25 per cent lower than the others. The work went ahead satisfactorily until it was about three-fourths finished, when this lumber contractor served notice on us that he had made a mistake in his estimate and his price should have been about \$500 more than it was. This would have made his bid next to the lowest bid, instead of the lowest. He refused to deliver the balance of the lumber unless we agreed to pay about \$500 more on the whole job. We declined to do that and went into the open market and bought the rest as we needed it. Altogether we have spent \$625 more for the lumber than he agreed to furnish it to us for. What is our right in the case? Can we collect this money from him, or does the fact that he made a mistake exonerate him?

Respectfully yours,

BURDEN & SON.

This is truly an interesting situation, but one that is not so rare as one might think. I have personally met several cases where much the same situation has arisen, and have known of quite a number more. There are also quite a number of similar cases reported in the books.

Occasionally material men do this with deliberate fraudulent intent, but often, I think, it is the result of inexperience in estimating. The cases are by no means confined to building operations; there are cases involving estimates for groceries, hardware, and even dry goods where the successful bidder has afterward tried to beg off on the ground of mistake.

What ought to be done with such a case is exactly what this correspondent has done: go into the market and buy, as reasonably as possible, the goods which the bidder refuses to deliver. He should first be notified that you intend to do this and that

you will hold him responsible for any difference. Afterward suit should be brought against him for the additional sum you have had to pay, which in the case submitted to me is \$625. The bidder will undoubtedly defend on the ground that owing to the mistake, the contract was not a real one, and he should therefore be relieved of it. Whether his defense succeeds, depends on the facts of the given case.

One party to a contract will always be relieved from it when both parties were mistaken as to some important fact when they made it; or where somebody made a mistake in copying or writing it, so that it failed to express the mutual intent; or where the contract has not been carried out, and was hastily made, and enforcing it would mean great injustice to one party.

But along with the above principles, there is another one, equally well established, that is thus expressed in a well known case much like the one cited in the above letter:

"Courts of equity will not relieve a party from the consequences of an alleged mistake which is purely the result of his own supine or inexcusable carelessness, where he has, within his own hands, every means to enable him to avoid such a mistake by the exercise of reasonable care; and especially is this so when his application for relief is postponed to a time when it is beyond his power to restore to the other party the situation he occupied before the contract was entered into."

This means that in the average case, where a party agrees to supply certain goods at certain prices and does supply a large part of them on the basis of the bid, he cannot come in and refuse to complete his contract on the ground that he made a mistake in his estimate.

The case I have quoted from is a Pennsylvania case which would be probably accepted as law in any State, for the reason that the judges, in their decision, went all over the country for authorities, and considered the law as it was generally, rather than in Pennsylvania alone. This takes the case outside of an ordinary State decision. The facts were that a builder submitted to a dealer in lumber and mill work plans and specifications for the lum-

ber and mill work for a building operation. The dealer in turn submitted the detailed lists which he had figured out from the plans, accompanied by a bid. The builder without hastily accepting the bid made certain changes in the lumber and mill work which added considerably to the cost of each house. He submitted these changes to the dealer and asked for another bid. Subsequently the dealer offered to "furnish the entire lot" for a specified sum. This offer was accepted. Deliveries were begun at once and a large portion of the materials had been accepted by the builder and incorporated into the buildings, when the builder was informed by the dealer that a serious blunder had been made in the preparation of the bid, in that the price of the lumber, amounting to between \$3,000 and \$4,000, had been inadvertently omitted. The builder was informed of the mistake, but he stated that he realized that the bid was low, and that was why he had accepted it, but that if a mistake had been made, it was not his concern. The dealer delivered the remainder of the materials without making any further demand on the builder, and after the deliveries were completed filed a mechanic's lien, in which he charged the market price of the various articles at the time of their delivery. The court decided that the dealer was not entitled to recover more than the contract price for material furnished.

The defaulting bidder here went further in his effort to get relief than the defaulting bidder in the Birmingham case; he tried to get out of his bid in toto, and sued to collect the full market price on the whole contract, as if there had been no bid. The principles governing all such cases, however, were discussed by the court. The following is the core of the decision and it supplies some light, at least, on the Birmingham correspondent's case and on other cases embodying similar facts:—

The bidding firm present a written contract, executed by them with every appearance of deliberation, on the strength of which they delivered to the builder large quantities of material which he intended to buy, not at the market price, but at the competitive price established by the various bidders. After his situation had been so changed that he could not be restored to the position he occupied before his acceptance of the plaintiff's bid, they come into a court of equity. They say that, by their own inexcusable carelessness, continued during a period which afforded ample time for its rectification, with every means of knowledge at their hands, in no way influenced or controlled by any act of the defendant, an injury has resulted to them. They ask that this injury be repaired, not by the rescission of a contract not yet executed, not by the reformation of that contract to make it express what the parties in fact had agreed upon, but by simply striking it down because of its injurious consequences and by substituting for it an obligation of the defendant to pay at market price which, it is clear from the very fact that he sought competitive bids, he never intended to do

The result of the plaintiff's carelessness may be a financial loss to them, but such results are every day registered in the judgments of courts, the time of which is now largely consumed in ascertaining the liability of those who have been

careless towards those who would suffer as a consequence of carelessness did not the law require such consequences to be borne by those whose act or neglect produced them.

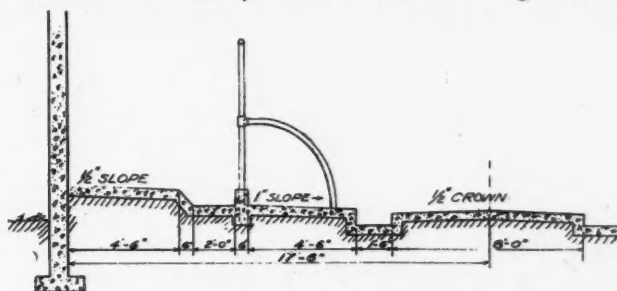
The court held that the bidder could recover only the amount of his bid, and the same principle of law would have compelled it to hold, had the facts been like those of the Birmingham case, that the bidder would have to pay his customer what the latter had to pay in the open market for the balance of goods not delivered.

(Copyright April, 1913, by Elton J. Buckley.)

Concrete Floors for the Dairy Barn

In the voluntary movement of farmers for *better milk at better prices*, the first step toward improvement is the making of the barn more sanitary by laying concrete floors. The cost is so small and the cash returns are so great that the floors soon pay for themselves in preventing the breeding of flies, in the saving of liquid manure, in the reduction of labor, and in the increased flow and improved quality of milk. The plan described below is for a barn in which the two rows of cows stand heels toward each other, with a driveway between. It is easily modified to the opposite arrangement. Likewise the method is adaptable to both old and new barns.

For average conditions lay out the stalls on 3-foot 6-inch centers and 4 feet 6 inches in length from



Cross-section of Concrete Dairy-Barn Floor Showing Usual Dimensions

6-inch manger wall to drop gutter. The manger is 2 feet 6 inches wide at the top and 2 feet at the bottom, with one face sloping up to the feed-alley floor. The depth is 7 inches, measured from the stanchion setting, and 8 inches from the alley floor. The feed alley is 4 feet 6 inches wide. The drop-gutter has a width of 18 inches. It is 8 inches deep gauged from the stall floor, which is 2 inches higher than the 8-foot driveway. For establishing grade lines a carpenter's spirit level (or a water level) and a chalk line are very helpful.

To prevent possibility of the floor settling, remove all manure before grading the surface of the earthen floor. Carefully tamp back the dirt around water pipes and the drains which carry waste water and liquid manure to the water-tight concrete manure pit. Do all filling as long as possible before building the concrete floor. As a foundation for the stall floors proper, place a 6-inch thickness of coarse broken stone or screened gravel to keep the floor from direct contact with the ground.



In this issue will be found several of the Honorable Mention Designs from Our Big Prize Competition. They show the uniform high quality of the work the American Carpenter and Builder readers are doing.

Modern Brick Cottage at Paris, Ill.

Designed and Built by Joseph Stephens

Contractor and Builder, Paris, Ill.

Editor AMERICAN CARPENTER AND BUILDER:

THIS splendid, modernly equipped and artistic residence was just recently completed in Paris, Ill., for John W. Tate. The house was planned and built by Joseph Stephens, contractor and builder, who from the beginning has been one of the AMERICAN CARPENTER AND BUILDER family. This house has full basement with cement floors, good ventilation and light, and the necessary plumbing to make it both sanitary and convenient. One of the special features of this house is its three splendid and comfortable porches, a front porch 8 by 19 feet, a side porch 10 by 24 feet, and a rear porch 6 by 22 feet. Another special feature of this house is that entrance can be had from the halls of either the first or second story to any room without going through another room.

This house was planned for a small family; thus the rooms are not large. The living room is of good size with brick fireplace, book cases built in French bevel plate. Entrance from side porch, with bedroom and necessary closet, also lavatory and closet room attached; and opposite across the hall is the dining

room comfortably situated, well lighted and well ventilated. Adjoining is a well and conveniently arranged kitchen with built-in lockers and closets, sink with hot and cold soft water, hydrant and well water,



Interior Arrangement of Stephens Cottage

all forced in by hydraulic power.

There is also a well arranged pantry connected. The second story has well ventilated and well lighted bedrooms and one or more closets in each room.

The house is well lighted with electric lights and a hot water heating plant furnishes the heat. The

exterior of this house is well proportioned, artistic and very attractive, the brick veneer is No. 833 Empire Matt faced brick made by the Western Brick Co., Danville, Ill., medium brown in color and laid in dark brown Pecara mortar, which makes a splendid contrast. The roof is asbestos slates, made by the Keasley & Mattison Co., of Ampler, Pa.

JOSEPH STEPHENS.



Eight room brick Cottage Showing Many Good Points. Planned and Built by Joseph Stevens, Paris, Ill.

\$8000 Country Place on the Nicomico River

EVERY ROOM WITH A SOUTHERN EXPOSURE

Designed and Built by W. Twilley Malone,

Contractor and Builder, Allen, Md.

Editor AMERICAN CARPENTER AND BUILDER:

I AM entering in class A of your Prize Competition the summer home of Jas. B. Freeman, of N. Y., built down on the Wicomico river, Maryland.

One might think this a peculiar floor plan for a present day home, but the owner demanded a southern exposure for every room in the house, in order to

is number one Virginia pine, siding, gulf cypress. All inside trim is of number one Virginia pine finished in white enamel, except treads, risers, handrail and newels of stairway which are oak.

The dining room has a paneled wainscot 5 feet 6 inches high with plate rail cap.

All floors are riff (edge grain) pine, waxed. The house is heated by hot-air and has up-to-date plumb-



HOSPITABLE SOUTHERN HOME CONTAINING NINE LARGE ROOMS
Designed and Built by W. Twilley Malone, of Allen, Md.

get the benefit of the prevailing south breezes; and he has it.

You can scarcely conceive of a more comfortable house in summer and yet it is built to stand the chilly blasts of winter also, having doubled and lined floors, being sheathed and papered under siding, in fact is constructed in best manner throughout.

This building was designed and built by the writer, in 1908, at the age of 24 yrs. I have been doing some very nice work in this neighborhood since then but I take more pride in this house than any other because I consider it the cornerstone of my building operations.

There is a basement under the whole house containing heater room, coal bin, fruit room, laundry and toilet.

All the rooms on first floor are of large size especially the living room. A much liked feature is the French casement windows on the north side, giving a nice light and making the rooms exceedingly cool. Another well liked feature is the extended screened porch. There is never a time when the heat is oppressive out there.

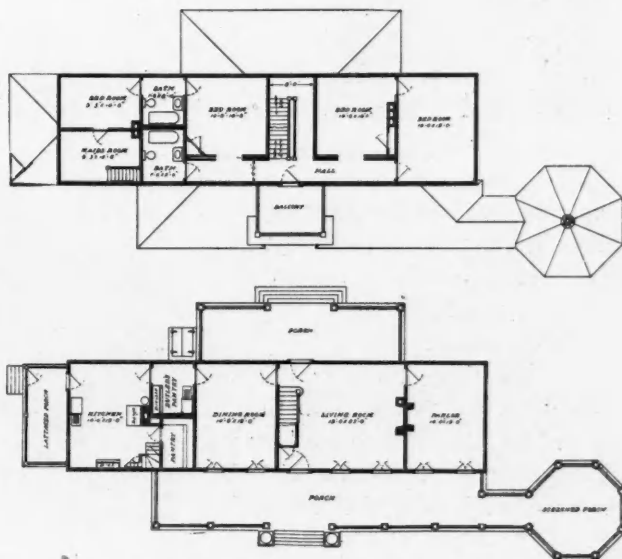
The second story bed rooms have a generous supply of window space which makes for ideal sleeping.

The framing and all outside cornice material, etc.,

ing throughout.

Photo shows side of house facing river. Cost complete \$8,000.00.

Yours for better buildings,
W. TWILLEY MALONE,
Contractor and Builder,
Allen, Md.



First and Second Floor Plans of Malone House



A Round Clay Tile Barn

PHOTOGRAPHS AND PLANS OF SUBSTANTIAL DAIRY BARN OF UNUSUAL DESIGN AND CONSTRUCTION AT MASON CITY, IA.

Designed and Constructed by the Northern Construction Co., Mason City, Ia.

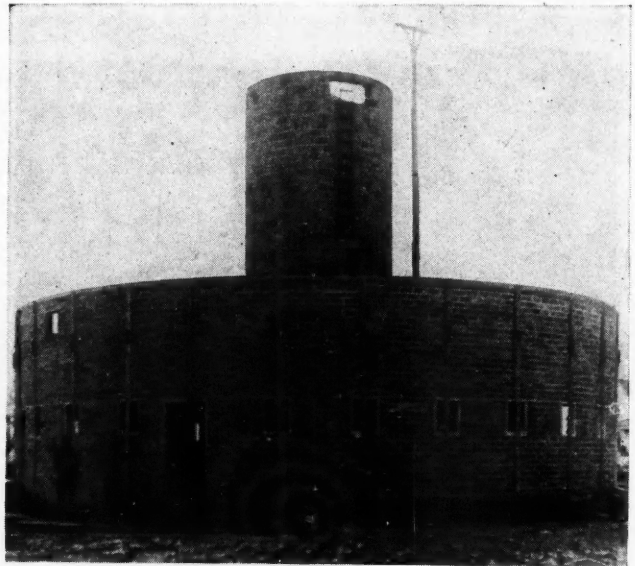
Editor AMERICAN CARPENTER AND BUILDER:

IT is our aim to give to the farmers here in Iowa, the best there is in farm buildings. With the increased cost of lumber and the decline in quality of same, something cheaper and more durable must be substituted. Hollow tile construction, such as is used in the Iowa silo has demonstrated that it fills both of these requirements. Not only has such construction proved practical and economical in silos, but it has been used successfully also in dwellings, barns, corn cribs, granaries, hog pens, chicken houses water tanks and numerous other buildings.

The accompanying photographs and plans illustrate one of our recent contracts.

This barn as it stands, is arranged for horses on one side and cattle on the other, with hay room above. In the center is a 14 by 34 foot silo with a 275 barrel water tank on top. This water tank is made of hollow tile and is quite a new idea. However, it has been

This barn is built of hollow clay tile which is now coming into use in this part of the country for the construction of farm buildings. We believe that it has a very large field and that the next few years will see



Outside Wall and Central Silo Complete

it come into much prominence. We are now planning on building several more of these barns this season.

NORTHERN CONSTRUCTION COMPANY,
By C. O. ALEXANDER,



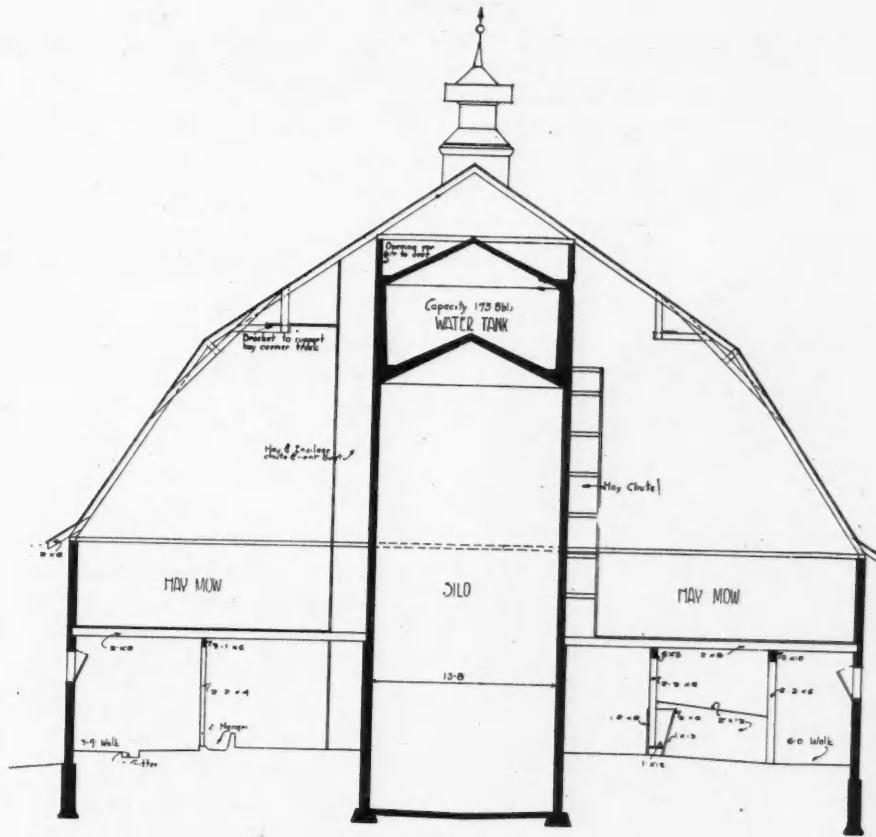
Framing the Rafter Trusses

experimented on for the past few years by the Iowa Experiment Station and has been found to give excellent results when it is properly constructed.

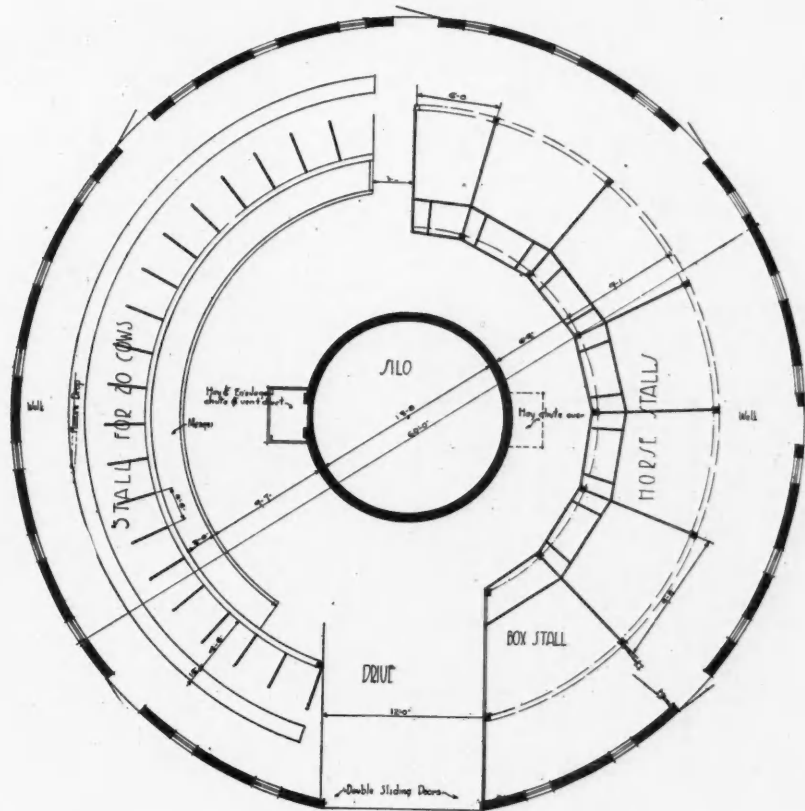
Our brother readers of the AMERICAN CARPENTER AND BUILDER will be interested to see how we arrange these round barns and also how we build, using the hollow clay tile. The plans and photographs illustrate some of these points.



View of Completed Barn—Planned and Built of Denson Tile by the Northern Construction Co., Mason City, Ia.



CROSS SECTION



FLOOR PLAN

Dimensioned Drawings of Large Circular Dairy and Horse Barn, Designed and Built by the Northern Construction Co., Mason City, Iowa



Convenient Eight-Room House

Editor AMERICAN CARPENTER AND BUILDER:

I take pleasure in submitting a set of plans, of my own original design, and work.

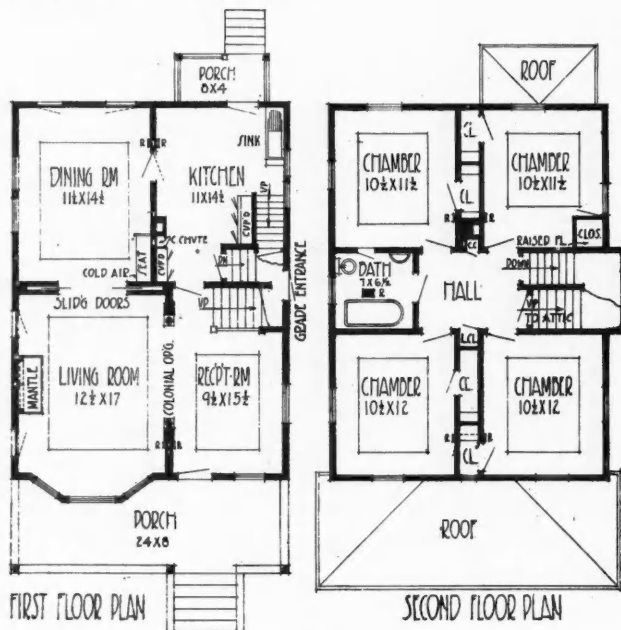
I am not an architect, neither have been in the



Well Laid Out Eight-Room House Planned and Built by
C. M. Diller, Akron, Ohio

contracting business deep enough to get much of the glory that is handed out to that class of business men.

As I am a reader of your valuable paper, have received a whole lot of good solid reading, also pointers along the line of my work.



Arrangement of Diller House

Have received for this contract \$2,836 and am building two more at this time on the same order of plan.

C. M. DILLER,
Contractor and Builder, Akron, O.



Polished Oak Confessional

Editor AMERICAN CARPENTER AND BUILDER:

Enclosed find photo of a confessional, which I made for Father Hohe at Baileyville, Kansas. I made the design for it and everything was made in my carpenter shop—carving, moulding and everything.

In dimension it is 5 feet 9 inches wide, 3 feet 6 inches deep and 8 feet 10 inches high to the top of cross; the doors are 2 feet by 5 feet 5 inches to top of top rail. Moulded cap is 6 inches high. The scroll in front of plate glass is 3-ply; embossed work I made on my carving machine.

The fluting on the turning was made on the same



Fine Example of Cabinet Making by Aug. Droge

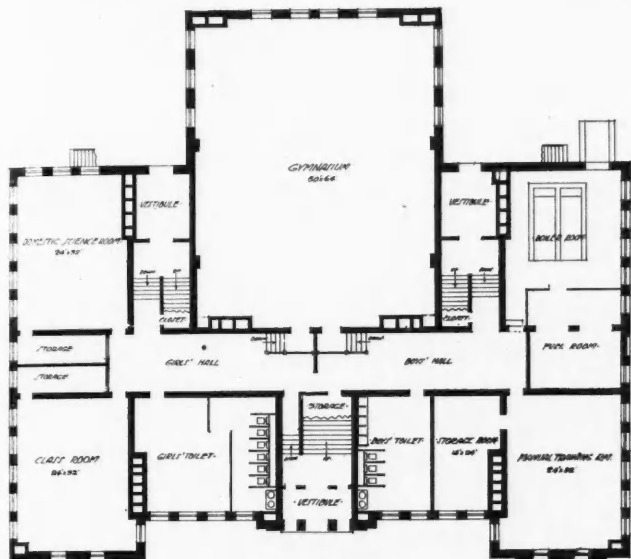
machine; the rest is all hand carving. At the same time it is portable—cresting is set on dowels, next the cap lifts off. The back screw of the side and partition and the partition set on dowels; the side screw on 2 by 2 joist.

This piece of work is all white oak. The side partition, back and ceiling are all raised panels. I finished it in golden oak and polished it. AUG. DROGE,
St. Benedict, Kansas.

New Waynetown High School

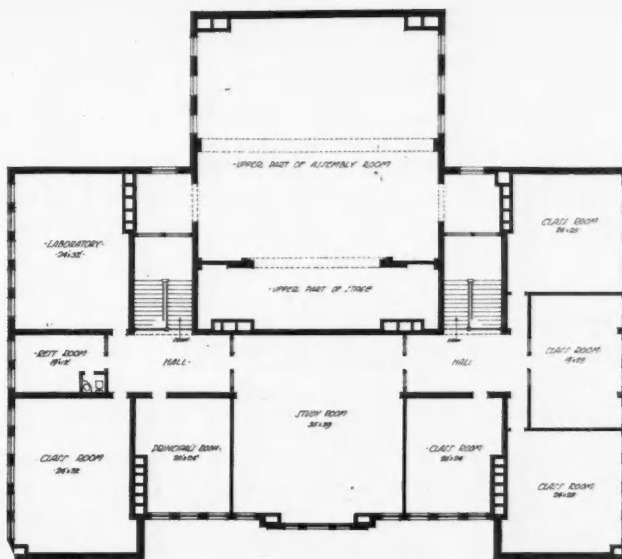
A FINE high school of solid and dignified appearance, lately designed by G. W. Ashby, of Chicago, the well-known school house architect, is reproduced on this page.

The basement contains the gymnasium, domestic science, manual training and toilet rooms, as well as

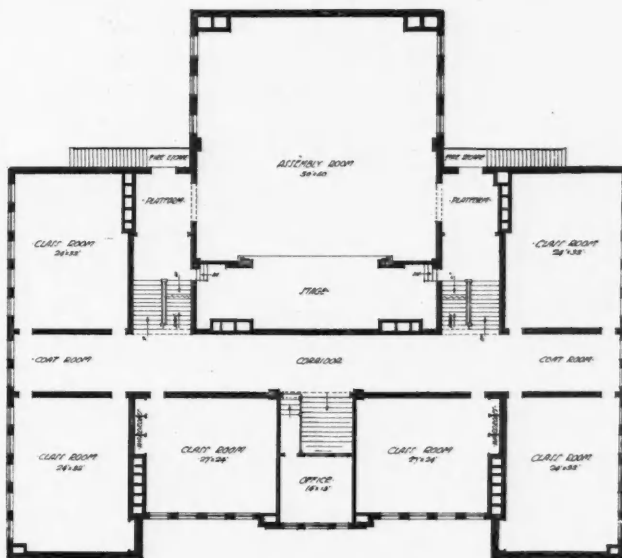


Basement Plan

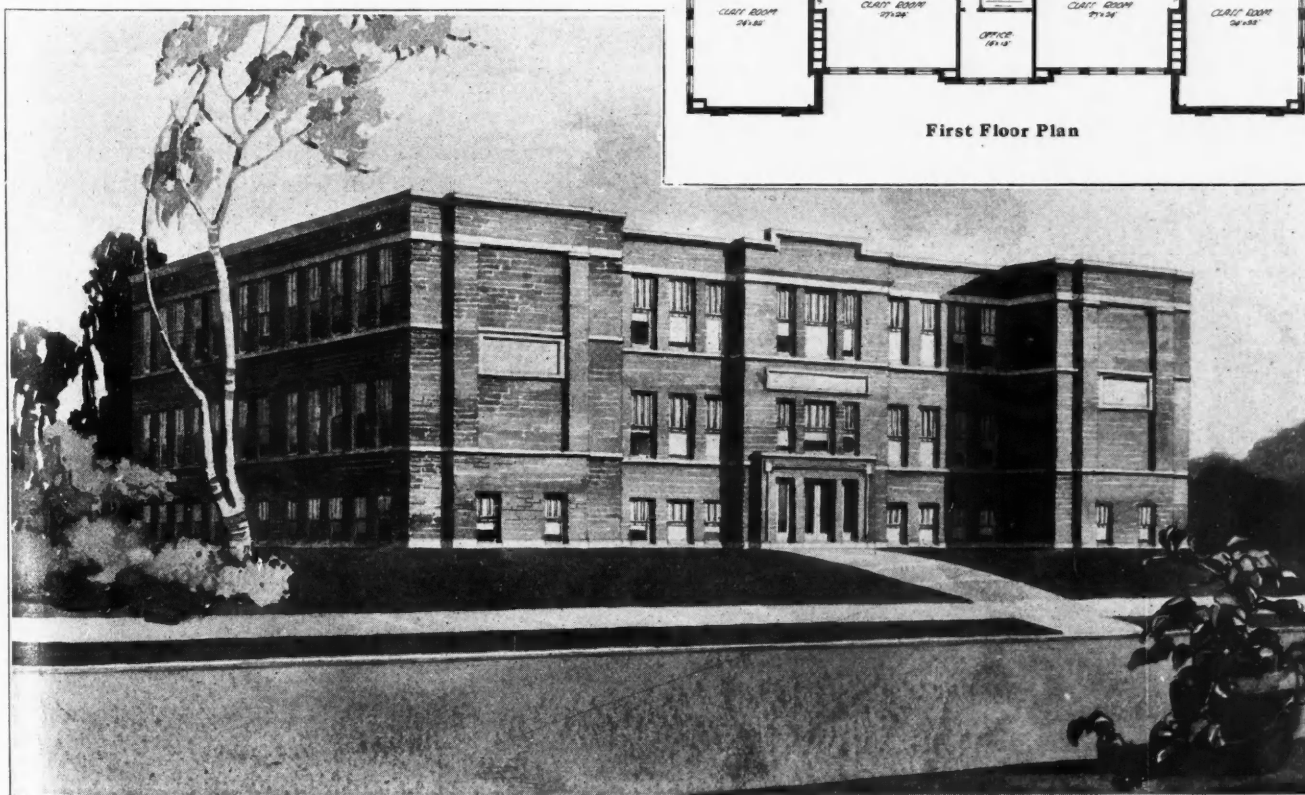
one class room. On the first floor is the assembly hall, the upper part of which occupies part of the second floor. Several class rooms are located on the first floor with nice regard to spacious arrangement. The second floor contains the laboratory, study room, principal's office and five class rooms.



Second Floor Plan



First Floor Plan

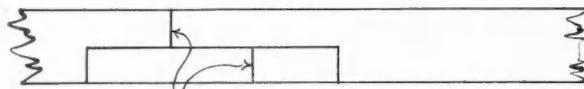
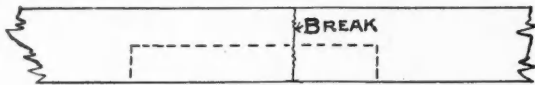


New Waynetown, Ind. Township High and Grade School, Designed by G. W. Ashby, Architect, Chicago

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WOODWORKERS

By Wm. C. Jasbury

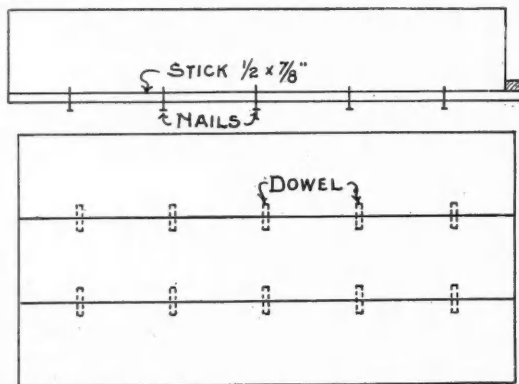
THE SHIP CARPENTER'S SPLICE. This is old, but it may be new to some. The mast of his



ORIGINAL BREAK.
Splice Without Using Extra Wood

ship broke off square; he had orders to mend it without changing the length. He had no other wood with which to mend it and this is the way he did it. Then the whole thing was wrapped with rope and they lived together happy ever after.

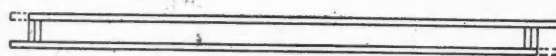
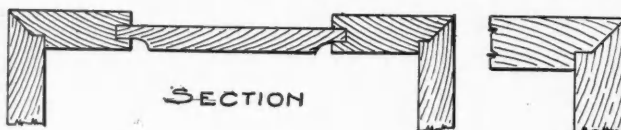
A DOWEL PATTERN STICK. A good way to space off edges of boards, especially where there are a lot, such as table tops, etc., that are to be doweled together, is to take a stick of about $\frac{1}{2}$ by $\frac{7}{8}$ inch stuff and nail a block on the end of it and drive



Nail Pricks Mark Dowel Holes

small nails through the piece at the distance of the desired spacing of the dowels, then place it on the board, as shown, and give each nail a light tap to mark the places to be bored.

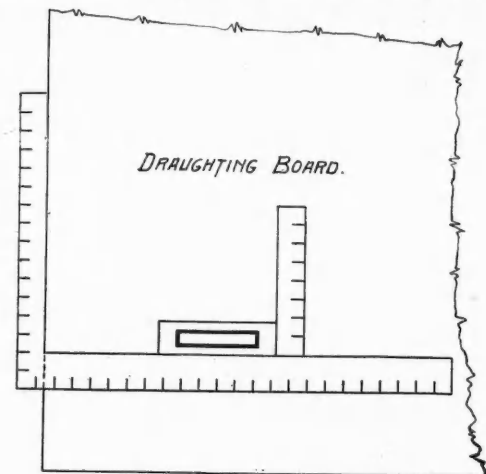
SOMETHING ABOUT PILASTERS. During the past year I have made quite a number of pilasters after architect's designs; and most all of them called for a miter rabbet joint. It is a bit difficult to make on account of the right and left, but it gives a good gluing or bearing surface. It is also good for exterior work where the joint is liable to shrink because the interior shoulder helps



FRAME WORK.
Building Up Paneled Pilasters

to prevent the water from beating into the full joint. So much for the joint. Some of these pilasters were 12 by 12 inches by 16 feet 6 inches. The longest stock we had on hand was 16 feet and the details called for moulded base and cap, so we could block out under the cap and base all right; and this is the way I did it. The pilasters were paneled, as shown in the sectional drawing. So when we mortised the stiles for the cross rails, we pushed one stile up and the other down about five inches so as to afford a solid nailing place for the cap and base. In this way, we had only one block at each end to piece out; and this was covered up, which made a satisfactory job.

THE MECHANIC ADAPTS HIMSELF TO CONDITIONS. I have seen mechanics that would have a kit of tools that would be large enough to stock a railroad wrecking train. Every tool would be treated as though they were being sterilized;



Improvised Drafting Tools

every speck of rust or dirt would be assassinated on sight; but to accomplish a task a little out of the ordinary, or one a little bit off color, the said mechanic would put up a yell that would make the Niagara Falls sound like an echo from a morgue; that is, they could not possibly do a job unless they had every appliance in keeping with the situation at hand. Then again, I have seen mechanics that would only have a few tools, maybe purchased at Woolworths, such as a screw driver, hammer, etc.—well, in fact a rough cheap kit, but could get away with a job that would not only serve the purpose, but would look good.

I saw one man making a detail on a wide board, with an ordinary steel square and a try square. He first squared the left hand end of the board, then he would hold the square against the end of the board (drafting table) while he held the try square against the steel square, then he would reverse the process by keeping the steel square against the edge of the board, while he made lines the other direction, and so on.

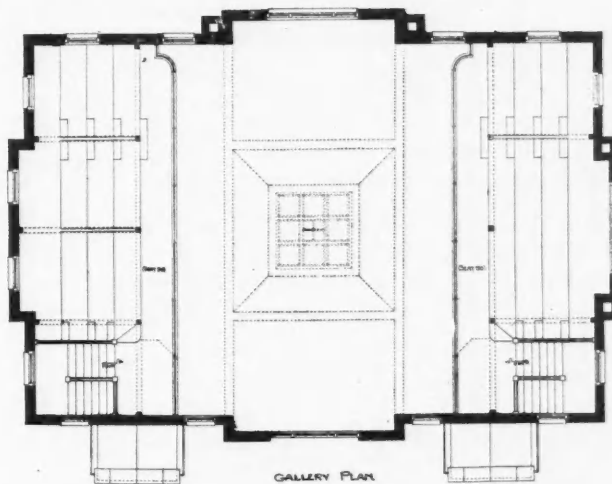
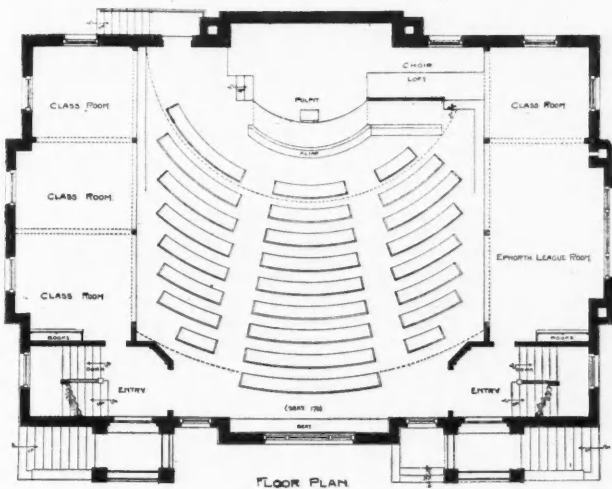
A Well Arranged Small Church

The accompanying photo and floor plans show a well arranged church, recently completed for the Emmanuel Methodist Episcopal congregation at Lincoln, Nebraska.

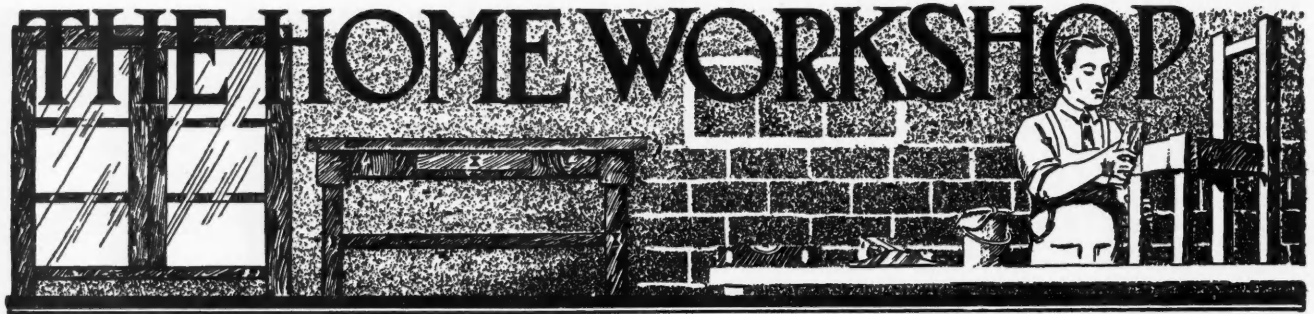
It is a brick veneer with total dimensions of 70 by 53 feet. The ground on which this church stands was limited, and especial study was given the planning, to make the best use of the available space. It has two main front entrances besides a rear entrance. The main entrances have stairs leading to the basement

and to the galleries on either side. The space underneath the galleries is curtained off for class rooms, as also the space in the galleries, making in all ten large and well lighted class rooms. In case of small attendance these rooms can be cut off, leaving good access and light to the main room.

The basement is well arranged for social purposes with kitchen, dining and reception room. It is heated with two hot air furnaces and fitted out with modern plumbing and electric lighting at a total cost of about \$12,000. The plans and specifications were prepared by A. W. Woods, Architect, of Lincoln, Neb.



New Emmanuel M. E. Church, at Lincoln, Nebr.



Furniture for Contractor's Office

HOW TO MAKE A STRONG WORK AND DRAWING TABLE, AND A CONVENIENT FILING CASE

By Ira S. Griffith

IN response to a request in the correspondence department for office furniture suitable for the carpenter we offer the following two pieces. The small filing cabinet is one used by Mr. C. S. Van Deusen in his woodshop office at Bradley Institute. The table is used for drawing purposes. These two pieces might be made of oak. These were executed in Georgia pine and finished so as to show the grain of the wood.

STOCK BILL FOR FILING CABINET

Ends of cabinet:

Stiles, 4 pieces $\frac{5}{8}$ by 2 by $10\frac{1}{2}$ inches, S-2-S.
 Rails, 2 pieces, $\frac{5}{8}$ by 2 by $10\frac{1}{2}$ inches, S-2-S.
 Rails, 2 pieces, $\frac{5}{8}$ by $2\frac{7}{8}$ by $10\frac{1}{2}$ inches, S-2-S.
 Panels, 2 pieces, $\frac{1}{4}$ by $6\frac{1}{2}$ by 9 inches, S-2-S.

Back of cabinet:

Rail, 1 piece, $\frac{5}{8}$ by 2 by 12 inches, S-2-S.
 Rail, 1 piece, $\frac{5}{8}$ by $2\frac{7}{8}$ by 12 inches, S-2-S.
 Stiles, 2 pieces, $\frac{5}{8}$ by $1\frac{1}{2}$ by $10\frac{1}{2}$ inches, S-2-S.
 Panel, 1 piece, $\frac{1}{4}$ by $6\frac{1}{2}$ by 11 inches, S-2-S.

Base:

2 pieces, $\frac{5}{8}$ by $2\frac{1}{4}$ by 13 inches, S-2-S.
 2 pieces, $\frac{5}{8}$ by $2\frac{1}{4}$ by $15\frac{1}{2}$ inches, S-2-S.

Top of cabinet:

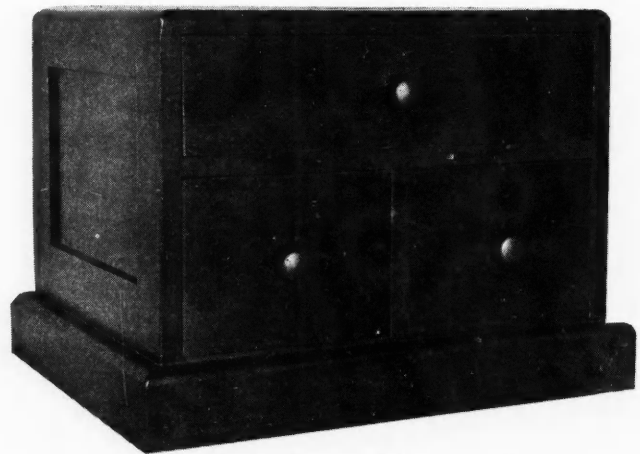
Rails, 2 pieces, $\frac{5}{8}$ by 2 by 13 inches, S-2-S.

Stiles, 2 pieces, $\frac{5}{8}$ by 2 by $11\frac{1}{2}$ inches, S-2-S.

Panel, 1 piece, $\frac{1}{4}$ by 9 by 10 inches, S-2-S.

Drawer supports and guides:

2 pieces, $\frac{1}{2}$ by $1\frac{3}{4}$ by 13 inches, S-2-S.



Satisfactory Filing Case

1 piece, $\frac{1}{2}$ by $1\frac{3}{4}$ by 5 inches, S-2-S.

6 pieces, $\frac{1}{2}$ by $1\frac{1}{2}$ by 10 inches, S-2-S.

Drawers:

Front, 1 piece, $\frac{5}{8}$ by $3\frac{3}{4}$ by 13 inches, S-2-S.

Front, 2 pieces $\frac{5}{8}$ by $4\frac{3}{4}$ by $6\frac{1}{4}$ inches, S-2-S.

Sides, 2 pieces, $\frac{3}{8}$ by $3\frac{3}{4}$ by 11 inches, S-2-S.

Sides, 4 pieces, $\frac{3}{8}$ by $4\frac{3}{4}$ by 11 inches, S-2-S.

Bottom, 1 piece, $\frac{3}{8}$ by $10\frac{1}{2}$ by 12 inches, S-2-S.

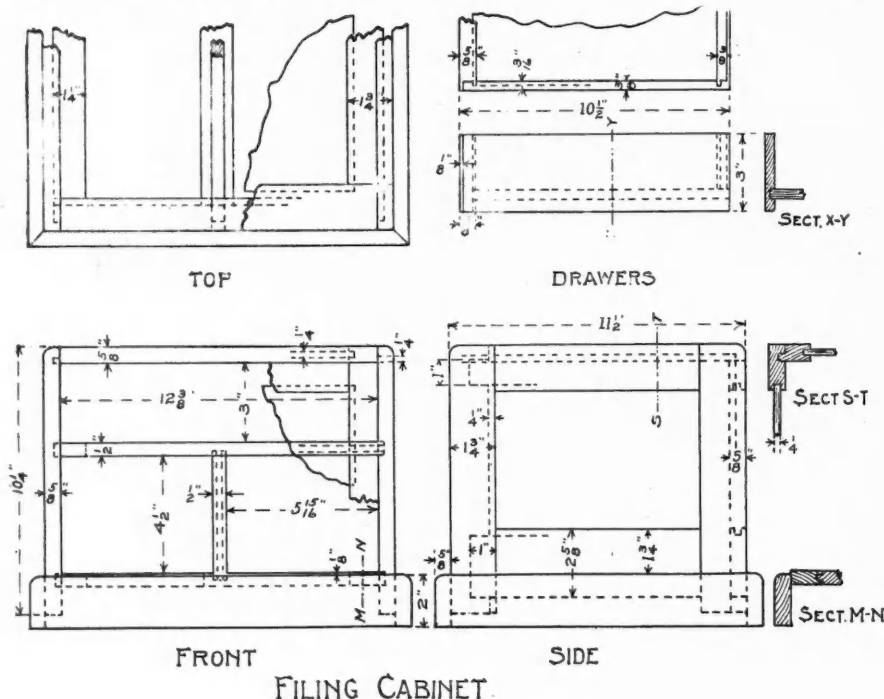
Bottom, 2 pieces, $\frac{3}{8}$ by $10\frac{1}{2}$ by 6 inches, S-2-S.

Backs, 1 piece, $\frac{3}{8}$ by $2\frac{1}{2}$ by 12 inches, S-2-S.

Backs, 2 pieces, $\frac{3}{8}$ by 4 by $5\frac{1}{2}$ inches, S-2-S.

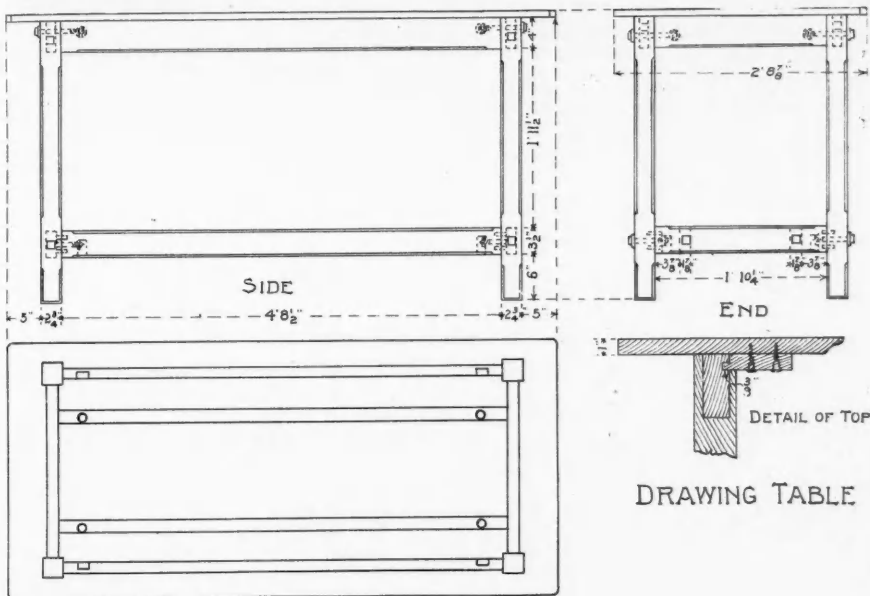
While this cabinet is small it will be found sufficiently difficult to interest the apprentice with some experience. A circular saw will lighten the work if one is available. The grooving for the panels, etc., may be done easily and quickly. Otherwise the hand plow must be used.

Plane up all the stock with a



joint edge only. Allow the remaining edge to remain in the rough until the frames are glued up and the panels set. Work the parts and assemble the ends of the cabinet and the back and the top. Next groove and rabbet these parts as indicated in the drawing, prepare the front and drawer supports and assemble the whole cabinet.

The detail drawing indicates the size and construction of the drawers.



TOP Working Drawings of Table

The base will be placed, the corners being mitered. If a light finish is desired for Georgia pine it may be secured by applying a coat of white shellac after all the parts have been well sanded. Sandpaper this shellac after it has hardened using number 00 paper. Upon this shellac apply several coats of some good rubbing varnish. Rub the first coats with hair cloth or curled hair and the last with pulverized pumice stone and raw linseed or crude oil. Wipe clean with a cloth. Colored effects may be secured by using any of the various stains now on the market—and there are some very effective ones, too—and then finishing as indicated.

A Sturdy Office Table

The office or drawing table is to have a soft pine top so that it may be used for large drawings if desired. The frame is to be made of Georgia pine. The finish suggested for the cabinet will serve for the table as well.

STOCK BILL FOR TABLE

- Top, 1 piece, 1 by 2 ft. 9 in. by 4 ft. 9 inches, S-2-S.
- Posts, 4 pieces, 2 3/4 by 2 3/4 by 1 1/2 inch, S-4-S.
- Side rails, 2 pieces, 1 7/8 by 4 by 4 ft. 10 inches, S-4-S.
- End rails, 2 pieces, 1 7/8 by 4 by 23 inches, S-4-S.
- Lower end stretchers, 2 pieces, 1 7/8 by 3 1/2 by 23 inches, S-4-S.
- Middle stretchers, 2 pieces, 1 7/8 by 3 1/2 by 4 ft. 10 inches, S-4-S.

There are no mortises or tenons. Instead, the parts are fastened together by means of bolts. This type of

construction is thoroughly appropriate for office furniture where strength rather than elegance is of first importance. The drawing shows dowels at the joints. These are not glued being merely for the sake of holding the various members in the same relative positions. They are not necessary in this table and may be omitted as well as not. There is no opportunity for the members to revolve about the bolts.

The chamfering of the various members adds to the appearance. The detail of the fastening of the top to the rails indicates how swelling and shrinkage are allowed for.

If the top is to be used for drawing it should not be shellaced, of course.

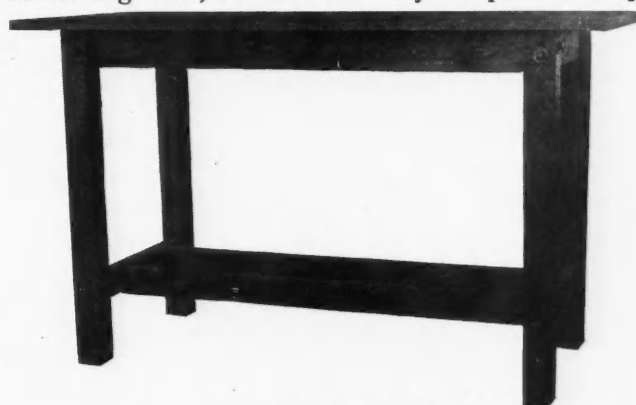
\$ 10,000 Building 5 Ft. Wide

Plans have recently been filed with the Building Department of New York City for what will perhaps be America's thinnest office building. It is five feet wide by one hundred feet deep, will contain three stores, and on the second floor two "large, wide offices."

The building will stand on the corner of Broadway and Worth St. The building site was reduced

to its present emaciated dimensions through the change made more than forty years ago in the property lines on Worth St. This building will be practically all iron and glass.

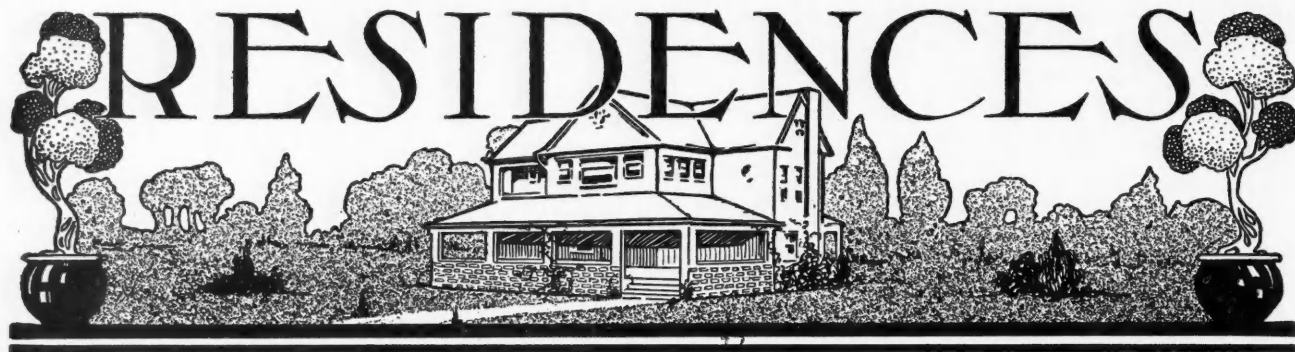
AN OCTAGON TRICK. Every day brings something new, if a fellow only keeps his lamp



Solid Office Drawing Table

globe clean and the dust out of the horn of his dictograph. So be it: to-day I saw an Italian cabinet maker making octagon newel caps. He found the width of one side and knowing the size of the octagon, made a wood template the desired size of the octagon and drove a small brad in the center, so that he could turn the template around, marking each side of the cap exactly the same from a common center.

WM. C. JASBURY.



Plans for Eight-Room Brick House

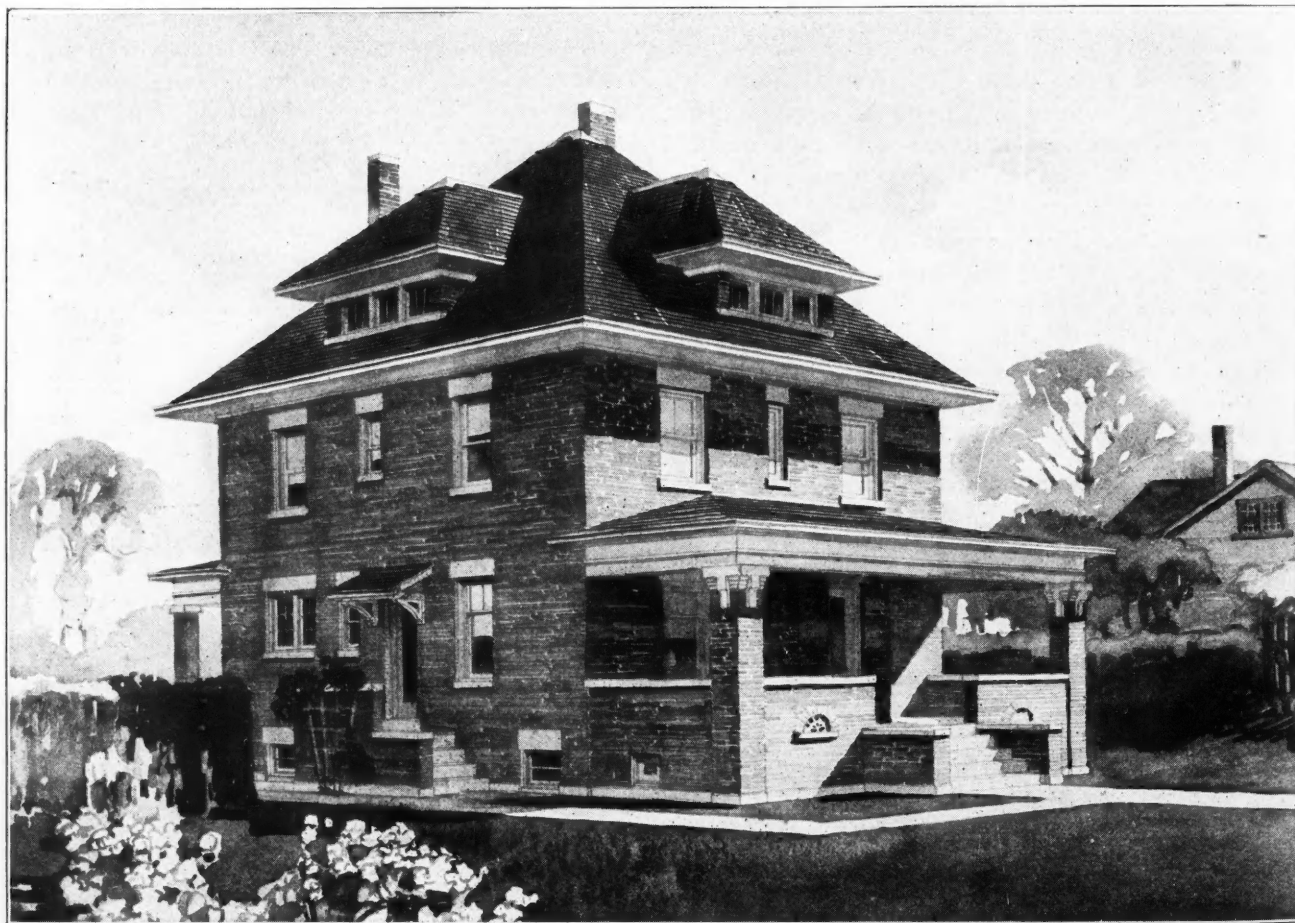
FULL SET OF ARCHITECT'S WORKING DRAWINGS AND RENDERED PERSPECTIVE OF A WELL DESIGNED HIP ROOF DWELLING

HERE are plans for a brick house much favored by modern builders as combining neatness and a good use of all the space. It is of the square type so much in demand and has good porch and entry arrangements.

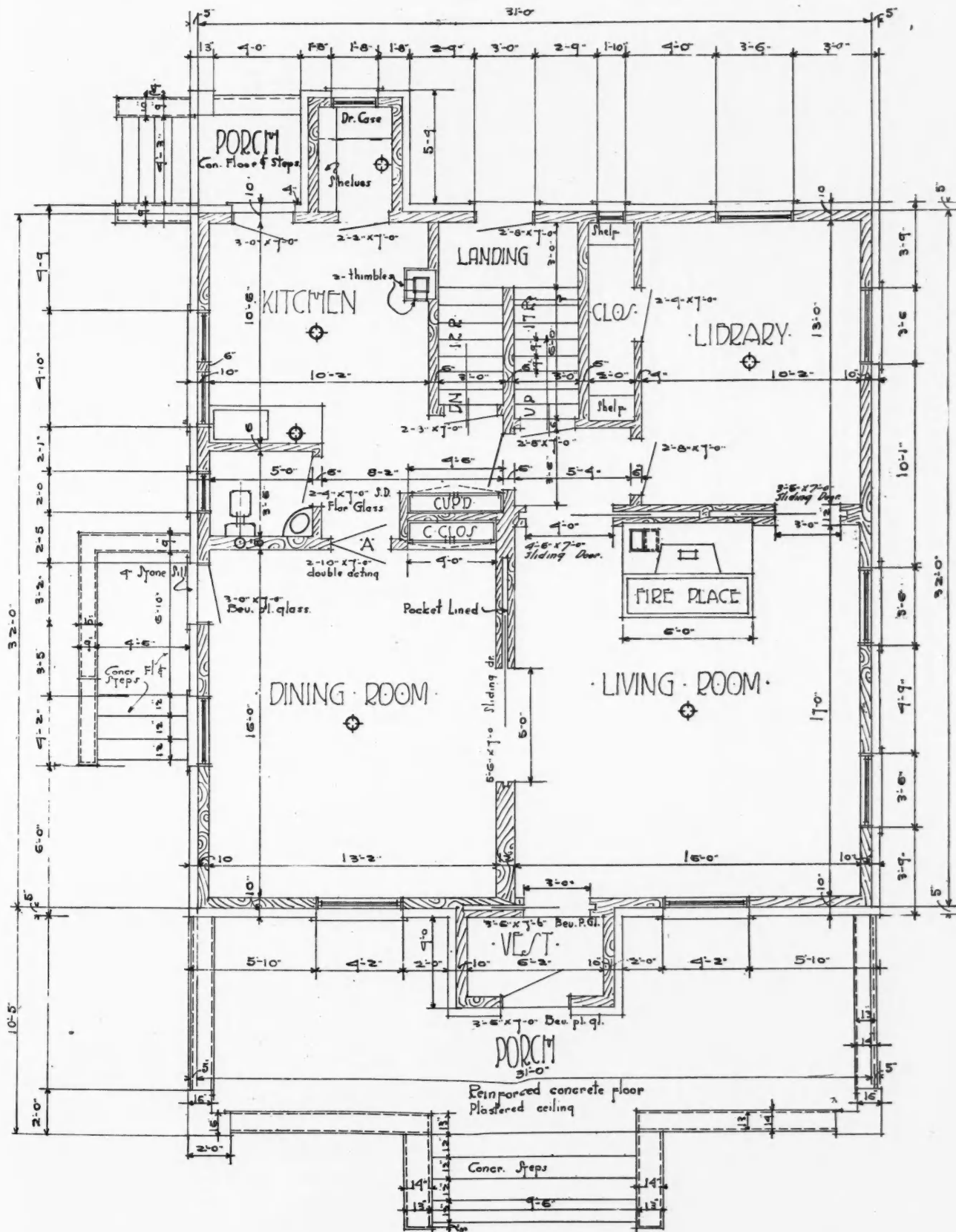
The front entrance opens through a good-sized vestibule directly into the living room, the side entrance into the dining room. The entire front of the house is occupied by the living room and the dining room connected by sliding doors. At the rear on either side of the stairs are the library and kitchen. It will be noticed that the stairs, easily reached from every room, are placed where they occupy the least

valuable space. A fireplace in the living room, a small toilet between dining room and kitchen, and a pantry built out from the back of the house are other points worth noting. The use of three sliding doors on this floor marks their return to favor. They occupy little space and are easy to operate with the modern door hangers now made.

The second floor provides four bedrooms with large closets and the bathroom. These rooms are nicely arranged to obtain plenty of light. Each bedroom is separated so as to be entirely private. This house will prove a great favorite for either town or country, for a brick residence of medium size.

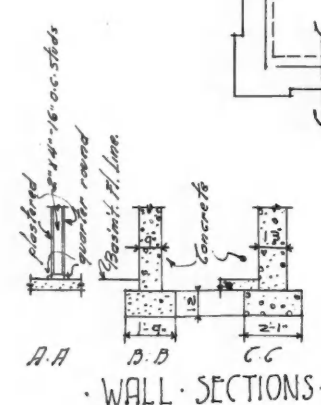
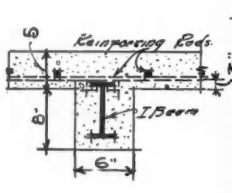
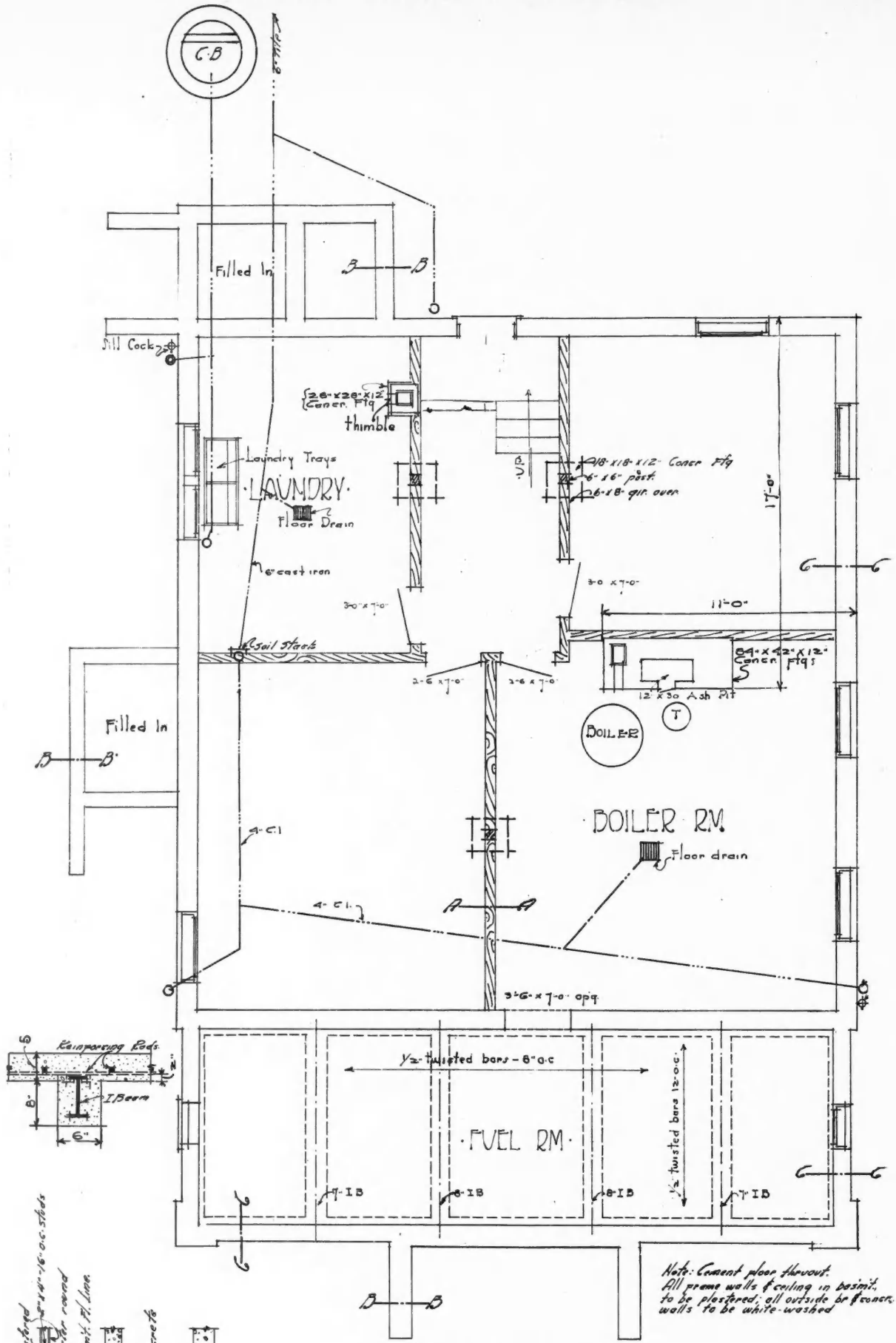


Very Pleasing Square Type Dwelling Containing Eight Large Rooms
COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE SEVEN PAGES FOLLOWING



FIRST FLOOR PLAN

(Brick House Shown on Opposite Page)

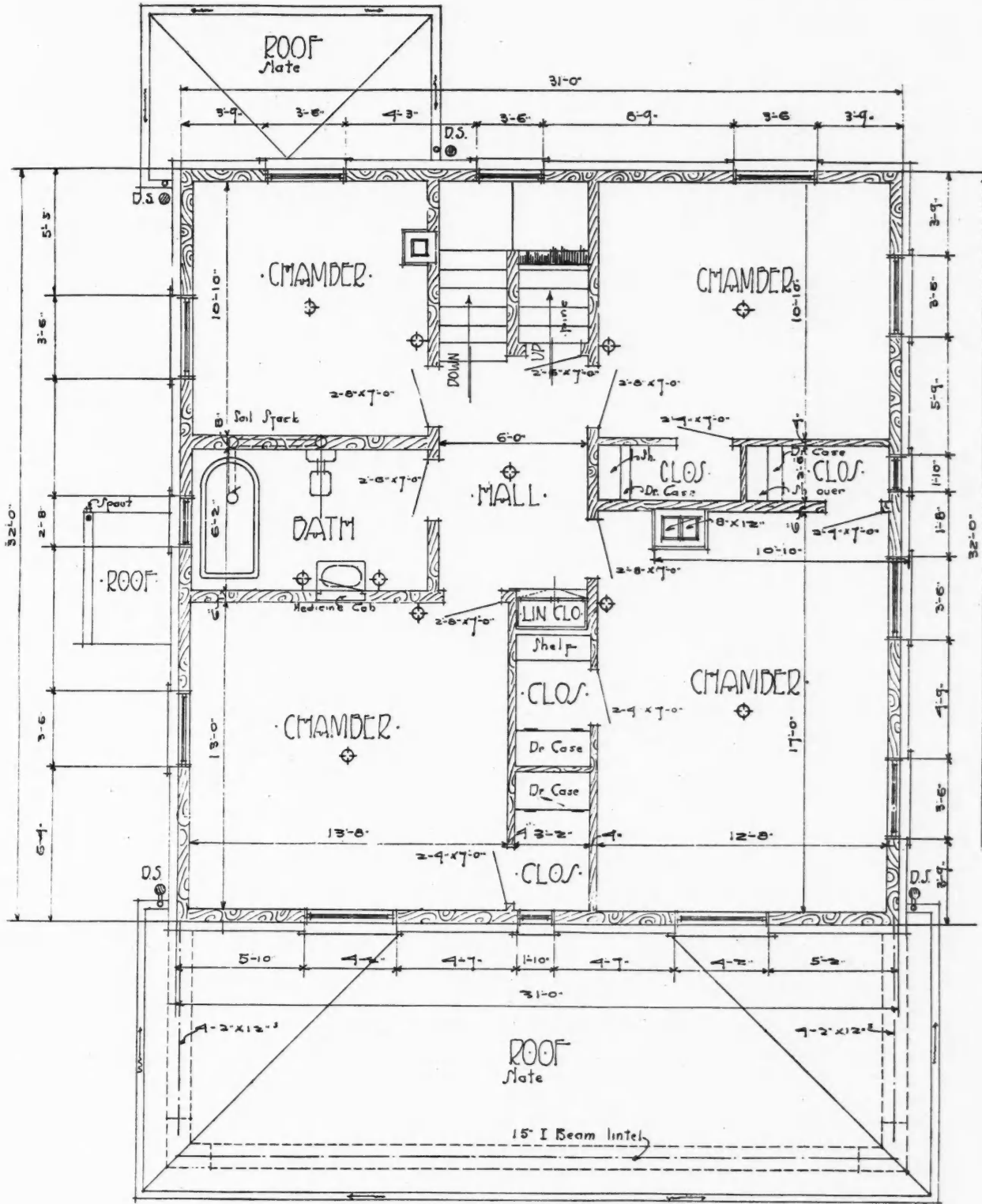


BASEMENT PLAN

(Brick House Shown on Page 72)

WALL SECTIONS

Plans for Eight Room Brick House



· SECOND FLOOR PLAN ·
 (Brick House Shown on Page 72)

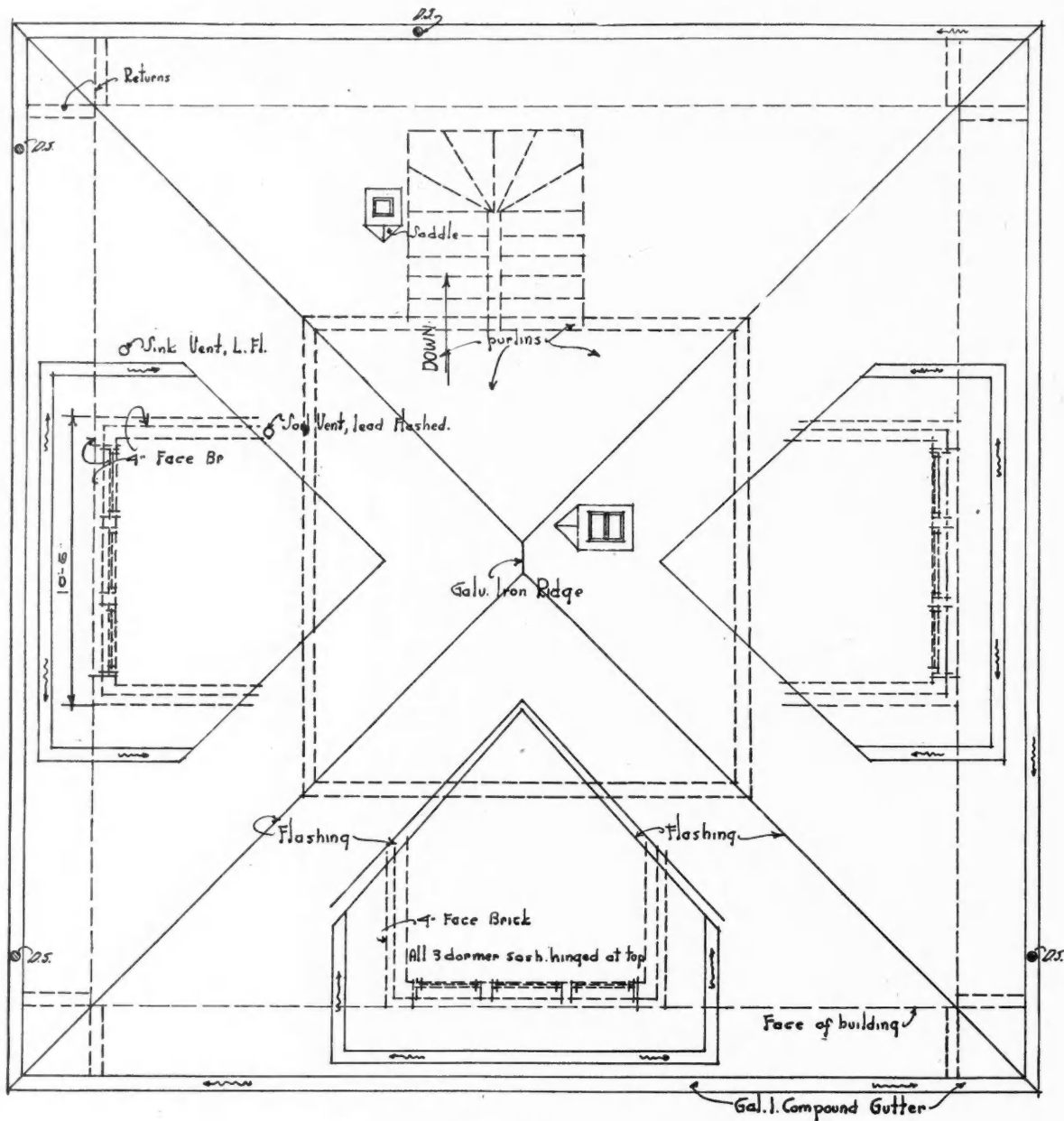
Safeguarding the Band Saw

By J. Crow Taylor

I am carrying a game finger on my left hand, the only mark of about fifteen years of service along with wood-working machinery, and this game finger is a reminder of the danger point on a band saw, for there is where it happened. It is the back part, where the saw blade goes up. A careless reaching around for stock that had been shoved back on the machine took my hand in contact with the up-going side of the saw one day. This put me on the hospital list for a couple of weeks and I will carry one game finger the balance of my days. A few days ago this story was told to a band saw operator in a planing mill, and he looked

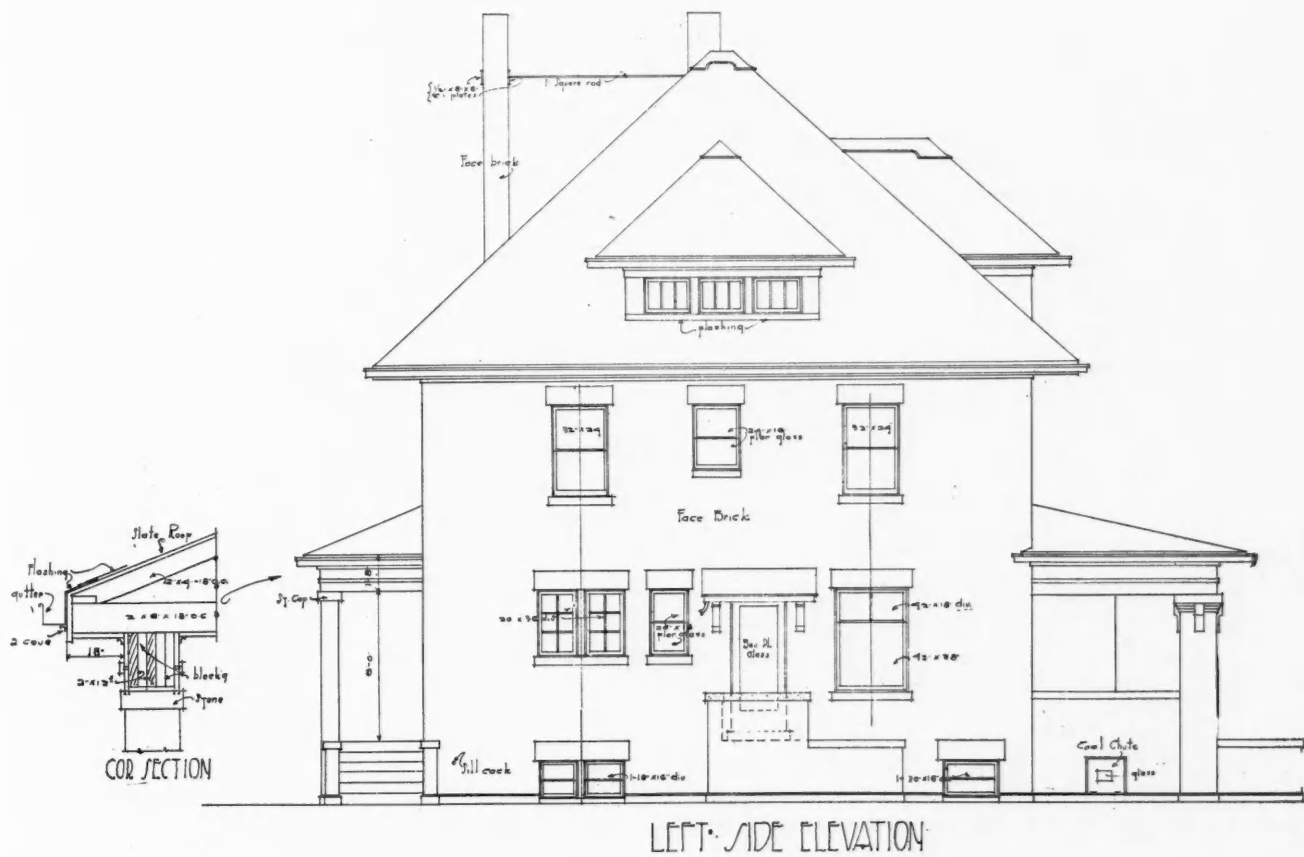
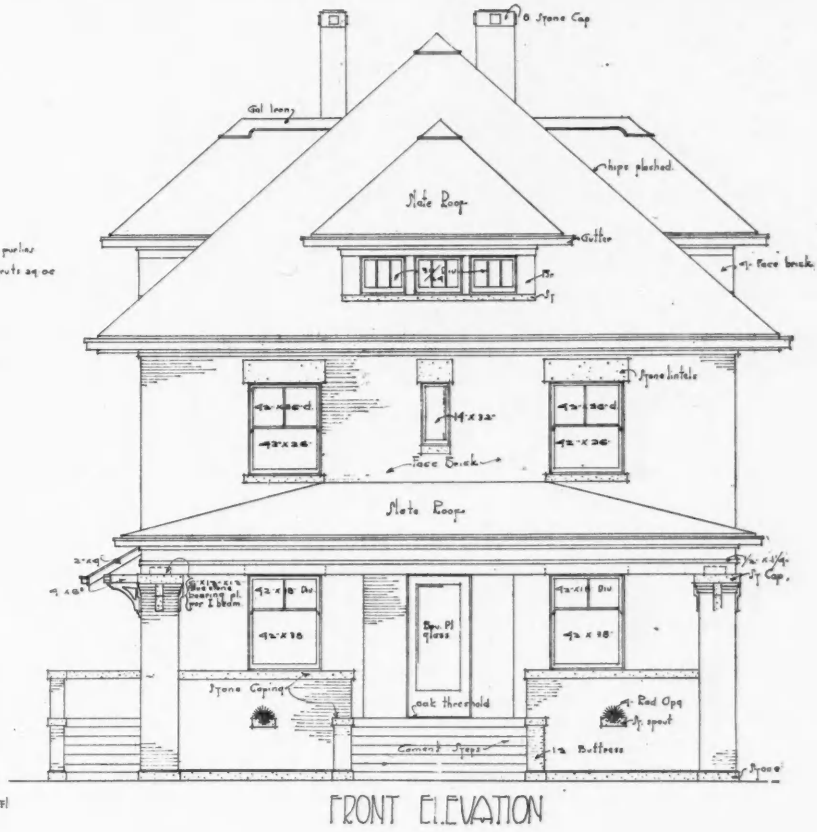
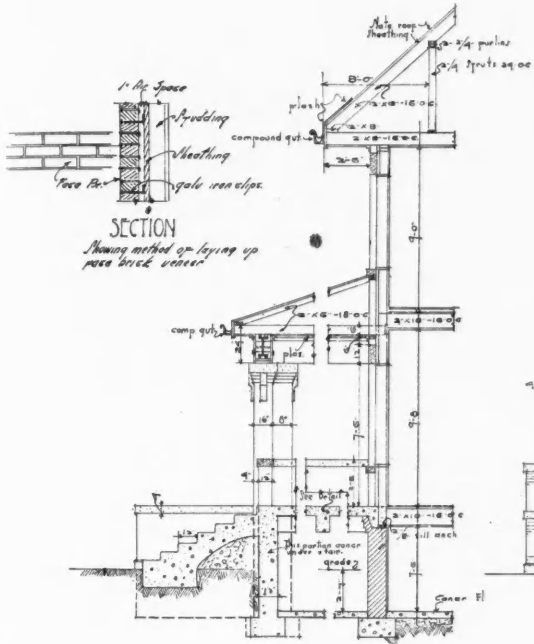
up smiling and said that is the same place where he always gets it. Then he pointed to the back of his machine where the usual strip going up and back of the saw had been reinforced by another one covering the front so that he can't accidentally stick his left hand back into it.

The bottom wheel of the saw should be surrounded with a housing, and it is better to have the top wheel housed in, too. But don't forget the back side of the saw, it is there more than the front that there is a danger point to safeguard, and there have likely been more fingers cut on the back than at the front where the work is done. You are looking at the front, and are not so careless about it; so protect that left hand by shielding the back side of your saw.



• ROOF PLAN •

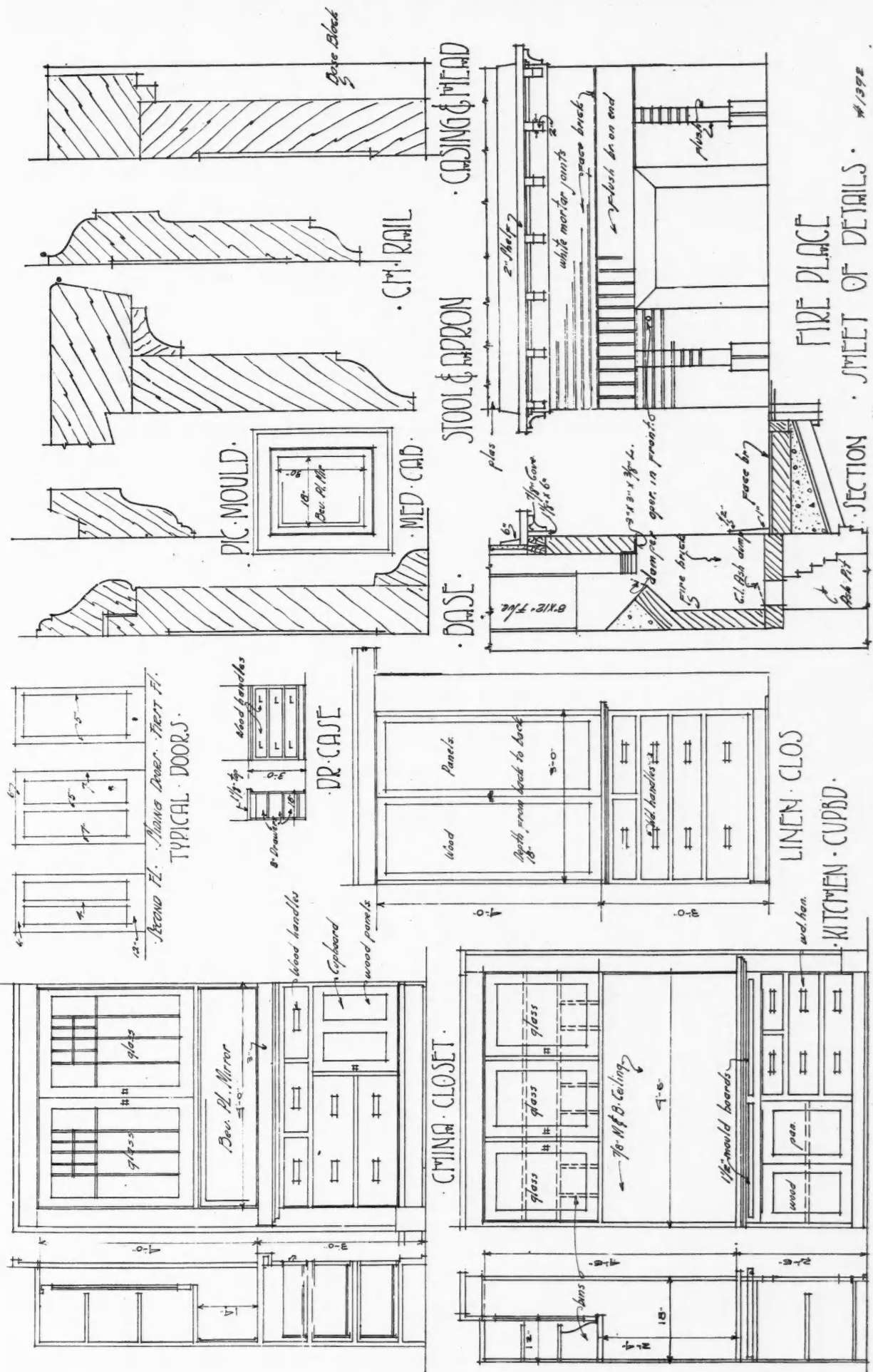
(Brick House Shown on Page 72)



(Brick House Shown on Page 72)



(Brick House Shown on Page 72)

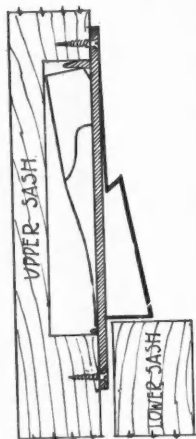


Interior Details of Brick House Shown on Page 72



Fool the Burglars

How to ventilate first floor rooms at night and still be safe from nocturnal prowlers has long been a worry. A new sash lock has been devised by a police detective which he guarantees will make the slickest burglar turn away in disgust; and his guarantee ought to be worth something as he has been fighting burglars all his life.



Gravity Holds Lock Out

From the illustration you can see how this pry-proof sash lock works. You decide how much you will want to lower your window sash and set in the lock accordingly. It is right there for work when wanted.

Puttyless Windows

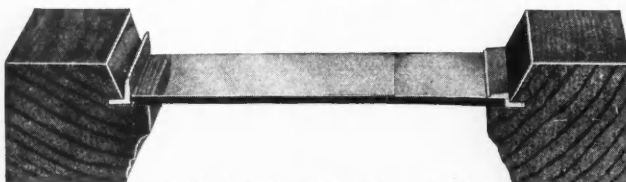
A new improvement in the glazing of doors and windows is now obtainable and as many of the leading sash and door manufacturers are taking up the idea, it is probable that before long

builders will be able to secure puttyless doors and windows for all their work.

The puttyless window replaces putty with a lead strip grooved in the sash and so applied to the glass that it gives an absolutely weather-proof window. As lead is non-corrosive the inlay is indestructible as far as dampness and temperature are concerned.

The pressure of the lead inlay on the glass is even and sustained. This prevents breakage.

The illustration shows, in cross section view, the lead inlay



Lead Strip Before Glazing—and After

in position for inserting the glass, also the inlay strip bent over and pressed down, the sash fully glazed. Firm adhesion of the glass to the sash shoulder is secured by bedding the glass in a thin solution of white lead.

Reglazing a puttyless window is simplicity itself. When the glass is broken simply bend back the lead inlay with any blunt tool, drop the new glass in place and press down the lead inlay evenly and firmly all around.

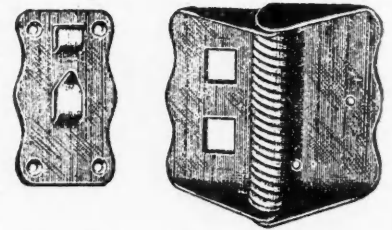
Puttyless windows and doors are already being used on many private residences and public buildings. They make a very neat appearance.

Another Detachable Hinge

The detachable hinge idea for screen doors is getting such a start among long suffering housewives that carpenters will

soon be forced to use nothing else. With screen doors hung on the ordinary hinges, there is a squabble every spring to get the doors up; and the flies have usually arrived and are in full possession of the house before Mrs. Housewife can corral a carpenter to hang her screen doors for her.

With these new style detachable screen door hinges, all the work is done and the bother over with when the door has once been fitted and the hinges put in place. After that the door lifts on and off so easily that anyone can do it.



New Detachable Screen Hinge

The illustration shows how one of these hinges works. The plate remains fast to the door jamb and the projecting leaf of the hinge is hooked firmly onto it.

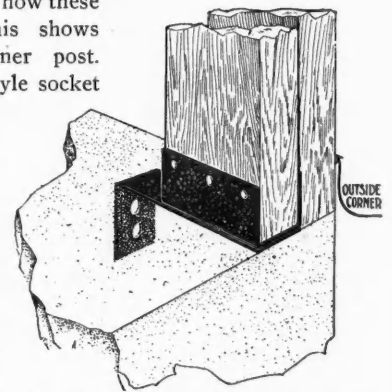
As these hinges are inexpensive, they are bound to become very popular.

Studding Socket for Concrete Foundations

The only way to attach studding to a concrete foundation or cement floor and do it right, is to use galvanized iron sockets. This method produces strong, wind-proof buildings that cannot be undermined by rot.

The illustration shows how these sockets are used. This shows construction at a corner post. You will see that one style socket

does for corners as well as inside studs, since the extra corner stud is simply spiked to the one seated in the socket. The sockets are placed on the cement while it is still soft. After it has hardened insert the timbers and spike, bolt or screw them solidly into place.



Showing Studding Socket in Corner Position

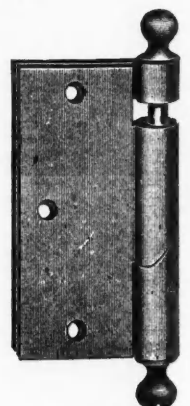
Before these iron sockets were offered, it was the custom to sink a wood sill into the cement and toe-nail the uprights to it. This was all right while the building was new, but after a year or so the moisture got in its work, the wood rotted and the nails crumbled, leaving the building little better than an inverted box, set unfastened on a cement floor.

These sockets are galvanized rust-proof. As their cost is low, it is hard to understand how any builder will fail to use them.

No Thresholds Needed

What is called an inclined gravity hinge is becoming popular in some sections. One of these hinges is illustrated here. The construction of the hinge causes the door to raise 5/16 of an inch in opening. With these hinges, doors are hung within 1/4 inch or less of the floor. As the door is opened, it gradually rises, easily overriding rugs or uneven floors.

These new hinges are liked for outside doors which now can be hung in close contact with the threshold, excluding dust and cold. The hinges are made of hard cold rolled steel, which prevents wear. They are made in sizes for light or heavy doors.



Inclined Gravity Hinge



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

A Power Portable Borer

To the Editor:

Lafargeville, N. Y.

This boring machine was built by a carpenter here, who is an expert barn framer, John Balts, Lafargeville, N. Y. It is one of the most useful machines I have seen in a long time for the price, \$56.00 and the labor. This outfit weights about 170 pounds. The engine is one horsepower, air cooled. There is a friction clutch to start the engine before the auger starts or to throw it out of gear in case of trouble. There is also a gauge for depth, a starting lever and a crank for raising the auger.

Of course there are lots of boring machines on the market but most of them run by hand and you can readily catch the difference between the two shown in the picture. Mr. Balts is an old barn framer and wanted it to use in his work. He made nearly all of this machine himself. The bar and angle iron he had made at the local blacksmith shop. He is pretty well informed in the iron working. You can see from the photo that many of these parts are forged out by hand. He purchased the four sprocket wheels (and I suppose chain) from the Anderson Motor Company in Indiana. The one horsepower engine weighing 45 lbs., from the Elgin Engine Company, Illinois. The friction cone was cast at a local foundry from a pattern made by Mr. Balts himself. There is a yoke of iron which clamps with a thumb screw onto the machine and while in place prevents the clutch from coming out of contact. The yoke is left on most of the time except in timber that is unusually hard or knotty or which contains nails.

At first the machine was inclined to work around so that the rear end would work off the stick. To prevent this a small wheel like a washer was set onto the plank so that it would cut into the timber about three-eighths of an inch, thus helping in sliding the machine along as well as serving to hold it in place. This machine has recently bored two-inch holes, five and one-half inches deep, in twenty seconds, which I believe is a good record. The machine is not patented but Mr. Balts feels rather sensitive on this point and wishes me to say he expects to obtain a patent even though he sells out his rights later to some one who would sell working drawings.

Mrs. JOHN UPTON.



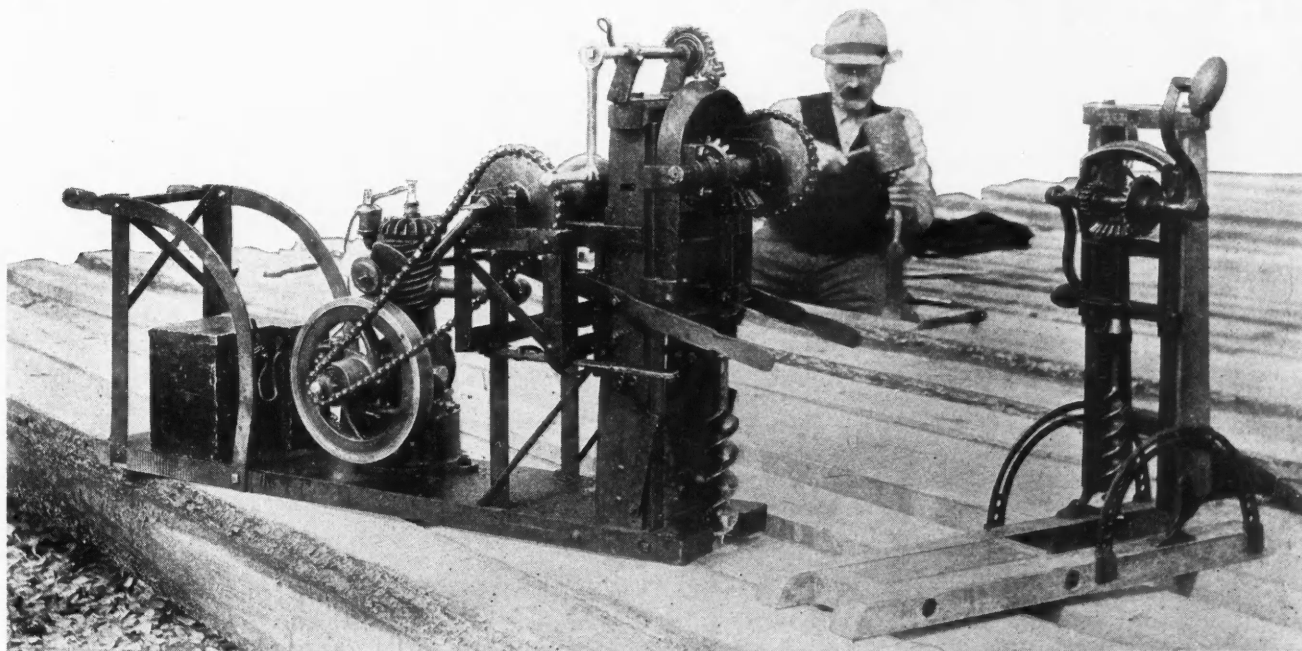
Concrete Floors with Blind Joints

To the Editor:

Springfield, Mo.

In looking through my first number of the AMERICAN CARPENTER AND BUILDER which I just received, I notice letter from Mr. Wason with reference to joints and cracks in concrete floors. And as all matters relative to concrete are interesting to me, having served over twenty-five years in the business, am taking the liberty to offer the gentleman my remedy, rather than to have the cracks appear or the edges of joints break off by wear from wheels, etc.

In all inside floors which are too large to lay solid (or without joints) to take care of shrinkage I make what I term secret or blind joints as follows: When top coat is hard enough cut as for the ordinary joint, lay off the lines and cut top coat through with trowel but do not use jointer, this will leave fine or narrow cut which when floor is set



A Home Made Portable Power Boring Machine

sufficient to trowel again or finish will be troweled over as though there were no joints cut leaving floor apparently smooth with the exception of fine line which will hardly be noticed. At the same time the joint is there and will prevent floor from cracking any other place except the joints made with trowel provided the work is not finished too soft, or in other words, the finishing must be delayed until mortar has set enough so that the joint is not closed too much or joined together again. At the same time there must not be any sign of opening visible when floor is finished. This will result in fine hair crack along line of joints and is not unsightly as care must be taken to make all lines perfectly straight. This joint is especially adapted to hospital work where sanitation is considered as there is no opening for dust to collect or no edges to be broken off by truck wheels.

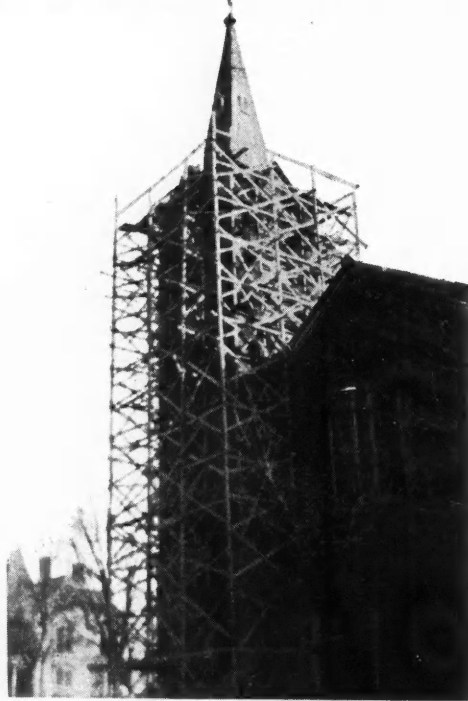
H. F. GALBRAITH,
Con't. Supt.

Church Economy

To the Editor:

Ann Arbor, Mich.

Church boards of trustees are not always as economical in running the affairs of the church as they are in running their own business. It took \$400 to erect a scaffold about



Church Economy—A \$400 Scaffold to Repair a \$50 Damage

the tower of the First Presbyterian Church of Ann Arbor, Michigan, for the purpose of doing work that took but a few hours of time and cost a half hundred dollars.

In a severe wind storm which did great damage in many parts of the country last March, one of the small ornamental steeples which decorated the four corners of the large tower of the church was blown to the ground. The elders decided to remove the other three rather than replace the one destroyed. The job was given to a contractor who agreed to do the work if a scaffold was provided for him. The scaffold was provided under his direction at the above stated cost.

Engineering students of the University of Michigan, some of whom are members of this church, declare there has been displayed great economic inefficiency to say the least. They declare a professional steeplejack could have done all the work at a cost but little greater than the charge of the contractor after the elaborate scaffold was in place. Again they suggest that if a scaffold was necessary, there are windows

on all four sides near the top of the tower out of which planks could have been projected and fastened to serve as supports for about two sections of scaffold that would have been necessary to have reached the top of the tower. This would have saved some 65 or 70 feet of scaffold cost, the amount necessary to reach from the ground to the projected plank supports.

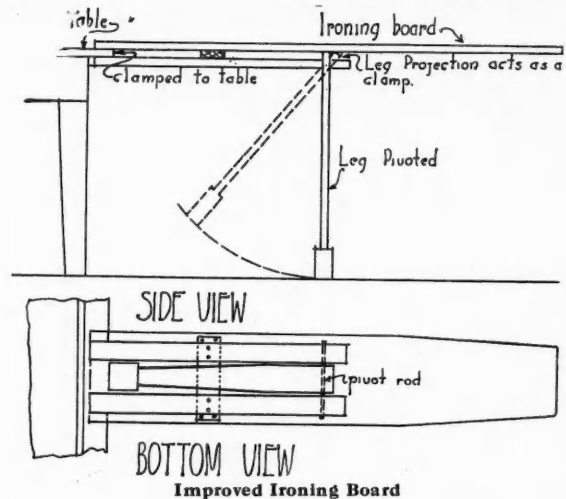
CONDA J. HAM.

Another Ironing Board

To the Editor:

Barrington, Ill.

Referring to my ironing board illustrated on page 92 of the April issue, there is a better way to make this than the sketch there shows. The accompanying drawing, you will see,



Improved Ironing Board

has only one cross piece. This acts as a fulcrum so that when the pivoted leg of the board is lowered (the projection of the leg being slightly more than the distance between the pivot and the board), the board and the base piece grip the table top firmly. It forms a kind of vise to pinch onto the table edge. This makes the board more firm than the one illustrated in the April issue.

SANFORD E. RIEKE.

Strength of Post and Beams

To the Editor:

Dodge City, Kans.

What would be the strength of a post made of three 2x10 inches by 9 feet pieces hard or yellow pine spiked or bolted together? Also, what would be the carrying capacity of a steel 18 inch I beam 21 feet long 55 pounds per foot weight, also a 16 inch I beam 21 feet long of 50 pounds per foot weight? The weight on these beams will be distributed nearly equal from one end to the other, as they are to support a hay mow.

CHAS. W. TOWELL.

Answer: In reply to your first question this column should not be used for loads over 28,000 pounds for quiet loads, or 14,000 pounds where jolting or heavy shaking is likely to occur. The ends of these columns are supposed to be squared up flat and at right angles to the length of the column. Plates or bolsters should be provided in order to distribute the load evenly over the top and bottom ends of each piece in the column. The ends should also be framed into place or spiked so that they cannot move sideways. Care must be taken that the body of the column is rigidly spiked or bolted together at all parts of its length.

The Cambria Steel Company Hand Book gives the carrying capacity of an 18 inch 55 pound per foot weight, steel I beam 21 feet long, as 44,900 pounds of uniformly distributed load. Since there is no 16 inch steel I beam we believe that you would have to use a 15 inch beam. The carrying capacity of an I beam 15 inches deep, weighing 50 pounds per foot of length and 21 feet long is given as 32,740 pounds of uniformly distributed load.

EDITOR.

Roofing a Quartette Silo

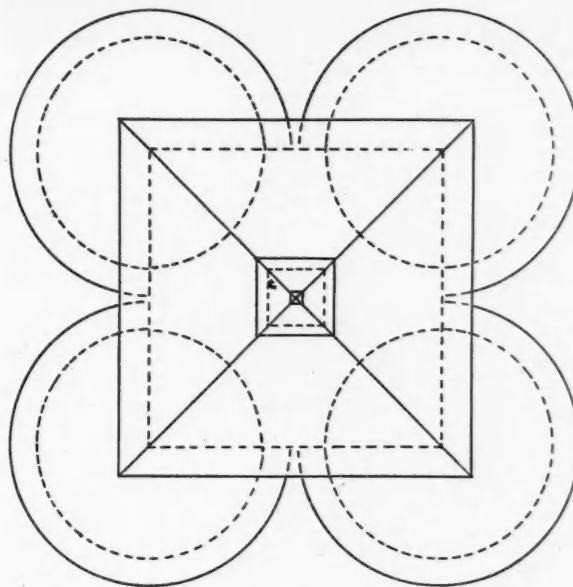
To the Editor: Oregon, Mo.
 I am enclosing a sketch of four silos which I am going to build. Would like to know the best way to roof them all under one roof. Will use shingles.

The silos are 16 feet in diameter and are four feet apart and will be connected as shown in the plan. The center will be used as a combined feed room and chute.

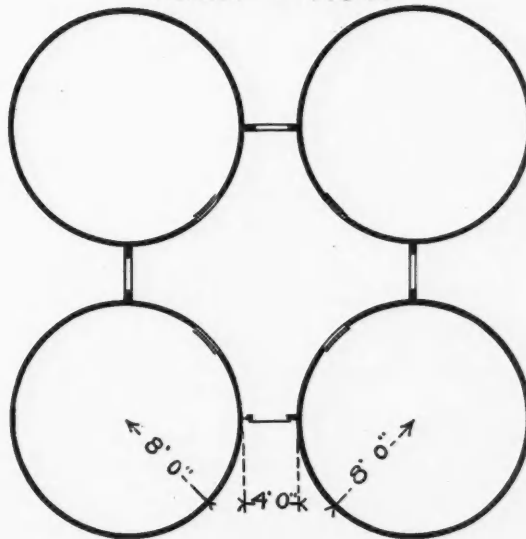
Can a hip roof be put on over the feed room and octagon roofs over the silos?
 MORRIS RAMSEY.

Answer: Ha, Ha! This is a dandy. Sure you can put a square hip roof over the feed room by letting the corners square up over the center of the silos. This will cover $\frac{1}{4}$ of each of the silos, leaving $\frac{3}{4}$ of each to be roofed independently. The square part should be carried up above that part of the silo roofs, letting the same die out under the cornice of the square part, and on the main part would suggest putting on a square cupalo with louver ventilator slats as shown. This will give excellent ventilation from the silos as $\frac{1}{4}$ of the space over same is open to the main part.

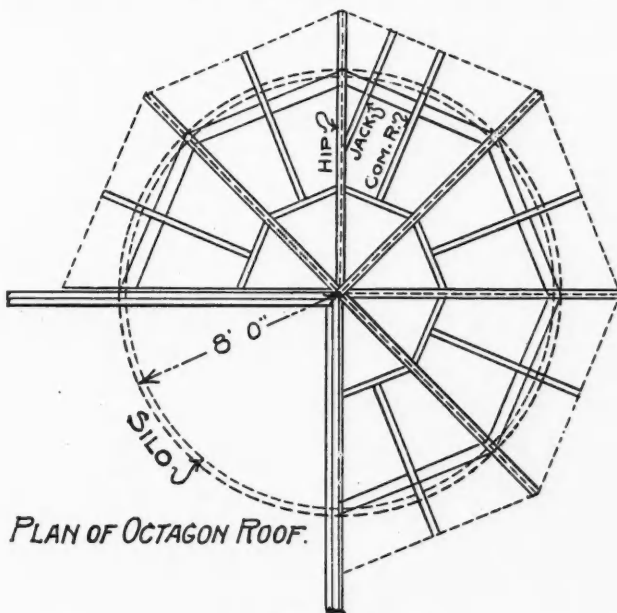
As to the individual roofs over the silos, they can be conical roofs or any polygonal roof that is divisible by four. If the conical roof is used, then the rafters will rest on the



PLAN OF ROOF



PLAN OF SILOS



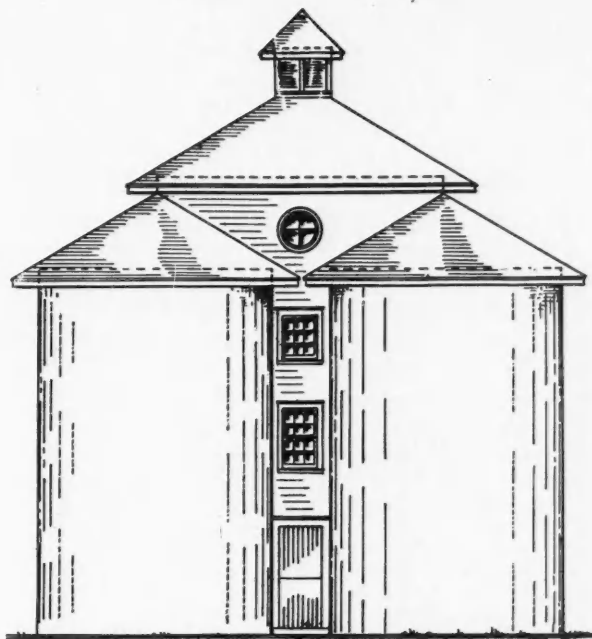
PLAN OF OCTAGON ROOF.

Roof Framing Diagram

rim of the silo which will serve as a plate and all of the rafters would be cut alike, but of course this would require considerable more work in sheathing and shingling the roofs than would be the case if a polygonal roof is used. The illustration shows that of a conical roof. If a polygonal roof is desired, would recommend framing a plate with the number of sides desired to fit inside of a circumscribed diameter of 16 feet, which is supposed to be the outside diameter of the silo. Therefore, if an octagon is used, the length to cut the plates would be 6 feet $1\frac{1}{2}$ inches, for a duodecagon or 12 sides, then the length would be 4 feet $1\frac{3}{4}$ inches, if 16 sides, the length would be 3 feet $1\frac{1}{2}$ inches and should be cut with lap joint. These lengths of course represent the distance apart on centers the hips will rest at the seat. This shows that there should at least be one common rafter for each of the above but it is not necessary that this rafter should run all of the way up; they can rest against a block set in between the hips about half way up as there is no need of running so much wood to the common center.

In framing the polygonal form of roofs, would recommend following the framing plan as shown for the octagon as the hips form an excellent brace to support the corner of the main roof.

A. W. WOODS.



ELEVATION.
 Four Silos Grouped Together

Another Way for Hay Track Doors

To the Editor:

DeSoto, Iowa.

Haymow doors in the peak of a barn bother many builders. If they are to be hung onto hinges, they have to be fixed to fold over in sections. They can be coun-

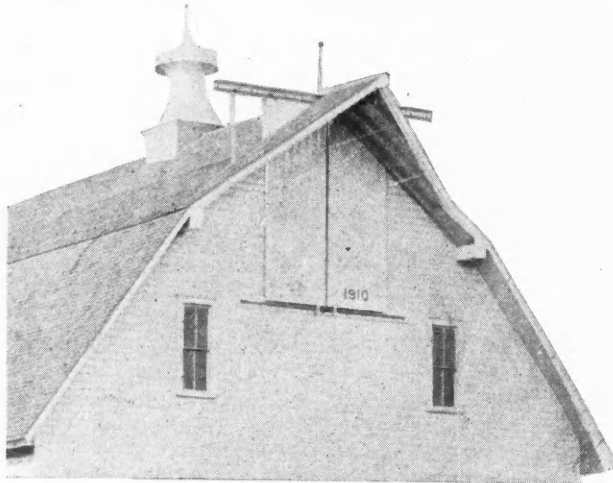
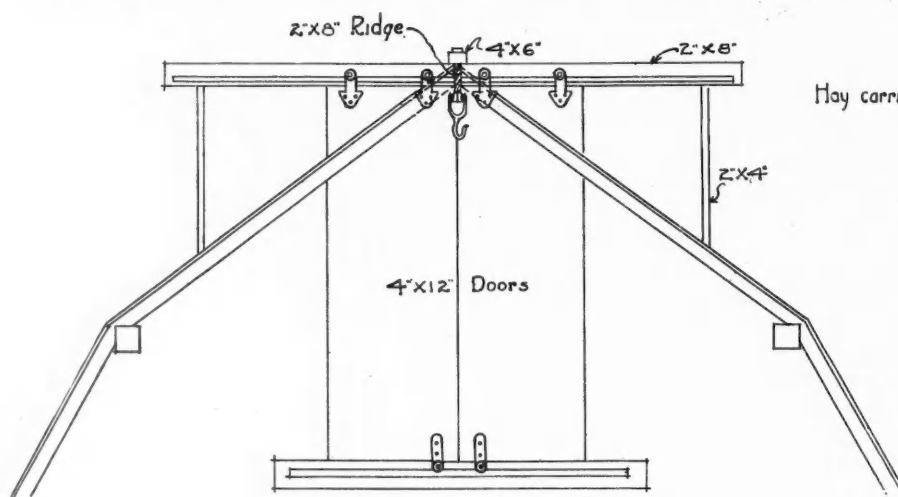


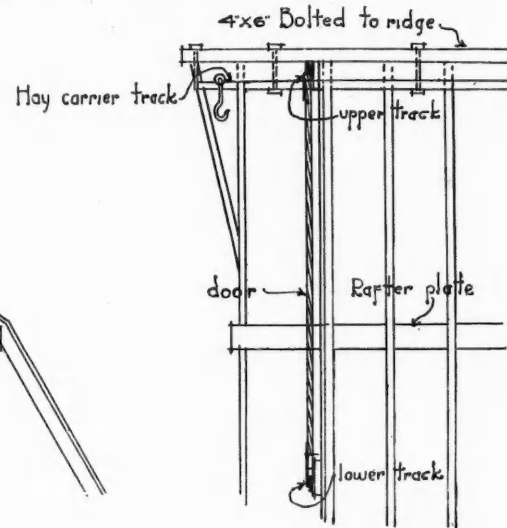
Photo of Sliding Hay Doors

terbalanced to slide up and down, but this is often unsatisfactory. My way is to have them ordinary sliding doors, which I do by cutting through the projection of the roof, letting the doors slide back as into pockets.



ELEVATION

Drawings Showing How Hay Doors are Hung to Slide



SECTION

The photograph shows how this arrangement looks on one of my recent jobs. The drawing gives some of the details of construction. You will notice that I bolted a 4 by 6 timber on top of the ridge pole to help carry the weight of the hay carrier track where it projects out. I put a ridge roll on top of the 4 by 6 to cover the ends of the carrier track eye-bolts so as to keep the water out. I also shingled back of the doors, using 5 by 7 inch tin shingles. This helps to keep the water out.

I will be glad to hear from other barn builders what they think of the scheme.

M. E. PARKS,

Carpenter and Builder.



Handy Call Bells

To the Editor:

Milton, Iowa.

I will mention another little equipment that I have in the

shop you illustrated last month; it is very handy and saves lots of trouble. My shop is somewhere near 50 to 60 feet from the house. In both the house and shop I have a call bell. If my wife wants me to the telephone, or to dinner or supper, or other needs, instead of stopping her work, all she has to do is to push a button and the bell at the shop and house both ring and I answer the call.

On the other hand, if I want anyone or thing, I call the house by pushing the button. This saves lots of trips in winter and rainy weather. This is money well spent where one is in close range and is sure to have a telephone call during working hours and where it would take five minutes to deliver the message, in the old way. She can do it in five seconds' time in the new way and also saves the trip and bother.

J. E. DONAHO, Contractor and Builder.



Strange and Rare Woods

To the Editor:

Newburyport, Mass.

I wish you would publish in your magazine a complete list of all the known woods used in building and cabinet work, also their country in which they abound.

There are, of course, numerous foreign woods that are not common, still they are well known; such as ebony, mahogany, baywood, etc.; but there are also a great many woods that are not well known, in fact nine out of ten people never heard of them. For example, I have at hand a piece of wood which was handed to me as Jachoro—a very pretty deep red, almost as heavy as lignum vitae. I cannot find that name in the encyclopedia and think it must be wrong, therefore I

think a list published in your valuable paper would be greatly appreciated.

Perhaps if left to the correspondence column someone might help out.

W. D. NOYES.



From a Carpenter's "Better Half"

To the Editor:

Lafargeville, N. Y.

I want a finger in this pie. If any wife like Frank's cannot speak her mind then how will you carpenters ever know just how much value we are to you?

Frank's wife touched a pretty tender spot in my heart, anyhow. It isn't so very long ago that I have to look back to remember the old farm and the girl that went out of that home to be a carpenter's wife.

One life is just as happy as the other, far as that goes; for life is just what we make it; and right here lies a fact we women sometimes overlook; that is, life is just

what we make it for our husbands in a certain sense.

We purchased a small piece of land soon after marriage and because John was a carpenter and concrete worker he decided to make it all himself—and did, too, from the cellar wall to the chimney top—I say he did—but I haven't forgotten some of the black and blue spots or sore fingers resulting from my first attempt to help things along in the way of nailing on lath and some of the other easy work. Looked to me just as nice to see a dollar each day in our pocketbook as it did to think about the other fellow getting it.

Well, it wasn't long before we had a chance to rent that place and we purchased more land and began to build over again. This sounds easy. You try it, even if your husband has to do the work at odd moments when he hasn't a job somewhere else.

In this last house we decided to have things convenient what little time we did stay in it; but we expect soon to erect a much better one and use this for a work shop and store room. I don't care what a man's trade is, I believe it's a mighty good thing for a woman to learn all she can about the same.

John got in the notion of writing things for the papers and it wasn't long before everything he made from a pig pen to a mansion was put down on paper and sent out to some editor to digest or send for a doctor. Now this meant a little for John's wife. Why? Because he did not have time to finish up those rough sketches or write the description decent. The result was Mrs. John soon had a fine little typewriter and she found time to learn how to use some India ink and straighten out the plans so they could be sent.

Took time? Of course it did. Had a girl? Never. I was housekeeper, cook, dressmaker, mother and all; but it paid.

'Twasn't very long before we began to branch out and write about a good many things and send them out to various papers; and a camera was added. This often took a picture of said John and his building and helped a lot, for nowadays we like to "see things" to believe them.

Time rolls around and John was to have a birthday. Just about this time I had received a dandy check from a well known paper, and was so happy planning what could be had with that money. Why, bless your heart, I spent that thing in my mind about fifty times over, always for a pretty dress or something for Laddie boy.

One day about this time in walked a friend who had been taking a correspondence course in Civil Engineering and had a very fine drafting outfit. He had given up the course and did not need the outfit but it was worth just the price of my check. All at once that fact dawned on me.

I saw John looked sort of wistful when the feller talked of it being no use to him and it wasn't long before a certain paper passed out of my hand into the young man's and the dream of a pretty dress was over; but John had his birthday present and it paid for the better work he was able to do.

Why, girls, we are all young if we do have a few gray hairs, there is no end to the things you can do to help your husband along in his work.

He needs you. That is sure. The work is hard and trying and some day he feels like giving it all up and doing something at which he is his own boss.

Carpenter work is all right in its place; but lets put our shoulder to the wheel and do what we can as wives and mothers to help things along and thereby be a blessing in more ways than perhaps even our carpenter would own.

MRS. JOHN UPTON.

Water Guard for Chimney

Atkinson, Kansas.

To the Editor:

Here is a photograph of my patent cast iron water guard for chimneys as it looks in the finished chimney. This chimney water guard is the only successful invention I have ever seen for this purpose, which can be put on the market at a reasonable price.

These water guards are indispensable where soft brick are used to build a chimney. We all know that soft brick is a



Chimney Water Guard in Use

filter and that water readily passes through them. In this way, chimneys are caused to leak. Besides preventing this leakage, my cast iron guard forms a strong tie to the chimney, preventing all cracking at the very point where cracks are most dangerous for causing fires.

The chimney guard is a rectangular plate made to fit the regular chimney sizes. There is a square opening in the center the size of the flue. A narrow flange projects upward all around the flue opening and the upper face of the metal has a gradual slope downward away from the flue opening on all sides to carry off the moisture. The base of the chimney is provided with the usual sheet metal flashing.

I would like to sell this patent to responsible parties who would put this guard on the market. Wm. F. GREENLEE.



How Should the Porch Join the House

Chicago, Ill.

To the Editor:

In joining a porch to a house, where should the cornice end, to give the best architectural effect? Wm. M.

Answer: That depends on the style of house and surroundings, but usually if the porch has a pitched roof running clear out to the cornice, it gives a better appearance to keep the body of the porch back from the corner enough to receive the cornice, as shown in the first illustration. On the other hand, if it has a box cornice, then it might in many cases show up to as good advantage to let the projecting part of the cornice extend beyond the line of the house, as shown in the second illustration; but, as we said before, what may look well on one style of a house, may not show up on another.

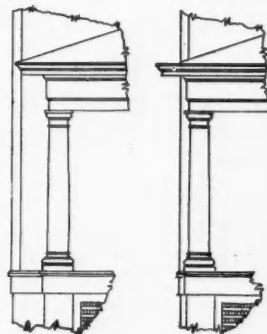


FIG. 1. FIG. 2.
Where Porch Joins House

The base of the column in the second illustration, should be flush with the corner board and the soffit should equal the diameter of the neck of the column. This will make an offset against which the bed mould can stop. It gives good effect too, to set about two-thirds of a column against the house. To carry out the work correctly, the builder should know the exact measurements of his column at each end and lay out his work accordingly.

EDITOR.

Time Check Which Separates Jobs

To the Editor: Cedar Rapids, Ia.
I am sending you a rough outline of a time card in answer to Mr. N. N. Kahler of Beaver Creek, Minn., in the May issue.

TIME CHECK

Name of Contractor and Builder _____ Mr. (Name of Employee) _____
Week Ending _____

Name of Job	Days							Total time for job	Rate per hr.	Amount of job			Amount of weeks wages	Ck. or Cash and Date
	S	M	T	W	T	F	S			\$	\$	c		
J. Jones	10			3	7			20	.40		4.00			
F. Smith		5					10	15	"		6.00			
G. Casson		5						5	"		2.00			
H. Stoll				7		3		10	"		4.00			
S. Swan				3	7		10	20	"		8.00			
								60	.40		24.00			Ck. 5-3-13

I have been a quiet reader for a long time but like to ask a few questions at the time. Can any one send me a good way to figure the cost of framing and erecting dimension lumber for residence work, at say, 50c per hour?

How much quarter sawed oak floor should a man lay, plane, scrape and sandpaper in 8 hours?

What size beams are necessary to carry a flat, tar and gravel roof with a 40-ft. span, trussed with two 1-inch rods with a turnbuckle, W. P. joist 2 by 10 by 16, 24-inch o. c. beams also 24-inch o. c. ship lap roof sheathing, for garage roof?
H. J. KIECKSEE.

Reinforced Concrete Tank

To the Editor: Tryon, N. C.
Here is a photo of a tank which I built—constructed of reinforced concrete. The dimensions are as follows: 5 feet in diameter; height, 5 feet 3 inches; wall stands, 12 feet from ground; the middle column is 1 foot square; the side arms are 6 inches square; the foundation is 5 feet deep and 7 1/4 feet square; contains 740 gallons.



Graceful Concrete Tank

It has been in use over three years and not one leak has shown.
R. VERBEKE.

Building Up a Power Shop Business

To the Editor: Columbia City, Ind.
Four years ago I started to work for myself at carpentry work as a contractor. The first summer I fixed me up a shop in an old barn that I had on the lot. I got along very well for about three months;

then I built another building to it, 20 by 60 feet. Got along until spring and then I bought some foot-power machinery. About August I sold my foot-power machinery and got some good power machinery; also a five horse power gas engine. Then put up another building 20 by 20 for machine room.

Last March I sold out my property and bought another place up in town close by. Now I have a shop building 36 by 48, with basement, and I have sold my gas engine and

now I have a seven and one half electric motor. In the winter time I am kept very busy getting out special furniture as post office fixtures, show cases, tables, barber shop fixtures, etc. I am working five men besides myself.
CHAS. E. MILLER.

Time Card Showing Material Used

To the Editor: Toledo, Ohio.
I have been a subscriber to the AMERICAN CARPENTER AND BUILDER for nearly two years and I believe it is the best builders' journal published. The suggestions are very useful in a great many ways.

I would like to offer a suggestion to our friend N. N. Kahler on the time card question. I am submitting a copy of the card I have used for over three years with good results. It not only keeps the time but a record of each job and material used on repair work.

ED. F. BODLEY Toledo, O., MAY 1913.
GENERAL CONTRACTOR Name A. E. JONES
810 West Grove Ave.

NOTE—No time will be allowed unless on card.

Date	Day	Hours	Owners Name	What at	Material Used
3	Sat.	5	J. C. Kahle	Repairing porch	1 piece 2x6—10 1 piece 1x8—12 cyp., 2 lb. nails
		4	E. B. Marks	Repairing roof	1 bundle shingles, 3 lbs. nails.
5	Mon.	2 1/2	L. L. Haven	Adjusting doors	
		7 1/2	E. H. Miller	Building sidewalk	
6	Tues.	9	J. Mason	Shingling	
7	Wed.	9	"	"	
8	Thurs.				
	Fri.				
	Sat.				
	Mon.				
	Tues.				
	Wed.				
	Thurs.				
	Fri.				

Total Hrs. 108 at 40c per hour \$43.20.

In making out bills I use the card as it saves time; and often when the owner questions your bill you have a record to show that you are right and also satisfy him that he is not being over charged. ED. F. BODLEY, Contractor and Builder.

Form of Proposal

To the Editor: Victoria, B. C., Can.
I wish you would tell me the best way to give in a tender for construction work of any kind, to an architect or anyone else calling for tenders.
J. G. RANDALL.

Answer: This will vary in different localities and according to the type of work. The following is a general type

of proposal to do work applied to a residence. Your particular bid might need some form of statements as included in the end of the example as shown.

Proposal

.....the undersigned hereby propose to construct a dwelling for..... in strict accordance with drawings numbered..... and the foregoing specifications for the sum of..... \$.....
 If light colored sand stone or lime stone is substituted for all face brick and ornamental terra-cotta following the same outlines, add \$.....
 If two months more time is allowed for the construction deduct \$.....
 If in the upper stories plain oak is substituted for painted pine add..... \$.....
 Signed

EDITOR.

Porch Designs

To the Editor: Prairie du Rocher, Ill.

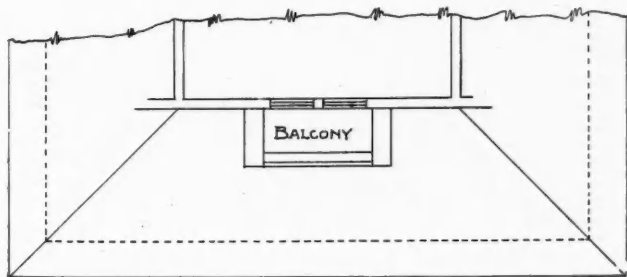
As I have never made use of your service department, I would like to have your opinion on the following: I expect to build a bungalow 29 by 30 feet with a porch on each end 7 feet wide and full width of building. The main roof to be 9-inch rise to 12-inch and porch to have only about 5-inch rise to 12-inch. Now, what I want to know is which would be the best way to frame the porch roof hips, or rather the projecting cornice. I would like to make the projection the same width as near as possible. Inclosed you will find front elevation which will explain what I refer to. I can't make the porch roofs any steeper on account of getting windows too high for the rooms upstairs. A. J.

Answer: The plan as suggested does not work well from either a mechanical or architectural standpoint. Better stick to regular lines, making the same pitch all around, letting the porch roof strike the main part where it will and cut out enough to allow for the windows as wanted. This space can be tinned over and treated as shown in the accompanying sketch, giving a balcony effect—a splendid place for airing clothing—a full size window for light and air, and last, but not least, while not the best, it is far from a bad looker.

EDITOR.



ELEVATION



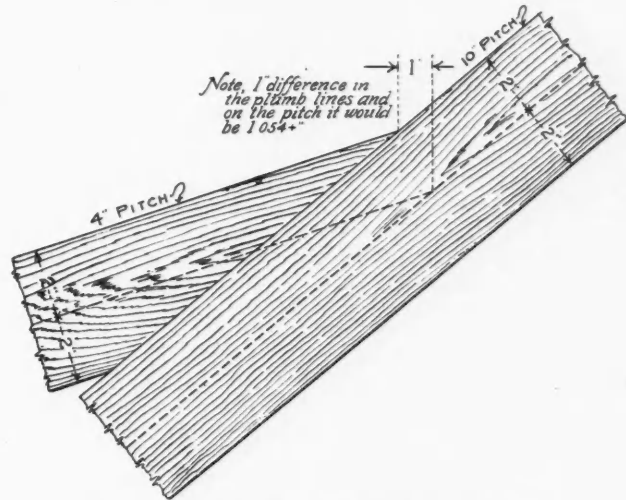
ROOF PLAN.

A Retort Courteous

To the Editor:

We note in the April number that Mr. John Parkhill accuses us of going astray in giving the length of a shed rafter, referring to a correction in the previous number. Ordinarily, we would not pay any attention to this, for we believe it is generally understood what was meant, at least by those familiar with the way the question came up, which had its beginning in the February number, in the course of our regular article and in which an error appeared in the run. Our attention was called to this by Mr. Gray. His letter with our answer was published in the March number and it is to this Mr. Parkhill takes exceptions.

The length we meant to have reference to in our answer was that of the working line, but in the rush of work, we overlooked that point and spoke of it as the length of the rafter. The working line referred to showed the line along the center of the side of the shed rafter and to which, when the steel square applied with the proper figures, the required length of the rafter along its top edge will be properly cared for to fit on top of the steeper rafter, the working line of which being the top edge.



Discrepancy in Measuring Shed Rafter Length

Mr. Parkhill winds up his letter by saying: "I am still aware that my statements may be disputed. However, my business requires me to take considerable risk on the correctness of my conclusions and figures, and I am quite willing to do the same on those given here."

Now we will quote from the body of his letter: "In the diagram shown (having reference to our article in the February number), there is no difference in the length of the shed rafter—whether measured from the corner of plate along its dotted center line to the edge of square—as shown; or from a point plumb over the outside corner of plate along top edge of rafter to its junction with the main rafter." But is it? According to our way of looking at it, there is a full inch difference. The problem is that of a shed rafter of 4-inch rise intersecting another rafter of 10-inch rise, as shown in the accompanying illustration which clearly shows the difference.

Another quotation, but with change of name: "This is where Mr. Parkhill goes astray—as do a great many good carpenters—in similar cases." But after all he may consider this variation of no consequence as he starts out by saying that he offers the following from a practical builder regarding the problem of the shed rafter. Maybe he considers the variation of one inch practical. Who knows? As for us, we say aubernit. A. W. Woods.

Ventilating a Stable

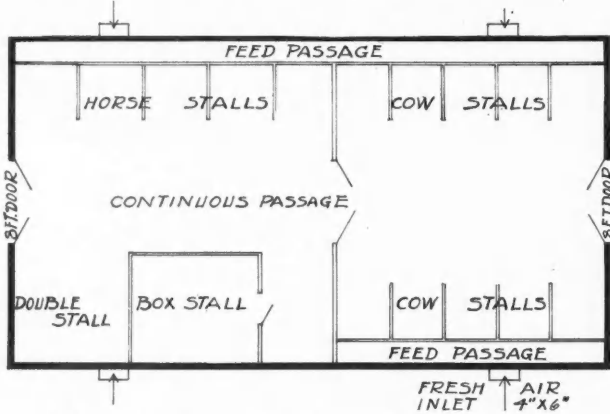
To the Editor: Edrans, Man., Can.

I am building a barn and would like some advice as to ventilating same as this is a very cold and frosty country. I have never seen a good system yet and don't know much about same. Size of barn 32 feet wide by 40 feet long; first 8 feet of wall built of double hollow cement blocks. I want to put 8 feet of frame on top for storing hay and feed.

I left two holes in each long side about 4 by 6 inches in the first row of blocks on concrete wall about 4 feet from each end for fresh air. Are they all right, or not?

JACOB E. SCHNEIDER.

Answer. You state in your letter that you have left two holes in the side walls of your building, each hole about four



Stable with Proposed Ventilators. They are Too Small

inches by six inches in size. These holes were to serve as intakes for fresh air to the building. We doubt you have allowed for a sufficient amount of air as we will explain in the following paragraphs:

Pure air and a lack of dampness in stables and dairy barns are as essential features toward the health of cattle or horses as would be the case in the ordinary dwelling for people. Dampness in a stable is favorable to the development of disease germs. Dampness may be detected by its presence on the walls and ceiling of the stable in the morning during comparatively mild weather, and is an indication that a sufficient amount of air has not passed through the stable during the night when the doors and windows were closed.

Oxygen of the air is just as important as a part of the nourishment of cattle or horses as is the food which is fed them. The amount of air which must be present in a build-

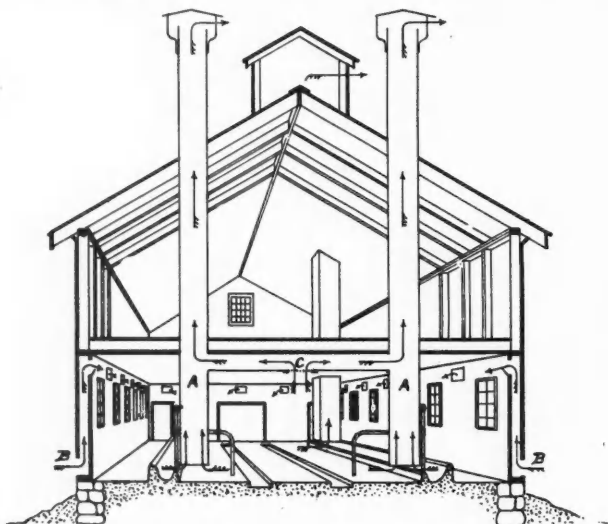


FIG. 1. VENTILATING SYSTEM FOR BARN Showing intake openings at B. B. around walls, and outtake pipes at A. A.

ing and which is necessary to supply the oxygen needed will be determined by the number of animals in that building. Also the amount of moisture which is to be removed from the air will depend upon the number of animals. It is often stated that a cow requires an amount of air equal in weight to two and one-half times the weight of the feed and water combined, in order that the cow may breathe perfectly fresh air. It is also stated that each cow above one thousand pounds in weight throws into the air from lungs and skin an average of more than ten pounds of moisture during each twenty-four hours.

Thus it will be seen that quite a considerable volume of air must pass through the building where animals are confined in order that proper air may be furnished for breathing and that the moisture present may be carried away by the outgoing air. The flues which provide fresh air and take away foul air should provide not less than 36 square inches of area of flue per head of cattle or horses, when the out-take flue has a height of 30 feet. It is stated that a ventilating flue 2 by 2 feet in section through which the air moves at about three miles per hour will provide sufficient air for twenty cows.

This ventilating shaft is merely a chimney and should have all the essential features of a good chimney. Its walls must be airtight from top to bottom, except at openings which are intended for ventilating purposes. Two ventilating flues should be as nearly straight as possible and of the same cross section throughout its length. The upper part of the flue should be carried well above the highest part of the roof so that the wind can have a free sweep across its top. Six feet above the roof is a common height for flues of this kind. Galvanized iron is often used for this purpose and provides good type of flue.

The arrangement of flues according to the King System is shown in Fig. 1. It will be noticed that the openings into these flues are near the floor line, while the air in the flue is allowed to pass straight up and out at the top. At "C" a ceiling register is inserted in a cross pipe between the flues and is used only during warm weather for the purpose of removing hot air from the top part of the stable.

At "B" in Fig. 1 is seen the scheme for admitting fresh air to the stable. The openings to the outside should be near the ground, and those into the stable should be just beneath the ceiling. These fresh air openings should be made small in size and frequent in number, with a total area of section at least equal to that of the total area of out-take flues. It is well to have the holes for the incoming air well distributed around the building on all sides, but the out-take flues should be few in number and large in size. By making the fresh air flues open at the ceiling on the inside, and open near the level of the ground on the outside, it is impossible for the warm air in the stable which collects at the ceiling to pass out the ceiling openings as it would do if the outside openings were on a level with the inside openings.

Fig. 2 shows the general arrangement of fresh air openings in various types of buildings. No. 1 utilizes the space between studding as a flue, while No. 2 shows the use of a galvanized iron flue shaped as at a. No. 3 shows the intake flue construction in a masonry wall.

EDITOR.

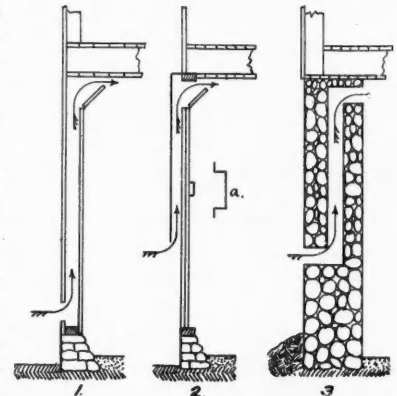


Fig. 2. Intake, or Fresh Air Openings in Various Types of Walls.

A Practical Dry Kiln

To the Editor: New York City.
 Replying to J. P. McLarty's question in the April issue, a dry kiln should be designed primarily in length to accommodate the lumber to be dried and, in width, so as to allow the lumber trucks to be set in without undue waste space between them. Therefore a kiln 24 feet long outside would not take two trucks with 12 feet boards on each and would be much better if made 28 feet long instead.

Assuming that the size 20 feet by 28 feet is correct, the main object to be accomplished is to produce a positive circulation of hot air across, through and around the lumber for the purpose of drying it equally and thoroughly throughout. The better this circulation is maintained and the more completely the air filters through the entire mass of lumber the better will be the results. It is usually customary in a kiln of this sort to build a stack or vent flue at one end standing between 15 and 20 feet high which produces a draft and helps maintain the circulation of air through the kiln.

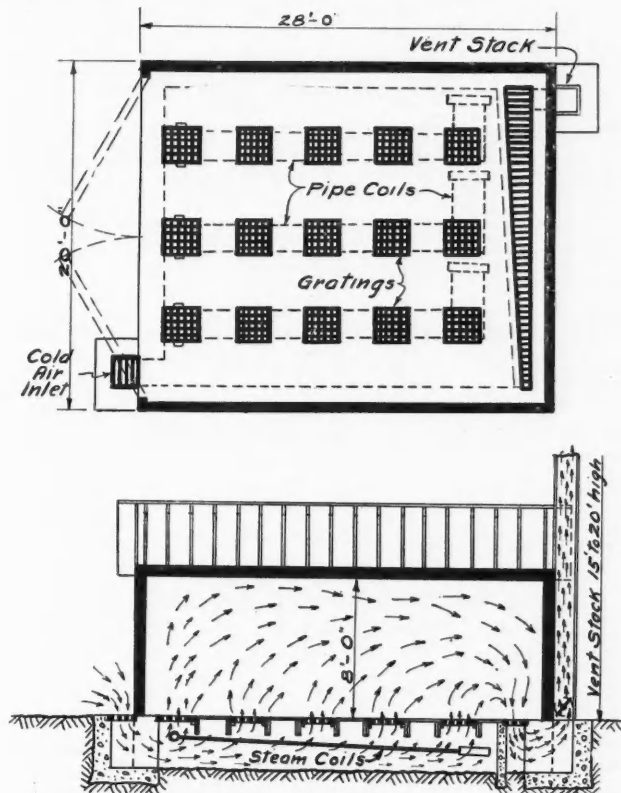


Fig. 1. Plan and Section of Small Dry Kiln.

While the steam coils are often run around the side this does not by any means produce the best results and a much more satisfactory method consists in placing the coils below the floor of the kiln with gratings in the floor above located at various points so as to distribute the hot air rising off the coils so that it will enter at several different points. This system is known as the gravity circulating system owing to the fact that the air rises (purely on account of its expansion) both from the coils and in the stack.

Fig. 1 is a sketch of a little plan and elevation showing a small dry kiln in which the steam coils are placed under the floor with open gratings at several points above. The cold air supply to the steam coils is brought in from the outside and should preferably be located on the side of the prevailing winds so that advantage of this can be taken to help drive the air through the kiln. After the cold air enters the chamber in which the steam coils are located it becomes heated, rises up through the grating, passes through the lumber, becomes slightly cooled through the radiation of the

kiln building and the evaporation of the moisture in the lumber, and begins gradually to drop back toward the floor at the other end of the building where the chimney draft catches it and sucks it out.

The idea of constructing a kiln with rough inside and outside sheathing boards nailed to ordinary studding with the space between filled with sawdust is probably as good and cheap a method as any. The floor should be laid on heavy joists well braced to keep from warping and protected by tin or galvanized iron from the direct action of the heat rising off the steam coils. In fact, if expense does not prohibit the entire interior of the kiln might well be metal lined. In the floor gratings similar to those used over open cellar ways and window areas can be inserted, the bars running the short way of the building. The side wall construction should be continued right across the top so as to produce a flat roof and then a peak with an ordinary shingle or tin roof built above this to shed the rain. The dead air space between the two will serve to farther insulate the roof. The doors should be of the batten or ice box type and made as tight as possible to prevent leaks.

Dry kilns are usually kept at a temperature of about 160 degrees and in the gravity systems are expected to have about four air changes per hour.

To supply heat to maintain these conditions in a kiln of the above size requires about 575 to 600 lineal feet of 1 in. steam pipe and a vent flue about 18 in. by 18 in. to carry off the hot air.

The attention of the builder is called to the fact that he must arrange to put in a steam boiler which supplies this kiln with steam so that the water line of the boiler will be at least 24 inches below the bottom of the coils to get good results.

OTTO E. TRAUTMAN.



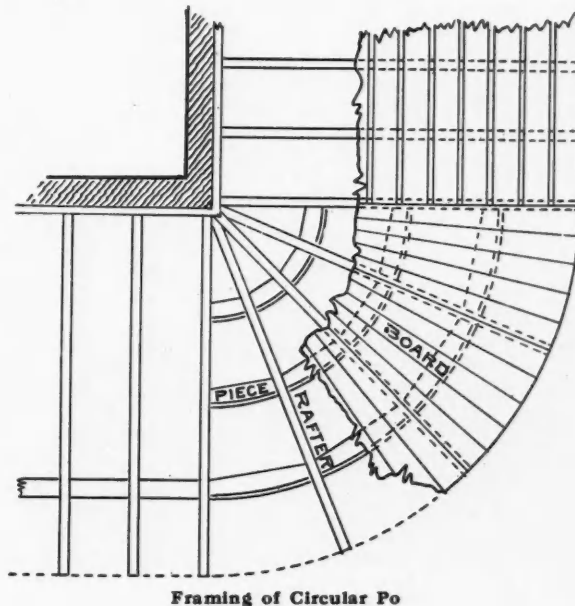
To Sheath a Circular Roof

To the Editor: Ankeny, Iowa.
 Will you please tell me the best way to sheath a circular porch and how close should the rafters be placed for the circle part of the roof?
 H. C. McKEY.

Carpenter, Contractor and Builder.

Answer: We have found the most satisfactory way is to place the rafters as shown, and then cut in circular pieces. Those pieces should be placed level; that is, parallel with the plate and with their edges beveled to the slope of the roof, then sheath close with wedge shape boards cut to fit, as shown in the diagram.

A. W. WOODS.



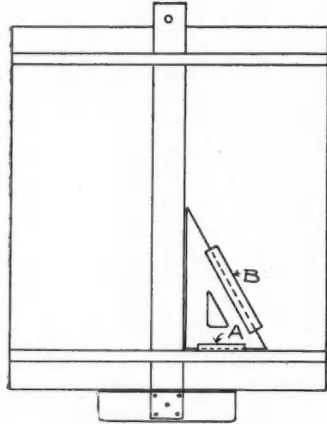
Framing of Circular Po

A Handy Drawing Board

To the Editor:

San Rafael, Cal.

Perhaps some of the brothers would be interested in the sketch of a handy drawing board stunt which I enclose. I know I have found it one of the convenient-est little things out for my own use. Usually when I want my drawing board and accessories they are scattered all over the house (Junior, you know). Well, recently I happened onto the following stunt and found it so good that I am going to pass it on. The sketch is almost self-explanatory. A couple of notches are cut in the cleat on the back of the board as shown in the smaller sketch and the T square slipped through. Place the triangle as shown. A small cleat at A, another rabbeted at B, and you can slip the T through and hang up the whole shooting match. The triangle is held securely until the T is removed.



END VIEW.

The idea could be carried much further. Other angles and curves could be placed on the vacant space. Or a little box might be built for pencils and scale. However, the essential value of it is in having the board, T, and triangle always handy; and that an unfinished drawing can be left on the board. Being next to the wall when it is hung up it will be kept clean and neat.

H. J. BLACKLIDGE.



Electrical Fire Alarm

To the Editor:

Athol, Mass.

I would like to ask my Brother Carpenters if they ever saw or used any electrical fire alarms in buildings, to give a general alarm in case of fire.

I have applied for a patent on one that will give the alarm if a fire starts in any part of the building, and would be glad to hear if anyone knows of anything similar to this.

FRANK HERBECK, Contractor and Builder.



Concrete Milk House

To the Editor:

Charlotte, N. Y.

Am enclosing a photo of a concrete milk and dairy building I built last year for Elm Tree farm; Mr. Harry Yates, prop. It is 24 by 32, with boiler room, work room, cooler, coal room and closet.

E. T. BROWN.



Concrete Dairy Building

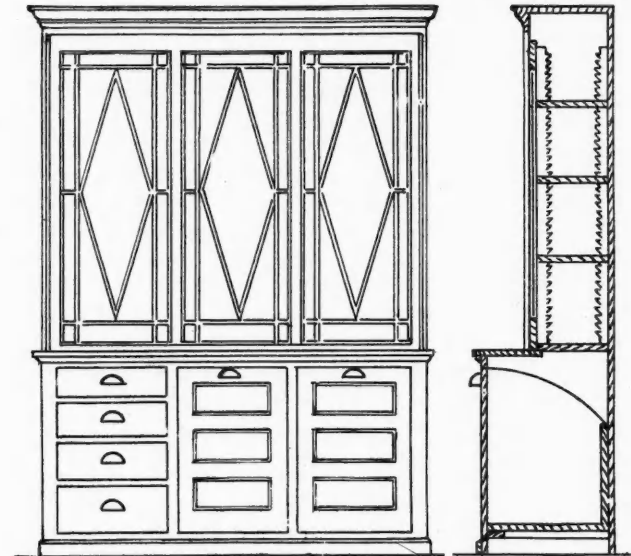
Combination Cupboard and Sideboard

To the Editor:

Akron, Ohio.

The demand for built-in cupboards, sideboard buffets, etc., is more and more on the increase. No doubt this year a still larger demand will be shown for this line of built-in woodwork. An illustration or two of some pleasing styles may not be found to be out of place.

The illustration is the front view of a combination kitchen



Combined Cupboard and Sideboard

cupboard and sideboard, built in a semi-craftsman style. The dimensions are as follows:

Opening in width, five feet (5 ft. 0 in.), opening in height seven feet (7 ft. 0 in.) and depth sixteen inches (16 in.). The doors are fluted in plain U-style near edges and ends of same as shown. Side view shows arrangement of flour bin; and middle bin has a partition in same at center, to be used for sugar and cake, flour or other purposes. In the center a diamond shaped mirror is placed, while on each side of same, green colored art glass is used. Thus arranged and woodwork finished in a dark oak or early English color, will show up to splendid advantage.

RICHARD NEWBECKER.



Reports Plenty of Work

To the Editor:

Winnetoon, Neb.

With great pleasure I'll write a few words to inform you and my brother mechanics how we are progressing here in this small place. I live in a town of about 300 inhabitants; am the only contractor here; have plenty of work for a small crew of from five to seven men. We just finished a fine \$3,000 house, and have plenty odd jobs to keep us busy.

I have a small shop, 20 by 36, with a good saw rig and a 2 hp. gas engine, which is a large help to us. Have been a subscriber to the AMERICAN CARPENTER AND BUILDER for a year and can say it is a most welcome guest when it comes, and a great help. My only sorrow is to know what I have missed all these years I did not have it.

P. C. PAULSON,
Contractor and Builder.



Shingling Suggestion

To the Editor:

El Centro, Cal.

In answer to Mr. W. F. Collins' question about shingling will say always cover your nail heads by the succeeding courses. If you will nail about a half inch from the edge of the shingle and counter break on the third course you will have a good job and all nail heads covered. If the difference in pitch is not too great I would spring the shingle and give them enough nail to hold.

S. N. HARRIS.

"Three Men With Stick" Problem

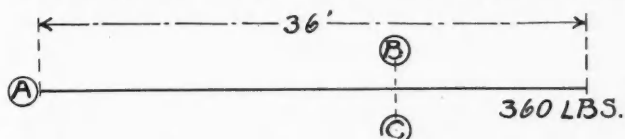
To the Editor: Spokane, Wash.
 Will you please publish the formula and answer this problem:
 A bar, or shaft, weighing 360 pounds, and 36 feet in length, is to be carried by three men arranged in the following manner:

At what division of its length will "B" and "C" (using a short stick) carry in order that its weight be equally divided, or each man carry a weight of 120 pounds?

SOL T. FARR.

Answer: This problem may be solved by considering that the point "A" is stationary and acts as a center of moments for the forces "B" and "C" and a load of 360 pounds which is uniformly distributed along the 36 feet of length. The solution will then be as follows:

Considering "B" and "C" as equal and acting at the same



Where must B and C stand so that A, B and C will each carry same load?

distance from "A," "B" and "C" each being equal to one-third of the 360 pounds, thus making the sum of "B" and "C" 240 pounds, then $240 \times X = 360 \times 18$.

In the above the value of X is equal to the distance at which "B" and "C" would have to be located from "A" in order that "A" may be only 120 pounds. The solution for X gives, X equals 27 feet from "A."

The value of 18 is used since the weight of the uniform bar is considered as concentrated at its center of gravity, or in the center of its length. "B" and "C" are supposed to be equally distant from the bar. EDITOR.



Modern and Well Built

To the Editor: Beaver Crossing, Nebraska.
 I have sent you photo of a house which I built this summer at Jaehner, Neb., six miles from Beaver Crossing, for Everett Jensen, at a total cost of \$3,330, not including the excavating or painting. This house is finished throughout with yellow pine, natural finish. Basement full size of building. Building is heated by hot air and has hot and cold water; also lighted by electricity furnished by 3 H. P. gas engine attached to motor—which has to be run about four hours per week. It has sixteen storage batteries. It also has a line shaft in basement to pump water into boiler and pressure tank and runs a washing machine.

This house has a cess pool eight rods from the house, 8 feet in diameter, 25 feet deep, walled with brick laid up with-



Well-Appearing Residence at Jaehner, Neb.

out mortar below the freezing line. This is necessary where there is no sewer.

This building has 20-ft. studs sheathed up with 8-in. shiplap, No. 1 yellow pine; papered; and lapsiding spaced $2\frac{5}{8}$ inches to the weather; roof shingles 4 inches to the weather.

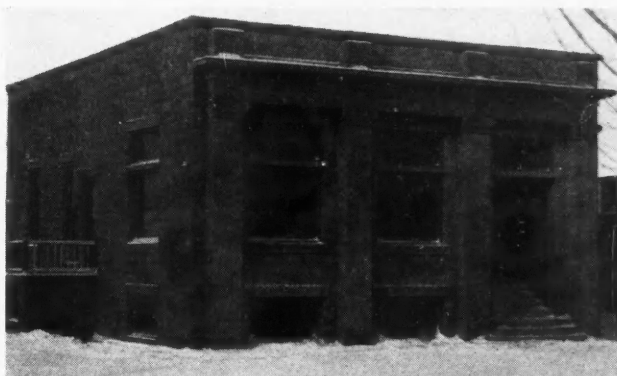
Some of our Eastern Brothers think we are living in dug-outs and sod houses out here; but they are mistaken. There isn't a place anywhere, that people are building more comfortable homes than in the West. They don't squeeze the dollar until it hollers. Ninety per cent of the houses that are built here are back plastered and sheathed with one-ply tar felt. They also have double floors.

I guess I have gotten through blowing off. This is a windy country. HENRY CAIN.



Neat Cement Block Structure

To the Editor: Bowdle, S. D.
 I am enclosing a picture of a cement block office building which I planned and built for Dr. Wm. Edwards of this city, and which has drawn considerable comment as being one of the neatest block buildings in this part of the country.



Good Cement Block Job.

The blocks were made on the Ideal machine. The transom windows and basement windows are glazed with ribbed glass, which diffuses the light, requires no shades and renders them opaque from the outside view.

The basement is used for the Commercial Club rooms. G. H. RECORD.



Grain Bin Questions

To the Editor: Farmer, Wash.
 This is a wheat country. The wheat has always been handled in burlap sacks. Now there is a movement to build elevators along the railroad and handle loose wheat. That means that every farmer will have to have a loose wheat store-room of some kind.

Have you any plan showing how such a building should be built, strength of materials, size, etc., to hold from two to ten thousand bushels of wheat? How it should be built on a side hill for gravity flow of grain and also on a level to use gasoline engine elevator.

Will ordinary wall construction hold or will the walls have to be $2/4$ or $2/6$ laid flat? H. B. PARK.



Wants Plan Reading and Estimating Pointers

To the Editor: Hubbard, Texas.
 Referring to the instruction department of your valuable paper, if it is not asking too much, I would be glad to have you run a series of articles on plan reading and estimating, calling on all the "Old Heads" in this line for practical ideas, as well as giving your own.

I believe this would prove interesting and beneficial to all of "Our Family," of which I am a loyal member.

JAMES H. JOHNSTON.

The Shed Rafter by Trigonometry

To the Editor: Columbus, Kan.
 While Mr. Woods' method of obtaining the cut for shed rafter, to lie on main rafter, is good enough for me, I would like to have Mr. Gray explain his, as I do not understand how he gets it without some kind of a draft, or by use of a straight edge applied to plumb line of shed rafter, and then laid off with square, which is about the same thing, as shown in diagram referred to above. GLEN ELDER.

Answer: The above has reference to the cut of the shed rafter with a 4-inch rise to fit on top of the main rafter with a 10-inch rise to which Mr. Gray said in the March number, that 9 and 23 would give the cut. The writer questioned these figures in the same number by asking:

"How do you know that 9 and 23 will give the cut without first making a diagram?"

To which we have received a letter from Mr. Gray explaining his method of procedure, as follows:

"You ask how I know that 9 and 23 would give the cut to fit on top of the main rafter, without first making a diagram to try out and catch figures without fractions. It is a well-known principle in trigonometry that

$$\text{the tangent of the sum of two angles} = \frac{\text{the sum of their tangents}}{1 - \text{the product of the tangents.}}$$

2nd:

$$\text{That tangent of the difference of two angles} = \frac{\text{the difference of their tangents}}{1 + \text{the product of the tangents,}}$$

3rd:

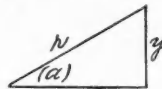
$$\text{that the tangent of 2 times any angle} = \frac{2 \text{ times the given tan.}}{1 - \text{the square of the tan.}}$$

This may be briefly stated thus:
 If we let a and b represent the angles,

$$(1) \tan a + b = \frac{\tan a + \tan b}{1 - \tan a \tan b}$$

$$(2) \tan a - b = \frac{\tan a - \tan b}{1 + \tan a \tan b}$$

$$(3) \tan 2a = \frac{2 \tan a}{1 - \tan^2 a}$$



Now a tangent of an angle is the ratio found by dividing the leg opposite the angle, as y in diagram, by the leg adjacent to the angle as x. Thus we have the ratio $\frac{y}{x}$.

Now returning to the cut in question, we have a problem solvable by the second formula, thus:

$$\frac{\frac{12}{4} - \frac{12}{10}}{1 - \frac{12}{4} \times \frac{12}{10}} = \frac{\frac{9}{5}}{1 - \frac{36}{10}} = \frac{\frac{9}{5}}{\frac{10 - 36}{10}} = \frac{\frac{9}{5}}{\frac{-26}{10}} = \frac{9}{5} \times \frac{10}{-26} = \frac{18}{-13} = \frac{18}{13} \leftarrow \text{Gives the cut.}$$

The denominator gives the cut.
 For the lap joint, apply the 3rd formula, thus:

$$\frac{2 \times \frac{12}{10}}{1 - \frac{12}{10} \times \frac{12}{10}} = \frac{\frac{24}{10}}{1 - \frac{144}{100}} = \frac{\frac{24}{10}}{\frac{100 - 144}{100}} = \frac{\frac{24}{10}}{\frac{-44}{100}} = \frac{24}{10} \times \frac{100}{-44} = \frac{2400}{-440} = \frac{60}{-11} = \frac{60}{11} \leftarrow \text{Gives the cut.}$$

This denominator takes the minus sign because it is the result of a greater number taken from a smaller. This places it within the compass of the steel square. The minus sign near the hand above, shows that the angle is greater than

a right angle and therefore the square should be placed with its heel on the face side of the rafter timber in making the cut. CHAS. GRAY.

We find the above to be O. K., but we think the great majority of the readers will agree with us, that persons able to handle figures in this way are not usually found following the carpenter trade. We wish it were so, but it is not.

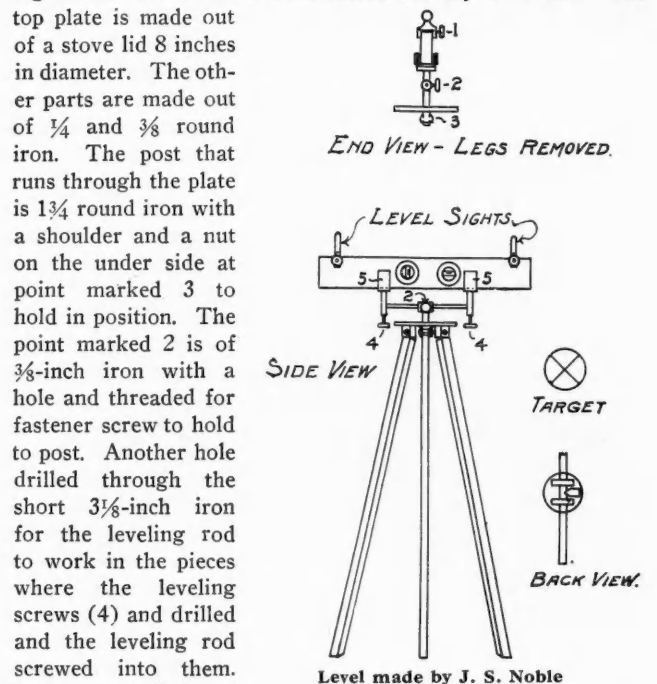
Mr. Gray says he has a good many kinks on the square that he has never seen published. We hope Mr. Gray will condescend to place them on the Editor's table and let us all have a square feast; personally we enjoy many side dishes—the more the better—but we don't like 'em seasoned with x y z's—they are, as a rule, not digestible for those who toil with saw and hatchet. A. W. WOODS.



Home Made Level

To the Editor: Loveland, Colo.

Being a charter member of the best carpenter paper ever published, I am herewith sending you a drawing of a leveling instrument which I constructed for my own use. The top plate is made out of a stove lid 8 inches in diameter. The other parts are made out of 1/4 and 3/8 round iron. The post that runs through the plate is 1 3/4 round iron with a shoulder and a nut on the under side at point marked 3 to hold in position. The point marked 2 is of 3/8-inch iron with a hole and threaded for fastener screw to hold to post. Another hole drilled through the short 3 1/8-inch iron for the leveling rod to work in the pieces where the leveling screws (4) and drilled and the leveling rod screwed into them. Holes are drilled and threaded for the leveling screws (4) to work in. The level cradles (5) are threaded and screwed on top to hold the level. The different parts are for the following purposes: (1) is sight screw to hold the sights on the level, (2) is to adjust the level to the right or left, (3) is position nut to hold the level in position when leveling. The cradles (5) have a guide fitted in them to keep the level from tilting when working the screws.



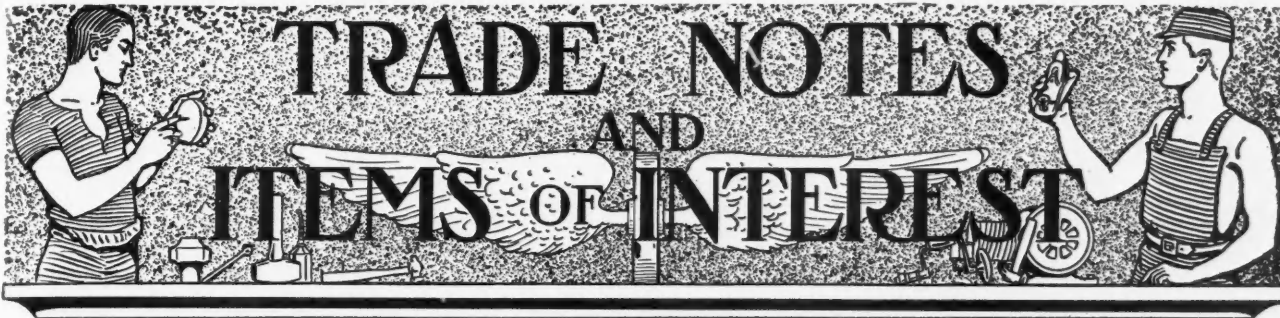
Use a 10-foot 0-inch pole with a target on same. This instrument, though crude in make-up, is handy and quite accurate for general purposes, such as leveling foundations, trenches, etc. J. S. NOBLE.



L. S. Starrett is 77 Years Old

April 25 marked the seventy-seventh birthday of L. S. Starrett, the well-known manufacturer of mechanics' tools. Mr. Starrett still enjoys excellent health, and, although not quite so active as formerly in the management of his business, is still energetically engaged in Y. M. C. A. work and municipal improvement in Athol, Mass.

One of its most public-spirited citizens, Mr. Starrett is a great friend of the young men, and ever ready to lend them a helping hand.



Through this department the editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

**Motor Trucks a Necessity for Contractors
Save Time and Do Hauling at a Lower Cost
By M. R. D. Owings**

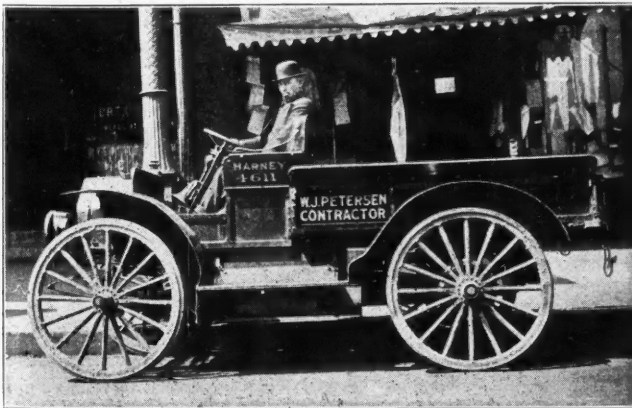
Advertising Manager International Harvester Company of America

The horse has been used for centuries for hauling and transporting materials and merchandise for short distances. Although almost every line of commercial enterprise has progressed, this system has remained the same because no satisfactory substitute has been found that could be economically applied until the coming of the motor truck.

The contractor and builder, along with the merchant, has been confronted with the same problem. Horses are inefficient, slow, and the cost of their upkeep has been gradually increasing. During periods of extreme heat and cold their efficiency has been so seriously affected and the mortality so great that the cost of hauling with horse and wagon has become a problem with every man who is interested in or is compelled to use this form of transportation.

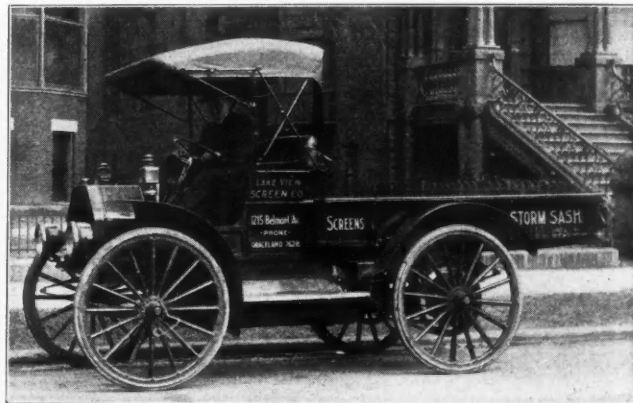
The advantages of the motor truck over horse and wagon equipment are so many and the subject such a broad one—the arguments in favor of the truck so numerous—that one could continue almost indefinitely citing advantages and cases of economy where trucks have been applied. The main points that interest a man, who is considering the adoption of a motor truck for his work, are economy, service, and the possibilities for extending his area of operation.

Not only can a motor truck do more hauling in a given time than a horse-and-wagon outfit—thus saving time which is an important feature and spells economy in most instances—but it will also do the hauling cheaper. It greatly increases the capacity of the driver by covering more ground. A large number of motor trucks are being used by contractors, carpenters, and builders in this country, and a brief account of the experiences of some of them may prove of interest to the man who is interested in bettering his transportation and delivery facilities.



Hustling Omaha Builder Who Makes Good Use of His I. H. C. Motor Truck

Mr. W. J. Peterson, contractor, located at Omaha, Neb., has used a motor truck in his business to good advantage. In speaking of his experience with the motor truck, Mr. Peterson says, "My motor truck has been a wonderful help to me in my contracting business. It has enabled me to handle a greater volume of work than ever before as I am able to get around to the different buildings under construction at least once a day. In addition to using the car for hauling purposes, it certainly does a lot of work and reduces my hauling expenses considerably. The operating cost is less than I expected it to be. Every contractor could use an auto truck



Chicago Contractor and His I. H. C. Wagon

in his work. The truck I have meets the various requirements. I would not take twice the price of the truck if I could not get another one to replace it."

No two owners of horse-driven vehicles consider the same items of expense in determining the cost of maintaining horse-and-wagon equipment. It is therefore a difficult matter to make a fair comparison showing the cost as compared with the motor truck.

To secure a basis for comparison for motor delivery cost, it would be necessary to keep careful account of all expenditures of horse and wagon equipment covering a period of not less than three months and, preferably, six.

Ninety-nine times out of a hundred the business man does not know what it costs him to keep his horses and he cannot find out from his books and accounts. In determining what the cost would be, let him keep a separate account of the cost of operating horse and wagon equipment and charge into that account every item of expense that belongs there. Before the end of three months he will find such unthought of items as this is his account: Rental of stable for horses and wagons or interest on investment in stable. Interest on investment in horses and wagons. Depreciation of horses and wagons. Storage for hay, grain, straw, etc. Lighting. Water. Insurance. Blacksmithing repairs and repainting. New harness. Veterinary services. Removal of stable refuse.

When these items are taken into consideration and charged where they really belong, it will be found by comparison that the motor truck will do the hauling at a much less cost than the horse—in many cases, the cost per ton mile being less than one-half.

Then comes the question of service. The modern business man realizes that every short-cut he can make—every time he and his men can get on a job one-half to a full hour earlier—means money in his pocket. A ten mile drive with a horse and wagon is a question of hours. With a motor driven vehicle it is only a question of minutes.

One contractor in speaking of the service given him by the motor truck said, "My car can go from one job to another in one-third to one-half the time required with a horse and wagon. This means much time saved, and time means money when you are paying wages to men while they are riding around from one job to another. Then again there is generally something that is required right away. Whether it is a keg of nails, a few strips of lumber, or a barrel of lime—with the motor truck on the job it is only a question of minutes until your wants are supplied."

Last, but not least, comes the question of the ability of the contractor or builder to expand his operations by the use of the motor truck. The advisability of undertaking a contract at a distance has often been questioned on the ground that the transportation of materials and men would make the job unprofitable. The motor truck has overcome all these difficulties, as a few miles nearer or farther away makes little difference to the man who uses motor driven vehicles.

The uses of motor trucks in the contracting and building business may be divided into three classes: First, the man who is required to transport heavy materials and who requires a two, three, or five-ton truck; second, the man who requires only a light truck—who has only light hauling to do and whose chief object is to get from one job to another as promptly as possible. To him the one-half to three-quarters-ton truck proves the most advantageous. Third, there is the man who requires both the light and heavy truck. At first thought it might not seem reasonable or advisable for a man to have two classes of trucks in service; however, it will prove profitable in the long run. Not long ago the writer noticed a three or four-ton truck on a Chicago street making a delivery of 450 or 500 pounds of sheet steel. Think of the waste of gasoline, tires, investment, etc., by using a large truck of this kind for such light deliveries. In this instance a light truck would prove very profitable because it would save the time of the heavier truck and thus greatly increase its earning capacity.

Motor trucks are being used more and more in the contracting business, and it is only a question of time until almost every contractor will be compelled to use them in order to keep pace with the ever increasing pressure of competition.



"Wood Mantels"

No one who has not seen it can appreciate the exquisite beauty of a book called "Wood Mantels" which is now being sent free to carpenters, builders, contractors and architects by The Huber Builders Material Co., 45-49 Vine Street, Cincinnati, Ohio.

We have seen many books covering this interesting subject but this book is quite the equal of any that have been published. It is large, measuring something like 9½ inches by 12½ inches and contains nearly one hundred pages—an illustration to a page. Long tiresome descriptions are avoided as the pictures are so perfect that they show exactly what each mantel is. Only the dimensions and finishes are given. Late designs in every finish are shown making this book a valuable guide in selecting a mantel for that new house or in helping the man for whom you are building, in his selection.

Auto Power for Sawing and Grinding

A striking little lesson in the emergency value of the motor truck comes from Minnesota:

William Kresch, a farmer living below South St. Paul bought a KisselKar one ton truck and placed it in service on August 1, 1912. Mr. Kresch was highly pleased with the efficiency of the machine from the start, but worried some about having his investment tied up during the winter. Finally an idea occurred to him. He jacked up the rear end, blocked the front so it could not move, took off one tire, made a light wood block around the wheel, hitched a belt to it and has been grinding feed, sawing wood and cutting fodder.

Mr. Kresch grinds, with the motive power of his KisselKar Truck, one hundred sacks of feed every week. It formerly cost him six cents per sack to have this ground, and he had to carry it four miles to the mill and back again. This occupied three-quarters of a day of his time.

It now takes him two hours to grind his one hundred sacks at a fuel expense of sixty cents, representing three gallons of gasoline and one quart of lubricating oil. Here is the way Mr. Kresch has figured out his saving:

100 sacks of feed at 6c per sack.....	\$6.00
Time saved, man and team ½ day.....	1.50

—————
\$7.50

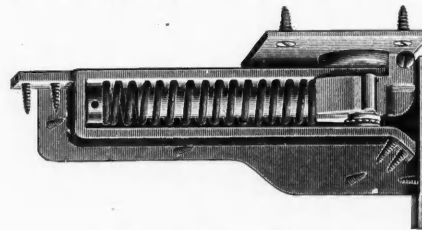
Against this he placed the cost of fuel, 60 cents, and a helper's time at 15 cents an hour, 30 cents, a total of 90 cents. This leaves a net saving of \$6.60. He has repeated this operation every week for 31 weeks, which gives him a saving on the year of \$204.60. This not only wipes out the interest on his truck investment, but leaves him more than enough to take care of any amount of overhauling and repairs that could normally be necessary.

Besides this he has his KisselKar in actual road service seven months out of the year doing from twice to three times the work a good team of horses could do.



Improved Standard Hinge

The Standard Mfg. Co., Shelby, Ohio, are offering to the trade their improved Standard Double Acting Spring Floor Hinge, illustrated here. They claim that among the numerous floor hinges put upon the market in recent years the aim



Improved Floor Hinge

and object of many of the manufacturers has been to cheapen the article and lower the price while the Standard Co. constantly studied to improve the hinge and make it better.

By referring to the illustration it will be seen that the improved Standard Hinge is extremely simple in construction; friction being eliminated to the minimum. The hinge frame is stamped from steel; the one end being provided with the usual tongue extension and the other end provided with their improved method for fastening to the door which is very strong and is a saving of time for the carpenter.

All bearing surfaces of the cam and spring plunger are made extremely large with long wearing surfaces as well as where the hinge swings upon the pivot pin. The weight of the door is carried upon steel ball bearings 1½ inches above the floor, free from grit and dampness. Spring tension adjustment is provided convenient for regulating the tension of the spring after the door is hung, also door alignment feature is provided for bringing the door to perfect alignment at any time with jamb or opposite door if in pairs.

Elevator and Dumbwaiter Information

A new book sent us by the Chelsea Elevator Co., 330 West 26th Street, New York City, illustrates an exceptionally strong line of elevators and dumbwaiters. While these two conveniences have wide favor, still there are many buildings going up where they could be used to advantage if people only thought of it in time.

Restaurants, bakeries, stores, apartment buildings and large private homes all need dumbwaiters. As long as there is something to be carried up or down stairs, a dumbwaiter is a necessity. After all, it is a simple contrivance, but one of the handiest things a person could have in the home. A thousand uses for them will suggest themselves.

The elevators and dumbwaiters shown in this catalog are backed by thirty years' experience in their manufacture. A suggestion for a dumbwaiter in Mr. and Mrs. So and So's new residence will be gladly received. The book also gives several plans of hatchway arrangements. As the Chelsea Elevator Co. are ready and willing to co-operate with the help of the builder, we suggest that you obtain their book. Send them your name today.



New Birch Book

A new and very fine book illustrating the uses of birch as an effective interior trim has just been issued by the Northern Hemlock and Hardwood Manufacturers Association, Wausau, Wisconsin. This book describes the wood, its uses, the stains adapted to birch and how to apply them, besides showing many fine building where birch has been specified and used.

This native wood is perhaps the best obtainable substitute for real mahogany. When stained it is very difficult to detect

the difference. The toughness and density of birch together with its great natural beauty make it a most beautiful and durable material for all buildings. Some idea of the beautiful grain may be gained by looking at the reproduction shown in connection with this. This close grain together with the fine variegated figure make it possible to stain the wood in a pleasing and permanent manner. Used with the natural finish or with white enamel, it is equally effective.

Owing to the cost of mahogany, birch has rapidly replaced this imported wood, the fabulous price of which has restricted its use to the homes of the wealthy. Now that the beauties of birch are becoming generally known it is becoming a great favorite. Stained birch answers the purpose of mahogany just as well and at less expense. Wonderful, rich effects can be obtained by the use of red and curly birch.

The Birch Book, which we are sure will be accepted and eagerly read by all carpenters and builders, can be obtained free on request from the Secretary of the association at the above address.



Floor Scraping Contest Book Out

Popular demand is rapidly changing the aspect of our homes and more attention is being paid to sanitary precautions than ever before. Quite unconscious perhaps that they are adopting sanitary measures, people are and have been discarding the dusty carpet and the rough floors. Rugs, which can be easily taken up and cleaned, and hard wood floors have replaced them. Under the impression that interior beauty was the motive, people have really made a great advance in home sanitation.

The floors necessarily must be smooth—some say the smoother the better for then they are more beautiful. At any rate smooth, hard floors are now demanded in every



Quarter-Sawed Curly Birch—the exact size and figure of a typical piece of Quarter-Sawed Curly Birch are shown in this engraving. No Printed page however, can adequately reproduce the peculiar lustre which constitutes the greatest charm of this beautiful wood

home and in the old ones the rough-grained pine floors are being torn out and replaced with maple or oak. It used to be an awful job to finish these floors. Planes, hand scrapers, sandpaper, glass—everything known was used but the process was long and tiresome. Now we have the modern floor scraper which does the work quickly and well. At small expense the work of several men is not necessary.

Fine examples of what these modern methods produce was brought out very forcibly by a contest recently conducted by the Fox Supply Co. Prizes were offered for photographs of work done by the Fox Floor Scraper and an astonishingly large number of entries were received. The photographs certainly showed some mighty fine work.

In passing it might be mentioned that the Fox Floor Scraper is perhaps one of the simplest and least expensive machines on the market. The manufacturers have reduced the working parts to the fewest number possible in order that they could put better material and workmanship into those few parts and yet keep the price within reason. The excellence of their machine and the ready sale it meets with have justified their action.

The pictures from the prize contest have been reproduced in book form and this is now ready to be sent free to those who ask for it. It is certainly worth any carpenter's time to write for it; no one will be sorry he took the chance offered to investigate the Fox Floor Scraper and the work it has done. Address the Fox Supply Co., Brooklyn, Wisconsin.



How to Measure Differences in Level

Note: The first of these instructive papers on the use of the Transit and Level appears on page 110 April issue.

The farmer or market gardener will find an inexpensive transit, such as the Starrett, of great convenience in determining the amount of fall for the location of drains—in finding the height of springs—laying out ditches alongside roads so that they will drain properly—in determining the elevation of a reservoir—as well as in laying out foundations, making a plat of the fields to assist in planning crop rotations, and figuring crop yield, etc.

When using the instrument the legs must be firmly set into the ground so that neither the wind nor an accidental touch will disturb the adjustment. The instrument is then made as nearly level as possible by adjusting the lower parts

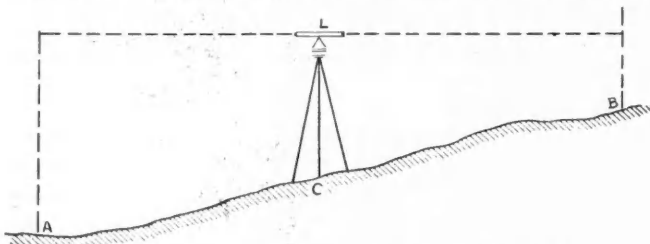


Fig. 1. Leveling When Both Objects are Visible

of the extension legs. It is then brought to a perfect level by the use of the leveling screws between the plate and the tripod head. This is done by bringing the level over any one of the leveling screws and turning one screw in and another out until the bubble appears in the center of the leveling glass. Then turn the sight tube or telescope through an angle of about 90° and again adjust the bubble to the center of the glass by means of two leveling screws. This operation should be continued until the bubble stands in the center of the glass, no matter what direction the level may be turned.

To Find Differences of Level of Two Places.

When the two places are visible one from the other and do not differ in level more than 10 or 12 feet, the instrument should be placed in some position as shown at C, in the accompanying illustration, Fig. 1, about equally distant from the

two points to be measured. Hold the rod at A, obtain height of target corresponding with the cross line in telescope or sight tube, and record in notebook. Then carry the rod to B, and obtain height of target at that point. The difference between the two heights as read on the rod will be the difference of level of the two places—that place being higher at which the height of target is less.

Sometimes the two places are not visible from each other, or differ considerably in level. In this case the operation is similar, but requires several sets of readings, connecting various points which are visible from one to another and some of which, of course, are visible from the stations to be measured. Referring to Fig. 2 in which it is desired to find the difference of level between A and F, the instrument is

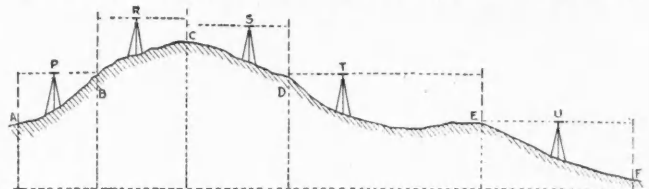


Fig. 2. Leveling When Objects are not Visible

first placed in some position such as P, which will permit a sight to be taken to A and also to some other point B, in the general direction of F and about as far from the instrument as A. Having leveled the instrument, obtain the height of target at A, and record it in the notebook as a first "back-sight." The reading of the target at B will be noted at the first "fore-sight."

The instrument is then taken to some place such as R, being moved again towards F, while the rod is still held at B. From R a back-sight is taken on B and a fore-sight on another point C, still nearer to F. In the same manner the operation is continued from one point to another, until the station F is reached with the final fore-sight. Then the difference between the sum of the back-sights and the sum of the fore-sights will be the difference of level between A and F. If the sum of the back-sights is greater than that of the fore-sights, F is higher than A; if the sum of the back-sights is less than the sum of the fore-sights, F is lower than A.

To Measure Vertical Angles.

The instrument must be set and carefully leveled as before. The locking pin of the vertical arc is then removed when, by raising or lowering the telescope or sight tube, angles can be taken up to 45° below or above level.



A Word to Discriminating Smokers

Most of our readers, or at least a big percentage of them, are smokers. To get the most for your money two things should be taken into consideration when buying tobacco, viz., quality and economy.

The Piedmont section of North Carolina is famed as the home of one of the finest tobaccos grown. In the heart of this district is the factory of the French Tobacco Co., who are the makers of "French's Mixture," a product of well-known merit.

Scrupulous care and attention is given to its manufacture in all stages. This means that it is free from dust, dirt, and impurities.

The French Tobacco Co. sell only to the consumer, thus allowing the smoker to keep the middleman's profit in his own pocket, and at the same time protects him against stale stock.

Write the French Tobacco Co., Statesville, No. Carolina, today, mentioning the fact that you are a reader of the AMERICAN CARPENTER AND BUILDER, and get their Scotch Calabash pipe proposition.

The Jahant Down-Draft Furnace

In an amazingly good circular now being distributed by the Jahant Heating Co., are set forth some of the principles of furnace heating that our people would do well to read. Both the text and the excellent illustrations are calculated to provide reliable instruction to the man interested in how he is to heat the houses he is building.

The Jahant furnace employs the down-draft principle. The air passing through the burning coals from top to bottom is not hindered by the ashes. The down-draft carries with it into the live coals, the gases formed by combustion. These gases are burned, producing additional heat. A very small amount of air is sufficient to keep the fire going, thus doing away with a strong draft which usually forces the fire—consuming more coal and producing inadequate heat returns. Less raking of the fire is required as the layer of ashes supports all the fuel until every particle is burned. In mild weather the Jahant has gone for more than 48 hours without attention.

A phantom view of the furnace on the inside sheet of the circular is especially worthy of notice. An illustration 19 inches high shows very clearly the Jahant with portions of the casing cut away revealing the vital parts of the furnace.

Jahant furnaces are really built-to-order, because they are made in eight sizes—one of which, long experience has shown, will adequately meet any heating proposition. An engineering department is maintained to consult and co-operate with the buyer. When he contemplates installing a furnace, the builder writes the Jahant Heating Co. enclosing a complete description and rough sketch of the building to be heated. From this the engineers make up installation plans showing everything in detail. These plans are submitted with size of furnace recommended and the price. It is then up to the buyer to decide. In this way he gets expert advice instead of making a hit-and-miss guess by figuring out the whys and where-fors himself.

We really think the circular of the Jahant Heating Co., 164 Mill Street, Akron, Ohio, is worth having. We advise you to write for it.



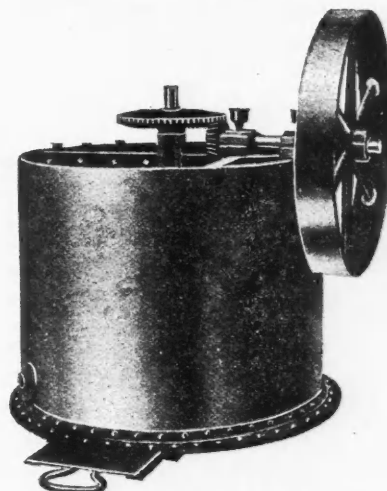
At Last! the Mortar Mixer

We are glad to herald the arrival of the mortar mixer. We have been waiting for this type of machine because we realized that the builders are anxious to do away with the tedious and expensive mixing of mortar with the hoe. The problem of concrete mixing has been solved and now comes the Harding Mortar Mixer which will prove a welcome addition to the busy builders equipment.

The Harding Mortar Mixer does not employ the auger principle or any feature peculiar to concrete mixers. It has a plain cylinder drum open at the top so that the mixing is always done in plain sight. The mixing principle is very much like that in an ice cream freezer. Two arms are provided with long stationary fingers. The upper arm with the fingers pointing downward is stationary. The bottom arm, with the fingers pointing upward revolves close to the bottom of the drum stirring up the mass while the fingers of both arms pass and re-pass just as if one was drawing the teeth of one comb through another comb.

The great advantage of this mortar mixer is that it will handle hard wall plaster, white coat, wood fibre, sand finish lime mortar, cement mortar and Keene cement equally well, mixing a two sack batch in 3½ minutes. The manufacturers claim that two men at the machine can keep from twenty to twenty-five plasterers or masons busy so it is evident the Harding Mortar Mixer is going to make its owner lay off some help. Nor will we hear the old familiar and impatient cry "Mort!" from the masons.

The power to run the mixer is either 1½ or 2 H. P. engine. The makers mount the machine on trucks with a two horse power engine when desired. Out of a great number of machines sent out on trial during the last two or three months, not one has been returned, so the buyers evidently know a good thing when they try it, or are satisfied that the mortar mixer is all that it is "cracked up to be."



The Harding Mortar Mixer

It looks to us like a sturdily built piece of mechanism and not one that will easily clog or get out of "whack." The manufacturers furnish an unconditional guarantee with each machine, which means that if after a fair trial the machine is not satisfactory it may be returned without question or quibbling. In order to introduce the Harding Mortar Mixers, the University Sales Company, Dept. 132, Iowa City, Iowa, are making a special price on the first mixer sold in each town. This is quite a substantial reduction from the regular price. These people will gladly send their descriptive literature if you write them a post card.



Brick Houses vs. Frame Houses

In their book, "Genuine Economy in Home Building," the Hydraulic Press Brick Co. enter into an interesting discussion of the initial expense of building a home. The book is gotten up in rare good shape, with many illustrations of beautiful homes in all parts of the country, where Hy-tex brick has been used.

We produce here a picture of the house that was recently



This House, Built of Hy-tex Brick, Cost \$9,875; Only \$430 More Than for Clapboards

used by the Hydraulic Press Brick Co. to obtain definite information on comparative costs. We quote from the book:

"This house is very substantially built, with 13-inch solid brick walls, tile roof, copper gutters, cut stone trim and sills, and all the details are such as a purse-free home-builder desires. To build the house complete, as you see it, cost \$9,875.

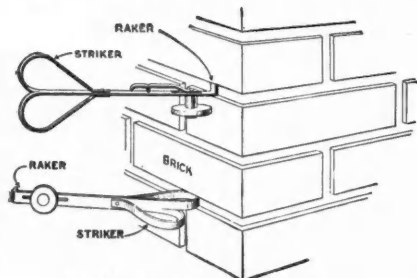
"To obtain definite, unprejudiced, up-to-date figures on comparative costs, we had the blue-print plans of the house re-figured by one of the most careful contractors in St. Louis, as if the side walls were to be built of frame instead of brick. Our frame specifications assumed that all other items except the side walls remained the same. We were not content with the estimated price; we secured a contract bid for which the contractor could be held to take the job. The contract price of brickwork, both material and labor, on this house as actually charged was \$1,465. The contractor's bid for frame construction on the same house was \$1,137.71, a difference of \$327.29. To this, in all fairness, should be added the cost of the cut stone used in the brick house for window sills, around the porch, and for trim, \$102, increasing the total difference in favor of frame to \$429.29."

This investigation seems to establish their claim that brick construction costs very little more than frame construction. One of the great arguments used in favor of brick is its permanency—the first cost being practically the last.

Brick construction is well described in this book and the first-class way in which it is presented will win favor with the builders. Ask the Hydraulic Press Brick Co., St. Louis, Mo., for a copy of "Genuine Economy in Home Building." It is free.

A Combination Joint Raker

Attention is called to a new combination raker, jointer and striker which is being put on the market by the Joseph Woodwell Co., 201-203 Wood St., Pittsburgh, Pa.



Cleaning Out Mortar Joints

This little implement makes a smooth and perfect raked out joint. There are no screws about it to work loose. When any desired depth is wanted, the lever is swung to one side and the wheel moved backward or forward as far as necessary. Swinging back the lever locks it. This revolving wheel also makes the machine easier to handle and prevents irregularities in raking. The handle makes two strikers which will clean out any mortar that may collect.

Fireproof Windows and Doors

In a recent review of the excellent catalog of the Willis Manufacturing Co., Galesburg, Illinois, we found some unusually good details on fireproof windows and doors. The metal window frames made by this company have been fully endorsed by the Underwriter's Association as being of excellent construction and worthy of installation in any building where precautionary measures against fire are taken.

This book gives detailed information regarding the different styles of windows and the extreme sizes allowed by the Underwriters for different structures. In the construction of these frames, the manufacturers have put up something that will lessen labor for the builder or contractor. The metal frames are easily installed and require less time for hanging sash weights and glazing.

As "Catalog D" contains a full list of fireproof windows and doors as well as ventilators, skylights, wire glass, etc., it will prove a handy reference book for the builder's or contractor's book shelf. It is sent free by the Willis Mfg. Co.



Water Systems for Country Homes

By S. E. Brown

How to give the country home a water system comparable with what is common to the city residence has become in recent years a very simple matter. At the same time, the demand for such systems has become very general. No

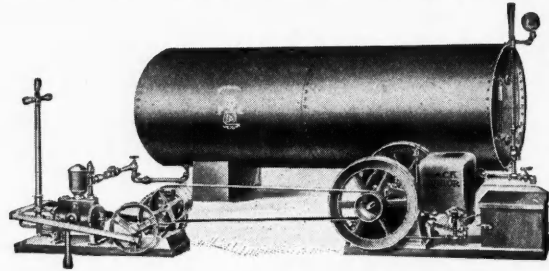


Fig. 1 Fairbanks-Morse Suburban Pneumatic Water System

sooner do "mother and the girls" learn that running water in the home can be secured at a reasonable cost than the agitation for a water system starts. The conveniences of such a system are shown "father." These are ably backed up with arguments of sanitation and health, until the lines of resistance are broken down and the head of the house capitulates.

Water for kitchen and bathroom, for stock tank and barn, by merely turning a faucet, is too great a convenience to be ignored in a time of such prosperity as now is ours. The "Old Oaken Bucket" may continue to be popular—but only as a song. The small kerosene or gasoline engine hitched to a modern pump which delivers water to an airtight tank may not be so poetic but is certainly far more practical. In short, a modern water system, with a private electric lighting plant, makes the farm residence a home in every respect.

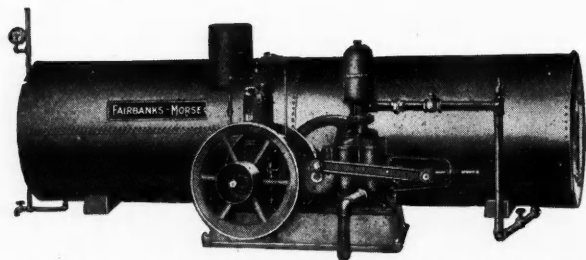


Fig. 2 Fairbanks-Morse Typhoon Pneumatic Water System

A number of water systems for farm homes are herewith illustrated, and serve to show how wide a range of choice is offered. For the man who owns or desires a small engine, an outfit such as shown in Fig. 1 is very desirable. This is a combined hand and power pneumatic system which can be set up in the basement and used for supplying water for kitchen, bathroom, laundry, etc. Lawn sprinkling could be done while the engine is running. An ordinary outfit of such a nature would consist of, say, a 1-H. P. engine, a 400-gallon tank and a small force pump, having an air intake attachment to maintain a sufficient air supply in the tank. A tank of the capacity mentioned would deliver about 300 gallons of water from one filling, as about one-third the space should be allowed for air. These outfits are so arranged that the pump jack can be readily detached when it is desired to pump by hand. Frequently, where electric current is available, a small electric motor is substituted for the engine.

Fig. 2 shows a larger outfit, a 2-H. P. engine being illus-

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with prices way under the present market. Saves contractors dollars on the smallest job.

And we guarantee quality to be of the highest.

We guarantee prompt shipment, safe delivery and absolute satisfaction.

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Prices on Staple Items Now Cut to the Quick

White Pine Doors, 2 ft. 8 in. x 6 ft. 8 in., 1 3/8—4 panel. Strictly "A" quality, each - **\$1.86**

Yellow Pine Doors, 2 ft. 8 in. x 6 ft. 8 in., 1 3/8—5 panel. Strictly "A" quality, each - **2.01**

Windows, 4 lts., 1 3/8, glazed, 10x20, SS, each **.77**

Windows, 2 lts., 1 3/8, glazed, 16x20, SS, each **.70**

Window Screens, 2 lts., 16x24, each **.64**

Yellow Pine Base Moulding, size 1 1/2 x 2 1/4 in., per 100 lineal feet - - - - **\$0.96**

Lattice, per 100 lineal feet - - - - - **.36**

Yellow Pine Cove Moulding, per 100 lineal feet - - - - - **.33**

Outside Window Frames, complete, for 10x20, 2 lts., each - - - - - **1.25**

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Made-to-Order prices always are high! What planing mills must make to order we carry as regular stock.

Hence our prices are a mere fraction of those commonly asked for Doors, Windows, Casements, Sash, Stair and Porch

Material, China Buffets, Mantels, Grilles, Consoles, Colonnades, French Windows, Doors, etc., etc.

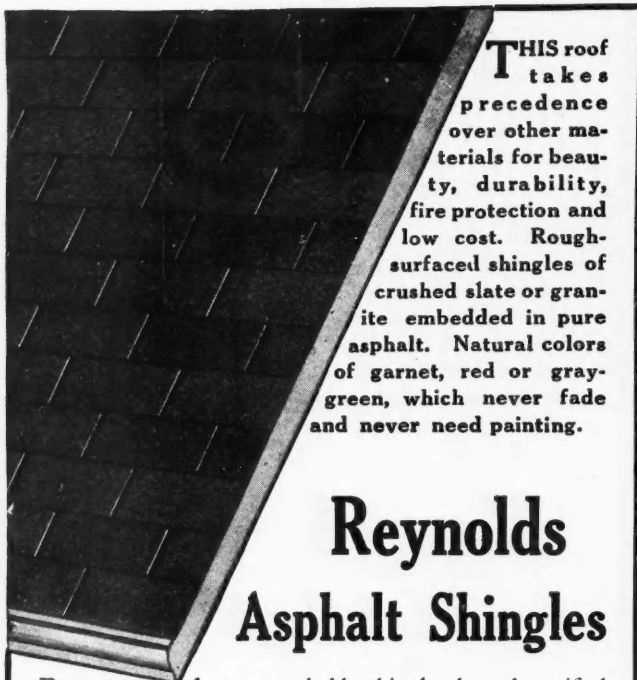
You can use our immense facilities like a private plant. Get all your "special" material at regular "stock" prices, save money and prevent disastrous delays.

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This roof takes precedence over other materials for beauty, durability, fire protection and low cost. Rough-surfaced shingles of crushed slate or granite embedded in pure asphalt. Natural colors of garnet, red or gray-green, which never fade and never need painting.

Reynolds Asphalt Shingles

For ten years these remarkable shingles have beautified impressive homes. They have withstood the ravages of driving rain, pelting hail, hottest sun and heaviest snow. They lie perfectly flat—cannot warp, crack, split, curl, drop or blow off. They are light in weight—only 220 lbs. to the square—and do not require a reinforced under-roof. They are as cheap as good wood shingles, yet are far more lasting, far handsomer, and cannot be set on fire by flying sparks. They save part of your insurance cost. Adaptable to every style of pitched roof, and make possible many unusual architectural effects.

Guaranteed for 10 Years WILL LAST MANY YEARS LONGER

We are the ORIGINAL MAKERS of Flexible Asphalt Slate Shingles and tested our product for ten years before putting it on the general market. Right here, in Grand Rapids, where climatic changes are extreme, our shingles, after ten years' exposure to every kind of weather, look as good as the day they were nailed on. No wonder we can GUARANTEE them to you for 10 years! With such a long-lived, attractive roof possible, it surely will be unwise for you as a far-seeing architect or builder to specify or use quick-rotting wood shingles, which catch fire from the first spark; and equally unwise to pay exorbitant prices for heavy slate or similar materials.

Reynolds Asphalt Shingles are uniform in size—8 in. x 12½ in.—and are laid 4 in. to the weather. Builders can secure them in any quantity at short notice. The illustrations herewith show what a perfect roof they make.

Let us send you a booklet showing photographs of modern houses roofed with Reynolds Asphalt Shingles—signed opinions of the owners are included. Also opinions of leading architects and builders. Write for a copy TODAY.

H.M. REYNOLDS ASPHALT SHINGLE CO.
151 Grant Street, West, Grand Rapids, Mich.

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Members of the
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Residence of
Dr. J. J. Rooks,
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trated in this case, while the pump shown will handle over 2,000 gallons of water per hour. A tank of from 1,000 to 1,500 gallons capacity, or even larger, is common with a system of this size. This outfit would easily meet the requirements of the largest farm house, and as it produces a pressure as high as 50 pounds per square inch, would make a very effective fire-fighting equipment.

A simple but ingenious device that is frequently ordered with these engine-driven outfits consists of an automatic "Battery Circuit Breaker." With such a device one may

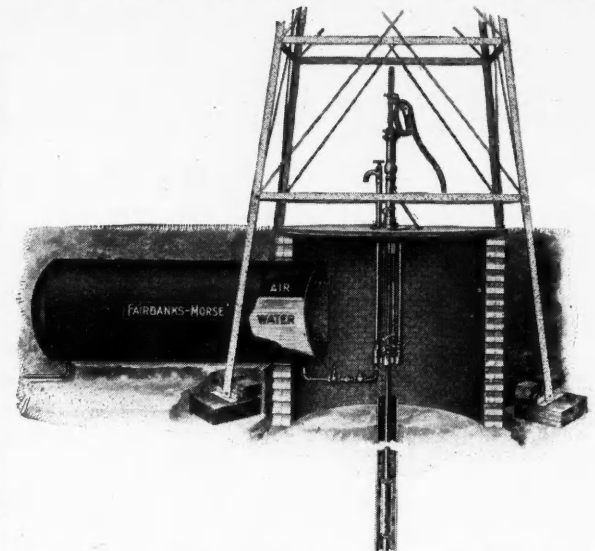


Fig. 3. Fairbanks-Morse Combination Deep Well Pneumatic Water System Hand, Windmill or Engine Drive

start the engine and pay no further attention to it—the Circuit Breaker automatically stopping the engine when the pressure in the tank reaches a predetermined point.

For the farm home that possesses a windmill, one may readily arrange a water system such as shown in Fig. 3. The air tank may be placed in the ground or in a basement within a reasonable distance of the pump. In all cases both tank and pipes should be protected from frost. Such an outfit can be operated by hand or arranged for engine drive.

A feature of the engine-operated outfit is that power may be used for other purposes when the pump is not being run. Once the pneumatic tank is filled, the engine is available for other work—frequently for days at a stretch.

Before ordering a pneumatic water system one should carefully consider not only present but future requirements as well. The following information should prove helpful in determining one's needs. The first question that arises is, how much water is actually required. In answer, the following table is given:

WATER REQUIRED FOR DOMESTIC PURPOSES.

For filling average bathtub.....	30 gal.
For ordinary lavatory, about.....	1½ gal.
For flush closet, from.....	7 to 10 gal.
An ordinary ¾-inch garden hose requires about 6 gallons of water per minute with 40 to 50 pounds pressure per square inch; 8 gallons will sprinkle 100 square feet of lawn; 16 to 20 gallons will soak it thoroughly.	
Horses drink .....	.5 to 10 gal. per day
Cattle drink.....	.7 to 12 gal. per day
Hogs drink.....	.2 to 2½ gal. per day
Sheep drink.....	.1 to 2 gal. per day

Note.—A gallon of water weighs 8½ pounds and contains 231 cubic inches. A cubic foot of water weighs 62½ pounds and contains 1,728 cubic inches, or 7½ gallons; 31½ gallons of water constitute a barrel.

Having a fairly definite idea of the amount of water required for domestic use, one can readily determine the

ORBIN

EVERY HOUSE IN TOWN

can be appropriately and beautifully equipped with Corbin hardware, at the right prices. This fact alone would make this line a good one for dealers to handle, if there were no others—but there is a host of them. The Corbin catalogue is filled with them. Circular CK80 tells about them. Send for it.

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size of pneumatic tank needed. The following table covers 12 sizes that have the greatest capacity for a given cost:

Diameter Inches	Length Feet	CAPACITY		Weight Pounds
		Barrels	Gallons	
24	6	4½	140	350
30	6	7	220	530
30	8	9½	295	650
36	6	10	315	750
30	10	12	365	770
36	8	14	420	900
36	10	17½	525	1,050
42	10	24	720	1,650
42	14	33	1,000	2,200
48	14	43	1,300	2,900
48	16	50	1,500	3,250
48	24	75	2,260	4,650

In connection with capacity of tank, one should keep in mind that the "working capacity" is only about two-thirds the total measured capacity. Thus, in the above table the 36-inch by 8-foot tank, while having a capacity of 420 gallons, would actually handle 280 gallons in service. The remaining space, of course, is occupied by air under pressure.

The cost of water systems, of course, vary, but thoroughly reliable equipment is now furnished at prices well within the reach of the Twentieth Century farmers. Prices range from about \$250 up, \$500 being near the average. Note we say reliable equipment. This point should be emphasized, since a few dollars often means the difference between a highly satisfactory outfit and one that will not be a success. One should not only have a good engine and pump, but the pneumatic tank should be absolutely first class. Much depends upon this.

In many cases farmers are ordering a combination water

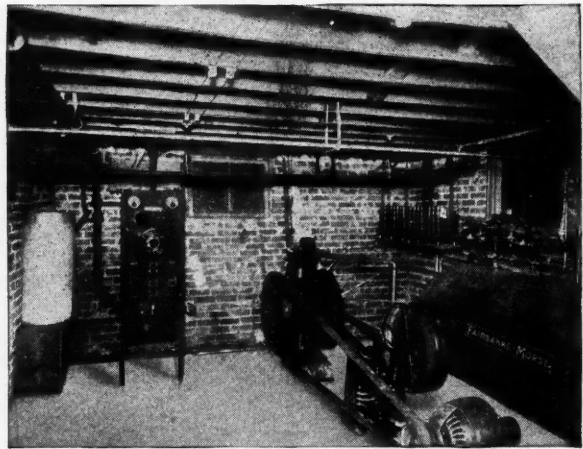


Fig. 4 Fairbanks-Morse Combination Electric Light and Water System near Salix, Iowa

system and electric light plant, thus securing a double use of the engine.

While the farmer who already owns a windmill or engine doubtless will be first to adopt a pressure water system, it is a conservative estimate that many thousands of homes that are now dependent on the slow, laborious hand pump will within the next few years have convenient and sanitary water systems. It is just as certain, also, that the outlay will be more than justified by not only the labor-saving and health-preserving features, but the added attraction it will give to farm life.

Note.—All illustrations used in this article were supplied by Fairbanks, Morse & Co., Chicago, Ill. This firm manufacture a complete line of Water Systems, Electric Light Plants, etc. Parties interested should write them for their Catalog No. 1409M6.

STAR Ventilators



THE BEST AND MOST USED

Experience and the public demand show that STAR Ventilators are the most efficient ventilators made—most modern, most durable, highest speed exhaust and absolutely stormproof.

The illustration shows the STAR Fire retarding Model with damper open. In case of fire the fusible link parts permitting the damper to close automatically, thus preventing an upward draft from fanning the flames.

STAR Ventilators are made in the Standard Stationary Type (Glass or Metal Top) and the Standard Fire Retarding Type (Glass or Metal Top). Sizes to suit all purposes. Made in copper and galvanized iron.

Write for instructive ventilation booklet

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THE PROOF OF SUPERIORITY

Tests have demonstrated the unquestionable superiority of COPMETL Old Style Roofing Tin. The upper portion of the illustration shows a roof of regular corrugated steel almost decomposed. The lower portion is of COPMETL in practically the same condition as the day it was laid. Both Sections are of No. 27 Standard Gauge and were laid simultaneously.

The superiority of COPMETL Old Style Roofing Tin lies in its base being scientifically alloyed with copper which is then manufactured into the finished product by our famous Special Palm Oil Process.

We will gladly furnish samples and descriptive matter on COPMETL and likewise Merchant's Old Method (the standard of excellence in highest grade roofing tins for a generation) and our other brands. Send for samples and prices.

Fire Prevention Engineering—Complete Automatic Sprinkler and Standpipe Systems

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**Here is where we differ from everyone else—
We are producers as well as manufacturers**

Since we made our sensational, epoch-making announcement of our policy of selling direct to the user of lumber, many others have attempted to make it seem they are giving the same opportunity to buyers.

We are not mere wholesalers, or jobbers, nor are we mere manufacturers of the material we sell. Every stick of lumber, every piece of millwork which we sell, comes from a tree from one of our forests.

Is Yours a Silo-Using Neighborhood

If so, here's a chance to make some money. We furnish complete, the best silo in America. Staves are of clear one-piece fir. No sap or knots. Beautiful, long-lasting stock.

The swinging doors are a new invention. No equal. The door bars form ladders from which all necessary tightening of hoops can be made. We can make you an exceedingly low price on

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especially in carloads with lumber. Write quick for our prices. If there's a good corn crop, you can pick up a bunch of silo business.

Save 40% to 60% Get lumber of better quality

We own billions of feet of standing timber. Among it some of the choicest in the famous Puget Sound region. We do our own cutting and logging—convey the logs on our own railroads to our six great mills, where it is worked into lumber and millwork of the highest quality. No customer to whom we have shipped lumber has ever failed to write us about its quality. It is straight of grain and clean. Little sap. No large knots. Beautiful stuff!

Everything for building complete— Quick delivery anywhere in U.S.A.

No matter where you do business we can get lumber and millwork to you quickly from our six mills in the west and two in the east—one in St. Louis, one near Shreveport, La. Seattle has 7 railroads shipping east. St. Louis has 26 roads, Shreveport, 8.

Quality and satisfaction guaranteed

We back every shipment of materials from the West with the guarantee that it will grade better

than trust or combine standards. Our yellow pine is manufactured in strict accordance with the Yellow Pine Manufacturers' Association grading rules.

One estimate will convince you

We handle everything for building complete. Send us your complete lists or schedules for the work on which you are figuring. See what a big saving we can make you and how much bigger profit we put you in the way of getting. Send lists or schedules today. Use the coupon at any rate.

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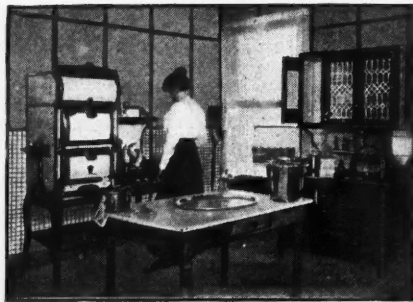
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Note the strength of Carey Ceil Board

THE left and lower edges of this panel show the exclusive four-ply construction (actual size) that makes Ceil Board the strongest, most durable and most satisfactory wallboard on the market.

Ordinary wallboards lack the rigidity and toughness necessary successfully to stand successive changes of temperature and varying atmospheric conditions. Heat and dampness expand, warp and quickly destroy them.

Ceil Board cannot crack or break, is damp, sound and vermin-proof and thoroughly fire-retarding.

It sells so rapidly because it not only looks and feels good but because it proves in use to be as good as it looks. It lasts as long as the building.

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Lockland, Cincinnati, Ohio

Plumbing Company Moves

The Chelsea Mfg. & Supply Co., have moved to new and larger quarters at 236 West 20th St., New York City. While this seems a simple statement, it means a whole lot to one who has followed the progress of this company from a small beginning to its present standing.

These people manufacture modern plumbing goods, heating and water supply systems, bath room outfits, sinks, kitchen boilers, etc. Their products represent high class work. The builder is being consulted more and more in regard to the complete fittings of the house. Many of our readers are now taking on jobs they never dreamed they could handle satisfactorily. The significant point is that they are making money. Most plumbing houses have a special department to help the builders. When a builder buys his fixtures, heating apparatus, etc., this department tells him how to install them and offers many good hints.

If our readers want a complete catalog of plumbing supplies, etc., they may write the Chelsea Mfg. & Supply Co., Dept. F, 236 West 20th St., New York City. Their catalog proves a good book of reference and is sent free.



Cal-Co-Craft Replacing Wood Paneling

Wood paneling, that costly decoration for the homes of the wealthy, has been largely superseded with good effect by Cal-Co-Craft, a paper which reproduces the natural grain of the wood very realistically.

A variety of finishes can be obtained in this material—mahogany, plain and quartered oak in antique, mission, natural and golden finish. It makes an excellent substitute for the wood paneling and the difference cannot be detected except by very close observation. Cal-Co-Craft is easily applied in the same manner as wall paper, the seams being battened with special battens of pulp board covered with Cal-Co-Craft. Any room can be finished off very quickly and at little expense in this manner.

This material is coming into great use in offices, apartments, private homes, stores, churches and theatres providing a most artistic finish that is much admired. Free samples and catalog will be furnished by the Cott-a-lap Company, Somerville, N. J., on request.



6- H. P. Circular

The "New Way" Motor Company have just printed a very attractive circular describing the latest addition to their line—the "New Way" 6 H. P. horizontal Air Cooled Engine.

This new engine has all the special features and advantages of the rest of their air cooled line.

Their new circular describes it fully and gives a good description of the fuel economy of "New Way" Engines.

Everyone interested in selling gasoline engines is invited to write the "New Way" Motor Company, Lansing, Michigan, for their new literature on this and other sizes.

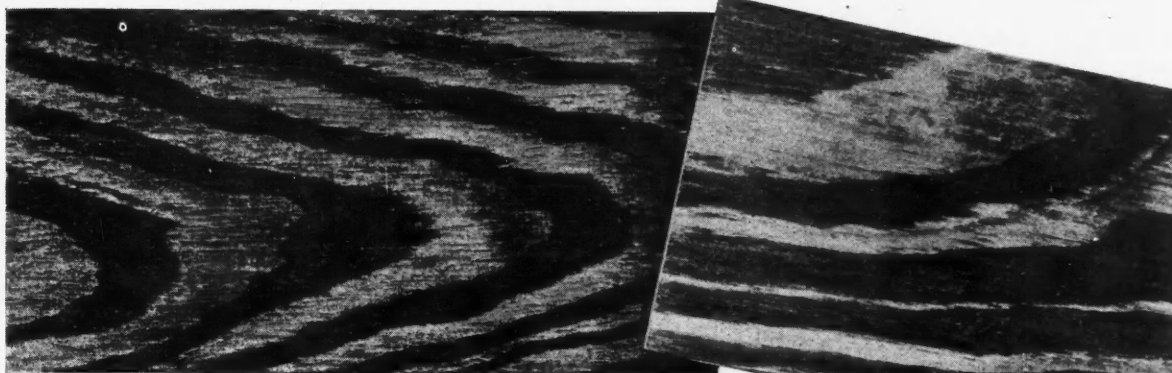


Swing Cut-Off Saw

The Parks Ball Bearing Machine Co., Cincinnati, O., have received notice from the Patent Office that the patent on their swing cut-off has been issued and would be dated June 3, 1913. The swing cut-off is conceded to be one of the handiest machines in the shop, while out on the job it is the most used of any of the attachments on a combination outfit, and there is no doubt about it being the biggest saver of time.

In squaring the ends of joist, studding, rafters, flooring, siding, weather boarding, and in cutting to length all long material, it takes two men to push the material across the stationary cut-off saw while on the swing saw the material lies on the table and the saw is pulled through the wood,

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



This Wonderful Array of Pleasing Figure
Is In The Wood

You can soften or intensify it, give it lustrous or dull finish, secure any color or shade of color you desire if you use

ARKANSAS SOFT PINE TRIM

Properly treated with dye, stain, wax, varnish and paint, gives the user command of all wood effects. You can develop the glory of our Soft Pine Trim without injuring its beautiful figure.

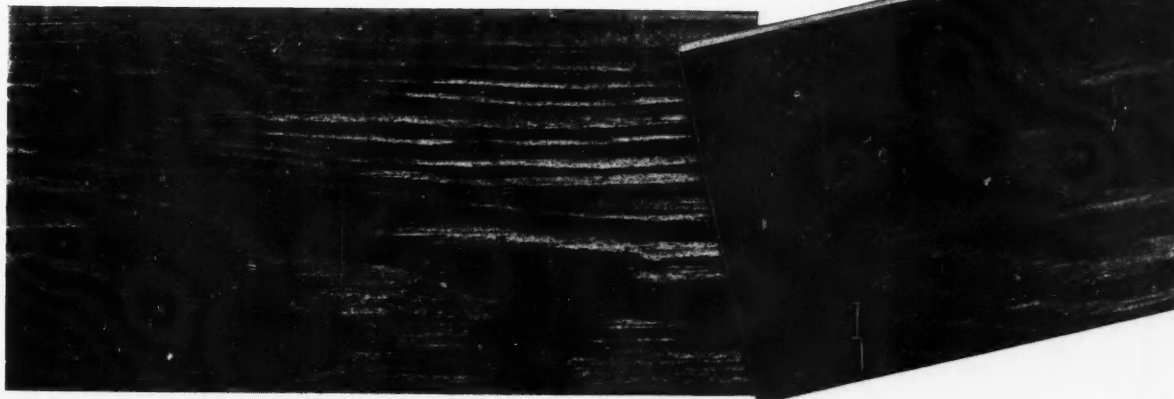
Proof accompanies. Samples shown were finished in Dark Oak, Light Oak, Green Weathered, Mission Oak, Dark Oak, waxed, Bog Oak, Brown Flemish.

This description applies from left to right, at top, top to bottom, and right to left at bottom

Select any decorative scheme you desire. Arkansas Soft Pine Trim will fit snugly in with your ideas. You can save money on the trim of your buildings by using our Soft Pine as the foundation for your Trim.

Write any of the companies for a copy of the Trim Book.

- STOUT LUMBER COMPANY**.....Thornton, Arkansas
- WISCONSIN & ARKANSAS LUMBER COMPANY**.....Malvern, Arkansas
- ARKANSAS LUMBER COMPANY**.....Warren, Arkansas
- COTTON BELT LUMBER COMPANY**.....Bearden, Arkansas
- CROSSETT LUMBER COMPANY**.....Crossett, Arkansas
- EAGLE LUMBER COMPANY**.....Eagle Mills, Arkansas
- EDGAR LUMBER COMPANY**.....Wesson, Arkansas
- FORDYCE LUMBER COMPANY**.....Fordyce, Arkansas
- FREEMAN-SMITH LUMBER COMPANY**.....Millville, Arkansas
- GATES LUMBER COMPANY**.....Wilmar, Arkansas
- SOUTHERN LUMBER COMPANY**.....Warren, Arkansas



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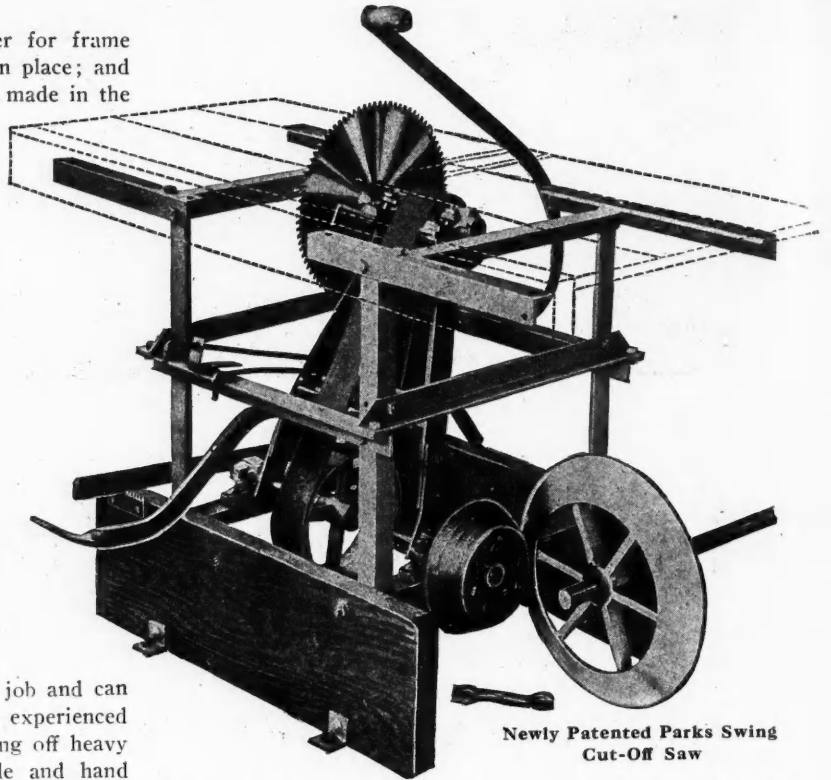
making a clean, square cut, absolutely true.

Several large concerns are advertising lumber for frame dwellings, all cut to length ready to be nailed in place; and they claim a saving of 20 to 30 per cent can be made in the cost of the house. They have found the big leak in the cost of construction—in paying 40 to 60 cents per hour in squaring the ends and cutting to length practically every piece of lumber that is used on the job and we would be safe in saying that over half of the lumber has to be squared on both ends.

Every contractor knows that it is a hard matter today to get a fair price for new work—the job runs high and is peddled from contractor to contractor until some one sharpens his pencil and figures he can make wages out of the job anyway. Mr. Parks is said to have made the first combination of circular saw—band saw—jointer—boring machine that was placed on the market in the United States and, in his opinion, the swing cut-off saw he has just patented will be appreciated by contractors as the most useful machine to have out on the job.

Any apprentice can operate the swing cut-off saw right where the lumber is lying on the job and can turn out more accurate work than the most experienced carpenter and about four times as fast. In cutting off heavy timbers, such as 12 x 12 joist, both foot treadle and hand lever are used, making it easier work for the operator.

The machine shown in the cut is covered with a wood table which is fitted with angle adjustable cross cut guide for cutting miters on rafters, bridging strips, joist for brick houses, etc. A 12-inch saw will cut 1-inch stuff 20 inches wide, or 3-inch material 15 inches wide and swings back



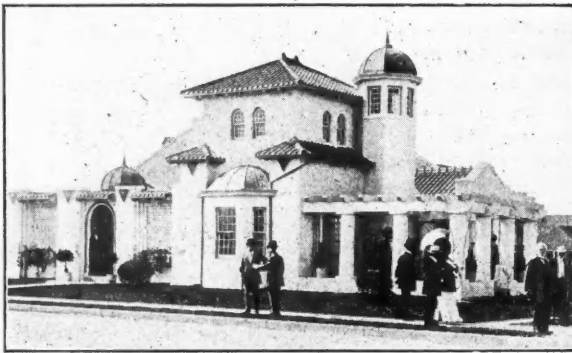
Newly Patented Parks Swing Cut-Off Saw

below the table surface and is provided with an adjustable stop so as not to swing back further than necessary to take in the width desired to work.

One feature of the new machine is the simplicity of construction—nothing to get out of order and therefore no repair bills or a bad delay at the busiest time.

A Stucco Uniform in Texture

J-M Asbestos, Stucco, which consists of ground asbestos rock and fibres, combined with Portland Cement, forms an exterior which is uniform in texture. This stucco also possesses elasticity, which prevents cracking and crumbling.



Residence of Mr. J. S. Stehlin, Long Beach, L. I. Covered with J-M Asbestos Stucco. Kirby, Pettit & Green, Architects.

J-M Asbestos Stucco

dries a permanent uniform color that does not tarnish or discolor with age. Water or the most severe climatic changes do not affect it.

It can be worked in many texture effects.

The covering capacity of J-M Asbestos Stucco is greater than that of any other exterior finish. It contains no sand to cause discoloration or prevent the proper setting of cements, as in ordinary stuccos.

J-M Asbestos Stucco weighs considerably less than other stuccos, spreads more evenly and can be applied at a less cost of labor. It is the most weather-proof and fire-proof stucco on the market.

In prepared form it can be furnished in white, and various shades of gray, buff and brown.

Write nearest Branch for Booklet.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products

ASBESTOS

Asbestos Roofings, Packings, Electrical Supplies, Etc.

Albany	Buffalo	Cleveland	Indianapolis	Louisville	New Orleans	Philadelphia	Seattle
Baltimore	Chicago	Dallas	Kansas City	Milwaukee	New York	Pittsburgh	St. Louis
Boston	Cincinnati	Detroit	Los Angeles	Minneapolis	Omaha	San Francisco	Syracuse

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED:—Toronto Montreal Winnipeg Vancouver 1230

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Send for Your Copy of This Free Book

HERE'S a book that every carpenter, contractor or builder should have: "Natural Woods and How to Finish Them." Written by an expert, and full of valuable information that you'll be mighty glad to have at hand.

Remember that the finish on a job is sometimes the principal factor in determining the satisfaction of the

owner. 55 years of varnish-making experience have gone into this book and there'll be many a time when you want to consult it.

Simply write us and say you want the book, and it will go forward at once.

BERRY BROTHERS' VARNISHES

BERRY BROTHERS

Established 1858.

Factories: Detroit, Mich., and Walkerville Ont.

Branches: New York, Boston, Philadelphia, Baltimore, Chicago, Cincinnati, St. Louis, San Francisco, London, England.



You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.



LUMBER LATH

Millions of Feet

AT CHALLENGE PRICES

Our big Southern Mill in Louisiana and our Assembling Yards in Illinois are especially well stocked with highest quality lumber, lath, shingles, etc., of all kinds. Millions of feet are ready for shipment.

Our customers advise our wholesale prices save them about \$100.00 on the average carload.

In order to get the benefit of the lowest carload rate of freight, it is necessary to order 30,000 lbs. or more of lumber, which can be made up of 10,000 ft. lumber, 14,000 shingles and 10,000 lath. An ordinary house or barn will require this amount.

But we now ship lumber in any quantity, from a bundle to a trainload at the price quoted on these two pages which are guaranteed to June 30, 1913. Send us a small trial order and see for yourself how good our lumber is. Mark your order "Lumber Department 56-A."

CROWN MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x2 $\frac{1}{2}$	\$1.10	40 pounds
13-16x3 $\frac{1}{4}$	1.35	45 pounds
13-16x3 $\frac{3}{4}$	1.55	52 pounds
13-16x4 $\frac{1}{2}$	1.74	60 pounds
13-16x4 $\frac{3}{4}$	1.95	68 pounds

BED MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x2	\$0.83	28 pounds
13-16x2 $\frac{1}{2}$	.94	31 pounds
13-16x2 $\frac{3}{4}$	1.10	38 pounds

DRIP CAP MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 $\frac{1}{2}$ x1 $\frac{1}{2}$	\$1.17	28 pounds
1 $\frac{1}{2}$ x2	1.46	34 pounds
1 $\frac{1}{2}$ x2 $\frac{1}{2}$	1.76	42 pounds
1 $\frac{1}{2}$ x3	2.09	52 pounds

COVE MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
$\frac{3}{4}$ x $\frac{3}{4}$	\$0.37	13 pounds
13-16x1 $\frac{1}{2}$	.45	16 pounds

NOSING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 $\frac{1}{2}$ x2	\$1.45	34 pounds

BRICK MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 $\frac{1}{2}$ x1 $\frac{1}{2}$	\$1.17	30 pounds
1 $\frac{1}{2}$ x2	2.40	55 pounds

SCREEN MOLDING. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
$\frac{3}{4}$ x $\frac{3}{4}$	\$0.37	13 pounds
7-16x $\frac{3}{4}$	.39	14 pounds

DOOR AND WINDOW STOP. O. G. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
$\frac{3}{4}$ x1 $\frac{1}{2}$	\$0.37	8 pounds
$\frac{3}{4}$ x1 $\frac{3}{4}$	.41	9 pounds
$\frac{3}{4}$ x1 $\frac{1}{4}$	.59	13 pounds
$\frac{1}{2}$ x2	.66	15 pounds

LATTICE. Cypress. Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
5-16x1 $\frac{1}{2}$	\$0.31	8 pounds
5-16x1 $\frac{3}{4}$	.37	9 pounds
5-16x1 $\frac{1}{4}$	.50	12 pounds

PARTING STOP. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
$\frac{1}{2}$ x13-16	\$0.37	8 pounds

BLIND STOP. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x1 $\frac{1}{2}$	\$0.55	21 pounds

QUARTER ROUND.

Shipped in Assorted Lengths.

Size, Inches	Cypress Price, per 100 Lineal Feet	Size, Inches	Yellow Pine Price, per 100 Lineal Feet
$\frac{3}{4}$ x $\frac{3}{4}$	36c	$\frac{3}{4}$ x $\frac{3}{4}$	26c
$\frac{1}{2}$ x $\frac{1}{2}$	37c		

FLOORING. Yellow Pine.

FLAT GRAIN.

Thickness, Inch	Width of Face	Grade	Weight, per 100 Square Feet	Price, per 100 Square Feet, Surface Measure
13-16	2 $\frac{1}{2}$ inch	Clear	200 lbs.	\$3.10
13-16	2 $\frac{1}{2}$ inch	No. 1	200 lbs.	2.85
13-16	2 $\frac{1}{2}$ inch	No. 2	200 lbs.	2.15
13-16	3 $\frac{1}{4}$ inch	Clear	210 lbs.	2.90
13-16	3 $\frac{1}{4}$ inch	No. 1	210 lbs.	2.65
13-16	3 $\frac{1}{4}$ inch	No. 2	210 lbs.	1.93
13-16	5 $\frac{1}{4}$ inch	Clear	220 lbs.	2.90
13-16	5 $\frac{1}{4}$ inch	No. 1	220 lbs.	2.73
13-16	5 $\frac{1}{4}$ inch	No. 2	220 lbs.	2.15

ORDER ENOUGH EXTRA TO ALLOW FOR TONGUE AND GROOVE.

Above prices are for assorted lengths. Specified lengths, 20 cents per 100 square feet, extra.

FLOORING. Yellow Pine.

EDGE GRAIN.

Thickness, Inch	Width of Face	Grade	Weight, per 100 Square Feet	Price per 100 Square Feet, Surface Measure
13-16	3 $\frac{1}{4}$ inch	Clear	200 lbs.	\$4.10
13-16	3 $\frac{1}{4}$ inch	"C"	200 lbs.	3.32

ORDER ENOUGH EXTRA TO ALLOW FOR TONGUE AND GROOVE.

Above prices are for assorted lengths. Specified lengths, 20 cents per 100 square feet, extra.

FLOORING. Made Especially for Porch FIR, EDGE GRAIN.

Finished Thickness, Inches	Width Face, Inches	Grade	Wood	Weight, per 100 Square Feet, Board Measure	Price, per 100 Feet, Board Measure
$\frac{7}{8}$	3 $\frac{1}{4}$	Clear	Fir	200 lbs.	\$4.70
1 $\frac{1}{4}$	3 $\frac{1}{4}$	Clear	Fir	220 lbs.	5.20

IN ORDERING ABOVE FLOORING ALLOW EXTRA FOR TONGUE AND GROOVE.

If $\frac{1}{2}$ -inch is ordered add 25 per cent to surface measure for quantity board measure.

CEILING. Yellow Pine.

Size, Inches	Clear Grade Price, per 100 Square Feet	No. 1 Grade Price, per 100 Square Feet	No. 2 Grade Price, per 100 Square Feet	Weight, per 100 Square Feet
1 $\frac{1}{2}$ x3 $\frac{1}{4}$	\$2.32	\$2.15	\$1.50	110 lbs.
5 $\frac{1}{2}$ x3 $\frac{1}{4}$	2.65	2.32	1.60	140 lbs.

Order extra to allow for tongue and groove.

YELLOW PINE PARTITION.

Size, Inches	Clear Grade Price, per 100 Square Feet	No. 1 Grade Price, per 100 Square Feet	No. 2 Grade Price, per 100 Square Feet	Weight, per 100 Square Feet
$\frac{3}{4}$ x3 $\frac{1}{4}$	\$3.02	\$2.71	\$2.00	180 lbs.

Order extra to allow for tongue and groove.

FINISHING LUMBER.

Surfaced Both Sides.

Size, Inches	Yellow Pine, Clear Grade Price, per 100 Lineal Feet	Yellow Pine, Select Grade Price, per 100 Lineal Feet	Cypress, Clear Grade Price, per 100 Lineal Feet	Cypress, Select Grade Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
1 x 3	\$0.90	\$0.76	\$1.18	\$0.90	65 lbs.
1 x 4	1.13	.95	1.49	1.08	85 lbs.
1 x 5	1.51	1.26	1.93	1.44	105 lbs.
1 x 6	1.66	1.40	2.30	1.72	125 lbs.
1 x 8	2.23	1.88	3.01	2.23	165 lbs.
1 x 10	3.02	2.53	3.87	2.39	210 lbs.
1 x 12	3.58	3.00	5.07	4.01	250 lbs.
1 $\frac{1}{4}$ x 4	1.55	1.33	1.93	1.41	114 lbs.
1 $\frac{1}{4}$ x 6	2.39	2.03	3.08	2.34	167 lbs.
1 $\frac{1}{4}$ x 8	3.17	2.73	4.03	3.05	220 lbs.
1 $\frac{1}{4}$ x 10	4.22	3.59	5.14	3.90	280 lbs.
1 $\frac{1}{4}$ x 12	5.00	4.26	6.69	5.37	335 lbs.
1 $\frac{1}{2}$ x 4	1.88	1.61	2.40	1.76	136 lbs.
1 $\frac{1}{2}$ x 6	2.80	2.39	3.72	2.84	200 lbs.
1 $\frac{1}{2}$ x 8	3.74	3.20	4.86	3.70	265 lbs.
1 $\frac{1}{2}$ x 10	5.01	4.27	6.24	4.77	336 lbs.
1 $\frac{1}{2}$ x 12	5.98	5.09	8.20	6.57	400 lbs.
2 x 4	3.58	2.16	3.40	2.55	178 lbs.
2 x 6	5.00	4.28	5.29	4.31	270 lbs.
2 x 8	6.66	5.65	8.76	6.80	365 lbs.
2 x 10	7.90	6.70	11.33	9.22	460 lbs.
2 x 12					550 lbs.

Above shipped in assorted lengths, 10 to 20 feet.

YELLOW PINE DROP SIDING.

Size, Inches	Clear Grade Price, per 100 Square Feet	No. 1 Grade Price, per 100 Square Feet	No. 2 Grade Price, per 100 Square Feet	Weight, per 100 Square Feet
$\frac{3}{4}$ x5 $\frac{1}{4}$	\$2.88	\$2.65	\$2.10	175 lbs.

Order extra for tongue and groove or shiplap.

BEVEL SIDING.

Size, Inches	Kind of Wood	Grade	Price, per 100 Square Feet	Weight, per 100 Square Feet
1 $\frac{1}{2}$ x3 $\frac{1}{2}$	Cypress	Clear	\$2.35	100 lbs.
$\frac{1}{2}$ x5 $\frac{1}{2}$	Cypress	Clear	2.45	100 lbs.
$\frac{1}{2}$ x5 $\frac{1}{2}$	Cypress	C	2.00	100 lbs.
$\frac{1}{2}$ x5 $\frac{1}{2}$	Cypress	C	2.10	100 lbs.
$\frac{1}{2}$ x3 $\frac{1}{2}$	Yellow Pine	Clear	1.95	100 lbs.
$\frac{1}{2}$ x5 $\frac{1}{2}$	Yellow Pine	Clear	2.05	100 lbs.
$\frac{1}{2}$ x3 $\frac{1}{2}$	White Pine	C Select	2.40	80 lbs.
$\frac{1}{2}$ x5 $\frac{1}{2}$	White Pine	C Select	2.50	80 lbs.

FIR STEPPING FOR PORCH STEPS.

Surfaced both sides. Nosed and all ready.

Thickness, Inches	Width, Inches	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
1 $\frac{1}{2}$	10	\$6.35	280 lbs.
1 $\frac{1}{2}$	12	7.90	320 lbs.

WINDOW FRAME STOCK.

Made for 1 $\frac{1}{2}$ -inch windows unless otherwise ordered.

Size, Inches	Clear Grade Price, per 100 Lineal Feet	No. 1 Grade Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
13-16x4 $\frac{3}{4}$	\$1.95	\$1.60	90 lbs.

INSIDE DOOR FRAME STOCK.

Grade	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
Clear	\$2.05	120 lbs.
No. 1	1.65	110 lbs.

ORDER LUMBER IN ANY QUANTITY FROM SEARS, ROEBUCK & COMPANY, CHICAGO, ILLINOIS



HAND SHINGLES

Lumber Sold in Any Quantity

CONCERNING QUALITY. It is a well known fact among large contracting concerns and architects that cypress lumber for outside cornice work, finishing lumber and bevel siding, and yellow pine for dimension, joists, timbers, flooring, ceiling, partition, etc., are very superior in strength and lasting qualities to other kinds of woods, such as hemlock, tamarack, jack pine, etc. In most cases our yellow pine prices are lower than the prices charged by local concerns for cheaper woods, but frequently in the states and localities where hemlock, tamarack, etc., grow a slightly lower price is quoted on these woods than on yellow pine. In all instances, however, yellow pine and cypress will be the cheapest and most satisfactory woods in the end, for they will last much longer and make a more permanent building.

CONCERNING SIZES. The sizes specified on this and the opposite page for dimension lumber, timbers, boards, shiplap, dressed and matched, etc., are the even inch measurements into which lumber is always cut, green and rough. After allowing for the shrinkage of drying and for surfacing, this stock will finish a little scant in thickness and width. Our lumber is all finished and manufactured in standard or regular Association yellow pine sizes.

In ordering flooring, siding, ceiling, partition, shiplap, dressed and matched, be sure to order enough extra to allow for the tongue and groove. For instance, it takes 4-inch lumber to make flooring with 3/4-inch face. The difference is taken up in the tongue and groove. Example: A room 10x10 feet requires 100 square feet plus 25 per cent, or 125 feet, the board measure quantity necessary to cover this room.

CONCERNING GRADES. All our clear finishing lumber, flooring, ceiling, siding, etc., both in cypress and yellow pine, is made from thoroughly kiln dried stock, very carefully machined. This is the highest grade furnished, is commonly known as Clear grade and is intended for the very best class of work.

Our Select grade finishing lumber is the next grade below the clear and will contain some defects which can be covered with paint. This is the grade usually used for outside finishing lumber.

No. 1 grade dimension and timbers are all sound, straight stock, and our No. 1 boards, flooring, siding, ceiling, etc., are equal to the No. 1 grades usually furnished and are better than are sold in many local territories. No. 1 grade is the highest grade in which timbers, dimension, sheathing shiplap and dressed and matched are manufactured, and this stock is recommended for the best class of work.

Our No. 2 grade boards, sheathing and shiplap are good serviceable stock, and are the grade in which this material is usually ordered in moderate and high priced buildings. Our No. 2 dimension, flooring, ceiling, etc., are equal to the No. 2 grades usually furnished, but should be ordered only for low priced construction.

Our No. 3 grade is the lowest grade we handle, but in many localities No. 3 boards, sheathing and shiplap are used almost entirely. This lumber will be used with some waste, and may be satisfactory for low priced buildings. Mark your order "Lumber Dept., 56-A."

ALL PRICES
On These Two Pages Are Guaranteed
Only To June 30

DIMENSION. Yellow Pine.

Surfaced One Side and One Edge.			Surfaced Four Sides.		
Size, In.	Length, Feet	No. 1 Grade, Price, Each Piece	Size, In.	Length, Feet	Price, Each Piece
2x4	6	\$0.11	4x4	10	\$0.32
2x4	8	.14	4x4	12	.40
2x4	9	.17	4x4	14	.46
2x4	10	.18	4x4	16	.52
2x4	12	.20	4x4	18	.58
2x4	14	.22	4x4	20	.64
2x4	16	.26	4x4	24	.84
2x4	18	.32	4x4	26	.94
2x4	20	.35	4x4	28	1.06
2x4	22	.38	4x4	30	1.13
2x4	24	.42	4x6	10	.49
2x4	26	.44	4x6	12	.58
2x4	28	.47	4x6	14	.67
2x4	30	.50	4x6	16	.78
2x6	6	.14	4x6	18	.83
2x6	8	.19	4x6	20	.97
2x6	10	.22	4x6	22	1.10
2x6	12	.24	4x6	24	1.27
2x6	14	.27	4x6	26	1.32
2x6	16	.30	4x6	28	1.45
2x6	18	.33	4x6	30	1.58
2x6	20	.36	6x6	12	.88
2x6	22	.38	6x6	14	1.02
2x6	24	.41	6x6	16	1.17
2x6	26	.43	6x6	18	1.31
2x6	28	.45	6x6	20	1.46
2x6	30	.47	6x6	24	1.89
2x6	32	.50	6x6	26	2.13
2x6	34	.53	6x6	28	2.37
2x6	36	.57	6x6	30	2.64
2x6	38	.62	6x6	32	2.91
2x6	40	.67	6x6	34	3.19
2x6	42	.72	6x8	12	1.17
2x6	44	.77	6x8	14	1.37
2x6	46	.82	6x8	16	1.55
2x6	48	.87	6x8	18	1.75
2x6	50	.92	6x8	20	1.94
2x6	52	.97	6x8	22	2.13
2x6	54	1.02	6x8	24	2.31
2x6	56	1.07	6x8	26	2.53
2x6	58	1.12	6x8	28	2.79
2x6	60	1.17	6x8	30	3.05
2x6	62	1.21	6x8	32	3.31
2x6	64	1.26	6x8	34	3.57
2x6	66	1.31	6x8	36	3.84
2x6	68	1.36	6x8	38	4.11
2x6	70	1.41	6x8	40	4.38
2x6	72	1.46	6x8	42	4.64
2x6	74	1.51	6x8	44	4.91
2x6	76	1.56	6x8	46	5.18
2x6	78	1.61	6x8	48	5.44
2x6	80	1.66	6x8	50	5.71
2x6	82	1.71	6x8	52	5.97
2x6	84	1.76	6x8	54	6.24
2x6	86	1.81	6x8	56	6.50
2x6	88	1.86	6x8	58	6.77
2x6	90	1.91	6x8	60	7.03
2x6	92	1.96	6x8	62	7.30
2x6	94	2.01	6x8	64	7.56
2x6	96	2.06	6x8	66	7.83
2x6	98	2.11	6x8	68	8.09
2x6	100	2.16	6x8	70	8.36
2x6	102	2.21	6x8	72	8.62
2x6	104	2.26	6x8	74	8.89
2x6	106	2.31	6x8	76	9.15
2x6	108	2.36	6x8	78	9.42
2x6	110	2.41	6x8	80	9.68
2x6	112	2.46	6x8	82	9.95
2x6	114	2.51	6x8	84	10.21
2x6	116	2.56	6x8	86	10.48
2x6	118	2.61	6x8	88	10.74
2x6	120	2.66	6x8	90	11.01
2x6	122	2.71	6x8	92	11.27
2x6	124	2.76	6x8	94	11.54
2x6	126	2.81	6x8	96	11.80
2x6	128	2.86	6x8	98	12.07
2x6	130	2.91	6x8	100	12.33
2x6	132	2.96	6x8	102	12.60
2x6	134	3.01	6x8	104	12.86
2x6	136	3.06	6x8	106	13.13
2x6	138	3.11	6x8	108	13.39
2x6	140	3.16	6x8	110	13.66
2x6	142	3.21	6x8	112	13.92
2x6	144	3.26	6x8	114	14.19
2x6	146	3.31	6x8	116	14.45
2x6	148	3.36	6x8	118	14.72
2x6	150	3.41	6x8	120	14.98
2x6	152	3.46	6x8	122	15.25
2x6	154	3.51	6x8	124	15.51
2x6	156	3.56	6x8	126	15.78
2x6	158	3.61	6x8	128	16.04
2x6	160	3.66	6x8	130	16.31
2x6	162	3.71	6x8	132	16.57
2x6	164	3.76	6x8	134	16.84
2x6	166	3.81	6x8	136	17.10
2x6	168	3.86	6x8	138	17.37
2x6	170	3.91	6x8	140	17.63
2x6	172	3.96	6x8	142	17.90
2x6	174	4.01	6x8	144	18.16
2x6	176	4.06	6x8	146	18.43
2x6	178	4.11	6x8	148	18.69
2x6	180	4.16	6x8	150	18.96
2x6	182	4.21	6x8	152	19.22
2x6	184	4.26	6x8	154	19.49
2x6	186	4.31	6x8	156	19.75
2x6	188	4.36	6x8	158	20.02
2x6	190	4.41	6x8	160	20.28
2x6	192	4.46	6x8	162	20.55
2x6	194	4.51	6x8	164	20.81
2x6	196	4.56	6x8	166	21.08
2x6	198	4.61	6x8	168	21.34
2x6	200	4.66	6x8	170	21.61
2x6	202	4.71	6x8	172	21.87
2x6	204	4.76	6x8	174	22.14
2x6	206	4.81	6x8	176	22.40
2x6	208	4.86	6x8	178	22.67
2x6	210	4.91	6x8	180	22.93
2x6	212	4.96	6x8	182	23.20
2x6	214	5.01	6x8	184	23.46
2x6	216	5.06	6x8	186	23.73
2x6	218	5.11	6x8	188	24.00
2x6	220	5.16	6x8	190	24.26
2x6	222	5.21	6x8	192	24.53
2x6	224	5.26	6x8	194	24.79
2x6	226	5.31	6x8	196	25.06
2x6	228	5.36	6x8	198	25.32
2x6	230	5.41	6x8	200	25.59
2x6	232	5.46	6x8	202	25.85
2x6	234	5.51	6x8	204	26.12
2x6	236	5.56	6x8	206	26.38
2x6	238	5.61	6x8	208	26.65
2x6	240	5.66	6x8	210	26.91
2x6	242	5.71	6x8	212	27.18
2x6	244	5.76	6x8	214	27.44
2x6	246	5.81	6x8	216	27.71
2x6	248	5.86	6x8	218	27.97
2x6	250	5.91	6x8	220	28.24
2x6	252	5.96	6x8	222	28.50
2x6	254	6.01	6x8	224	28.77
2x6	256	6.06	6x8	226	29.03
2x6	258	6.11	6x8	228	29.30
2x6	260	6.16	6x8	230	29.56
2x6	262	6.21	6x8	232	29.83
2x6	264	6.26	6x8	234	30.09
2x6	266	6.31	6x8	236	30.36
2x6	268	6.36	6x8	238	30.62
2x6	270	6.41	6x8	240	30.89
2x6	272	6.46	6x8	242	31.15
2x6	274	6.51	6x8	244	31.42
2x6	276	6.56	6x8	246	31.68
2x6	278	6.61	6x8	248	31.95
2x6	280	6.66	6x8	250	32.21

SHINGLES. RED CEDAR AND CYPRESS.

Thickness, Inches	Length, Inches	Grade	Kind of Wood	Price, per 1,000	Weight, per 1,000
6-2	16	Star A Star	Red Cedar	\$3.65	160 lbs.
5-2	16	Extra Clear	Red Cedar	4.35	180 lbs.
5-2	16	Prime	Cypress	3.70	300 lbs.

LATH. CYPRESS AND YELLOW PINE. Thoroughly dry. All 3/4 inch thick, 1 3/4 inches wide.

Length, Inches	Wood	Grade	Price, per 1,000	Weight, per 1,000
48	Yel. Pine	No. 1	\$3.15	500 lbs.
48	Yel. Pine	No. 2	2.60	500 lbs.
48	Cypress	No. 1	4.55	500 lbs.
48	Cypress	No. 2	3.70	500 lbs.

SHINGLE LATH, FURRING STRIPS AND GROUNDS AND BRIDGING.

Surfaced two sides and made from sound stock suitable for the purpose intended.

Thickness, Inch	Width	Kind of Wood	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
13-16	1 inch	Yel. Pine	25c	20 lbs.
13-16	2 inch	Yel. Pine	40c	40 lbs.
13-16	3 inch	Yel. Pine	55c	60 lbs.

BRIDGING. YELLOW PINE. (Square Ends.)

Size, Inches	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
1x2	40c	40 lbs.
2x2	75c	75 lbs.

DIMENSION SHINGLES. RED CEDAR.

5 inches wide. 16 inches long. Furnished in six different designs.

Grade	Price, per 1,000	Weight, per 1,000
Diamond	\$5.00	150 lbs.
Octagon		
Half Circle		
Segment		
Cove		
Butt		

Draw a circle around name of design you want shipped.

Prices on this page are for Lumber in any quantity, F. O. B. our plant in Southern Illinois, and are subject to market changes. We will always give you the lowest prices in effect at time your order is received.

YELLOW PINE BOARDS, SHIPLAP, AND DRESSED AND MATCHED.

Plain Boards. Shiplap. Dressed and Matched. All Surfaced Both Sides.

Size, Inches	No. 1 Grade, Price, per M Square Feet	No. 2 Grade, Price, per M Square Feet	No. 3 Grade, Price, per M Square Feet	Weight, per 1,000 Square Feet
1x4	\$23.25	\$20.50	\$18.75	2,500 lbs.
1x6	25.50	21.50	18.75	2,500 lbs.
1x8	25.50	22.90	19.00	2,500 lbs.
1x10	26.00	23.00	19.00	2,500 lbs.
1x12	29.85	23.50	20.00	2,500 lbs.

Order extra to allow for shiplap or dressed and matched.

CYPRESS BARN BOARDS. Strictly No. 1 Selected Stock. Surfaced Both Sides.

Be Sure to Specify Length Wanted.

Size, Inches	Lengths, Feet	Price, per 1,000 Feet, Board Measure	Weight, per 100 Square Feet
1x8	12, 14, 16	\$29.00	250 lbs.
1x8	18, 20	30.00	250 lbs.
1x10	12, 14, 16	30.00	250 lbs.
1x10	18, 20	31.00	250 lbs.
1x12	12, 14, 16	36.00	

Use Birch Finish

The carpenter and contractor are constantly confronted with the problem of how to get the best interior finish for the least expense. The use of **Birch Finish** solves this perplexing question to the entire satisfaction of both builder and owner.

Birch is a close-grained, wear-resisting, hard wood that does not warp, shrink, nor mar easily like softer woods. It has a peculiar richness of tone and figure, and takes readily and permanently a wide variety of stains. **Birch** is so adaptable and serviceable that it can be used throughout the house from kitchen to sleeping rooms for **Doors, Casing, Base, Trim and Floors** with excellent effect, while the cost is so reasonable that to specify **Birch** is true economy.

Our illustrated **Birch Book "C"** which shows how **Birch** is used in modern homes, apartments, and office buildings, together with **panels of Birch** in stained and natural colors and white enamel, will be sent to any reader of this magazine.

The Northern Hemlock and Hardwood Manufacturers Association

Dept. C

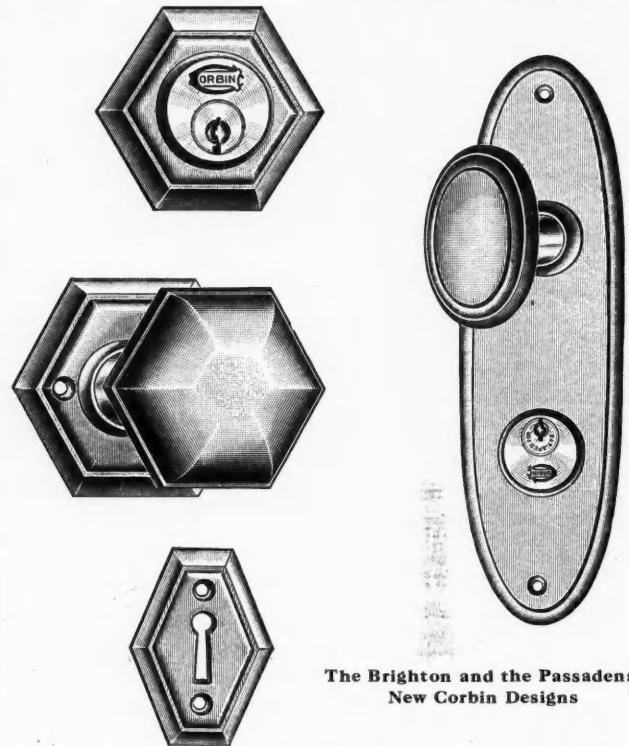
WAUSAU, WIS.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

New Designs in Locks

P. & F. Corbin, New Britain, Conn., manufacturers of classy builders' hardware, may always be depended upon to furnish new and interesting designs. This month they have brought out two new locks which are produced herewith.

The Pasadena design is made from wrought bronze, something on the Colonial style, and is a very pretty model for a bungalow or modest home. The Brighton pattern, also of



The Brighton and the Pasadena,
New Corbin Designs

wrought bronze and following the Colonial school, is better adapted for use upon finer buildings. These two locks present an unusually fine appearance. The proportions are correct for practical use.

Corbin locks are known the country over, but if you want to know more about this fine line write them for Circular C-K80.



Here's a Calender for You

The Canton Art Metal Co., Canton, Ohio, are giving away very unique calenders to the carpenters and builders. The calender pad is suspended by rings from an embossed metal plate about six and one-half inches square. A chain hanger completes the arrangement.

This little souvenir is to remind the building trade that the Canton Art Metal Co. are manufacturers of high grade sheet metal specialties such as metal ceilings, etc. These people are very prominent in this line and Canton Art Metal Ceilings are truly very artistic and have been received with great favor. When you write this company for a calender, ask them for their catalog also.



Vapor-Vacuum Heating

When the heating problem confronts the house owner, he is in nine cases out of ten "up against it." In such a case, he usually considers three systems, viz.: steam, hot water and hot air. Failing to arrive at a satisfactory conclusion, he proceeds to call in the builder thereby placing that individual in an unenviable position. Plainly speaking, it puts him "up a tree." Now here is a heating system that the builder can study to good advantage—the Vapor-Vacuum Heating Kriebel System. This method of heating has been worked out with

LIVE CARPENTERS ^{A R E} GETTING onto the CYPRESS BAND-WAGON!

READ EVERY WORD of the UP-TO-DATE LETTER BELOW

We're glad they're taking advantage of our facilities and we're glad they respond to our helpful intentions. No other lumber manufacturers are doing much to help the people whose use of their particular kind of wood constitutes their market—are they? The Cypress people are "friends to their friends," just as Cypress itself is the best lumber friend of the man who cares what *permanent value* he gets for his lumber money.

AND IT'S ^{ONE} OF THE ^{WOODS} **EASIEST** ^{KNOWN} **ON EDGE TOOLS**

A BIG LESSON FROM A LITTLE DAHLIA STAKE. READ IT:

Feb. 17, 1913

Southern Cypress Manufacturer's Association,

Dear Sirs: I received Vol. 28 of your Cypress Pocket Library and was very much pleased with it. Intend to build from some of those designs this spring and of course will use **Cypress**. My attention was first drawn to **Cypress** several years ago by using some of it for Dahlia stakes along with some pine, etc., and after the pine had rotted away **THE CYPRESS SHOWED NO SIGNS OF DECAY**. Since then I have used it for **boats and canoes** and it has been **very satisfactory**.

Would like you to send me the following volumes and hope and **expect to profit by same**.

I THINK YOUR PLAN OF SENDING OUT THESE BOOKLETS A GOOD ONE, AS IT ENABLES ONE TO PLAN AND PROFIT BY EXPERT OPINION.

BEING A CARPENTER I AM FREQUENTLY CALLED ON TO BUILD TRELISES, PERGOLAS, ARBORS, ETC.

Please send me the following volumes of your Cypress Pocket Library; 3, 6, 7, 19, 28, 30 and 33.

Yours truly,

4 Vanden Bosch Ave., Auburn, N. Y.

(Signed) C. E. ROBBINS.

CARPENTERS AND BUILDERS ARE WELCOME TO THE BEST WE HAVE. GET YOURS!

WRITE TODAY for VOLUME ONE of the CYPRESS POCKET LIBRARY, with Full Text of OFFICIAL U. S. GOVT. REPT. Also Full List of 36 Other Volumes. (FREE on request.)

Let our "BUILDERS' DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel.

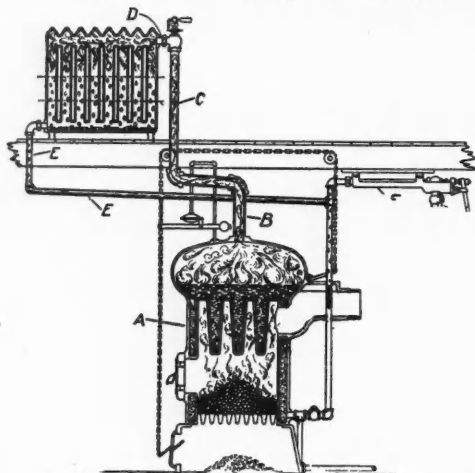
SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

INSIST ON CYPRESS AT YOUR LOCAL DEALER'S. IF HE HASN'T IT, LET US KNOW IMMEDIATELY.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

a fine regard for natural conditions and on a common sense basis.

In explaining Vapor-Vacuum Heating we'll assume for the time being that you know nothing about the principles of



Showing Scientific Principle On Which Vacuum-Vapor Operates
steam heating to which this system is closely allied in many respects. For the sake of illustration, a simple system of the boiler and one radiator is shown with supply and return pipes and the controller used. Refer to the diagram when mention is made of the letters—A, B, etc.

Shortly after the fire is started in the boiler "A," the vapor arises and fills the chamber in the top of the boiler above the water line. Making its way into the supply pipe "B" it passes on to the branch pipe "C" and thence into the radiator. The vapor rushing through the pipes drives the air before it into the radiator. When the vapor enters the radiator through the inlet "D," it speedily drives out the

air through the return pipe "E" and on through to the controller "F" where it is ejected from the system—the controller acting as an air valve for the entire system. Naturally the vapor follows right along after but it cannot escape from the controller because the heat instantly acts on the brass expansion tube and closes the system. The system is now filled with vapor and all air is expelled. As the heat is transmitted from the radiator to the room the vapor condenses and creates a vacuum. Now this vacuum must be filled so a constant suction is exerted on the boiler pulling the heat up into the radiator.

Naturally it is impossible for us in this small article, to point out all the advantages of this system. However, attention can be called to the fact that in the case of steam heat the air is expelled through a very small aperture in a valve attached to the radiator whereas in this case it is driven out through a pipe of fair size. It stands to reason that less force is required; therefore, it is unnecessary to maintain a high pressure in the boiler. Also by means of a graduated opening in the inlet to the radiator, just as much or just as little heat as is required can be kept in the radiator. These two facts act to save fuel which saving the manufacturers guarantee to be 25 per cent. The location of the radiator valve as shown in the diagram is a great convenience. A simple turn opens or closes it and it is unnecessary to stoop.

The Vapor-Vacuum Heating Co., 895 Drexel Bldg., Philadelphia, Pa., have explained everything most thoroughly in their book. The book and a set of blue prints showing how the system is installed are sent free to those who ask for them. As this modern method of heating is good and promptly answers the question—"Which heating system?," we know many of our readers will take this opportunity to get further information.

KNO-BURN METAL LATH

a flat metal sheet with a web-like mesh that completely embeds itself in the plaster.



KNO-FUR METAL LATH

for exterior use, with paralleled ribs—a positive substitute for furring. The same web-like gripping mesh.

These Homes Were Built For Permanency

because KNO-BURN METAL LATH was used for the interior and KNO-FUR Lath for the exterior. Contractors who want permanent satisfied customers use no other than North Western Expanded Metal products. Then, too, prospective and active home builders all over the country have

been told the many advantages of metal lath as a result of

Our National Advertising Campaign

in leading periodicals and magazines. Thus you, as a contractor, **must** use our products if you would serve your customers to **their** advantage.

KNO-BURN METAL LATH

FIRE, ACID AND RUST RESISTING

Wood lath is fast becoming obsolete where homes are built to last.

KNO-BURN prevents cracking, falling, discoloring and dampness of the plaster, and is much easier and cheaper to put on than wood lath—it comes in convenient size sheets. KNO-FUR Lath makes stucco exterior construction positive and lasting.

Get This Bulletin Regularly

"Expanded Metal Construction." Every contractor and carpenter should receive it regularly.

It tells all about our products and why it is cheaper and best for **you** and your customer to specify KNO-BURN and KNO-FUR Metal Lath. Send your name and address today sure.

Notice: All shipments made in 48 hours. No waiting on us, we are always on time.

North Western Expanded Metal Co., 903 OLD COLONY BUILDING **Chicago, Illinois**
Manufacturers of "ECONO" Expanded Metal and 20th Century Lath

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Free

Helps To Better Business

For Contractor—Builder—Wood Finisher

THIS Dollar Portfolio of Wood Panels and Instruction Book are two fine examples of the Johnson Service—we offer them free and postpaid—send the coupon today.

The Portfolio shows the beautiful effects obtainable with Johnson's Artistic Wood Finishes on oak, pine, cypress, birch, gum, etc. With it you can show your clients just how their work will look when finished the Johnson way.

The book gives full instructions for finishing all wood—soft or hard; covering capacities, prices, etc.

Johnson's Wood Dye

penetrates deeply, coloring the wood permanently—it dries quickly without a lap or streak. Made in seventeen popular shades, all of which can easily be lightened or darkened.

Johnson's Prepared Wax

imparts a velvety, protecting finish which will not chip, mar or scratch.

Fill out the coupon and mail to us TODAY. The Portfolio and Book will be sent promptly—free and postpaid—you are placed under no obligation whatever.

S. C. Johnson & Son Racine, Wisconsin

"The Wood Finishing Authorities"

S. C. Johnson & Son, Racine, Wis. Value \$1.25 FREE

Please send me, Free your \$1.00 Portfolio of Wood Panels with specifications and instructions, also your 25c 1913 Book—**BOTH FREE**

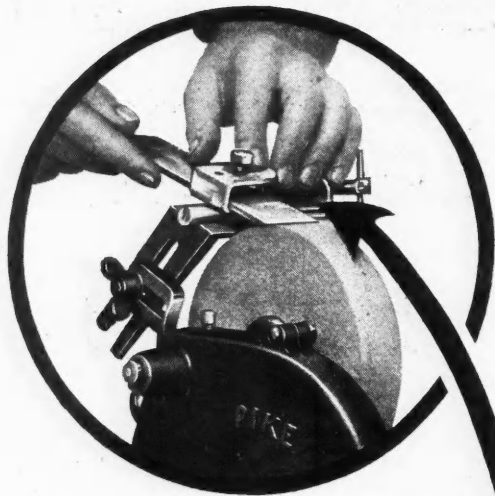
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My Dealer's Name is

His Address

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More Accurate than a Steady Hand

The slightest slip of a tool up or down on the grinder wheel spoils the evenness and trueness of the bevel and this makes the tool work harder and slower. Even the steady hand of an expert cannot hold a tool as *straight* and as *true* as does the PIKE BEVEL GUIDE. This



bevel guide makes it easy for even an apprentice to grind a bevel as true as an old hand can. This is an exclusive, patented feature of the

PIKE PEERLESS TOOL GRINDER

"The Grinder that takes the 'Grind' out of Grinding"

Fitted with a Crystolon wheel with cutting crystals as hard and sharp as the diamond. No other wheel that cuts steel so fast cuts it so cool. No water is necessary and only light pressure is required. This light pressure prevents drawing the temper of the tool.

Pike Peerless Grinders combine *high speed* and *great power*—a rare combination in grinders. Malleable castings, machine-cut spur gears, case-hardened pinions, and every feature for strength and durability—made so honestly and so well that they are

Guaranteed Forever

against all mechanical defects. No other grinders possess the improvements in construction and equipment described above. Look for the Pike name, cast on the casing. "Pick a Pike."

Two sizes. Pike Peerless Senior (6 in. wheel) \$7.00. Pike Peerless Junior (5 in. wheel, compact enough for your Tool Kit) \$5.00. Foot power \$1.50 extra. Other Pike Grinders from \$3.00 up. Write today for book, "A Sharp Edge in a Hurry," showing complete line.

When it comes to oil-stones, every well posted mechanic knows the famous Pike India Oil-stones. No other stones that cut so fast wear down so slowly.

Pike Manufacturing Company
27 Main Street
Pike, N. H.



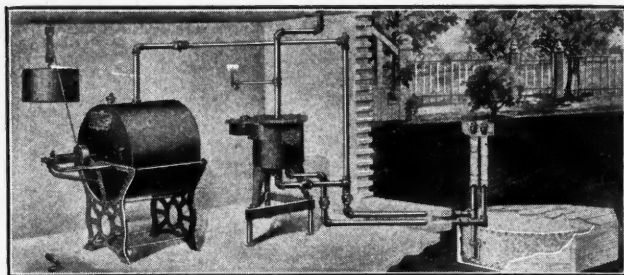
FREE A Pike Stone When you write for the grinder book, send us your dealer's name and 4c. for packing and mailing and we will also send you a Pike India Vest Pocket Stone—just to show you how fast and fine Pike India works. We'll include our famous book, "How to Sharpen"—tells you how to get a good edge every time and how to select and care for Oilstones. You'll be pleased. Write today.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A Modern Lighting System

Country homes are being made as up-to-date as possible, so a word in relation to a very convenient lighting system will not be amiss.

Gas for heating, lighting and cooking would be gladly welcomed by everyone in the small towns or on the farm and a booklet, entitled "Gas For the Country Home," briefly describes a system that may be easily installed and which



View of Complete Private Gas Making Plant

will provide all the conveniences of city gas. The system shown here is not to be confused with an acetylene gas plant. By this method the gas is produced from gasoline which is placed in a carburetor, which also serves as a storage tank, placed in the ground at some distance from the house.

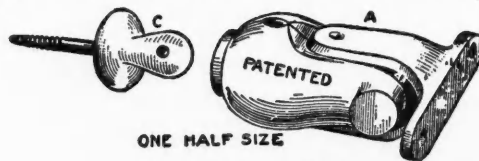
"Gas For the Country Home" is a book full of good ideas and one our builders will be glad to read. It may be had free by addressing the Detroit Heating & Lighting Co., 54 Wight St., Detroit, Mich.



An Automatic Door-Stop Holder

Here's a neat little device that will prevent slamming doors during the summer when all the windows are open and the house is draughty. This arrangement will hold the door rigidly but not so rigidly that any person will find it difficult to close.

The sketch will give you an idea of this door stop. The screw knob is screwed into the door about four inches above



The Adele Door Holder

the floor. The socket is attached to the base board so that when the door is pushed open, the knob is forced into the rounded jaws which form the socket. A different style of socket is used where it is desirable to attach it to the floor instead of to the base board.

If you want to know more about this clever check or would like the local agency for them, write the Adele Manufacturing Co., 313 Grand Ave., Brooklyn, N. Y.



A. T. Enlow Resigns

Mr. A. T. Enlow, for many years Sales Manager for the Stark Rolling Mill Co., manufacturers of Toncan Metal, has resigned his position to enter partnership with the Pedlar People of Oshawa, Ontario, Can.

Mr. Enlow has been closely connected with the sheet metal industries of the United States for twenty years. His efforts were largely instrumental in bringing the anti-corrosive and rust-resisting properties of Toncan Metal prominently before the building trade. The Pedlar People who are large sheet metal manufacturers are to be congratulated on their affiliation with this energetic man.

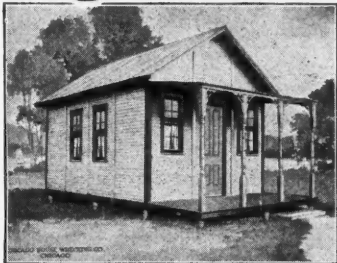
Ready-Built, Portable Houses and Garages

New Building Material Prices S-M-A-S-H-E-D

HARRIS Perfection

Ready Built Portable Cottage

This illustrates our No. 382, size over all 12 ft. by 24 ft. Two rooms, each 12 ft. by 8 ft. Porch 6 ft. by 12 ft. Height of ceiling 8 ft. 1 in. Height over all 13 ft. Built of first-class material throughout. Construction solid as a rock. Equal to and better than standard, permanent construction.



A man and boy can easily put it up in a day—take it down any time. Only monkey wrench and screw driver required. Wind-proof; weather-proof; fool-proof. Painted. Doors and windows all in; all hardware and roofing already attached. 3-ply, 10-year guaranteed roofing. Plenty of windows. Carefully packed and crated for shipment. Safe delivery guaranteed. Made right here at our Chicago Plant. Our prices are the lowest by from 30% to 50%.

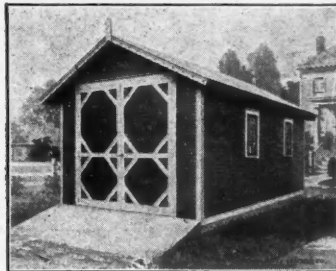
\$165

Also furnished in our No. 382A, same as above containing two rooms, each room 12 x 12 ft. \$210. Delivered Prices on Application.

\$89 Buys This

Ready Built Garage

Don't buy a flimsy constructed garage, that has the appearance of being a "make shift" affair. Buy one of our Harris Ready-Built Sectional, or



Portable Garages, which has all the appearance of solidity and looks like the real permanent article. No difference in the construction of it and that of one built directly to your order. Remember our all wood constructed Portable Garage is twice as permanent as any other kind of portable that you can buy.

This is our No. 389, size 12 ft. by 12 ft., price \$89.00. Four windows, 1 pair of large doors, size of each door 4 x 8 ft., painted two coats oil paint. All hardware and roofing already attached. Non-sagging doors. Solid, substantial construction throughout. Other sizes as follows: 12 ft. by 14 ft., \$98; 12 ft. by 16 ft., \$110; 12 ft. by 18 ft., \$120; 12 ft. by 20 ft., \$130.

\$10,000 Book of Plans FREE

Here are four of our regular designs taken from our wonderful BOOK OF PLANS, containing 100 pages of modern, up-to-date homes, which you may have FREE for the asking. The price covers all material necessary to complete these designs in all brand new stock, approved size, grades, quality and construction, and covers everything necessary except the Plumbing, Heating, Masonry, Material and Paint. We have hundreds of testimonials from past satisfied customers.

No one else in all the world can make such low prices on new Building Material. Our reputation as cash buyers places at our command, first—every bargain worth having. We are satisfied with one small profit—let the in-between profits remain in your pocket—means an immense saving.

We not only save you from 25% to 50% on your complete building, but we give you all the assistance you need for its proper and economical construction, free of charge—Blue Print Plans, prepared by expert Architects, Specifications and Material Lists, together with any other information you may need. Compare our offer and be satisfied that none can compete with our price.

\$2 If you are in a hurry and cannot wait for our Plan Book, \$2 will bring you at once complete Plans, Specifications and Descriptive Material List of any of these four houses.



Design No. 93
\$898 Seven Rooms and Bath, very attractive Exterior; Sleeping Porch, Airy Balcony; Size 30 ft. by 22 ft.

\$13 Buys Complete Bath Tub



White enameled, cast iron, one piece, heavy roll rim bath tub 5 feet long; fitted with latest style nickel plated trimmings, including Fuller double bath cocks for hot and cold water, nickel plated waste and overflow, and nickel plated supply pipe. In ordering, mention Lot 5-BA-101.



Design No. 73
\$889 Eight Rooms and bath, all rooms convenient and roomy. Size 28 x 24 ft.



Design No. 117
\$708 Six Rooms and Bath. A Modern Bungalow. Excellent Interior. Size 39 feet, 6 inches, by 27 feet.

\$8.50 For A High-Grade Sanitary Complete Closet



We have 200 of these outfits. Closet bowl latest sanitary construction, syphon acting, vitreous bowl, fitted complete with hardwood seat and cover with nickel plated hinges. Low down, latest style, copper lined tank. Outfit is Lot 5-BA-105. Write for prices on other styles, also our Plumbing and Heating Catalog.

Enameled Sink at 75c



One piece, seamless Kitchen Sink, blue enameled inside and outside, size, 18x30 or 18x36. Price includes strainer and collar to make connections. Lot 5-BA-106, price 75c. At \$14 we furnish you latest and most sanitary, white enameled, full length, one piece Kitchen Sink; back; drainboard and end piece all cast in one piece. Fitted with nickel plated faucets for hot and cold water and trap to floor. Finest outfit manufactured. Write today for Free Plumbing Catalog. Fill in coupon below.

Chicago House Wrecking Co., Dept. BA149, Chicago, Ill.

Our Guarantee Your Protection

Our guaranteed proposition to you is to furnish the material as specified in the Material List in all brand new stock, in quantities sufficient to complete the design strictly according to the plans. We also guarantee prompt shipment of order. All material loaded in one car from our plant here. You can inspect it and pay for it after it is received. Our Paid-Up Capital Stock, \$2,000,000



Design No. 60
\$761 Five Rooms, Bath, Large Living Room; Private Porches. Modern in every respect. Size 38 x 28 ft.

\$6 Buys Complete Washstand

Finest enameled, cast iron, one piece lavatory built; graceful in shape; can be furnished either for straight wall or corner of room; trimmed with best nickel plated fittings Lot 5-BA-104, price, \$6.00. 40 other styles at proportionately low prices.

Plumbing \$26.50 Buys This Complete Bath Room Outfit



Here is a saving to you of 50%; a high grade, perfect white enameled bath tub, 5 feet long, all nickel plated trimmings, including double bath cock for hot and cold water; lavatory of latest design, with high one piece back, all white enameled, big size, nickel plated basin cocks, nickel plated trimmings.

Closet is latest, most sanitary Syphon acting, vitreous closet bowl; hardwood seat and cover, nickel plated hinges; fitted with hardwood, copper lined, low down tank, latest style, easy working, noiseless working outfit. Easily worth \$50, but for this great Summer Sale we have literally cut the price in two. When you order this outfit, mention Lot 5-BA-100.

Fill In This Coupon

CHICAGO HOUSE WRECKING CO.,
Dept. BA149 Chicago, Ill.

I saw your Ad in

I am interested in

Send me your FREE Book of Plans.

My Name

Address

P. O. B State

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A New Automatic Drill

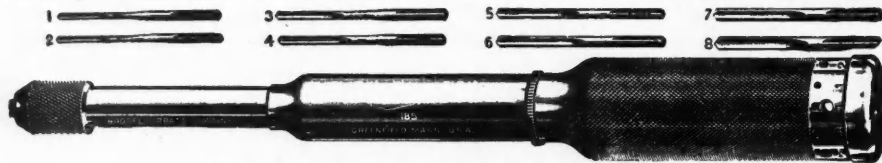
Among the many new tools and devices which the Goodell-Pratt Company of Greenfield, Mass., U. S. A., have just brought out there is an Automatic Drill with a valuable new feature.

While the general characteristics of this Automatic Drill do not differ greatly from their well-known No. 108, which has also a finely knurled handle, it has in addition a most valuable feature in that it is equipped with a Drill Point Gauge.

This Drill Point Gauge is in the form of holes drilled in the handle just under the rotating cap (see illustration).

There are eight of these gauges and they correspond in diameter to the eight drill points contained in the handle.

The value of this feature lies in the fact that the user can, at a glance, determine just which size drill point he wants to use to drill a certain hole and also to see how large a hole a particular Drill Point will bore.



One of the Latest Products of the Goodell-Pratt Co.

This Drill is also equipped with eight fluted shank Drill Points, which, when properly fastened in the chuck, cannot be pulled out.

These drill points vary in size from 1/16 to 11/64 inch.

The Drill itself without any points is 10 inches long, full polished, and nickel-plated, and weighs 10½ oz. each.

They will be pleased to give full details, as well as quote prices on this New No. 185 Automatic Drill.

The "Father" of Steel Pulleys

When we enter a power plant or factory and see on all sides of us steel pulleys, we are prone to forget that a comparatively short while ago, there was no such thing as a pulley of steel. For though it seems inconceivable, it is nevertheless true that men used belt pulleys for more than a century without once employing, in their manufacture, steel—a substance, which on account of its lightness, strength and durability is the logical pulley material.

It remained for Thomas Corscaden to make pulleys exclusively of steel. About 1895 he exhibited a model of what was shortly to become famous as the "American" steel split pulley.

The "American" pulley was built on lines of correct construction, of sound mechanical principles, scientifically and yet simply applied. Just as he had seen in steel the logical material, Corscaden's design appealed alike to the practical mechanic and trained engineer.

Pulley users knew a good pulley when they saw it. The "American" steel split pulley, in thousands of plants, replaced old fashioned makes. The result is that more than two million "American" steel split pulleys are

in use, a figure which speaks for itself.

To-day the American Pulley Company operates at Philadelphia, the largest pulley plant in the world—a lasting monument to the genius of Thomas Corscaden, the "father of steel pulleys" and the man who established a standard of pulley efficiency, calling the product of his inventive skill "The American."



When the man about to build

consults you regarding the kind of roofing to be used, you take no chances when you recommend

(Quality Certified)

Certain-teed Roofing

(Durability Guaranteed)

Rolls and Shingles

Guaranteed 15 years—lasts longer

Certain-teed Roofing has won out on its own merit—it has made good on the roof.

***Certain-teed* Roofing for all kinds of buildings**

There is a simple method of applying *Certain-teed* Roofing on any kind of a building.

For residences, garages, barns, factories, use *Certain-teed* Roll Roofing—*Certain-teed* Shingles, for bungalows, residences, summer cottages, etc.,—*Certain-teed* Specification Roofing for skyscrapers, apartment buildings and all large flat surfaces.

Certain-teed Roofing is used anywhere—recommended by leading dealers and contractors everywhere

General Roofing Mfg. Co. E. St. Louis, Ill. Memphis Chicago St. Louis, Mo. New York Kansas City Minneapolis San Francisco Winnipeg, Can.



So don't take any chances—don't accept any substitute—see that the *Certain-teed* Quality Label is on every roll and crate of shingles.

FREE to Dealers and Contractors

We will furnish free to each dealer who handles *Certain-teed* Roofing a desk copy of our new book, "**Modern Building Ideas and Plans**," a book that is especially valuable to building material dealers—write today for a copy.

We will also furnish this book free to contractors who apply for it through the dealers from whom they buy their building supplies.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



CARPENTERS and Builders are fast learning to appreciate how much Wall Board contributes to health, comfort and general sanitary conditions of the home.

UTILITY WALL BOARD

being air tight and non-porous, is positively impervious to moisture, and keeps the house dry, sanitary and healthy.

UTILITY WALL BOARD comes in various widths and lengths and is attached directly to the studding.

May be used in remodeling--placing it directly over the old plaster.

Adaptable to any style of interior decoration.

Will outlast the building itself.

We have an interesting booklet on Modern Interiors--and a FREE sample for every carpenter and builder in America. Write TODAY for yours.

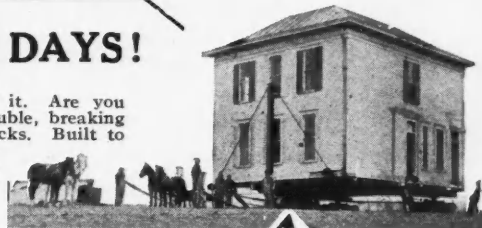
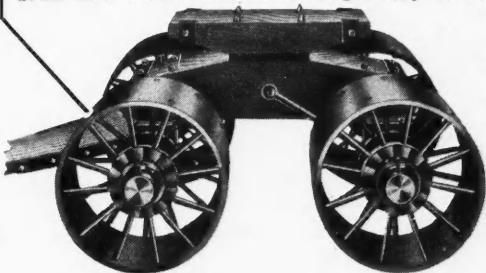
THE HEPPES COMPANY

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**10-ROOM HOUSE
MOVED 5 MILES
IN 10 DAYS!**

Over country roads and broken fields at that—LITTLE WONDER TRUCKS did it. Are you dissatisfied with your present moving equipment? Is it continually giving you trouble, breaking down when wanted most? You can get away from all that with Little Wonder Trucks. Built to Last. Low prices—we sell direct to you—why not save money on the first cost as well as profit on your operations?



Here's the Little Wonder

Let us furnish your complete House Moving Equipment—everything from Little Wonder Trucks to rollers, jacks, etc. Get our catalog "B" right away. Don't delay. Just a postcard brings it in a hurry.

HOUSE MOVERS SUPPLY CO.

Cedar Rapids, Iowa

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Laid
Right Over
Old
Wooden
Roofs!

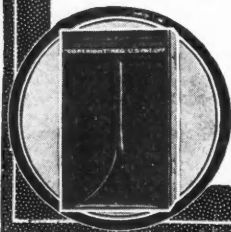
MANY owners who have once roofed with wooden shingles don't want another dose of the same medicine, and this is your opportunity to "cash in" with

CORTRIGHT Metal Shingles

"The Permanent Roofing"

They can be laid right over the old wooden roof, without causing a shower of rotten wood in the building, as is the case where the wooden roof is taken off.

Send a postcard for our free book "Concerning that Roof," or, if you prefer, simply clip, sign and return the attached coupon. NOW—while it's on your mind.



**Cortright Metal
Roofing Co.**

Philadelphia and Chicago

RETURN
THIS
COUPON

Gentlemen:
Send me your free book "Concerning that Roof."

NAME

ADDRESS

A.C.&B. 6-13.

Some Light on Heat

A great deal of attention is being paid now-a-days to the best methods of heating and there are some good words to be said in favor of every system. From one of the leading authorities in this country, Dr. W. A. Evans former Health Commissioner of Chicago, comes the statement "furnace heated houses are usually well heated." The question naturally hinges on what is meant by "well heated." When the air in the house can be kept at a desired temperature, properly moistened and changed often enough to insure sufficient ventilation then we can say the house is well heated.

Pure air is the foundation of the furnace idea. Ventilation can be had along with the heat. This is one of the biggest arguments in favor of furnace heating. In extremely cold weather the outside pipe may be shut for a time until the rooms get thoroughly warm. The air in the mean time is furnished from the basement. Humidity is another thing that confronts all who undertake the heating question, and it is one of vital importance. The air must be moist. Warm air requires a great deal of moisture. At 70 degrees it needs as much as 8 grains per cubic foot. Doctors are agreed that many nose and throat affections are due to air which is too dry. Sufficient moisture in the air saves health and prevents the furniture from warping and cracking. With the hot-air furnace it is possible to furnish this moisture which for the sake of health and comfort should reach 40 degrees by hygrometer test. We might cite the King furnace made by the Kalamazoo Stove Company as a good example of efficient ventilating and moistening. A scientific arrangement of the water reservoirs in a furnace is essential.

With a furnace, a good one, built and installed according to the plans laid down by people who know, you have the simple action of several stoves combined. The furnace is nothing more than a big stove with the necessary arrangements to take care of the additional fuel capacity and such necessary things as humidity, ventilation and heat circulation. A furnace though has many advantages over stove heat. It keeps an even heat in all the rooms and is out of the way whereas a stove takes up a great deal of room, is dusty and gives occasion for the old saying "my back is freezing while my face is burning."

A number of furnace manufacturers maintain special departments to help the builder install his own furnaces. For instance the Kalamazoo Stove Company furnish plans which if correctly followed, cannot do otherwise than insure correct installation. The day is past when the family moves from room to room to obtain advantage of the shifting waves of heat. Everything in relation to furnace heating such as heat loss in piping, the chilling effect of wall space, etc., has been worked out on a practical and scientific basis.

Now, to get all the economical results and the best to be had from furnace heat, the furnace should be of sufficient size. There is where many go wrong. When you have a furnace of the right size, it is not necessary to force the fire. The fuel should be of sufficient volume in order that every unit may do its full heating work while the coals are at red heat. When urged to white heat, the fuel is wasted and the furnace given double wear. A fire which is not urged will never fill the house with soot or coal gas either.

Throughout the country the furnace is gaining in popularity and a furnace on the farm or in the small town is a dream that has been realized. They provide comfort, health, and satisfaction at low cost, everything considered; and if properly looked after are economical. If this popularity is an indication of anything it surely shows that the hot air furnace is giving a great amount of heat for the fuel consumed.

We know that many of our readers are handling the heating of houses as well as the building of them and making it a success. There are more of you who can do the same thing.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Canvas Roofing

Guaranteed

**Waterproof—Windproof—
Weatherproof**

Bayonne Roof and Deck Cloth stands for the best "buy" in porch roof and deck covering. This specially treated canvas requires but one coat of paint.

**BAYONNE
ROOF AND DECK
CLOTH**

**Architects
Specify
It**

Because it is both durable and economical—costing less than the ordinary roof and deck covering—and is easy to lay, it is used by carpenters and builders everywhere.

Send for Booklet N. and learn all about Bayonne Roof and Deck Cloth and its many uses.

John Boyle & Co.

112-114 Duane St. :: 70-72 Reade St.
New York City

Roofing—"The VERIBEST"

ASPHALT SHINGLES

mark the latest development in sensible roofs,—the kind that never leak, are inexpensive and give the greatest service for the money. Two more good features of VERIBEST

Never Warp—Easy To Apply

Your own good judgment will select VERIBEST ASPHALT SHINGLES when you need a modern roofing.

WODWALBOARD

gives the builder a satisfactory chance to do away with lath and plaster, because it is a light, strong, economical and practical substitute.

Our FREE Catalogs make good reading. A postal card mailed now will bring these books with interesting side-lights on up-to-date building.

McHENRY-MILLHOUSE MFG., CO. :: South Bend, Ind.

Berger's Metal Lath



Write for catalog

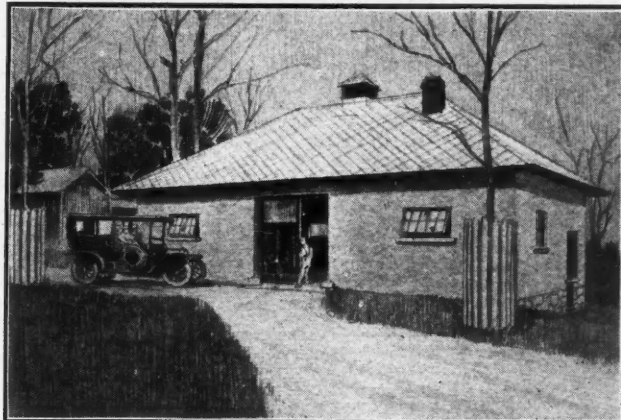
The Berger Mfg. Co., Canton, Ohio

For the best service address nearest branch.

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Garage of Stuyvesant Fish at Garrison-on-the-Hudson roofed with Asbestos "Century" Shingles by Joseph Davis, Contractor, of Garrison-on-the-Hudson. Reproduced from an Artist's drawing.

Asbestos

"Century" Shingles

"The Roof that Outlives the Building"

DON'T think of selecting your roofing until you get the facts about Asbestos "Century" Shingles—the practical light weight, reinforced concrete roofing material.

Made of cement reinforced with Asbestos, by the patented Century process, which gives the advantages of uniform texture, fire and weather resistances and all around indestructibility that you ought to get for your roofing investment.

Send for Booklet, "Roofing: a Practical Talk."

Keasbey & Mattison Co.

Factors

Dept. B, Ambler, Penna.

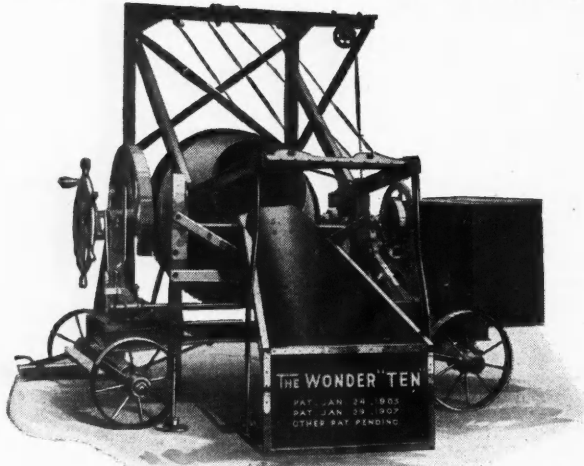
Branch Offices in Principal Cities of the United States

This advertisement appears in the June Magazines read by the owners and tenants of the better class of buildings. Write to above address for terms and trade prices.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"Mixers that Make the Money"

Under this title, the Waterloo Cement Machinery Company have just issued a book which is intended to acquaint the trade with their mixers and to aid in the selection of mixer equipment best adapted to the buyer's individual re-



One of the Waterloo Cement Machinery Corp. Mixers

quirements. Further, it is designed to inspire confidence in the prospective purchaser who may desire to know what is back of the claims made by the company for the general excellence of their machines.


The book is printed in a very clear type on a high-grade coated paper. It contains illustrations of the Waterloo Cement Machinery Corp.'s mixers as well as general views about their plant. In addition to the description of the machines, a brief history of the company and its ideals is given in very readable form.

This company manufacture three types of mixers which they call the "Little Wonder," the "Triumph" and the "Polygon." Many distinctive features are embodied in these machines which are batch mixers exclusively. The manufacturers have not copied after other companies' models. Their aim has been distinction—individuality of design. Simplicity has been followed without sacrificing general efficiency in operation, and the buyer of one of these machines is protected by the fact that all parts are standardized. Duplicate parts are carried in stock and on being ordered by number can be shipped immediately.

Judging from the prominence of the various companies using these mixers, it is safe to say that they give great satisfaction. Many contractors have not confined their purchase to one machine but have several working on various jobs. It is not our intention here to go into a detailed description of these excellent machines. The Waterloo Cement Machinery Corp., 103 Vinton St., Waterloo, Iowa, have covered the ground so thoroughly that we could only re- quote. Those of our readers who are interested in concrete mixers will, we are certain, be glad to write this company for a copy of "The Mixers That Make The Money," which will be sent free.



"Concrete Sidewalks, Pavements, Curb & Gutter," a book recently issued by the Universal Portland Cement Co., Chicago, covers briefly the underlying principles of good design and good construction and includes the specifications of the National Association of Cement Users, as presented at their December, 1912, meeting. The broad policy of the Universal Portland Cement Co., in making a wide distribution of helpful books has done much to assist contractors in planning better methods of work.

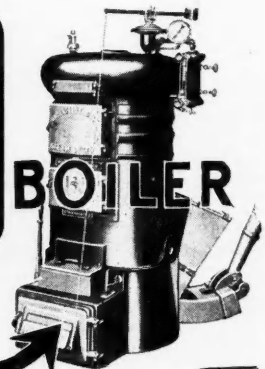


FURNACE

UNDERFEED

Cuts Your Coal Bill

1/2 to 2/3



BOILER

CARPENTERS and BUILDERS—While the people are looking to Congress for legislation to reduce cost of food and clothing, the Underfeed has already solved for *all time* the problem of *lowering* heat costs. Specify the UNDERFEED and you can assure *clean, even, genial* warmth at a *saving* of $\frac{1}{2}$ to $\frac{2}{3}$ of the usual cost of coal.

This truth is emphasized in June periodicals. The UNDERFEED ADDS to the RENTING or SELLING value of any building. Here are some reasons why:

Burns Cheaper Coal! In the UNDERFEED inexpensive grades of either hard or soft coal, costing \$2 or \$3 less per ton is *pumped up* into the fire pot *underneath the fire* and, candle-like, burns from the top *down*. **RESULT**—perfect combustion and *more* heat from *no more* tons of *cheaper* coal.

Burns Smoke and Gases! Smoke and gases, wasted up Topfeed chimneys (40 to 50 cents of every dollar you pay for coal)—are forced by the draft to pass up through the flames, are consumed and make *more* and *cleaner* heat, You wouldn't stand for a leak of 50% in your business. Then why stand for it in your coal bill?

Other Features: No soot-covered, hard-to-clean, heat-retarding surfaces. The fire, always on top, is in close

contact with clean, heat-responsive metal. No clinkers and few ashes. Requires less attention than other heaters

THE WILLIAMSON PECK Underfeed FURNACES BOILERS

Write **TODAY** for our interesting proposition to you. Send your building plans and we will furnish **FREE** engineering plans and actual installation cost.

Underfeed heaters are adapted for both large and small buildings. Installed in unit or battery form in residences, apartment houses, halls, churches, theatres, schools, etc.

Write **TODAY** for **FREE** Furnace or Boiler Book. Names and statements of thousands of users will be sent you on request.

THE WILLIAMSON CO., 436 W. Fifth Street, Cincinnati, O.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.



MADE TO HEAT

This is the feature that makes Schill Furnaces worth consideration. A man can't be too particular in his choice of a furnace. It means the outlay of quite a sum and if the furnace doesn't heat, it's money wasted. The vital heating principle rests in the CONSTRUCTION of the furnace itself, and no later change will remedy the defect. We know

SCHILL FURNACES

are made right but we don't ask you to buy on sight. All we do ask of you is that you let us tell you about them. Then you can decide for yourself. Read these few facts and then send for our catalog. It will mean money saved for you and a satisfied customer.

Schill Furnaces have proven through years of severe use and under various conditions that they will burn RIGHT day after day—and at a reasonable operating expense.

Schill Furnaces are time tried and proven. They are designed practically and built practically in every particular.

Our Grand Empire Furnace (shown here) is all cast. It has our "New Idea" self shaking dump center roller bearing grate; large two-piece fire pot and various other particular Schill features.

We back Schill Furnaces with our 21 years furnace manufacturing experience—we stand behind every furnace we sell—and we help you install our furnaces. We have a special service department that will assist you and figure with you on every furnace job that you have. This service is FREE.

*Choose Your Furnace Carefully
GET OUR CATALOG*

SCHILL BROS. COMPANY
CRESTLINE OHIO

There are lots of people whose idea of a hot air furnace is a collection of castings, roughly put together, in which fuel is burned, wastefully, which poisons and scorches the air, and which scatters dust and dirt all over the house, warming part of the house and leaving the rest cold.

We make furnaces—but not such furnaces as that. It is true that cast iron furnaces cannot be made with joints which will stay tight. They may be cemented when they are new or the joints may be filled with sand, but cast iron warps and expands with heat and very soon the joints open up, and then comes the distribution of dust and gas, and then all kinds of furnaces are condemned because that kind of a furnace has proved unsatisfactory.

Our furnace is different. The inner body of the heater is a big steel box, made up of large annealed steel plates, and wherever these plates meet they are welded together, so that there is no seam or joint left, but the whole thing becomes like one piece of seamless metal.

In making up these furnaces the steel plates are clamped together and intense heat is applied where the edges of the plates meet, melting the steel like wax till the plates run together and become a continuous body. The weld thus made is strong and clean, absolutely and permanently proof against leakage. No amount of heating and expansion will ever open that seam again.

This welding costs more than riveting or cemented joints, but it is worth more, and it marks the difference between the usual type of furnaces and our kind. We guarantee our furnace absolutely against leakage, at these welded joints as long as the furnace lasts.

We would like to send you a SAMPLE of two bits of steel welded together, showing just how this seam is made, then you will understand why our furnace never leaks.

We use steel because it heats up quicker, radiates faster, and is more economical in fuel than a cast iron furnace.

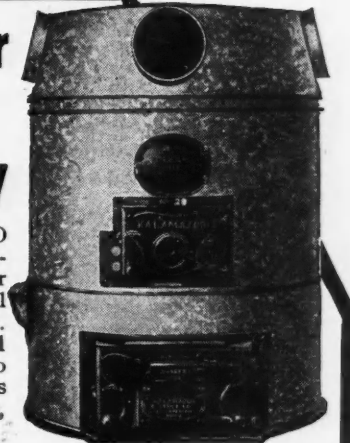
Now, while you think of it, won't you drop us a postal-card, and let us send you this welded sample and also our booklet telling how houses may be successfully heated with furnaces, and how our plan of selling, direct from factory to consumer, will be an advantage to you.

Hess Warming and Ventilating Company

1220 Tacoma Building CHICAGO
Makers of White Steel Medicine Cabinets and Family Dishwashers

You and Your Customer Make Money

THE KALAMAZOO Furnace—sold direct—is far cheaper for the builder, yet it will allow you a liberal profit. That's because you and your customer have no jobbers' and middlemen's profits to pay. Besides, the



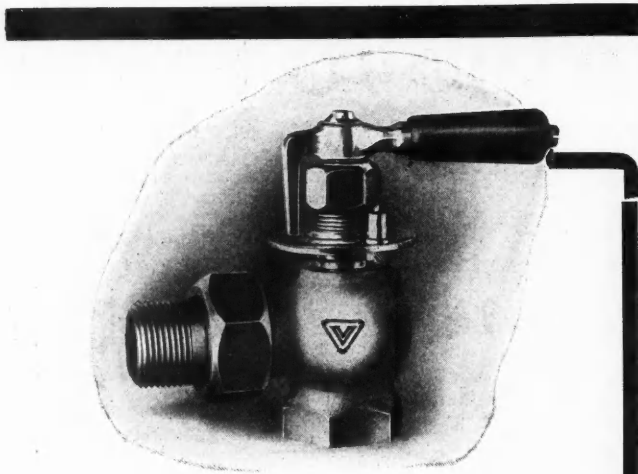
Kalamazoo Furnace

is easy to install. Our furnace experts will back you—give you blue prints that show where every piece goes. You can't make mistakes. You can do the work easy. Results are guaranteed. For your next job specify a Kalamazoo. Then you are sure of giving your customer lasting satisfaction and making the best deal for yourself at the same time.

Write For Free Book Ask For Catalog No. 947. We'll tell you how to describe the building you want to heat. Then we'll prepare plans for a complete, practical heating system. Every owner will boost and bring you dozens of other jobs. Don't wait! Mail a letter or postal, for complete information NOW.
KALAMAZOO STOVE COMPANY, KALAMAZOO, MICH.

"A Kalamazoo" And Gas Stoves Too
Trade Mark Registered **Direct to You**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Intermediate Regulation of Heat

Every carpenter and builder knows that with steam or hot-water systems, the heat must always be turned full *on* or full *off*—there is no such thing as an in-between heat. With

Vapor-Vacuum Heating Kriebel System

however, it is possible to get *any* degree of heat in *any* radiator, *any* time by an easy wrist-movement of the inlet valve, conveniently located at the TOP of the radiator.

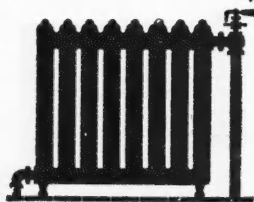
This, and the *guaranteed* saving of 25% in coal, are the features that appeal most to owners.

How Our Engineering Dept. Helps You

You simply send us a rough sketch of some job you are estimating on and, *without charge*, our Engineering Department prepares a complete heating layout, showing proper installation.

Will you write for details? We'll send you a free copy of our interesting book explaining the system. Use the coupon, a postcard, anything—but WRITE.

Vapor-Vacuum Heating Co.
895 Drexel Bldg.
PHILADELPHIA



CLIP, SIGN AND MAIL THIS COUPON—IT WILL PAY

Gentlemen: Without obligating me one bit, send me full information by return mail. (A.C.B. 6-13.)

Name

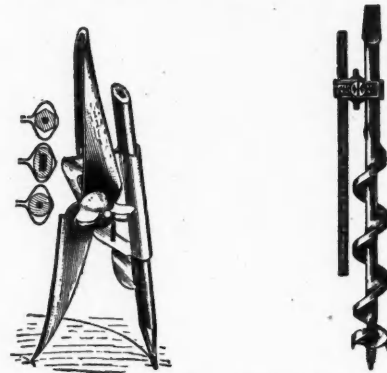
St. Address

City..... State.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Peerless Bit Gauge and Scriber

The illustrations show the Peerless flexible bit gauge and the Peerless scriber, both made by Potter Specialty Co., 612 W. 110th street, New York. The gauge can be used in connection with the various sizes of auger bits, the single thumb screw holding the gauge securely in position and accurately gauging a hole of any depth to within 3/4 in. of the brace chuck. The gauge proper is made of spring steel wire and is flexible, there being twenty turns to the inch, and from the nature of its construction will not mark the wood.



Peerless Scriber and Bit Gauge

The scriber is made of sheet steel and will accommodate hexagon, oval or round pencils. There is a broad point to prevent scratching plaster walls, fine woodwork, etc., which is used also as a protector to the pencil point. To use the broad point, simply swing it down over the sharp point. The sharp point is for compass work and for entering into quirks, mouldings, and similar places in scribing.

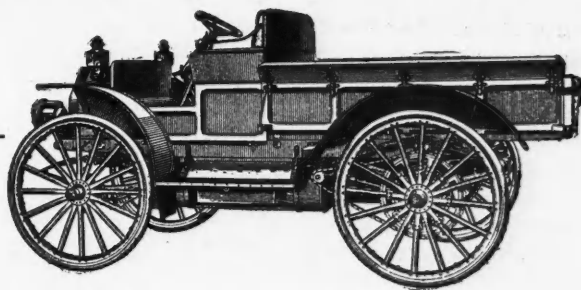
The Potter Specialty Co. will be glad to furnish the bit gauge or the scriber direct if they cannot be obtained at the hardware dealer's.



Serviceable Metal for Builders

A book just received from the Stark Rolling Mill Co., Canton, O., is full of information about the non-corrosive Toncan Metal and the corrosive tendencies of metals in general. Part one of this book contains technical information dealing thoroughly with the old method of making iron as compared with the present process; the conservation of metals and the elimination of corrosion as a factor in making metal long-lived. The second part is profusely illustrated showing a great number of prominent buildings, manufacturing plants, etc., throughout the country where metal siding or roofing has been used with good results. In the third part are shown some excellent tables and information on roofing and siding, together with standard weights and gauges. Toncan Metal and its uses are demonstrated and prices given.

Within these seventy pages, the Stark Rolling Mill Co. have written information worth money to builders in general. Toncan Metal has had a wide sale and gains in popularity every day. It is non-corrosive and enduring, proving a durable, profitable investment, either as siding, roofing, metal lath or eave trough. It demands the attention of the man who builds to stay. Aside from the advisability of getting acquainted with the merits of Toncan Metal, it is a great idea for the builder and contractor to read all he can find on the subject of metal as applied to building purposes. Metal is playing a large part in building operations. The builder nowadays puts into his work material that he can "bank on." We feel sure that our big family of ambitious builders are taking every advantage of the opportunities offered them to increase their knowledge of materials entering into construction work. This text book is free and offers such an opportunity.



Take a Second Look at This Truck

THE International Motor Truck meets the need of carpenters, contractors and builders everywhere. It reduces the expense of delivering supplies. It shortens the time required for making trips with tools or equipment. It increases by one hundred to two hundred per cent the amount of light hauling that can be done in a given time. It easily takes the place of two single wagons, and of three or four where the average haul is a mile or more.

The International Motor Truck

is powerful and has road clearance enough to travel anywhere that horses can go. It is ready to work twenty-four hours a day if necessary, and will do as much work in the last hour as in the first. If worn, or injured by accident, it is easily repaired and made as good as new.

An International Motor Truck may be the means of largely increasing your present business. At any rate it costs you nothing to find out what it will do for you. A post card brings catalogue and full particulars. Write to us.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
 70 Harvester Building (Incorporated) CHICAGO

KEWANEE SMOKELESS FIREBOX BOILERS



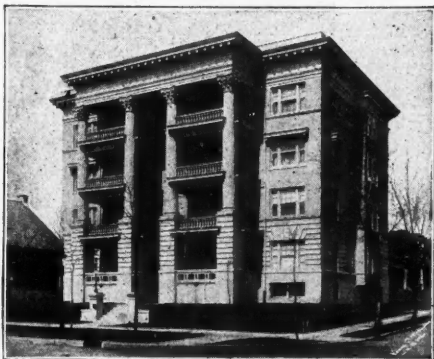
Cortlandt Apartments, Louisville, Ky.

are "just right" for *every* kind of building; churches, schools, apartments, office buildings, theatres and better residences: They *save fuel* and are *smokeless*.

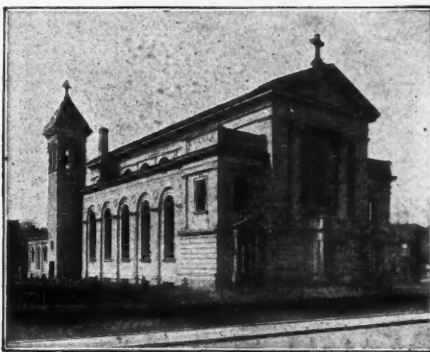
KEWANEE BOILER COMPANY

Kewanee, Illinois

Steel Power and Heating Boilers, Radiators, Tanks and Garbage Burners



Shinnick Apartments, Kansas City



St. Brigid's Church, Louisville, Ky.



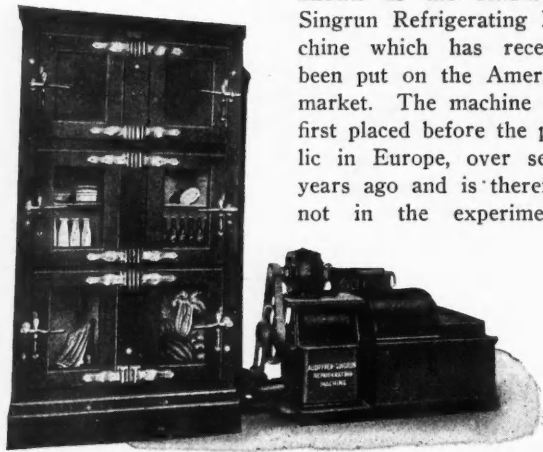
Johnson County Bank Bldg.
Iowa City, Iowa

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A Practical Small Refrigerating Machine

For the past twenty years or more there has been a growing demand for a small refrigerating machine adapted to private homes, apartment houses, clubs, cafes, hotels, hospitals, butcher shops, etc.

The difficulties common to such machines in the past have, it is claimed, been overcome by a wonderful little machine known as the Audiffren-Singrun Refrigerating Machine which has recently been put on the American market. The machine was first placed before the public in Europe, over seven years ago and is therefore not in the experimental



A Mechanical Refrigerating Plant So Simple That It Needs No Attention

stage. Hundreds are now in use, many of which have been running ever since the installation without repairs, recharging or any other up-keep expense.

The Audiffren-Singrun meets the demand perfectly for mechanical refrigeration on a small scale. It eliminates the expense of ice, the uncertainty of its supply, and the unsanitary conditions caused by its use. Because of its simple de-

sign anyone can run it. The operator need not have any more knowledge of how it works than he has of his watch or his electric motor. A switch is thrown in place and the machine starts—makes ice or just produces cold. When the switch is thrown off, the machine stops. That's all the operator needs to know about it!

The Audiffren-Singrun Machine operates on the Compression System, using Sulphur Dioxide as refrigerating agent. Sulphur Dioxide is used because it can be condensed or liquefied at low pressure, thereby eliminating all possibility of leaking connections, explosions, etc.

On account of its compact proportions, the Audiffren-Singrun Machine can be installed in a very small space, an important consideration when the available space is limited.

The H. W. Johns-Manville Co., of New York, with branches in all large cities, are the sole selling agents for this machine. This concern has just issued a very interesting catalog on the subject which they will forward from any of the branches to anyone upon request, and from which a more complete description of the method of operation can be obtained.

✦ Protection Against Lightning

If you have ever wondered where you could purchase good lightning rods, weather vanes, etc., mention of the catalog now being put out by Jos. Barnett & Co., Riverside, Iowa, will clear up the difficulty.

This book not only illustrates a fine line of lightning protectors but also gives detailed rules for the proper erection of lightning rods and fixtures on buildings. The catalog also shows some fine weather vanes. They are very glad to send a copy of their catalog to anyone who asks for it. They are also looking for hustlers to represent them in every locality.

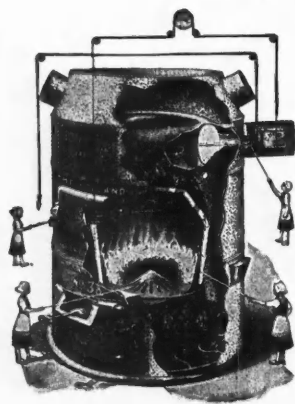
"Holland Furnaces Make Warm Friends"

Ask Any Lucky Owner

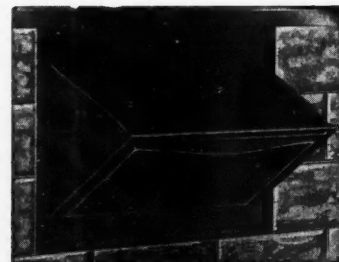
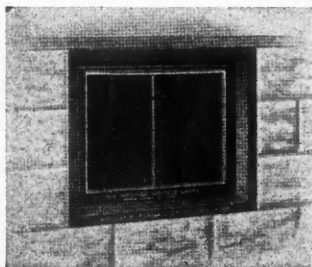
There are more Holland Furnaces sold and installed in the states of Ohio, Indiana, Illinois, Wisconsin and Michigan than of any other make.

There is a Reason.

Write for our special proposition to contractors and builders.



The Window Chute---A Real Window Burglar Proof



Opens easily from inside and makes a perfect coal chute.

Holland Furnace Co. Holland, Mich.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



The Famous "WHITE" Hand Axe

*We would make this hand Axe
better if we could—
BUT WE CAN'T*

It has the best steel we are able to buy—
tempered just right by expert workmen,
ground, beveled and polished. We could not make it
better if we tried, and we have had 76 years' experience.

We wish we could just show you one of them for you could see in a second what
the difference is. Ask your dealer to see one. If he hasn't them, send us the
coupon and we will tell you what they cost.

Don't be sharpening your axe all the time---get one that STAYS sharp

Remember the Mark

WRITE TODAY

Remember the Name



The L. & I. J. White Company
BUFFALO, NEW YORK



Name _____
Address _____
Write your name and address clearly.

*Dear Sirs:—My dealer
does not carry your edge
of tool. Please give me the name
of the nearest dealer who does, and
give me the prices of your hand Axe.*

L. & I. J. WHITE CO.
Buffalo, N. Y.

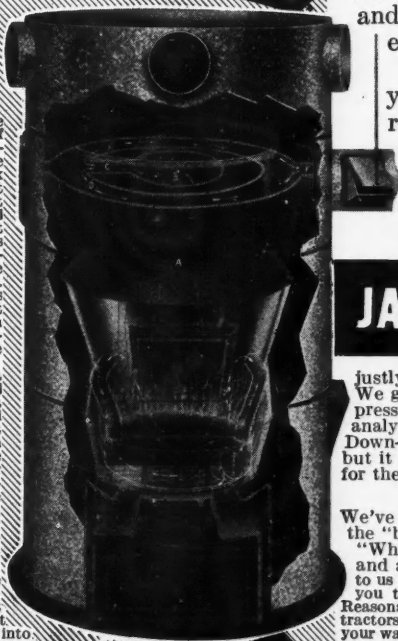
Jahant Furnaces Always Satisfy

Jahants Breed More Contracts For You

Here is a phantom view of the Jahant Down-Draft Furnace. By phantom we mean a picture which shows the furnace much as would an X-Ray picture. You see the outside and also the inside of the center sections, and the Radiator at top. The white lines show the cast iron extension air box and "ells" which provide for the operation of our famous down-draft principle. The cold air enters the box where the lower right arrow indicates, part going up the right Ell and part up the left one. The air then falls and forms the down-draft as shown by the down pointed arrows. The white wavy lines show how the heat spreads and comes in contact with the radiating surfaces of the furnace.

The Radiator on a Jahant No. 2, if spread out flat would make a heavy piece of metal 5x6 feet. Smoke must come in contact with all this surface before passing out. As 80 per cent of ordinary furnace heat goes up the chimney in the smoke, the Jahant Radiator by this method, reduces that waste by at least 50 per cent.

Observe distance smoke must travel before passing out. It rises from the fire pot into Dome (A), on up into Radiator (B), thence into Channel (C). From there it is forced to spread and travel channels (D and E), finally passing into smoke pipe through outlet (F).



**365 Day
Guarantee**

SEND TODAY
for a 19 inch high picture of
the **Jahant Down-Draft Furnace**,
same as shown here. It is the clearest, biggest
and most understandable picture of a furnace
ever printed.

The more particular you are about the furnaces you install, the more interested you will be in this remarkable picture, and the more pleased we will be to receive your inquiry. This 19 inch high picture is the central figure in an unusual presentation of furnace facts. We call it "Solid Reasons." You will agree, after reading it, that the

JAHANT DOWN-DRAFT FURNACE

justly deserves its high standing among contractors and house owners alike. We go further. We believe that even a casual reading of this circular will impress you; that a second reading will intensify that impression; and that an analytical study will result in your recommending and specifying the Jahant Down-Draft Furnace in every future contract. That's saying a whole lot but it isn't a flash in the pan. We state it deliberately—confidently. Send for the circular.

OUR PROPOSITION TO CONTRACTORS

We've something to say to contractors that we haven't room to say here. It's the "brass tacks"—practical show down—the real answer to the question, "Why Should I Recommend and Install the Jahant?" Just your name and address on the attached coupon pasted on a postal card and mailed to us at the cost of one cent, will bring you the 19-inch high picture, "Solid Reasons," and "Our Proposition to Contractors." Suppose you get them started your way **RIGHT NOW.**

**THE JAHANT HEATING
COMPANY**
AKRON, OHIO

JAHANT:

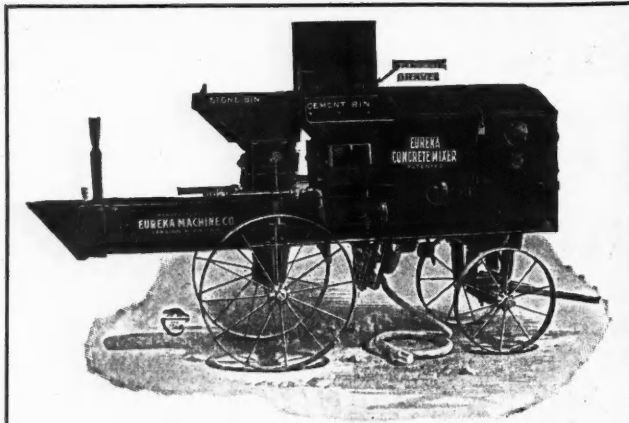
Send me that 19 in. Picture and "Solid Reasons" circular today.

Signed

.....

.....

You will get **SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.



A Special Low Priced Mixer of Distinct Advantages for Small Jobs

Over 300 Eureka used in New York City
50 to 80 yards per day

Furnished in all sizes from 5 to 35 yards per hour

These Striking Eureka Advan- tages Compel Attention

It will save one-half in labor over hand mixing.
A thorough uniform mix is guaranteed and full rated capacity.

The average life is six to eight years.
It can be operated by three men or will accommodate a dozen.

Costs about 50 cents a day for gasoline.
Built extra strong and can be depended upon for hard, continuous service.

Easy to move and operate.
Material shoveled direct into bins—no wheeling.
Only necessary to keep bins supplied with material—measured automatically.

One lever stops and starts mixer—another the feeders.
Equipped with a strictly high-grade engine—Bosch magneto if desired.

Eureka mixers are in use everywhere and always satisfactory.

On this satisfaction to the user Eureka prestige has been built.

Ask for catalog No. 30 and names of Eureka users in your territory.

EUREKA MACHINE CO.
85 Handy Street LANSING, MICHIGAN

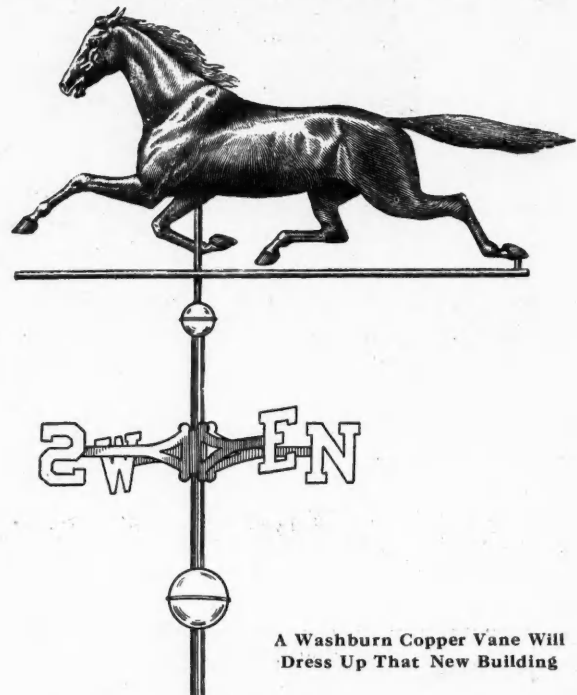
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W. V. Johnson & Co., General Eastern Agents,
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ATLANTA, GA.: Progressive Sales Co., Haynes and Rhodes Bldg., P. O. Box 1594.
CEDAR RAPIDS: Iowa Stone Company.
CHICAGO: F. T. Kinnare, 335 River Street.
CINCINNATI: C. Taylor Handman, Merchants Bldg.
DALLAS: J. Peyton Hunter, 6 Terminal Bldg.
DAYTON: M. D. Larkin Supply Co.
DETROIT: Walter R. Barrie, 1029 Lothrop Ave.
FT. WAYNE: Manufacturers' Agency Co., Old National Bank Bldg.
HOUSTON: J. A. Hurley, 222 First National Bank Bldg.
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PEORIA: Southwestern Port Huron Co., 213 S. Water St.
PITTSBURGH: J. M. Bursner, 1220 Irwin Avenue.
SALT LAKE CITY: Harris Bros., 310 Atlas Bldg.
WINNIPEG: Thos. Jackson & Son, 370 Colony St.

"Vane" Talk

"We are vain about our vanes" remarked a manufacturer to our representative handing him a copy of the latest catalog—"because we've got a new line that surely touches the high spots on all buildings."

The demand for weather vanes dates back to goodness knows when and looking back we recall with a smile our amateurish efforts to establish a wooden arrow on top of the old barn down home. But this new catalog here before us denotes a change in style has taken place. Here are finely gilded copper weather vanes—big ones, small ones—



A Washburn Copper Vane Will
Dress Up That New Building

of every style to attract attention to the nature of the building on which they are placed; automobile vanes for garages, horses for racing or breeding stables, cattle of many kinds for stock barns, roosters for poultry farms, neat conventional designs for schools or public buildings, and so on—giving a great variety.

This catalog put out by E. G. Washburne & Co., 210 Fulton Street, New York City, is mighty handsome. It tells all about weather vanes and will prove useful to our readers. Your name on a postal card will bring it free.



A Splendid Text Book

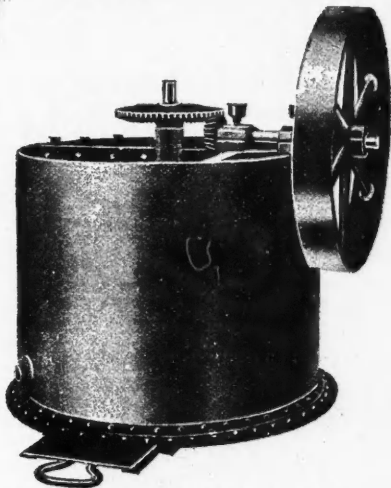
In connection with bridge, culvert, step, curb, and pavement construction, the Trussed Concrete Steel Co. have issued a fine text book containing much practical information on the subject.

The book contains nearly fifty pages of reading matter profusely illustrated. It cannot be considered merely as an advertisement on account of the educational value of the greater part of the contents. Of course the manufacturers have devoted some space to descriptions of their reinforcements, etc., but even at that the new methods are worth studying. Some idea of the subjects discussed in this little volume may be gained if we quote from the table of contents. A glance reveals interesting chapters on arch bridges, sewers, earth pressures, highway bridges, culverts, curbs, concrete roads, protection of joints, etc. The pictures show different structures in all parts of the world.

A copy of "Concrete Bridges, Roads and Curbs" may be had free by writing the Trussed Concrete Steel Co., 344 Trussed Concrete Building, Detroit, Mich.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Why Mix Mortar With a Hoe??



30 inches across, 24 inches deep. Made of iron and steel, weight 340 pounds. Nothing to wear out or give trouble. Guaranteed one year against defects in material or workmanship.

on the first machine sold in each town. Special price, \$85. Sent on free trial if desired.

You can't afford to be without this machine right in the busy season. Write for particulars at once.

Don't you realize that the old-fashioned way wastes both time and money? You use a concrete mixer. Why not use a mortar mixer? Mix your mortar the HARDING WAY and one man can mix and carry for two plasterers or two men can keep five plasterers going. Running full capacity,

THE HARDING MORTAR MIXER

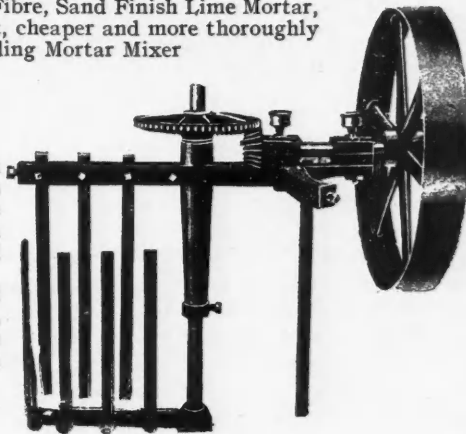
Will Keep 20 Plasterers Busy

You can mix White Coat, Wood Fibre, Sand Finish Lime Mortar, Cement Mortar, and Keen Cement, cheaper and more thoroughly than you are now doing. A Harding Mortar Mixer

Mixes a 2-Sack Batch
in 3½ Minutes

It is a simple machine designed in a practical way. Mounted on trucks if desired. A glance at the mixing apparatus will show you why this machine cleans itself and never clogs.

Regular Price \$110. Mounted on trucks with 2-HP. engine, \$175. Special introductory price



As you see, the mixing apparatus is simple. There is nothing complicated and no chance to let the mortar clog up; so there is no bother in keeping the machine clean and no chance for it to set up before the following batch.

UNIVERSITY SALES COMPANY

Iowa City, Iowa

NOTICE

CARPENTERS AND

BUILDERS

↓ ↓
Cut out and Mail Coupon herewith and we will send you a Book which you will appreciate.

The Bostwick Steel Lath Co.

NILES - - - OHIO

COUPON

The Bostwick Steel Lath Co.,
NILES, OHIO

GENTLEMEN:—

Please mail me gratuitously THE BOOK mentioned in ad herewith with understanding that no obligation is incurred.

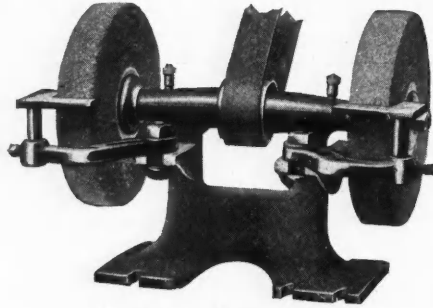
Name.....

Address

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A New Power Grinder

A conservative estimate of the number of builders who use gasoline engines would place the figure between 30 and 50 per cent. There has been a great call for a cheap, durable and fast cutting grinder to be run by gasoline engine.



New Luther Power Grinder

In putting out the new power grinder No. 308 and No. 309 the Luther Grinder Mfg. Co., have been able to make a strong, heavy machine at a very low cost. The No. 308 is equipped with a medium Dimo-Grit tool sharpening wheel 7 by 1- $\frac{1}{4}$ inches in size. The No. 309 is practically the same as the No. 308 but has a fine grit wheel in addition to the medium one. These wheels are held on by flanges. In case of the 309 with the two wheels, the driving pulley is situated at the center of the machine. With the 308 the driving pulley is at one side and the sharpening wheel at the other. The belt can come from above, from the side or from directly beneath. All bearings are extremely long, wide and heavy. The manufacturers are willing to guarantee all the parts of the machine for many years.

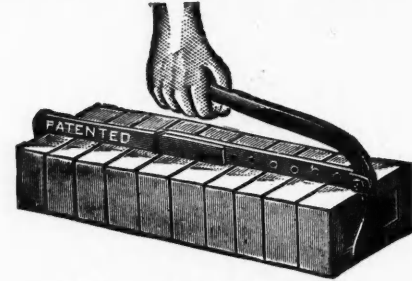
The sharpening wheel is of Dimo-Grit, the new fast cutting wheel for steel. Dimo-Grit is a further development of Car-

borundum, having all the best features of that well known substance and the additional advantage of leaving a smooth cutting edge on steel tools. Dimo-Grit is manufactured by the electric furnace process. In case this grinder is desired with Carborundum wheels instead of Dimo-Grit the number is then 308C and 309C.



The Cleveland Brick Clamp

A useful brick clamp is manufactured by the P. D. Crane Co., Cleveland, Ohio. It consists of an adjustable iron bar with a stationary clamp at one end. The clamp on the other end is hinged and fitted with a handle. Where the brick are piled, all that is necessary is to slide the clamps down into the spaces between the bricks, lift the handle and you have



The Easy Way to Handle Brick

a firm grip on as many bricks as you want to carry. The Cleveland Brick Clamp can be adjusted to carry from four to twelve bricks.

This tool saves time either in unloading a car or carrying brick about the job. Where it is necessary to handle brick without breaking them, this clamp will be found especially handy. Catalog will be sent you by the P. D. Crane Co. on request.

KISSELKAR TRUCKS

are built for your business

Saying that KisselKar Trucks are "built for your business" does not merely mean that there is a size to suit your requirements. *There is that and more.* There is back of KisselKar engineering an understanding of the special necessities in *your* line and no truck will go to you that is not scientifically designed to meet them.

Each and every truck order is considered separately—specially studied from the standpoints of burden to be carried, nature of loads, character of roads to be traveled and all other angles of *your* problem. You get a superior vehicle—as good as we can build—which means as good as anybody can build.

1500 lb., 1, 1 $\frac{1}{2}$, 2, 3, 4, and 5-Ton Capacity

KisselKar Service Buildings, maintained at principal points throughout the United States, are supplied with facilities and trained men to give an unusual service to the owners of KisselKar Trucks.

SEND FOR FURTHER INFORMATION

Kissel Motor Car Co.

546 KISSEL AVENUE : HARTFORD, WIS.

New York, Chicago, Boston, Minneapolis, Milwaukee, Kansas City, St. Paul, Los Angeles, Dallas and 200 other leading centers.

This KisselKar Truck is doing great work for Schaefer Bros., cement dealers of Rochester, N. Y. It is a 5-ton model and wonder for heavy service. Most builders find the smaller Kissel models adequate for their needs.



When you buy a truck ask yourself these questions—

Are the makers of the truck responsible?
Do they maintain service stations?
Will they make repairs without delay?
Have they on hand a complete stock of parts to insure quick replacements?
Is service to owners with them a specialty rather than an incident?

If it's a KisselKar, an emphatic YES is the answer.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

When the Builder Picks the Furnace—

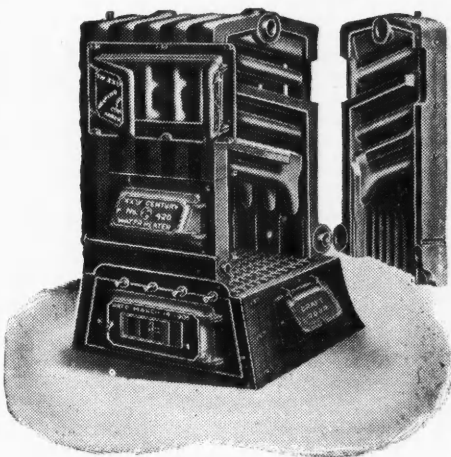
When the owner puts the furnace question up to you, he expects you to make a better selection than he could: he wants not simply a furnace but the furnace that gives the best heating at the lowest cost for fuel. He wants a clean furnace, a furnace that is easy to handle, a furnace that will give good service for years.

The closer you study the furnace question, the deeper you go into it, the surer you are to pick the

XXth Century Heaters and Boilers

One Third More Heat at a Third Less Cost

For twenty years they have been giving continuous satisfaction to thousands of users, 40,000 now to be exact. These furnaces and boilers are cutting down fuel bills, giving better heat and making living and working conditions more healthful and pleasant.

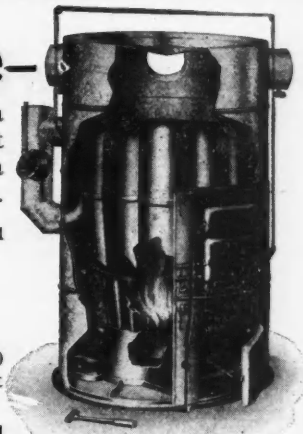


The big feature of **XXth Century Heaters and Boilers** is the exclusive, patented, air feed and side-burning fire-pot which burns any kind of fuel and gets the full heating power from it. In fact this pot burns the cheapest grades of soft coal and slack as effectively as the finest kinds of anthracite or coke. It consumes its own gases and smoke and does not emit any fumes or smoke.

Our Service Department Can Solve Your Installation Problems

Submit a plan or sketch of the home or building which you are working on to this department and they will make recommendations as to the kind of equipment that is needed and also give instructions for proper installation. This service does not cost you or your customer anything—it's free and well worth looking into. Write today and ask for our booklet No. 40 on furnaces and boilers.

XXth Century Heating and Ventilating Co.
AKRON, OHIO



The Bovee Furnaces

AT

Manufacturer's Prices



Will give every one of your patrons most perfect results. They last longer and actually require about one-half the fuel used by other furnaces.

They are made heavy, of the very best material and workmanship. Take your rule and measure the fire pots, the large combustion chamber and the long travel of heat and compare it with all other furnaces and see **WHY** the Bovee

uses less fuel and lasts longer than others.

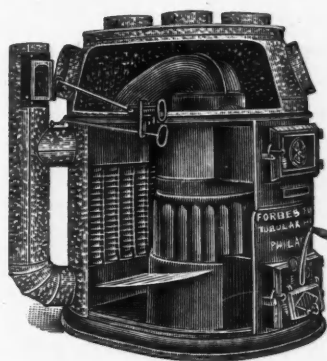
Get our special prices. We can save you 40% on a heating plant. Any handy man can install them.

Bovee Furnace Works

50 Eighth Street

Waterloo, Iowa

FORBES FURNACE



Now that a lot of the readers of this excellent paper found out what was in, and in back, of the name of "FORBES," we want to tell the rest of you that it is the name of the best Warm-Air Furnace made. Note its construction. Made entirely of cast iron; cannot burn out every two or three years.

For further information address Department "X"

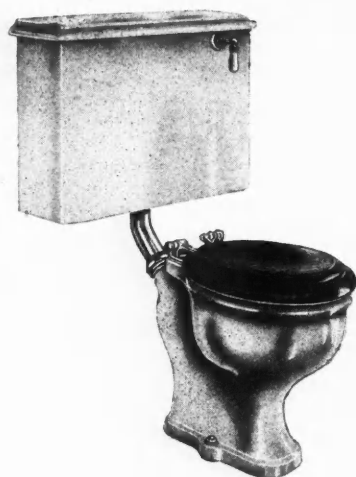
Tubular Heating & Ventilating Company

232 Quarry Street

Philadelphia, Pa.

You will get **SPECIAL ATTENTION** if you tell Advertisers you read *American Carpenter and Builder*.

Every Installation MEANS A SATISFIED CUSTOMER



When your clients ask for a high-grade combination at a moderate price, tell them about the "J-M 1913."

In appearance it meets the demands of the most exacting. And in service it gives permanent satisfaction.

You can't make a mistake when you specify the

J-M 1913 Vitreous China Combination

Tank and bowl are of vitreous china. All exposed metal parts heavily nickel plated.

Instantaneous and extremely quiet in operation. Has water surface of 75 sq. in., with 3-in. water seal.

Best fittings throughout. Equipped with J-M Dirigo Solderless Copper Float; Douglas Pattern Flushing Valve, and J-M Sanitor Seat.

Write our nearest Branch for
Special Proposition
and Booklet

H. W. JOHNS-MANVILLE CO.

Manufacturers of
Asbestos and Magne-
sia Products

ASBESTOS

Asbestos Roofings,
Packings, Electrical
Supplies, Etc.

Albany	Cincinnati	Kansas City	New Orleans	San Francisco
Baltimore	Cleveland	Los Angeles	New York	Seattle
Boston	Dallas	Louisville	Omaha	St. Louis
Buffalo	Detroit	Milwaukee	Philadelphia	Syracuse
Chicago	Indianapolis	Minneapolis	Pittsburgh	

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED
Toronto Montreal Winnipeg Vancouver (2009)

The Pittsburgh Lock Mortiser

The automatic self-feeding lock mortiser shown here, is manufactured by the Pittsburgh Instrument & Machine Co., 238 Third Avenue, Pittsburgh, Pa. It is a carefully constructed, reliable machine, in the making of which everything tending toward ease in cutting mortises has been carefully considered. Owing to the self-centering and self-feeding arrangement, speed in operation is combined with accuracy in the results obtained. The arrangement of the gears develops



Lock Mortiser that is Warranted to Do the Business

a speed of 1200 revolutions per minute. An opening for a mortise lock in the door can be cut in a very few minutes. The size of the mortise varies from $\frac{7}{8}$ to $1\frac{3}{8}$ inches wide, $4\frac{3}{4}$ inches deep and 6 inches long.

The machine is fastened by self-centering clamps and the lengths of the mortise is adjusted by means of a screw and the depth by a sliding set collar on the center shaft. The cutter is fed $\frac{1}{16}$ of an inch to every stroke and when the desired depth is reached, the machine stops automatically.

The manufacturers claim that while this machine is not the cheapest on the market, it is one that exhibits high-grade qualities all the way through and will prove to be not only a profitable investment, but a very worthy tool for the use of any carpenter.

The Pittsburgh Instrument & Machine Co., whose address is given above, are sending free literature regarding their mortiser to those who inquire for it.

A New Tool Book and Price List

C. E. Jennings & Co. have worked out a clever idea in connection with their new catalog which is just off the press. The 210 pages that make up the catalog are arranged in loose leaf style—and naturally there is a good reason.

These people always aim to keep ahead of the times in the manufacture of new tools or in making improvements on older models. Now whenever a new tool is made or prices change, all the manufacturers have to do is to send a new page to all who have their catalog. The recipient then simply loosens the cover of the book and inserts the new page. By this means he always has a reliable and up-to-date catalog and price list.

Arrow Head tools made by C. E. Jennings & Co., who have recently removed to 71 Murray Street, New York City, need no better recommendation than that they rank high in favor with a great number of our readers. To those of you who have not yet received the Jennings catalog we say write for it. It's a dandy.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

MONTROSS METAL SHINGLES



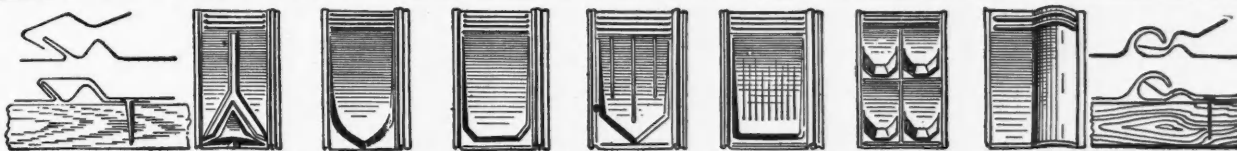
Give Your Customers the BEST Roof

—that's **Montross Metal Shingles**. They'll last as long as the building. We absolutely guarantee them for from 10 to 30 years, according to the grade ordered. **Montross Metal**

Roofing is easy to lay; no soldering. Patent side lock allows for contraction and expansion, and the large anti-capillary overlap and perfect construction absolutely excludes destructive damp and moisture.

Our new catalog contains the meat of 35 years of roofing-knowledge. Write for a copy. Agents wanted.

Montross Metal Roofing Co., 2nd and Erie Sts., Camden, N. J.



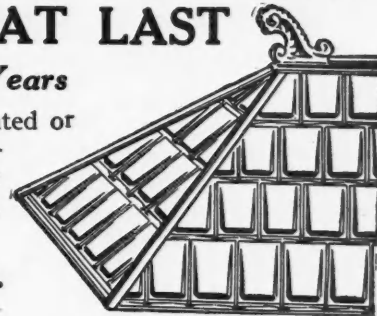
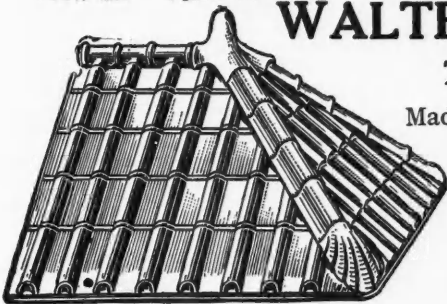
WALTER'S SHINGLES THAT LAST

The Leaders for Twenty-nine Years

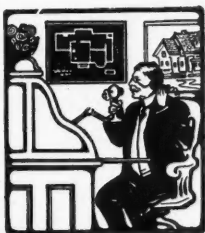
Made from I. C. full weight roofing tin, painted or galvanized after stamping. Rust-, storm- and fire-proof. The most complete line of metal shingles and tiles manufactured.

Agents wanted in every community

National Sheet Metal Roofing Co.
JERSEY CITY, N. J.



What the Architects Think



of our roofing material is well illustrated by the following incident:

An architect in a city 400 miles from our office, called up by long distance telephone. He told us that his contractor claimed that he could not get our slate. The architect wanted to know if this was so and if there was a contractor in town who could get it.

As a result our customer in that city had a sudden profitable job "thrown upon him."

By the same token when you need a roofing, you really ought to investigate our

Genuine Bangor Slate

It will bring you more business and more profits than flimsy roofings.

Unlike the latter, our slate does not bring you any complaints from dissatisfied owners, but helps you build up a reputation for reliability.

And that is what the public is always willing to pay for and pay well.

We have prepared a roof manual containing all the vital facts about any roofing in the market, largely in the words of its own manufacturers.

It is a regular roof cyclopedia of 80 pages. You ought to have this on your shelf.

We shall be glad to send you a copy while the supply lasts.

Fill out and return the attached coupon today—now, before you forget it.



Genuine Bangor Slate Co.

Drake Building

Easton, Pennsylvania

COUPON Fill out, sign, send TO-DAY
Genuine Bangor Slate Co.,
Drake Building,
Easton, Pa.
Gentlemen: Send me Roof Encyclo-
pedia. Also tell me
how you help me in-
crease my profits.

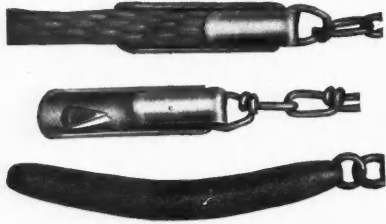
Name.....

Address.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Every Carpenter Needs a Sash Mouse

For years carpenters have been wasting time in stringing sash cord, not only in making a crude contrivance to do the work, but in using it after they had it made. The little device



shown here does away with all the trouble and tediousness of the job, besides saving considerable time for the busy carpenter.

It consists of a strong steel chain of such shape that it won't slip down by the side of the pulley, a fastener made of one piece of steel with a sharp point or spur for holding the end of the sash cord when drawing it through, and a lead weight of the proper size and shape to readily go through the pulley. The total length is 59 inches.

Every carpenter having windows to cord needs one of these handy little tools, and if you will write to the manufacturers, Handley & Cotterman, Atlas Bldg., 164 N. Wabash Ave., Chicago, they will send you one at very slight cost.



Bicycle Back in Favor

Just as soon as President Wilson got firmly settled in the White House, arranged for credit at the various stores, received a cow as a gift (which he named after the donor) he dug out his bicycle and began his famous-to-be rides through the city of Washington.

For President Wilson is very fond of his bicycle and it is expected of him to put bicycling back into the favor it was in the '90s.

All Washington people try to do what the President does,

and Wilson's first bicycle ride will be the signal for them to rediscover just how much they really enjoy bicycling.

Already Washington bicycle stores are sending in their orders for new machines, and repair shops are working overtime. Every one who has a bicycle is getting it out, polishing up the handle bars, fixing the broken pedal, oiling the chain, pumping up the tires, and giving the machine a complete overhauling. Those who haven't a machine are writing for bicycle catalogs; and when they get them, they study them very assiduously.

This is not only true of Washington, but of the entire country as well. The Mead Cycle Company, of Chicago and London, is expecting a big boom in the bicycle business, not alone on the fact that President Wilson is expected to put the sport on the popular basis that it was in the '90s, but more on account of the ever-growing demand that the Mead advertising has created, and continues to create.

This Chicago firm, which is the largest in the world, advertises in almost every publication in the world, and its ads have appeared in nearly all written languages. Bicycles of its make are used in every town of importance in the world.

This company has built an enviable reputation by its advertising, its straightforward method of doing business and the quality of its machines. The sport of bicycling owes much to this company, and, incidentally, to advertising, which the Mead people know how to use.

Address the Mead Cycle Company of Chicago, Department P-122, for a copy of their 1913 catalog.



Large Contract Awarded

The Dow Wire & Iron Works, Louisville, Ky., were recently awarded the contract for the ornamental iron work throughout the new Virginian Hotel in course of construction at Lynchburg, Va. All the stairways, balconies and elevator enclosures will be installed by this company.

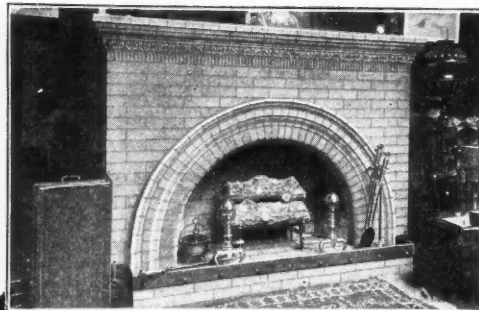
COLONIAL Fireplaces

Will Save You

Time

and

Money



COLONIAL

Head, Throat

and

Damper

Makes the Job a

Success

Your Best "Booster"

is the work you do. Every successful job is a lasting advertisement of your ability.

Colonial Fireplaces are shipped to you ready to set up with full details for installation. They are equipped with the Colonial Head, Throat and Damper, a device that insures correct construction at the fireplace throat and regulates the draft to weather conditions.

Colonial Fireplaces are built in a great variety of styles and at a range of prices that will suit any job you have.

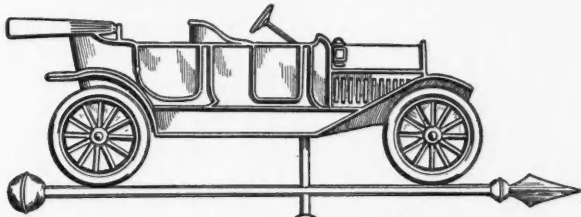
Write for "The Home and The Fireplace" our booklet of full information and let us quote you prices.

Colonial Fireplace Company

4636 West 12th Street
CHICAGO, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Weather Vanes



All Sizes and Designs

Copper



Scientific System of Lightning Rods Installed or Material Furnished.

Special Designs To Order

Flag Pole Balls

Send For Our New Catalog

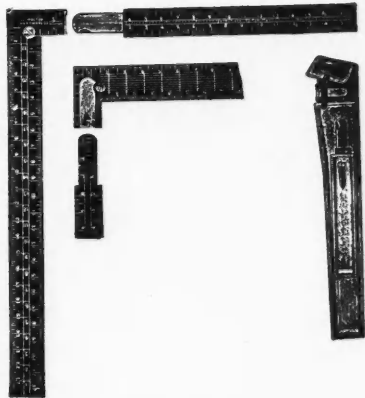
Every builder should have a copy of this catalog. It is the first complete catalog on this subject ever issued. Shows all vanes in gold. Write for your copy today.

WE PROTECT THE BUILDER

E. G. Washburne & Co.

210 Fulton Street

New York



This is the Standard Take Down Square.

It makes good with the user. Send and know more about it.

Southington Hardware Co.
Southington, Conn.

LET US GIVE YOU THIS TRANSPARENT CELLULOID TRIANGLE

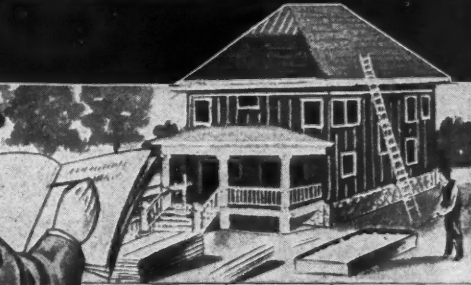
It is 4 inch size, 30°+60° angles. Lowest retail price, 25 cents. Absolutely essential to everyone who draws. We make this offer to introduce our new catalogue showing

SPAULDING'S NEW CARRYING CASES AND COMPLETE OUTFITS

for carpenters, builders, designers, architects, engineers and students—compact, durable and convenient. Spaulding's Carrying Cases are made light and strong. They provide well arranged compartments, including space for drawing board and T square. Handled like a suit case; unique, practical, inexpensive. Outfits include all necessary equipment. If you draw, send us five 2-cents stamps today to pay postage and get the free triangle and the catalogue.

SPAULDING PRINT PAPER CO., 46 Federal Street, Boston

Big Savings For Contractors and Builders—Buy Direct From Us at Wholesale Prices



HERE'S the finest chance Carpenters, Contractors and Builders ever had to get their building material, lumber and millwork at less than wholesale prices! We ship everything for building direct to You, guarantee all goods to be absolutely new (no wreckage) and guarantee also safe delivery and perfect satisfaction. Send today for our brand new 224-page catalog of Millwork and Building Material. It contains 3,000 superb illustrations and 8,000 bargains for you to save money on. Get our magnificent Book of Modern House Plans also. Shows you how to build and save 33 1-3 per cent to 60 per cent on everything. We ship you lumber, flooring, doors, windows, moldings, porch-work, building paper, hardware, tinwork and roofing. Note the few bargains listed below.

W. H. Minger President.

Porch Post
100 feet of Quarter Round, Dealer's Price \$1.00 — our price only **30c**
CLEAR FIR
4 x 4
8 Feet **55c**

Glazed Windows of all kinds ready for quick shipment.
2 light **68c** up
4 light **77c** up
12 light **83c** up
1 light Stall Sash **34c**
4 light Barn Sash **47c**

Porch Spindles
1 1/2 C

8000 Price-Saving Bargains

Get Our Two Free Books Today **33c**
Fir Porch Newel
4 x 4
4 Feet

Wearwell Paint
Perfect guaranteed house paint — Single 5-gal. kit. We have all kinds of paint at wholesale prices. You can't beat our goods or our wholesale prices.

HARDWARE
All kinds of building hardware.



\$838 We will furnish complete all lumber, millwork, hardware, spouting, paint—everything except masonry and labor to build 7-room house. Plans free. A113. Estimates Made Free — We furnish everything for building your house.

CHICAGO MILLWORK SUPPLY CO.
1422 W. 37th Street
CHICAGO



Chicago Millwork Supply Co. 1422 W. 37th St. Chicago, Ill.
Please send your FREE books listed below, to
Name _____
Address _____
Catalog No. 43 of Building Material
PLAN BOOK No. 53 House and Barn Plans

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

Clow Cast Iron Specialties



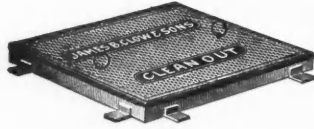
A-2187
Ex. Hy. Cesspool, Long Outlet

Size of top.....In.	12x12	16x16	18x18
Depth.....In.	10	10	10
Size of outlet.....In.	3	4	6
Length of outlet.....In.	10	10	10
Painted, net Each	3.09	3.58	7.15



A-2185
Extra Heavy Cesspool

Size of top.....Inches	16x16
Depth.....Inches	10
Size of outlet.....Inches	4
Painted, net.....Each	2.00



A-1700
Cleanout Cover and Frame

Size.....Inches	27x27
Size of frame, outside.....Inches	27 3/4 x 27 3/4
Height of frame.....Inches	4
Price, Standard, net.....Each	\$ 9.00
Price, Extra Heavy, net.....Each	18.00



A-2015
Grating with Loose Frame

Size, inches	8x8	10x10	13 3/4 x 13 3/4	18x18
Grate only net.	.60	.98	1.43	1.80
Grate and frame, net	.83	1.28	1.88	2.25



A-2020
Grating

Size, inches.....	9x9	13 3/4 x 13 3/4
Price, each, net.....	.75	\$1.13



A-1945
Concave Grating

Concave, diam.	19	in., net, each	\$3.38
Convex, diam.	22 1/2	in., net, each	3.75



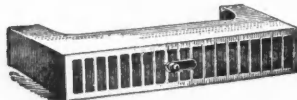
A-1950
Cast-Iron Grating

Diameter.....Inch	Each net
14	\$1.88
16	2.06
18	2.25
20	2.43
21 1/2	2.81
23	3.19
28	3.56
30	3.94



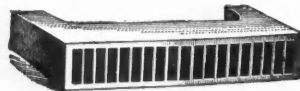
A-1955
Cast Iron Bar Strainer

Diameter	.4	.5	.6	.7	.8	.9	1.0
Net, each	.07	.09	.11	.18	.23	.28	.37



A-2200
Air Brick with Sliding Ventilator

Size.....Inches	8 1/2 x 5	17 x 2 1/2	17 x 5
Price, net.....Each	2.59	2.59	5.17



A-2201
Air Brick

Size.....Inches	8 1/2 x 5	17 x 2 1/2	17 x 5
Price, net.....Each	2.20	2.20	4.40



A-1710
Cleanout Cover and Frame

Opening, diam., in.	18	24	34
Top, outside, diam., in.	22	28	38
Price, net, ea	\$4.13	\$6.00	\$9.00



A-1720
Cleanout Cover and Frame

Opening, diameter, inches.....	18
Top, outside diam., inches.....	22
Base, outside diam., inches.....	28
Price, net, each.....	\$4.88

The Sargent Universal Rafter Square

Sargent & Co, New Haven, Conn., have recently put on the market a new rafter square on which the rafter tables are said to be the simplest that have ever been evolved. On the face of the square are the tables which govern hip and jack rafter lengths as well as side cuts for hips and jacks. The same rules apply to valley rafters as to hips and like rules apply to cripple rafters as to jack rafters, as in each case the rafters are of similar types.

It is only necessary to know the pitch and the width of the building to get the result on these tables, so that no figuring is necessary. Under the column marked pitch on the square the fraction which represents the pitch is given and the outside heavy type figures represent one-half the width of the building. Under these large figures opposite the proper pitch is given the total length of rafter in feet, inches and twelfths of an inch.

For example, if the pitch is 1/4 and the building is 24 feet wide, under the large number 12 opposite 1/4 in the table is 18 0 0, which is the hip (or valley) rafter for that particular roof. This reads 18 feet 0 inches and 0/12 inch. If the pitch is 3/4 and the building 18 feet in width, under the numeral 9 (representing half the width of the building) and opposite 3/4 is 18 6 8, or 18 feet 6 inches and 8 twelfths of an inch, the exact length of the hip (or valley) rafter.

It should be understood that the pitch of a roof is always the fraction which represents the relation of the height of the roof to the width of the building. For example, if the roof is 8 feet high and the building 32 feet wide, the pitch is 1/4. Where the roof is 10 feet in height and the building is 60 feet wide, the pitch is 1/6, and so on.

Actually the figure on the outside of the square represents the run, for the run is always one-half the width of the building. In other words, the pitch and the run (two quantities always known) give the required result in the length of the rafter.

On the face of the square next to pitch appears the heading hip. The figures underneath represent the hip to 1 foot run. These are to be used where the width of the building is such that the series of outside figures does not cover the particular case in point. For example, if the building were 70 feet wide with a 1/4 pitch for the roof the rafter length would be 1 foot 6 inches and 1/12 inch (the figures opposite 1/4 in the foot run table) multiplied by 35 (the run, or one-half the width of the building).

Jack and cripple rafters are always spaced either 16 inches or 24 inches apart. If 16 inches, under the first heading jack on the top of the table opposite the proper pitch is the required rafter length. For example, if the pitch is 1/4 and the jack or cripple is spaced 16 inches, the result is 17 7/8 inches. If the jacks are spaced 24 inches apart under the second heading the jack with the same pitch is 2 feet 2 7/8 inches, the required length of the jack rafter where spaced 24 inches.

Underneath the outside figures 6 and 7 are the side cuts for jack and hip respectively. In order to get these cuts take the first figure on the outside body of the square and the second figure on the outside of the tongue, marking on the tongue side. This gives the side cut where the jack meets the hip and where the hip meets the ridge.

On the body of the square, reverse side (or back), is given the table for common rafter cuts. The same rules govern this table as hip and valley cuts already described. For example, if the roof has a 1/3 pitch and the building is 20 feet wide, under the numeral 10 on the outside figures opposite 1/3 in the column under the heading pitch is 12 0 3. In this case the common rafter would be 12 feet 0 inch. and 3/12 inch.

Send For Catalogue 39

James B. Clow & Sons

CHICAGO, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



STAMPED STEEL TILING

Just the thing for
Bathrooms, Kitchens, Restaurants,
Butcher Shops, etc.

AND ITS RIGHT IN YOUR LINE

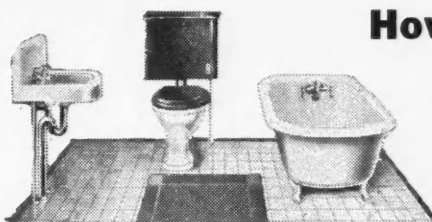
Real tile frequently becomes loose and falls off. This cannot. The studding or plaster is first sheathed with narrow, dry boards and the metal put on with small nails

SIX PATTERNS

Furnished with Baked White Enamel finish—or simply prime painted Metal trim Cap Base, Corners, etc., supplied or you can use wood trim.

NORTHROP, COBURN & DODGE CO.

29 Cherry Street, New York



**How to Install
Your Own
Running
Water and
Heating**

Builders, Contractors and Home Owners—My big new book

tells you how to install your own water system, modern heating plant and bath-room outfit. You can easily install a running water system or a modern heating plant from the complete plans and instructions furnished to you free. The saving is enormous. Before you build, before you make improvements, send for my free book.



Save on all Material

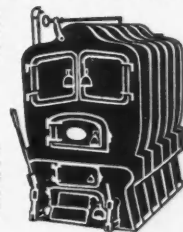
My method for saving on all material is a revelation even to the most experienced contractors and builders. Get the free book and see for yourself. You get guaranteed material at the lowest bed-rock bottom price. My money-saving method is a blessing to every builder and home owner.

GIBBONS' NEW PRACTICAL METHOD

Every home, even the smallest cottage, can now have running water or a heating plant. Churches, halls and schools can have these improvements at a low cost. My free book explains all. Write for it today

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My new book gives you greater buying power than your local dealer. Thousands of things illustrated and priced. Gasoline engines, hydraulic rams, pumps, pipes, valves, electric lighting plants, acetylene lighting plants, all accessories and parts, everything guaranteed. You certainly ought to have this book. Send today.



M. J. Gibbons, Dept. 241R, Dayton, O.



LIVING ROOM

showing Oscillating Portal Wall Bed with a combination writing desk, book case and dressing mirror on the front of the bed. A buffet, book case or furniture of any kind, may be used. By utilizing the front of the bed for a piece of furniture, you save the wall space that this furniture would otherwise require, and perfectly conceal the fact that there is a wall bed in the room. All of the drawer and locker space of the furniture is available.

Wall Beds

We are the Pioneers of the wall bed industry. We particularly recommend our latest achievement, the Oscillating Portal Wall Bed, which is an absolutely sanitary bed. We also make the old style recessed Upright Wall Bed, which has the wooden frame work under it. To introduce our wall beds more extensively in the eastern and middle States, we will sell at cost, and prepay the freight charges to any part of the United States, where we are not represented, for a limited time only. Write for literature and particulars today.



BED ROOM

with an Oscillating Portal Wall Bed, showing entrance to the closet while the bed is down. No additional door is necessary to permit free access to the closet. The bed is all metal, is full size, standard height. It has no frame work underneath to collect dust or VERMIN. When the bed is not desired, the bed room is immediately transformed into a perfect living or dining room.

Marshall & Stearns Company

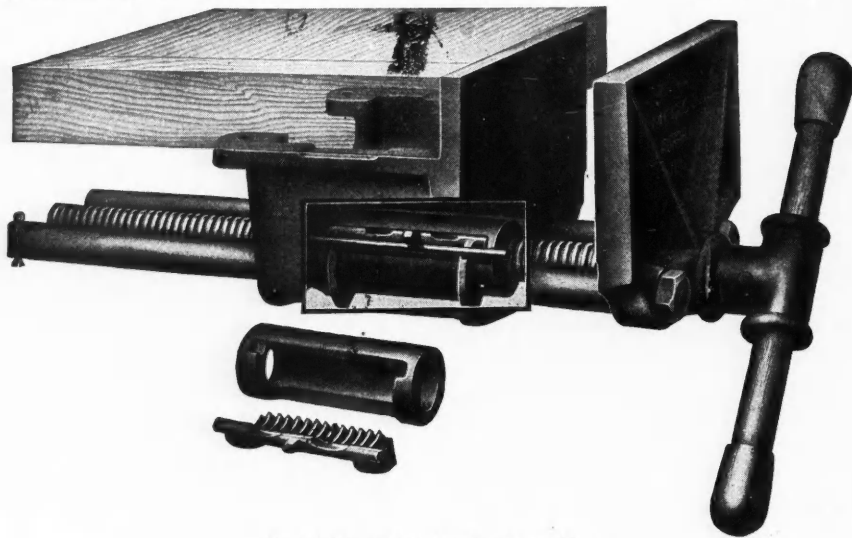
San Francisco, Cal.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A New Rapid Acting Vise

A new invention in vises recently perfected by the Richards-Wilcox Mfg. Co., Aurora, Ill., proves very interesting.

The vise as shown is equipped with a two piece cam-operated nut. The nut sleeve is of grey iron while the nut proper is phosphor bronze. When the pressure is removed by a slight reverse movement of the handle, the nut is released and completely disengaged. Under pressure the nut closes and locks the screw firmly, holding the jaws of the vise in a rigid position. As the use of the cam-operated nut promotes rapid adjustment and insures a grip that will not



Rapid Vise Showing Locking Nut

allow the jaws to work loose, it is sure to be liked by woodworkers. Those interested may learn more about it by writing for their booklet.

Mastic Flooring

The problem of flooring the factory is a difficult one, but the obstacles which present themselves in the average plant seem at last to have been overcome by a flooring material known as J-M Mastic.

This flooring is said to be unequalled for factory and warehouse use, even under the heaviest trucking conditions, and on account of its noiseless character is a boon in plants where there is considerable trucking. Another feature in its favor is its peculiar holding quality which prevents slipping.

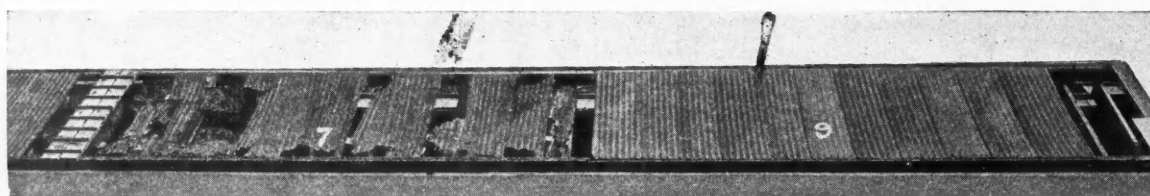
J-M Mastic Flooring provides a surface that is water proof and at the same time practically wear-proof under ordinary service conditions. It is also unaffected by acids, alkali and brine. Being waterproof, it is absolutely sanitary, as it can be quickly and thoroughly cleaned by the simple process of flushing after which it dries out immediately.

It will not originate dust, a point of vital importance in establishments where it is imperative to keep machinery and goods free from dust.

J-M Mastic Flooring can be made in any consistency between extreme hardness and softness and, while always dense, possesses a certain amount of resiliency. It can be laid over any foundation which is firm and stable, and may be applied over wood, brick, concrete or tile already in place. In new construction, concrete or heavy mill

construction is the most desirable.

The H. W. Johns-Manville Co., New York, manufacturers of J-M Mastic, will be glad to send a booklet free.



Steel without Copper

Same Steel with Copper

Copper Bearing Steel

Gives more lasting service for roofing purposes. The above illustration shows the result of actual exposure to the weather. A series of similar tests all prove conclusively the superiority of COPPER BEARING Open Hearth Steel. That is why we have adopted this material exclusively for

ROOFING TIN

Demand plates that bear the stamp "C. B. OPEN HEARTH" in addition to the brand and weight of coating. You should use no other.

Write for full information on our Tin and Terne Plates, Apollo Best Bloom Galvanized Sheets, Black Sheets of every description, Formed Metal Roofing and Siding products, Etc. Send for interesting roofing booklet.

American Sheet and Tin Plate Company
General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

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

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Wrenches That Grip Like a Vise

There's a feeling of security and "get there" the minute you clamp a Keen Kutter wrench on pipe or nut. The way it takes hold assures a perfect, vise-like grip—no slipping or twisting. Wrenches bearing the name and trade mark

KEEN KUTTER



are made to stand the strain of tug and pull. Made in various sizes and sold with a guarantee of satisfaction, or your money back.

"The Recollection of Quality Remains Long After the Price is Forgotten."
Trade Mark Registered. —E. C. SIMMONS.

If not at your dealer's, write us.
SIMMONS HARDWARE CO., Inc.

St. Louis New York Philadelphia Toledo Minneapolis Sioux City Wichita



No. K10
Size 10 ins.
Price \$1.00

No. KB10
Size 10 ins.
Price \$0.75

BRICK--The Old Way of Handling Them is a Nuisance

In tossing brick out of a car many are broken. A wheelbarrow doesn't carry enough bricks to warrant the time it takes to load, wheel it out and dump it.



Use A CLEVELAND BRICK CLAMP

It is the Newest and Quickest Way

Furthermore, in unloading brick it actually saves ONE-THIRD of the time over the old methods. This clamp is adjustable and will carry from FOUR to TWELVE bricks. There's no fuss or bother. Simply place the clamp down on the bricks and lift the handle.

The price? It is so inexpensive ANYONE can afford it. Just send your name on a postal and we'll send a neat catalog and price list.

THE P. D. CRANE COMPANY - CLEVELAND, OHIO

GET THIS VALUABLE BOOK

It Contains an Education in Mantels

This remarkable Mantel Special is being sent Free to Carpenter Contractors—it is probably the most elaborate and costliest edition ever before published.

Actual photographs of the newest ideas in designs and construction and the widest range of styles to select from are shown.


"Huberize Means Economise"

We specialize in Mantels and Millwork—prices are the lowest. Send lists or plans to estimate.

Don't miss having Mantel Special—it is yours free—send name today—a card will do.



The Huber Builders Material Co.
45-49 Vine Street Cincinnati, Ohio



Simonds saws

All Kinds. All Styles. All Sizes. All Prices.

And they're all easy cutting.

This quality in a saw depends on the steel that's in it and the way it's ground. Simonds steel is not equaled for toughness and temper holding.

You can make the teeth sharp as a needle and they will stay that way for a long time. Blades ground thinner on the back than at the tooth edge. You saw faster and easier.

Send for a free copy of "Simonds Carpenter Guide."

Simonds Manufacturing Company

Fitchburg, Mass.	Chicago, Ill.	Montreal, Que.
New York City	New Orleans, La.	Seattle, Wash.
Portland, Ore.	San Francisco, Cal.	London, Eng.
Vancouver, B. C.	Lockport, N. Y.	St. John, N. B.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

A Free Book of Money Saving Ideas For Dairy Barn Builders



You will be interested in reading "Helpful Hints to Dairy Barn Builders." It tells many of the things learned by W. D. James—America's foremost dairy barn designer. It will help you make more money.

It tells about the new plank frame construction, the famous King system of ventilation, perfect lighting, proper width and arrangement. It tells about stable floors, site, size, appearance, design, drainage and equipment. And it shows four floor plans of barns that have attracted widespread attention.

You can obtain a copy of this valuable, helpful book FREE. Merely answer these few questions and the book will come by return mail. For whom do you expect to build or remodel dairy barns? (Give name and addresses.) When? For how many cows? Address

James Manufacturing Company
8675 Cane St., FT. ATKINSON, WIS.

Special Offer Of Blue Prints

Mr. James wants to make you a special offer of complete working blue prints of modern dairy barns of different sizes and types. Also ask how to secure free help from our agricultural department. Write today.



"Graphite for the Boiler"

The Joseph Dixon Crucible Co., Jersey City, N. J., have just published a new booklet entitled "Graphite for the Boiler."

This booklet deals with no new discovery, for graphite has been sold to remove scale from boilers for many years. It simply states in as few words as possible why and how Dixon's Boiler Graphite does its work. No startling claims are made, for the subject is too old to longer be sensational.

This booklet will be sent free of charge to those requesting it.



Copper in Steel to Prevent Corrosion

Of late years much thought and many experiments have been devoted to attempts to produce a metal roofing with maximum resistance to corrosion. There is always a great deal of interest shown in any improvement that will secure the desired result, and in experiments conducted with this end in view. In this connection a very interesting paper was recently read before the American Chemical Society, at their annual meeting held at Milwaukee, Wis., by Mr. D. M. Buck, Chief Chemist of the American Sheet & Tin Plate Company, of Pittsburgh, Pa.

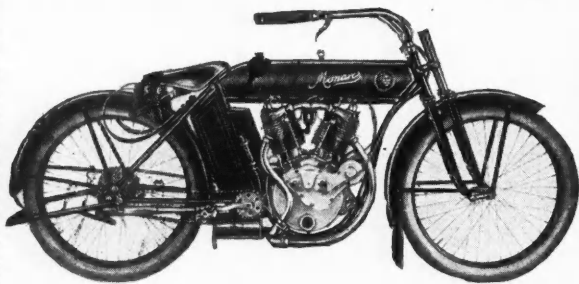
Mr. Buck gave full details of some instructive experiments, extending over a number of years, that were made with metal roofing sheets made from ordinary steel, and also sheets to which copper had been added. The exhaustive treatment was conducted with extreme care in a practical manner, leaving nothing to chance or conjecture, so that the results obtained are authentic and dependable. The object was to establish the relative value of small amounts of copper in metal roofing when exposed to natural corrosion under varied atmospheric conditions.

Actual service tests were made in the Pennsylvania Coke regions, where the air is impregnated with sulphuric acid and other corrosive fumes. On the sea coast, where the air is charged with sodium chloride, and in a rural section where the air is pure and free from added corrosive agents. At each location a skeleton wooden building was erected and roofed with corrugated metal sheets containing different proportions of copper. The sheets were not protected by paint or any other coating except, of course, the thin film of oxide always present on an annealed sheet. Accelerated acid tests were also made on segments taken from the same sheets. Caution was taken so as to insure that the findings were definite and convincing.

Excellent results were obtained, which showed conclusively that in every instance the roofing which contains copper lasts much longer and gives far better service than sheets without copper. The difference in the atmosphere at the various testing stations produced interesting data of much value in deciding the correct amount of copper to be used. After long research and much experimenting the American Sheet & Tin Plate Company have, in view of the success of the new treatment, adopted copper bearing steel exclusively for roofing tin. This represents a very important step forward in the tin roofing business. Copper bearing steel can also be furnished in both black and galvanized sheets.

Mr. Buck's instructive address, liberally illustrated with photographs of the tests, and with valuable tables, has been published in book form. The information given on this new departure in the making of metal roofing and siding will be of much value to builders and others who are interested in securing more durable roofing tin and sheets for roofing and siding purposes. A copy of the book can be secured by addressing the American Sheet & Tin Plate Company, Frick Building, Pittsburgh, Pa.

Single 5 H.P. **\$225** **MONARCH** **\$275** Twin 10 H.P.



Power - Speed - Durability - Class

The last word in Motorcycle construction. The 10 h. p. twin is indeed the ideal mount. Power enough to go anywhere and more speed than you will care to use, and yet so flexible that it will start on a walk and operate with ease in the busiest traffic.

The single in either V belt or chain is the only machine for the man that wants plenty of power but does not care for a twin.

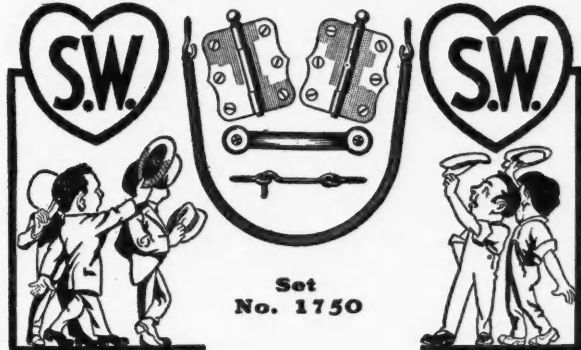
We would like to post you further; so please address Sales Dept.

IVES MOTORCYCLE CORPORATION
OWEGO TIOGA CO. NEW YORK

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

STANLEY'S

Wrought Steel Screen Door Hardware



Each Set Complete with Screws Ready to go on the Screen Door

Owners and Builders alike are pleased with the high quality of the hardware and the convenient way it is packed ready for use.

Butts, pull, spring, hook and eye and screws, all of the highest quality of material and workmanship

They can be furnished in Japan, Antique Copper, Brass or "Stanley" Sherardized rust-proof finish, the proper finish for outside doors.

Write us for Circular "A". It tells the story.

THE STANLEY WORKS

New York New Britain, Conn., Chicago

SARGENT

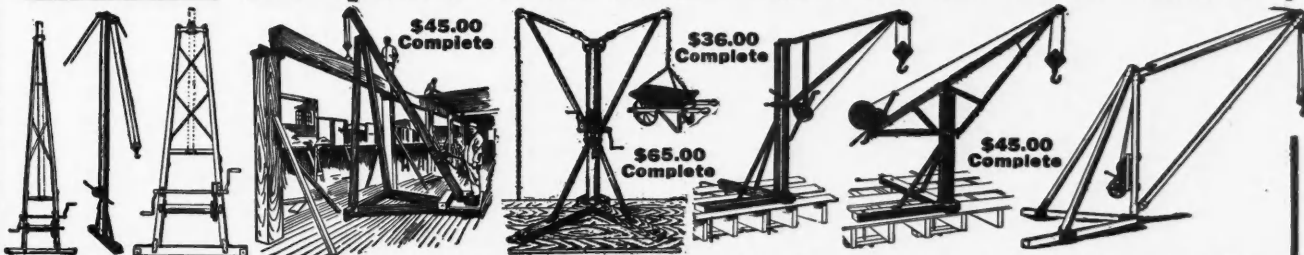
LOCKS

The Sign of Quality

SARGENT & COMPANY
New Haven, Conn.

New York Boston Philadelphia Chicago

The Most Complete Line of Builders Derricks Made



T. P. Pole Setter Derrick \$45.00 Complete
Regular Setter Derrick \$48.00
'A' Frame Builders Derrick 1800 lbs. capacity. \$45.00
Double Boom Wheelbarrow Derrick 2500 lbs. capacity. \$36.00 Complete
Light w't Cham-pion Builders Derrick 1000—1500 lbs. cap. \$65.00 Complete
Reinforced Standard 2500 lbs. capacity with geared winch. \$45.00 Complete
Light, Strong, Stiff Leg Derrick with split mast and boom Capacity 2—3 tons Price according to capacity.

At these prices you can't afford to be without one of these derricks. They save time and that means money. Consult us before placing your order. Satisfaction and prompt delivery guaranteed.

SEND FOR CATALOG NO. 2.

DON'T HIRE MEN TO CARRY UP YOUR MATERIAL, HOIST IT WITH A SARGEN DERRICK
SARGEN DERRICK CO. 2055 Racine Ave. CHICAGO, ILL.

ART GLASS

In business 25 years in which time we have furnished thousands of homes and churches with our beautiful and artistic windows.

Catalogue and designs furnished free. **Write us now.**

Schuler-Mueller Co. Chicago, Ill.

313 W. Superior St.

Telephone North 5650

Weather Proofing For Sliding Doors

Get and use the Schouler Patent Weather Stripping and Guide. It is made of heavy metal. Will not wear out. It is easily applied and a positive protection against wind, rain, sun and dust. Doors slide easily and firmly.

Get catalog and other particulars. **Write NOW.**

Schouler Cement Construction Co.
144 Frelinghuysen Ave. NEWARK, N. J.



You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



Plastergon Money is Easy Money for the Builder

because it is a profit which the other fellow always got until Plastergon superseded lath and plaster.

Plastergon Makes a Better Wall than Lath and Plaster and the builder can shade the plasterers' price enough to bring the job into his contract. There are no "come-backs" with Plastergon, either.

Every Panel is Guaranteed to give absolutely satisfactory service. Write for our Special Dealer's Proposition.

PLASTERGON WALL BOARD COMPANY
Department A. - - - Tonawanda, N. Y.



Pure Paint Direct to Users

Any business plan by which high grade goods are delivered to the actual user or consumer at less expense for distribution is bound to interest the public. The Yuma Paint Company, Dayton, Ohio, are putting out from their new factory (which by the way was not harmed by the flood) "Brown Seal" Prepared House Paints, "Brown Seal" Prepared Floor Paints, "Yuma-tone" Washable Floor & Wall Paints, "Clear-view" Barn and Roof Paints, "Yuma-lac" Oils and Varnish Stains and "Woodland" Shingle Stains. These products are made in a modern factory under capable direction and go straight to the user. The manufacturers say they cannot make better paints than any other high grade concern but contend that by confining the sale of their products direct to the user they are able to save him a substantial amount on every gallon he purchases. The Yuma Paint Company also say that while they adopt the direct selling plan they have a good word to say for the local dealer. It is their belief that the local dealer is entitled to the profit he gets and that the user should be willing to pay it for the convenience of having it always ready to deliver and for credit accommodation. They ask the dealer to be equally fair and not to condemn paints manufactured by a reputable maker for direct sale to the user as being necessarily cheap in quality because that plan of sale is followed.

"Brown Seal" Prepared House and Floor Paints are products of pure linseed oil which costs The Yuma Paint Company as much to make as it costs any reputable maker. They say they simply pass on to the user whatever might be saved in dealer's profits and the additional expense involved to sell paint through dealers.

A line from any reader of AMERICAN CARPENTER AND BUILDER will bring full information and a complete set of color cards covering the particular needs of the inquirer.



Truly, it is the Paint That Lasts

Under the severest climatic conditions, the home covered with **Bridgeport Standard Prepared Paint** retains its beauty of appearance. "I have painted my building only twice in 23 years, both times using your paints," writes a correspondent; an experience typical of thousands of home owners.



ECONOMICAL and DURABLE

It spreads easily and has great covering capacity. Two generations of conscientious architects, builders and painters have used it on the interior and exterior of some of the most famous and luxurious homes in the country. Send for our booklet on "Modern Painting for Beauty and Protection"—also for color cards. Free on request.

THE BRIDGEPORT WOOD FINISHING CO.
New Milford, Conn.

NEW YORK
CHICAGO
BOSTON

Modern Plumbing Outfits

AT \$10 AND \$20 SAVINGS



These handsome high-grade plumbing fixtures furnished complete, guaranteed and sold direct at wholesale prices, saving all dealers' profits. Simple plans included free.

Bathroom Outfit . . \$35.00

White porcelain enamel, heavy cast-iron Bath Tub. Wash-Basin: White enamel over heavy cast-iron, with concealed hangers and choice of wall or floor connections. Toilet: Vitreous china with oak seat and copper-lined tank; all metal parts of outfit are heavily nickelplated. \$35 complete.

Pneumatic Water System, \$40.00 This outfit includes a black steel tank, 145 gal. capacity, 2 1-2 in. brass-lined double action combination air and water pump, and all pipe, fittings, valves, gauges, etc. \$40.

Free Book —containing illustrations and descriptions of plumbing and heating outfits and supplies —at wholesale prices. Send for it today.

Chelsea Mfg. & Supply Co., Dept. F, 236 W. 20th St., New York City



Sash Mouse

Every carpenter is losing time in stringing sash cord if he does not use

The "Han-Cot" Sash Mouse

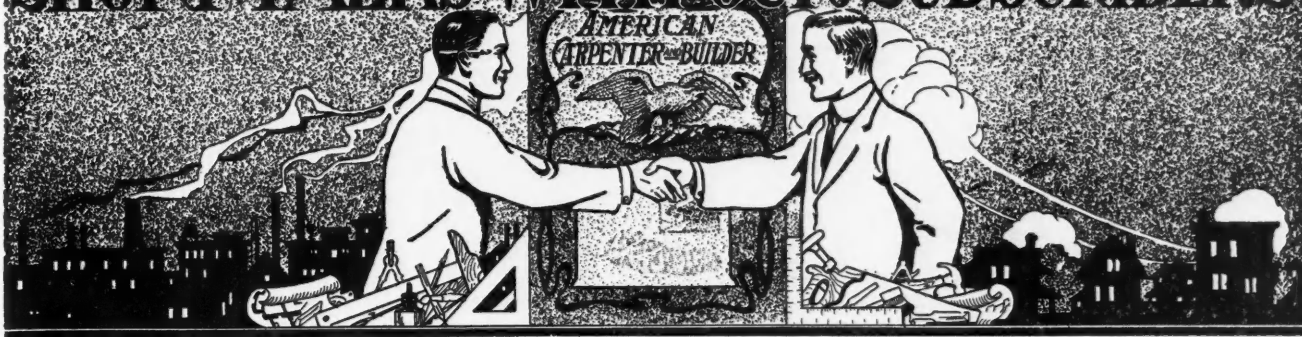
It is 59 inches long and consists of fastener, chain and weight. Takes but an instant to insert the cord in the fastener and saves all the tedious tying and untying necessary when using the old string method.

ASK YOUR DEALER FOR IT—If he hasn't it, send us his name and 30 Cents and we will send you one prepaid.

HANDLEY & COTTERMAN
Atlas Bldg.
164 N. Wabash Ave. CHICAGO

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

SHORT TALKS WITH OUR SUBSCRIBERS



The Business End of Building

BUILDERS all over the country are "making hay while the sun shines" this weather. They are in the heat of the busy season and most have about all they can tend to.

While the work is coming in and things are going with a whoop, don't be too busy to drop around occasionally and see the editor of your local paper.

When you begin a new job or finish up a nice building, drop in and tell the editor about it. He will be glad to see you. New building news is the best kind there is and no one will object if it does make you better known—advertise your business—at the same time.

Good Work Is Not Enough

GOOD work and careful work a builder must do, of course; but that isn't enough. Let the kind of work you do be known. Get the people to talking.

Builders should advertise just the same as any other business men. The only difference is that a builder's work is interesting enough to have of itself a news value; so telling about it doesn't cost the builder anything.

Of course, an occasional paid-for display advertisement does help along wonderfully toward getting other good publicity into print for nothing. Wide-awake builders should not hesitate to use good display space in their local papers costing good money in order to get their wares (the designing and building of satisfactory structures), to the attention of the general public.

Contents for July, 1913

	Page
Adventures in Heating	66
Another Woodworking Shop	86
Barn with Horse Shoe Roof	89
Barn with Tapering Posts	87
Best Ideas in Lighting	62
Brother Jasbury in Pessimistic Mood	86
Bungalow to Fit the Lot	50
Cartoon	38
Cause of Leaky Bays	96
Converting Old Building into Work Shop	87
Correspondence	84
Cost of Stucco Work	84
Decorating a Dining Room	50
Decorating the Home	49
Doing a Day's Work	93
Editorial	37
Estimating	60
Finishing and Furnishing the New Home	46
\$5000 Home at Hamilton, Mass.	43
Frost-proof Storehouse	50
Grades and Foundations	90
Harry Says	82
He Asks Two Questions	91
Heating Questions Asked and Answered	68
Home Builders' Section	39
Home Builders' Scrapbook	50
Homelike Seven-Room Dwelling	72
Home Workshop	70
How I Saved \$200 on a Heating Job	74
How to do it on the Square	89
How to Put on a Piano Finish	96
Human Side O'Life	45
Ideas Worth Remembering	50
If I Should Build Again	39
Illinois Residence	95
Improving Gang	91
Jewel of Remodeling	45
Making Power Woodworkers Pay	52
Making the Most of the Living Room	46
Model of St. Paul's, London	84
Modern Ventilation	39
More Shop Kinks	65
Mortised Frame Barn	92
Motor-Cars and Cycles for Busy Builders	69
Nebraska Bungalow	95
Needs of the Building Business	95
New Patents of Interest to Builders	83
Noon Hour Talks by the Boss Carpenter	54
Partnership for Satisfaction	39
Plan Shop	40
Plans for Modern Home for \$3000	75
Plea for a Better System of Estimating the Cost of Buildings	60
Practical House Designs "That are Different"	40
Prizes and Fun for all who read our Advertising Pages	59
Prize Winner in Parade	92
Questions Asked and Answered	50
Rag Rugs are in Good Taste	50
Rapid Method of Coloring Drawings	64
Remodeling with Ceiling Beams	89
Residences	75
Roof Framing Problem Solved	57
Satisfactory Time Sheet	85
Shavings	94
Six-Room Brick Houses for \$3,146.90	40
Sizes of Rough Openings	85
Some "Chicken Fixin's"	52
Stair Work	93
Strange Memorial Building	92
Steam Heating—The Three Systems	66
Steel Square	57
Table and Desk for Builder's Office	70
Taking Ink out of a Rug	50
To Develop the Hip	88
Tool-Grinder—Home Made	84
Trade Notes and Items of Interest	97
Uneven Pitch Roof	94
Up the Ladder to Success	93
Uses of the Plate Nail	50
Use Soft Colors in Dining Room	49
Walt Mason Builds a Shed	45
Warding Off the Fire Fiend	44
What Every Builder Ought to Know About Lighting Fixtures	62
What Natural Gas Will Do	96
Yours for Safer Building	54

Let Us See What You Are Doing

A number of our readers have recently sent us marked copies of papers containing such advertising. Some of these ads have been very good too, the kind that bring in the business. We wish you would send us more of these. Perhaps we can offer some suggestions that would help.

Use Good Business Stationery

ANOTHER part of the business end of building has to do with your business letter-heads, bill-heads, estimate sheets, business cards, etc.

These things are more important than some builders seem to think. The letter that you write is your personal representative. Strangers will judge you by the appearance of your letter,—not so much the hand-writing as the style of the letter-head and the kind of paper you use. It is a fact that an order, a request for prices, or a letter asking for circulars and samples, if written on good, business-like paper, carrying at the top a neatly printed business letter-head, receives prompt and better attention than if scrawled on any old kind of paper or on a postcard.

We are very glad to see that so many of our subscribers are using high-grade business stationery. They will never lose by it. It produces confidence and helps a man to win.

Watch For the August Issue

Speaking of winning, calls to mind our new advertising puzzle contest which you will find on page 59. Go right after this. You will get a lot out of it. Prize winners will be announced next month.

A subscriber called the other day and we handed him a copy of the last number. He said:—"Well, what have you got new in here *this time*?" Look through this copy and see for yourself.

Cordially yours,
Editor, AMERICAN CARPENTER
AND BUILDER.

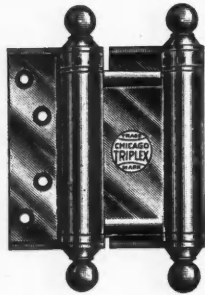
CHICAGO

SPRING BUTTS

A SUGGESTION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?

Chicago "Triplex" Spring Butts



offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation with goods that are unsatisfactory.

Send for Catalogue C 29. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company,

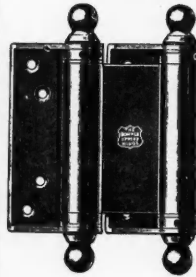
CHICAGO



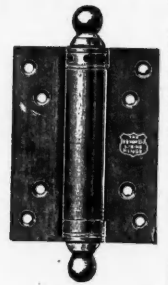
NEW YORK

Yes! the World does Move!

Facts are Stubborn Things



Don't Buy
SPRING HINGES
OF
OBSOLETE
CONSTRUCTION



ONLY

Bommer

DOUBLE ACTING

Spring Butt Hinges

Carry their load on the true bearings

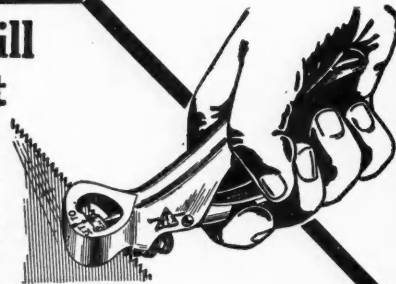
and look alike at both sides of the opening when both doors of a pair of doors are opened in or out. The carpenter can scribe for both doors of a pair from the same side, and avoid playing hide and seek.

YOUR HARDWARE MERCHANT CAN SUPPLY THEM

Bommer Bros., Manufacturers Brooklyn, N. Y.

The Morrill Saw Set

A mechanically perfect Saw-Set made with a rotatable anvil that is gauged so as to set any saw not over 16 gauge. The gauge screw and check nut insure the right angle and uniformity of set. It will take the wrong set out of a saw and put in the right set at one operation. Look for the Trade Mark Apex.



For
30 Years
the Standard

CHAS. MORRILL

275 Broadway, New York



Make Your Houses Frost-Proof

by lining them with

Cabot's "Quilt"

It is cheaper to build warm houses than to heat cold ones. A cold house will waste enough coal in two winters to pay for enough Quilt to make it warm for all time. Quilt is not a mere building paper, but a thick, matted lining of cured eel-grass that is twenty-eight times warmer than common papers. It will make your house warm in winter and cool in summer, cut down your doctor's bills and keep the whole family comfortable. It costs only 1c a foot, will never rot or disintegrate—last forever—and is fire retarding. A full investigation will cost you a postal card—which will bring you a sample and the proofs. Will you write now?

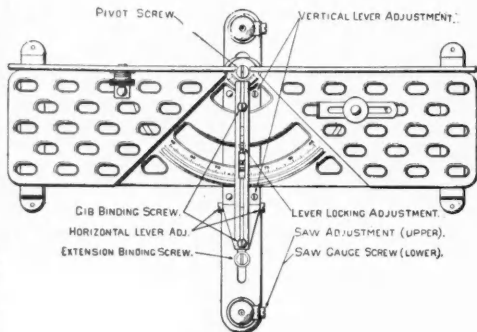
Residence of Walter M. Collins, Builder, Bayside, L. I. lined with Cabot's Quilt, and what the owner says:

"The side walls are of twenty-four in. red cedar shingles, stained with your Special Gray and laid over your single ply 'Quilt.' The Quilt is certainly a good investment, as the house is in a very exposed position, and after the hardest winter in years, without a frozen pipe or any difficulty in heating, I feel that the small additional cost over ordinary building paper has already been saved in coal and comfort."

Samuel Cabot, Inc., Boston, Mass.

24 W. Kinzie St., Chicago
1133 Broadway, New York

Cabot's Creosote Shingle Stains



MARSH AYER

The lever adjustments produce perfect work, no matter how badly the saw may run.

Our circular shows all of the new features of this remarkable pressed steel box

H. C. MARSH CO., 606 Race St., Rockford, Ill.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.