-WITH HOME BUILDERS' SECTION

NOVEMBER 1913

AMERICAN CARPENTER AND BUILDER

THE WORLD'S GREATEST BUILDING PAPER

Your Assistance May Be Worth Millions (to us both)

WE KNOW a few of our readers personally—and they are the salt of the earth. We wish we might know *every one* the same way,—sober, industrious, progressive, dependable, all of them!

As it is impossible for all of you to visit us here in Chicago (though the latch string is always out for you), and as we can't get away to visit something like ten thousand towns, scattered over every state in the Union where our subscribers live, the next best thing is a *convention or reunion by letter.*

We want to hear from *every one* of our subscribers! We mean this. We want *you* to write to us. In the most friendly and confidential spirit possible we want to know who you are and what your work is and what you like best in your building magazines.

We have been writing and drawing plans and editing for a long time on the advice of a few of our readers. We want to get acquainted now with *all* of you so that we can know what you all like and can use best.

On page 39 we have arranged a little game that you will all like. Fifty of you will win worth-while cash prizes, and all will have the satisfaction of helping along a good thing.

We want to hear from every one of you today.
See page 39. Thank you.

Fraternally,
EDITOR AMERICAN CARPENTER AND BUILDER

Merry Christmas

Now is the time to sweeten up your saw kit. Get some new saws for Christmas. Would you rather have a lot of jimcracks in your Christmas stocking or a really fine

ATKINS *SILVER STEEL* SAW

Then show this advertisement to your wife or sweetheart. Tell her "That's what I want." Then you'll have something to gladden your heart every hour in the day.

You really need saws like these, that will save your time and strength and make the day's work easier for you throughout the whole year. You need a saw that runs fast and easy, even in wet lumber. So get some ATKINS SILVER STEEL SAWS for Christmas. They'll make good.

Your dealer has them—or will get them for you from his wholesale house. Try Atkins this Christmas. Take no other, for there are none "just as good" as Atkins. Insist on the Genuine, with our name on the blade. Then you will have a Merry Christmas for sure.

E. C. ATKINS & CO., Ltd.

The Silver Steel Saw People

Home Office and Factory, Indianapalis, Ind.
Canadian Factory - Hamilton, Ontario

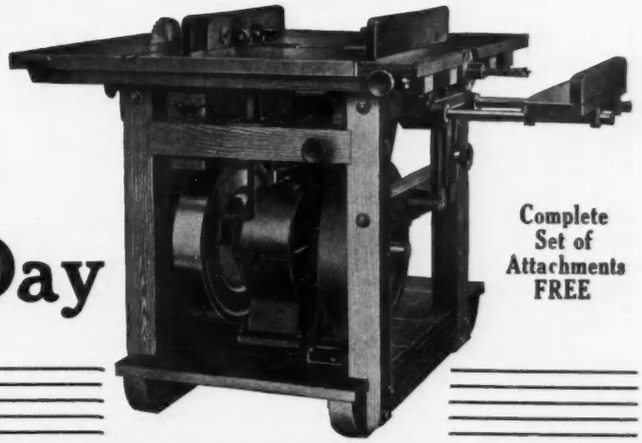
Branches Carrying Complete Stocks in the Following Cities
Address E.. C. ATKINS & CO.

Atlanta, Chicago, Memphis, Minneapolis, New Orleans, New York City, Portland, San Francisco, Seattle, Vancouver, B. C., Sydney, N. S. W

JOHN W. SHAW & SONS, Wolverhampton, Ltd., Agents for Great Britain
3 Rue Scribe, Paris, France **52 Kaiser Wilhelmstrasse, Hamburg, Germany**

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

The "*Eveready*" Rig Was Not Built In a Day



Complete Set of Attachments FREE

AN organization of technical men—each equipped with a rich fund of both contracting and manufacturing experience—worked out and tested exhaustively every principle embodied in the "Eveready" rig. Perfection was their aim—and the "Eveready's" smooth, powerful and economical operation shows their marvelous success. The

EVEREADY SAW RIG

PRACTICAL DURABLE RELIABLE

—by enabling you to cut down well-paid men's time usually used in hand-sawing and ripping—and by saving you exorbitant mill charges—should add hundreds of dollars to your yearly profits. But, let the machine talk! Write for prices and ***six-day free trial offer*** today.

The Mixer with the Effective '4-way Mix

Also Built for Steam or Electric Power

OSHKOSH MIXER

stands ready to save you untold time and money if you use or intend to use a mixer. Its effective "4-way" mix—perfected by practical engineers versed also in the manufacturing art—is guaranteed to hold its own with that of any other mixer built. Write for prices on the full line.

Oshkosh Mfg. Co.

316 S. Main Street ***OSHKOSH, WIS.***

Branch Dealers in Saw Rigs and Mixers

CHICAGO, 1452 Monadnock Bldg.
ATLANTA, GA., SOUTHERN SALES OFFICE, 604 Walton Bldg.
CINCINNATI, OHIO, S. O. Holder Supply Co., 1007 Commercial Tribune Bldg.
DETROIT, MICH., Claude Wadsworth, Jr., 963 Woodward Ave.,
EVANSVILLE, IND., Indiana Builders Supply Co., Furniture Exchange Bldg
KANSAS CITY, MO., King Supply Company, 1201 Scarritt Bldg.
LOS ANGELES, CAL., Arthur E. Banks, 1006 Wright & Callender Bldg.
PHILADELPHIA, Dodge & Dodge, 118 Maplewood St., Eastern Sales Agents.
MILWAUKEE, Wis., W. A. Lewis Company Loan & Trust Bldg.
NEW ORLEANS, LA., Henry J. Maloches. 802 Perrin Bldg.,
PITTSBURGH, PA., F. W. Patterson's Sons 326 Diamond St.
RICHMOND, VA., I. Bluford & Company. 1538 East Cary Street.
SALT LAKE CITY, UTAH, F. C. Richmond Mchy. Co., 117-119 West Second South St
SAN FRANCISCO, CAL., J. E. Dwan & Co., 445-447 Turk St.
SEATTLE, WASH., Harold G. Stern & Co., 524 First Ave., South.
PORTLAND, ORE., G. A. Saunders, Builders Exchange, Second and Adler

SAW RIGS EXCLUSIVELY

ST. PAUL, MINN., Raymer Hardware Co., 373 Roberts St. OMAHA, NEB., Sunderland Mchy. & Supply Co.

MIXERS EXCLUSIVELY

NEW YORK, Dodge & Dodge, 1133 Broadway, Eastern Sales Agents.

Live Agents Wanted in Open Territory

WM P JONES
CARPENTER AND BUILDER
TELEPHONE No 87 J
P O River St

DOVER N J. May 26 1915

Sidney Tool Co.
Sidney, Ohio
Gentlemen:- I find the Famous #30 very efficient in a jobbing shop. It is so far superior to other machines I have used that I place it in the same position as a thorough mechanic to an apprentice boy.
On May 24th I timed one of my shop men from the time he started to set the mortising attachment and it took him just twenty minutes to drive sixteen mortises through 4 1/2" of wood, very good I thought.
Yours very truly
Wm P Jones
WPJ/AC

J. D. LAUDENSLAGER, Emaus Pa — J. D. DORNEY, R D No 1 Allentown Pa

LAUDENSLAGER & DORNEY
Contractors and Builders

EMAUS, PA. July 30, 1913.

The Sidney Tool Co.,
Sidney, Ohio
Gentlemen.-
We are running one of your Famous "30" Universal Woodworkers every day with 5 horse power Motor and our power costs us in the neighborhood of $6.00 to $6.50 a month.
It runs nice and smooth and does lots of work. We do all our millwork to build our houses, and hardly could spare the machine anymore. It works fine.
Yours respectfully,
Laudenslager & Dorney

THE
FAMOUS GUARANTEE
WE HEREBY GUARANTEE the ***Famous Universal Woodworker*** to be well made and rightly constructed of good material and very capable of doing the work as represented.
We agree to replace any parts showing defect in material or workmanship at any time during the entire *Life of the Machine*. We further agree that purchaser may try the machine for a period of ten days, and if not satisfactory or will not do the work we claim for it, purchaser may return the machine at our expense.

H. J. A. Lund & Son
CARPENTERS and BUILDERS.
378 NEW STREET,

Perth Amboy N J. April 28 1913

Sidney Tool Co.,
Sidney, Ohio
Gentlemen.- We have yours of the 21st. inst., and in reply beg to state that our communication to the United Mchy. Co., was as they wrote you. We believe that in the manufacture of the Famous "30" Woodworker you have reached the highest point of perfection for the combination machine. It is the ideal equipment for the modern Builder. We will order several of the different attachments in the near future, and we are confident this will further increase the money saving power of your wonderful machine. We shall do everything within our power to assist you in our community.
Wishing you all speed in gaining the success, which is practically assured, we beg to remain.
Yours very truly, H. J. A. LUND & SON
Henry V. Lund

R A MILLER,
Contractor and Builder,
DEALER IN ALL KINDS OF LUMBER

Estimates Given on all Kinds of Work and Material

All Kinds of MILLWORK a Specialty

MIDDLEPORT, O. May 18, 1915

The Sidney Tool Co
Sidney Ohio
Gentlemen
I want to tell you that I am more than pleased with your Famous "30" Universal Woodworker. It will do more than you recommended it to do.
I have a 5 H.P. Motor and it runs it easily. I can run any four of the machines at the same time. Have ripped 3" seasoned white oak and 4" hickory for wagon axles, and it walks right through the same as inch boards. The band saw is the smoothest running I ever saw, and will cut right through 6" ash.
I fully tested your machine, and cannot say too much for it. Had 12 feet of water over it during the recent flood, and the water never hurt it, as I took off the belts, frictions and band saw wheels.
If any one doubts these statements tell them I am running it every day and they can come see for themselves.
Last Thursday I got out, with two men and a helper 50 box window frames, and nailed together everything complete. I cut out every piece on the machine and did'nt have to use a hand saw on anything. I saved $47.50 that days' running, besides the other lumber I got out.
You could'nt take the machine out for twice what I paid for it and let me do without it.
Thanking you again for encouraging me to buy it I remain.
Yours resp.
R. A. Miller
P.S.- Send anyone here to look at this machine and I will show them tricks they never saw worked before on a machine. I cut 1 1/4" gains in door and window frames on the rip saw by throwing a wobble in the saw.

2000 Other Progressive Contractors and Builders tell the same tale about the Famous Universal Woodworker

BUCKLER & ROBERTSON
CONTRACTORS AND BUILDERS

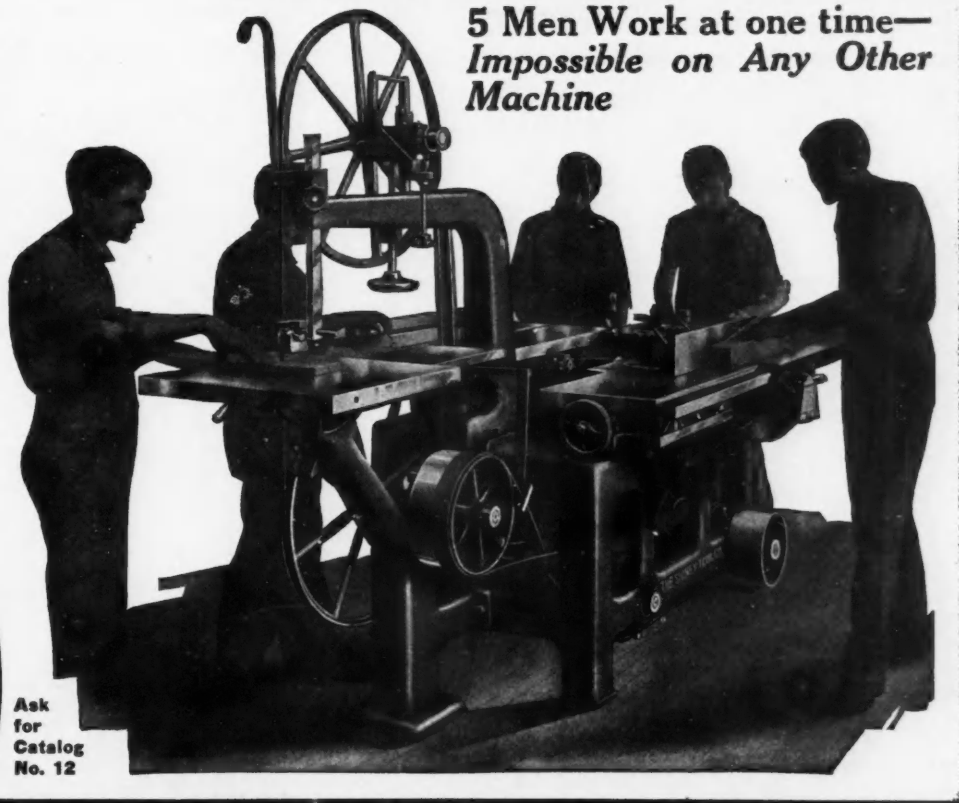
OSKALOOSA, IOWA, June 30, 1913.

Sidney Tool Co.
Sidney, Ohio.
Gentlemen: Since putting the Famous "30" in our shop our business has increased 50%. You cant boost the Famous "30" too high for it will do all you claim for it and more.
Yours truly, BUCKLER & ROBERTSON.

Five Reasons Why You Should Buy the Famous

1—The Famous Guarantee — makes you safe.
2—2000 Satisfied Users —an unequalled record.
3—The Five Letters Above — direct evidence.
4—"What It Does"— 30 and more different kinds of work. You can get what you need NOW—and add attachments as wanted.
5—Our Trial Offer — You send us no money—you run no risk.

5 Men Work at one time— *Impossible on Any Other Machine*

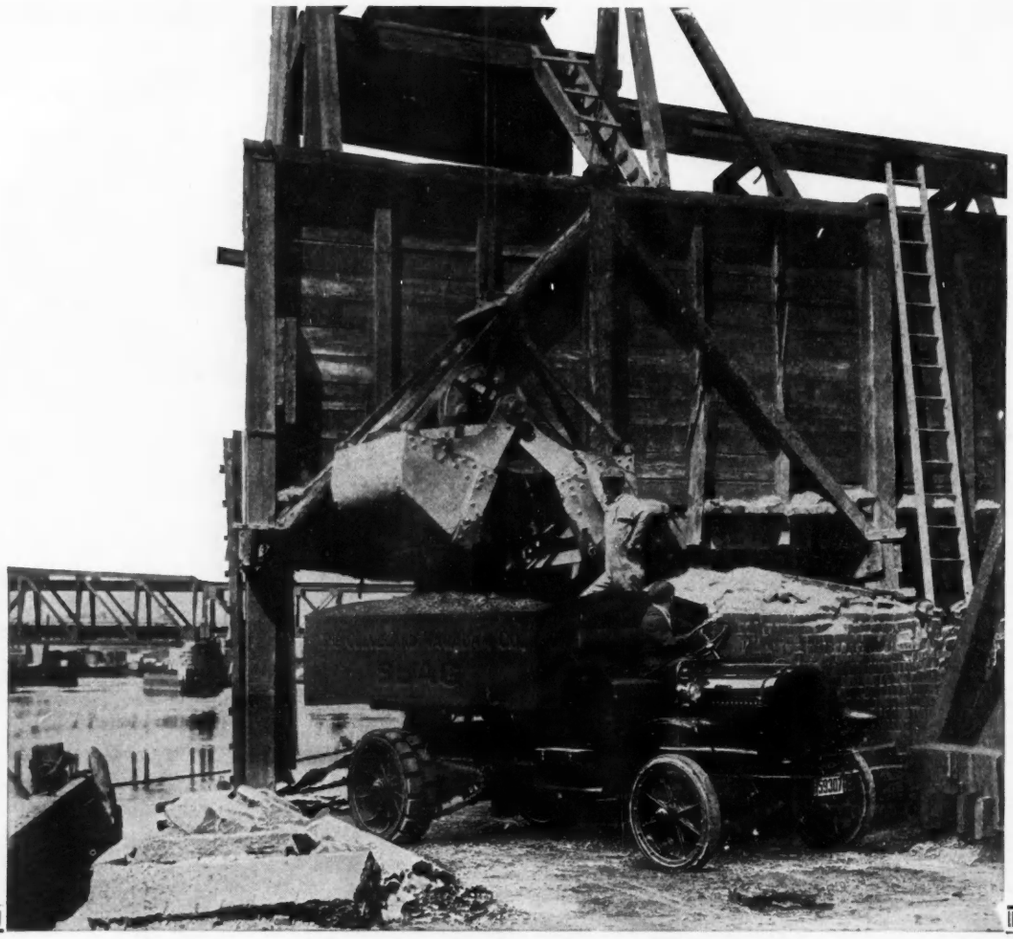


Ask for Catalog No. 12

WHAT IT DOES

Band-Resawing
Rip-Sawing
Cross-Cut Sawing
Band-Scroll Sawing
Mitre Sawing
Bevel Sawing
Grooving-Gaining
Planing-out-of-Wind
Sanding-Disc and Drum
Moulding — All Kinds
Glue Jointing
Power-Feed Planing
Grinding-Knife and Tool
Rounding-Tongue and Pole
Felloe Rounding
Spoke Tenoning
Wheel Equalizing
Rim Boring
Squaring-Up
Rabbeting
Beveling
Panel - Raising
Tenoning
Boring—Routing
Edge Moulding
Dovetailing
Mortising
Shaping

THE SIDNEY TOOL COMPANY
Sidney, Ohio.



Convert Some of Your Hauling Expense Into Profits

A LARGE PART of the difference between the cost and selling price of building materials is "hauling expense." A reduction in this item increases your profit.

Ninety-three Contractors and Building Material Dealers are increasing their profits by using White Trucks to do their hauling because White Trucks do several times as much work per hour as horse-drawn trucks, and may be worked many more hours per day. The Cleveland Macadam Company found that their White 5-ton truck actually earned $2000 in four and one-half months by reducing their hauling expense. White Trucks can do the same for you.

Send For Catalogs

THE WHITE COMPANY

Manufacturers of Gasoline Motor Cars, Motor Trucks and Taxicabs

CLEVELAND, OHIO

MASTER SLIDE RULE

PREVENTS MEASURING MISTAKES

QUICKEST, most accurate, and best for all inside or outside measurements. Made of boxwood and trimmed with brass plated steel. Rigid when extended. Opens and closes quickly and easily. A handy, strong rule at a very low price.

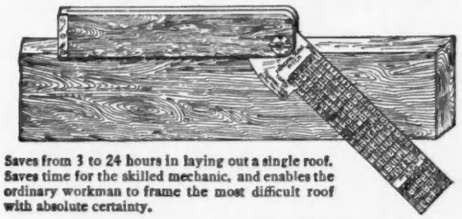
A SUITABLE XMAS PRESENT

for father, husband, brother or best fellow. Make him happy by giving him a MASTER SLIDE RULE.

Price, 15 cents per lineal foot in 4, 5 and 6 ft. lengths. Sent postpaid. Write for free circulars.

DAHL MFG. CO., 51G East 42d St., NEW YORK CITY

Topp's Framing Tool



A Perfect Tool, and the Best Tool for the Purpose Ever Invented.

Saves from 3 to 24 hours in laying out a single roof. Saves time for the skilled mechanic, and enables the ordinary workman to frame the most difficult roof with absolute certainty.

Price, $1.75

IT DOES ALL THIS

- It gives angles for any pitch.
- It gives lengths for any rafters.
- It prevents all mistakes. It is accurate.
- It gives cuts for principals, jacks, hips, valleys and cripples.

G. A. TOPP & CO., Indianapolis, Ind. See Tool at Your Hardware Dealer. Circular on request

C. E. JENNINGS & CO.'S

71-73 MURRAY ST., N. Y., U. S. A.

TRADE MARK.

Carpenters' New Hand Tool Case No. 340 With Tools

Patent Applied for

Made of selected hard wood, handsomely finished and with paneled sides Furnished with brass lock, leather handle with rings for strap to pass over shoulder, metal clasps, metal corners, saw rack for holding four Saws (the Hand Saws narrow plate), hooks for Brace and Coping Saw, wood button of Try Square, partitioned tray for Bits, Chisels and small tools, space in bottom to hold Planes, Levels, etc.

	Length	Height	Width
Outside dimensions.....	31¼ in.	14 in.	6 in.
Inside dimensions.....	30 in.	12¾ in.	5 in.
Removable Tray, Inside....	29¼ in.	1 in.	4¼ in.

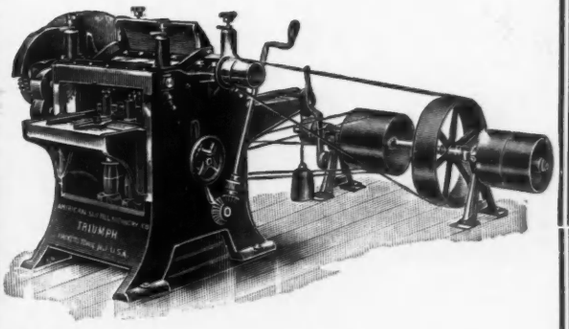
Weight empty, about 14 lbs. Weight with tools, 18 lbs.

This Case is made to take our narrow plate Saws A7½. The No. 340 contains one A7½ Hand Saw, 26-inch; one A7½ Rip Saw, 26-inch, and one Steel Square, No. 18B, a beautifully finished (Gun Metal Finish with Yellow Markings) Square, 18-inch body, 12-inch tongue. It is not made for wide plate Saws and large Square, but enables the mechanic to carry a lighter and smaller case than our No. 35, and a lighter kit of tools. *Packed one or more in a crate.*

Make It Yourself with a

"TRIUMPH"

PLANER, MATCHER AND MOULDER



A contractor owning a "Triumph" can keep in his own pocket a large part of the profits he's been paying to the mill man, because it has all the refinements of the big mill machines and does just as good work—but it needs little power, little floor space, and the price is moderate. You can make your own flooring, ceiling, siding, casing, wainscoting, and a large variety of moulding and trim.

The contractor with a "Triumph" has a big advantage over his competitor who hasn't one.

Better get acquainted

American Saw Mill Machinery Co.

80 Main Street
HACKETTSTOWN, N. J.

1630 Hudson Terminal
NEW YORK CITY

Stratton Levels

Stratton Mahogany Levels

(Strattons' No. 1C with double plumb)

Carpenters' Level

Patented May 22, 1888

Full Brass Bound. Sectional Construction.
Selected Mahogany. Five pieces of fine Mahogany, every piece Thoroughly Seasoned.
Ground Vials. Stratton's Selected Vials. These vials are specially fine, ground to a True curve from end to end, and are set solid in stock.
Double Plumb. Always right side up.
Improved Adjustment. Stratton's movable bar.
Binding and Trimming. Full Brass Bound. Binding is dovetailed entire length and doweled to heavy brass end plates. Ornamental side views.

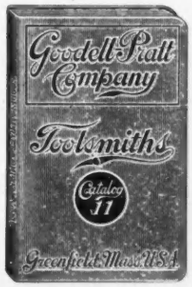
Stratton Rosewood Levels

(Strattons' No. 1A)

Carpenters' Level

Patented May 22, 1888

Full Brass Bound. Sectional Construction.
Selected Rosewood. Four pieces of Rosewood, built around a core of Solid Mahogany, every piece Thoroughly Seasoned
Ground Vial. Stratton's Selected Vials. These vials are specially fine ground to a True Curve from end to end, and are set solid in stock.
Improved Adjustment. Stratton's movable bar.
Binding and Trimming. Full Brass Bound. Binding is dovetailed entire length and doweled to heavy brass end plates. Ornamental brass side view.



We own and operate the plant of the Stratton Level Company, which for 45 years has made the highest grade Level that skilled mechanics have been able to produce. The superiority of these Levels is generally acknowledged and their accuracy unquestioned. We shall maintain the high standard of quality that has been set in the past and shall improve it whenever and wherever possible. We are illustrating and describing these Levels in our New No. 11 Catalog, a copy of which we will gladly send Free to interested carpenters.

Goodell-Pratt Company

Greenfield, *Toolsmiths* Mass., U.S.A.

THE LA PLANT HEAVY HOUSE

MOVING TRUCKS

When you get a job with an old building on the lot—move it with the La Plant Trucks to another place—instead of wrecking it. There is more profit in it for you.

La Plant Heavy House Moving Trucks are made of steel—on scientific lines—are interchangeable so they can be worked singly, in pairs or in fours.

Write for catalogue O and see how easy it is to wheel a building a mile in a day—and how little the cost is for La Plant outfit compared with the profit to be made in moving houses instead of wrecking them.

LA PLANT TOOL CO. 1100 E. Nevada St. **Marshalltown, Iowa**

PHŒNIX

INSIDE SLIDING BLINDS

WILKES BARRE, PA.

The Phoenix Sliding Blind Co.
Enclosed find my check for blinds. I am pleased with them and sorry I did not have them put throughout the whole house.
C. W. BURT.

Comfort!
Economy!
Convenience!

The lately improved springs and corrugated steel rods put the "PHOENIX" far in lead of less improved styles. Write for Catalogue "C" and free samples, showing construction.

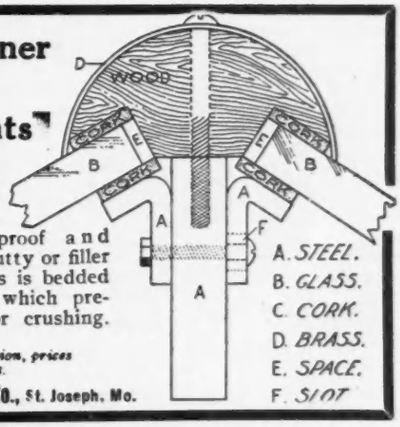
PHŒNIX SLIDING BLIND CO.

BRIDGE & CANAL STS. PHŒNIX, N. Y.

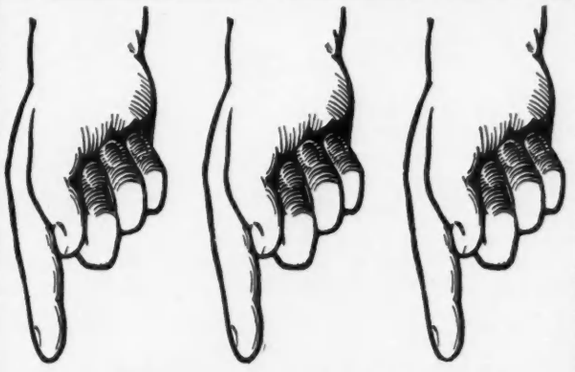
Shultz Corner Posts For Store Fronts

make a strong, handsome and practical joint. They are water-proof and dust-proof and never rot. No putty or filler is used. The glass is bedded on Spanish cork which prevents cracking or crushing. Not expensive.

Write us for description, prices or estimates.



All Steel Corner Post Co., St. Joseph, Mo.



ROOF FRAMING MADE EASY

By the Use of Our Little Book

It's Free

Send today for one of these and learn how to get the lengths and cuts of all rafters for seventeen different pitches of roof. We stamp this rule on our framing squares, making it handy and convenient.

We Manufacture the Only Practical Take-Down Square.

NICHOLLS Mfg. Co.

Ottumwa ∴ Iowa

This Pearson's Automatic

SHINGLE NAILER

WILL PAY FOR ITSELF ON FIRST JOB

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Hand Nailer" is the only Nailer that will throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron.

These nailers are made in two sizes—The BLUE Nailer for 3d common No. 14 gauge wire nails. The RED Nailer for 3d galvanized No. 13 gauge 1¼ inch wire nails.

It will come right to your door, quick, by insured parcel post, all prepaid for only $5.00.

IT MAKES GOOD.

PEARSON MFG. CO. - ROBBINSDALE, MINN.

Wonderful Tool Sharpener

Luther's "Best Maide" Hand Tool Grinder owes its success to the DIMO GRIT wheel, perfectly cut worm gear and shaft, and tilting frame. Ball bearings take up all side thrust. Our new patented feature for swivelling the frame allows quick and accurate adjustment to any angle. Body of wheel is medium grit for quick grinding; keen edge finishing is done on fine grit side face.

Dimo-Grit Wheels cut steel as emery cuts soft copper—make tool sharpening easy—outlast any number of emery wheels or grindstones—will not draw temper. If your dealer doesn't sell "BEST MAIDE" and you will make a report to us, stating why he does not, and will also give us the name of the line of grinders he does carry, we will send you free a handy Dimo-Grit pocket hone in leather case.

LUTHER GRINDER MFG., CO. 732 Point St. **Milwaukee, Wis.**

EXTRA!

This $25.00 Tuition Credit in Drafting and Designing FREE!

OFFER LIMITED—Write at Once for Details

$25.00 *TUITION CREDIT* $25.00

This Certificate entitles Mr. *James Carter*

of *Omaha, Nebraska.*

to a Twenty-Five Dollar ($25.00) Credit to be applied on the Complete Tuition covering our regular course on Expert Drafting and Designing.

CHIEF ENGINEER.

$25.00 *(Special Limited Offer)* $25.00

MORE TRAINED DRAFTSMEN ARE NEEDED ALL OVER THE COUNTRY. BIG SALARIES ARE PAID TO MEN WHO REALLY KNOW DRAFTING AND DESIGNING. WE ARE MAKING THIS GREAT SPECIAL OFFER TO AMBITIOUS MEN (YOUNG AND OLD) WHO WANT TO TAKE UP THIS WORK.

Learn to be an expert draftsman RIGHT IN YOUR OWN HOME. Keep your present position—just devote your spare moments to this work. Send the free coupon right away for free book and complete information.

Be a Draftsman!

Earn $75 to $200 per Month

That's what men earn who possess the training we give you on this most liberal offer. The big companies are willing to pay handsome salaries to get the right kind of men. The work is light, profitable and interesting. You are paid for what you KNOW, not the quantity of hard work you do. Our practical method of instruction enables you to BECOME EXPERT DRAFTSMAN AND DESIGNER in an amazingly short time. Learn just as quickly and easily at home as in the drafting room. EXPERT DRAFTSMEN AND DESIGNERS GIVE YOU "PERSONAL" INSTRUCTION.

GUARANTEE

We guarantee to instruct you until placed in a position paying from $75 to $200 per month. Our Employment Bureau places students in positions free.

$17.50 Set of Drawing Instruments FREE!

If you write at once we will give you in addition to the free tuition credit a magnificent set of drawing instruments, valued at $17.50. Handy size, leather bound pocket case. You can use this set of instruments for years—when you are occupying a position as expert draftsman at a good salary.

Experts Will Instruct You

Our course is prepared by men who have succeeded as expert draftsmen—who know just the training you must have in order to fill the best positions. You will receive "PERSONAL" attention.

Mail This Coupon for Full Information

Hurry! Hurry! Don't pass up this exceptional opportunity. Be one of the men whose services are always in demand at a big salary. If you write at once you will receive this $25.00 tuition credit FREE. Send the coupon for our free book and details of this great offer. No obligations—so send it immediately.

FREE COUPON

Chief Engineer
Room 538
Engineering Bldg.
CHICAGO
ILL.

CHIEF ENGINEER,
Room 538 Engineering Bldg.,
CHICAGO, ILLS.

Dear Sir: Without any obligations on me, please send me your free book and complete information about your great $25.00 free tuition credit offer.

Name .....

Address .....

Convention Season is Here

You Are All Invited

WITH the coming on of winter the wide-awake business men in all lines are each turning toward the conventions held by the members of his particular trade or line of business. The Lumbermen have their meetings; the Hardware Dealers have their hardware conventions; and the Builders' Exchanges in several of the States get together at least once a year to talk over and attempt to improve building conditions.

We have seriously considered on more than one occasion the possibility of holding a big convention of AMERICAN CARPENTER AND BUILDER readers. It is certain that the cordial and brotherly spirit which our readers so evidently feel toward one another would make an actual builders' convention a meeting of vast profit.

The best part of any convention or association meeting is the swapping of personal experiences between the various members. A good deal the same problems, difficulties and successes are coming to Illinois carpenters and builders as they are to the builders in New York State, Kansas or California. The kind of work that carpenters and builders are handling, and just how they handle it, are the important things.

NOW, until the time comes that we can have an actual hand to hand meeting or convention of AMERICAN CARPENTER AND BUILDER readers, the next best thing is for us all to get together through the good offices of Uncle Sam and have a *Letter Convention*. Turn to page 39 of this issue and you will see how we have arranged it to make this letter Convention as interesting and as easy for our readers as possible.

We have several times told you all about the AMERICAN CARPENTER AND BUILDER Staff, who we are and what we are trying to accomplish; we would like to know our readers just as well. If we can know just who most of our subscribers are, what their work is and what they are most interested in, we can improve YOUR building magazine. We will get it out just exactly as you say so that every article, building design and set of plans will be of the greatest possible value to you.

We want to hear from every one of our readers. Our editorial desk is all cleared off to receive something like forty thousand of these confidential census reports. You will have a lot of fun figuring out and filling in the answers, and there are fifty worth-while little prizes for those who send in the best reports.

Hard on the Old Grey Wolf

E are very glad to be able to offer Our Folks the quantity of really sensible and tested advice in regard to keeping busy during the winter season which you will find in another part of this issue. Carpenters and Builders do not have as many off seasons as they used to. More of them have learned the lesson of working faithfully in some one locality and thereby building up a permanent place for themselves. The old grey wolf doesn't howl outside the door for wide-awake Carpenters and Builders as he used to in days gone by. This is a sign of more permanent and real stability in the building world, for which we are all thankful.

More Next Month

WHAT do you think of these experiences and the advice given by your fellow readers? What will work in one part of the country will not do at all somewhere else. We would all like to hear what you think of this winter work proposition. There will be a lively discussion in the December issue, and several nice prizes.

Write us today.

Cordially yours,
Editor AMERICAN CARPENTER AND BUILDER.

Contents for November, 1913

AMERICAN CARPENTER AND BUILDER

The World's Greatest Building Paper	**Important Notice** When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before November 25 to avoid missing the December number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.	The World's Greatest Building Paper

American Carpenter and Builder

Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill. under the act of Congress of March 3, 1879.

Published on the first day of each month by

AMERICAN CARPENTER AND BUILDER COMPANY
RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO

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One Year, $2.00; six months, $1.00; payable always in advance. Single Copies, 20 cents. Canadian Subscriptions, $2.50. Foreign Subscriptions, $3.00.

ADVERTISING RATES

Furnished on application. Advertisements, to insure insertion should reach our Chicago office not later than the 20th of the month preceding date of publication.

PROTECTION FOR OUR READERS

The publishers of the American Carpenter and Builder will not knowingly publish any advertisement of a misleading character nor accept advertising from any individual, firm or company whose business methods are open to question.

We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.

The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.

In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

VOL. XVI. NOVEMBER, 1913. NO. 2

A MAN'S heart must be in his skill and a man's soul in his craftsmanship.—MABIE.

✣

"Hopping to Oblige"

WE had a letter from one of our good carpenters a few days ago telling about how he had managed to get on the safe and busy side of the building situation in his locality.

He made some good points too—workable and helpful rules to success. And the gist of the whole affair was summed up in his concluding sentence, but whether it was intentional or not we have not yet decided.

"Hopping to oblige" was what our subscriber wrote. And certainly there is no working motto of three words that can beat this very much for getting in solid with one's customers.

✣

Pay No Money to Strangers

THE AMERICAN CARPENTER AND BUILDER employs no subscription agents. Have nothing to do with any stranger who comes to you representing himself as authorized to take your money for subscriptions to the AMERICAN CARPENTER AND BUILDER. Practically all of our Big Family of readers have been gathered together by means of letters and circulars sent direct from the publication office. We have always preferred to deal direct with our friends, the subscribers, rather than through any agents or middle men.

Occasionally we have asked our subscribers to call the attention of their friends to the magazine. A great many have done this and have helped their friends by sending in their subscriptions for them. We are very grateful for this loyal co-operation from our subscribers and hope that it will continue. Do not, however, pay out any money to strangers. It is much safer and you will get prompter attention if you will deal direct with our home office, 1827 Prairie Avenue, Chicago. You can send post office order, stamps, or currency, at our risk, with perfect confidence that your order will be given our best attention.

We understand that certain miscreants have been causing trouble traveling around the country taking orders for building publications and keeping the money. We hope none of our subscribers either present or prospective, will get taken in by any of these crooks. The well known AMERICAN CARPENTER AND BUILDER policy of employing no subscription agents should be a protection to Our Folks.

A Setback Becomes a "Push Ahead"

By H. J. Blacklidge

ONE of the best "pulling" jobs that I ever had was a sort of blessing in disguise. For at the time it seemed a pretty hard thing for a new, young firm to have to do. It was in a small town (Oakdale, Calif.) where one man—a good carpenter he was, too—had had everything to himself for six or seven years. Everybody said it was useless for any other contractor to try to get any work in *that* town. But one day a friend of mine, who was a very fair draftsman but not much of a mechanic, said to me, "Harry, Mr. Soandso down here has offered to let me figure on a house for him. Now I don't know a *great* deal about carpentry, but I can draw and figure pretty well, and if you want to we will give him a figure on it together."

I said all right.

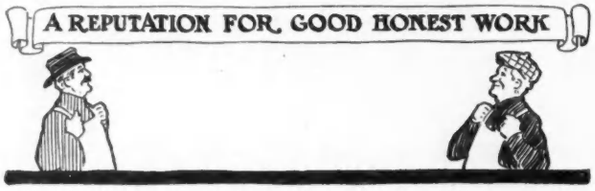
Well, we beat the old contractor by $75.

Before we finished that another man wanted us to bid on remodeling an old shack for him. We looked it over and gave him a price. He accepted it. We were to tare off the battens, add two more rooms, and put up a partition, besides new hardware, and the like. Well, when we got the roof off we made a startling discovery. The plates and tops of the boards were all more or less rotted! It seemed a wonder that it stood.

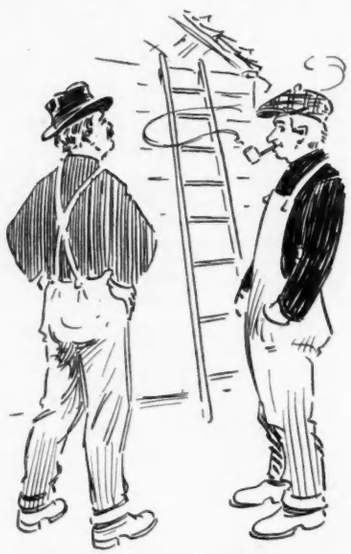
George and I talked it over. The owner was a regular old hyena. We knew he would advertise any "flunks" that we should make. Finally we agreed to offer to pull the walls all down and put up studded walls instead without any extra charge providing he would stand the extra cost of material.

He looked it over for about two hours, hemmed and hawed, went up to the lumber yard and consulted the proprietor, who was an old architect, and at last consented to do it.

That confounded thing cost us about a hundred dollars' worth of labor! But, say, it turned out to be worth it! It "pulled" us something like $250 worth of day work during the summer. It helped us to get the contract for the next house which the same man built that fall (and we did not "soak" him on the second one either). It helped—no, it *gave* us a sheep dipping tank to build for a brother of the owner.



But better than all the above, it gave us a good reputation—a reputation for good, honest work that would stand up on its own merits anywhere. And on the house which we built in the fall we sent back two dray loads of material which did not come up to the mark. The lumberman raised ned about it, but we called his attention to the list of materials, and he had to come through. This was wholly on our own initiative. For there was nothing in the contract to denote the kind of rustic or porch flooring or foundation stuff. It merely stated "Materials to be first class, considering the price of the house."



George and I Talked It Over

Among other things we had to do that summer were a patent slaughter pen, or knocking pen, a refrigerator (8x10x10), two screen porches, a lumber shed 24x80, and a lot of repair and remodelling. Late in the fall we secured the job of making a counter and back bar for a soda fountain, bakery and ice cream parlor. So, after all was said and done, we did not lose out very badly on account of our first blunder—if you could call it exactly so. Though I guess it was. Anyway, it taught me never to take a remodelling job by contract unless I dug into it far enough to know just exactly what I was up against.

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Use of Ozone for Ventilation

At the semi-annual meeting of the American Society of Heating and Ventilating Engineers, held at Buffalo, July 17 to 19, Mr. Frederick Bass, of Minneapolis, reported experiments in schoolroom ventilation. Ozone was introduced in the proportion of one part to 1,000,000 parts of air. It was found possible to "renew" the air in a fully occupied schoolroom for a period of three hours without admitting outside air, all the time keeping the air within sweet and comfortable, and the occupants at full normal efficiency. Continuation of these conditions five hours a day for three weeks had no perceptible effect on the children.

You Know Us—We Want to Know You

And We Want You to Help Us Edit The "A. C. and B."

WE HAVE 50 CASH PRIZES FOR THOSE WHO SEND IN THE MOST COMPLETE SCHEDULES

One $5.00 Prize, One $2.00 Prize, and 48 $1.00 Prizes

We want to get better acquainted with our readers—We are willing to pay out good money for the privilege of knowing you better.

If you will check over the items on this sheet (it will take only a few minutes of your time) and will send it in to us, we will be able to serve you better and more intelligently than ever before.

We want to take a vote of our readers to find out what editorial features and departments you are most interested in. In fact, we want you to help us edit ***your*** Building Magazine. We want to know just what your work consists of so that we can prepare articles that you will find most valuable.

NOVEMBER PRIZE CONTEST

This information from you will be received and held in strict confidence by us. You may feel perfectly free about writing, as neither your name nor business secrets will be divulged.

Look over this list right now and check off the answers.

50 Cash Prizes ***will go to those who send in the most complete and neatest prepared lists***

Tear out this sheet and mail it to Editor, AMERICAN CARPENTER AND BUILDER, 1827 Prairie Avenue, Chicago, who will be the judge of this contest.

Contest Closes December 15th. **PRIZE WINNERS WILL BE ANNOUNCED IN THE JANUARY ISSUE.**

Tear out along this line and mail today to Chicago office.

Confidential Census of American Carpenter and Builder Readers

Fill in as many spaces as you can.

Name .....

Address .....

Population of city or town?.....

Area of your operating district?.....

Are you an apprentice?..... Cabinet maker?.....

Journeyman carpenter? .....

Foreman carpenter? .....

Contracting carpenter? .....

General builder?..... Architect?.....or Draftsman?.....

Speculative or real estate builder?.....

Architect and builder?.....

Machine woodworking mechanic? .....

Machine woodworking foreman? .....

Machine woodworking Supt. or owner?.....

Painter?.....; or handle painting jobs?.....

Mason?.....; or handle masonry contracts?.....

Metal worker?.....; or handle sheet metal work?.....

Steam Fitter?.....; or handle heating installations?.....

Plumber?.....; or handle plumbing contracts?.....

What are the prospects for a busy building season next year in your locality?.....

How will it compare with this year?.....

Approximately how much money will be invested in building construction in your locality next year?.....

(See over)

Confidential Census (Continued)

Roofer?.....; if so, what kinds of roofing?.....

Cement worker?.....; or handle cement jobs?.....

If none of these, what is your business? and why are you interested in the "A. C. B."?.....

.....

If contractor or builder, how many contracts handled during past year?..... What was their approximate cost?.....

What were they? (Please state type of building,—residence, store, school, farm building, etc.).....

.....

.....

What per cent of total building in your district are you handling?

.....

Do you act as architect as well as builder?.....

How much architectural work do you do?.....

How much of your work is fully planned and specified by professional architects?.....

How much of your work comes to you under "blanket" specifications, it being left for you to advise with the owner as to the exact kinds of materials to be used?.....

As a Carpenter and Builder are you the one who decides on the details of materials used in the buildings you put up, as for instance kind of sash pulleys, brand of sash cord, etc.?.....

Do you handle furnace work?.....

Do you influence choice of heating plant for your buildings even where you do not handle the heating contract yourself?.....

In your locality what kind of heating goes into the new buildings—stoveheat?.....%, warm air furnace?.....%, hot water?.....%, steam?.....%.

Are you interested in other modern improvements and sanitary conveniences?..... What especially?.....

Is there a demand in your locality for modern plumbing and bath room equipment?.....

What % of new buildings have plumbing?.....

Have you a town water system?..... Town sewer system?.....

Town lighting system—electricity?..... or gas?.....

Do you own any Power Equipment?—shop woodworker?.....; portable woodworker?.....; concrete or mortar mixer?.....; power hoist?.....

Are these gas engine, electric motor, or steam driven?.....

Are you considering investing in any Power Equipment named above?..... If so, what.....

Do you use an automobile in your business?..... What kind?..... How do you use it?.....

Do you use a motor-truck or wagon in your business?.....; What size?.....

Are you considering investing in either an auto. or a motor-wagon?

.....

Do you consider an auto. has an economic value to architects and builders aside from its pleasure value?.....

Do you own a motor-cycle?.....

Do you consider buying one?.....

Has the motor-cycle an economic value to builders?.....

What per cent of your building materials, tools, and supplies do you buy from local dealers?.....

What per cent do you send away for?.....

How do you prefer to buy?.....; Why?.....

Do the local dealers carry everything you need as an up-to-date builder?.....

How many individuals engaged in building usually read the copy of the American Carpenter and Builder mailed to you?.....

What other building publications do you subscribe for?

.....

.....

.....

What general publications do you read regularly?

.....

.....

.....

(We are very anxious to have these two lists complete.)

How long do you preserve your copies of the American Carpenter and Builder?.....

Do you bind up your copies for future reference?.....

Do you study the advertising pages of the American Carpenter and Builder?.....

When you become interested in an advertisement, do you write to the advertiser?..... Or do you call on dealer handling the line?.....

What Editorial Features or Regular Departments do You Like Best?

.....

What do you think of, and should we give more space to our departments on Steel Square Work?..... Making Power Woodworkers Pay?..... The Homebuilders Section?.....

Residences (complete Set of Building Plans)?..... Adventures in Heating?..... Yours for Safer Building?.....

Home Workshop?..... Concrete Construction?.....

Details of Building Construction?..... Painting and Wood Finishing?..... Shop Kinks?.....

Practical Carpentry?..... Estimating?.....

Plumbing and Steam Fitting?..... Business Helps for Builders?..... Brick and Tile Construction?.....

Model House Designs?..... The Editor's Drawer?.....

Correspondence Department?..... Trade Notes?.....?.....

Suggest any ways we could improve or change the American Carpenter and Builder to make it more valuable to you:

.....

.....

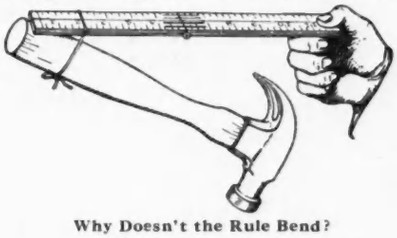
.....

.....

50 CASH PRIZES will go to those who send in the most complete lists

Rule-and-Hammer Trick

Here is a good one for a winter season mystifier. It looks as though it wouldn't work; but it will; The Youth's Companion says so. The illustration shows how to arrange the hammer, cord, and jointed rule. Have the rule so that the hinge is underneath. Although the end will fall down with its own weight before the hammer is hung on, it straightens up all right when this extra load is added.

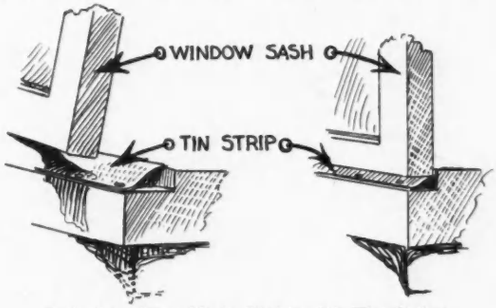


Why Doesn't the Rule Bend?

It is a good little brain teaser to figure out just why the hammer raises the loose end of the jointed rule the way it does.

Weather Tight Strip for Hinged Windows

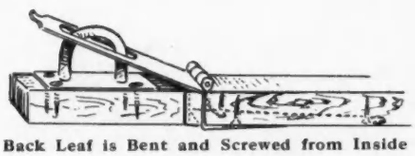
A piece of tin tacked to the window sill and bent, as shown, makes a simple yet effective weather tight joint. These strips can be continued up the two sides also making a window, hinged at the top, tight and snug all the way around. There is just enough spring to the tin so that the sash will wedge in firmly when closed.



Swinging Sash Made Tight with Tin Strips

A Burglar Proof Hasp

A marauder armed with a busy little screw driver laughs at the ordinary hinge hasp and padlock. He does not bother to try to pick the lock. He simply unscrews the hinge of the hasp and walks in. The illustration shows how this condition of affairs is remedied by simply giving the hinge a right angle bend the width of the board back from the joint. Then the screws are put in from the inside. The screws in the staple fixture are covered over by the steel hasp; when the padlock is in place no screws are exposed to prowlers.



Back Leaf is Bent and Screwed from Inside

How to Pull Fence Posts

One of the simplest post pullers is made by setting up a 2 by 6 about 3 feet long, in a slanting position against the post to be pulled. Fasten a chain around the post just above the ground and run it over the board. Then hitch a singletree to the end of the chain; and one horse easily pulls out any ordinary post.

2 by 6, Chain, and Horse Pull the Post

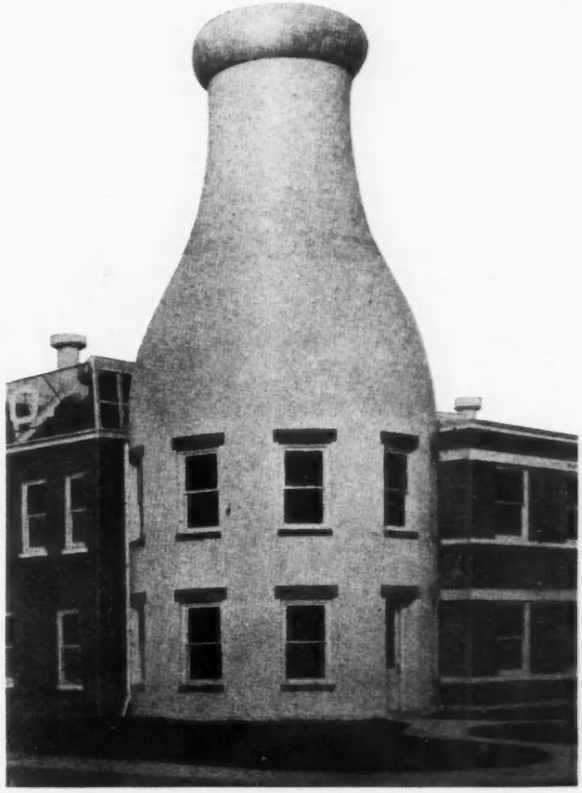
Milk Bottle Architecture

We don't know what the art loving architects think of this. We imagine we hear their unanimous groan of disapproval come gurgling down from their ateliers up under the roofs—like sour milk running from a huge bottle.

Probably the advertising boys like it better.

Anyway, there it is. Two of them on the new building of one of Indianapolis' leading milk companies. The two front corners of their building are giant milk bottles built of white enameled brick. They measure 52 feet in height and have a diameter of 22 feet. The proportions are exactly those of a standard quart bottle.

Evidently they overlooked a bet in not using deep yellow brick for the upper sections—to indicate the collar of cream.



Milk Bottle Tower Made of White Brick

Prize Letter—A Straight Tip for the Younger Fellows

"I INVESTED ONE WINTER SEASON IN STUDY AND HAVEN'T BEEN LAID OFF SINCE"

By Jens C. Jensen,
Bedford, Mass.

Editor AMERICAN CARPENTER AND BUILDER:

THE first winter I worked at the carpenter trade I was laid off from about Christmas time until spring, because work was slack and, as the boss said, he was not able to keep the whole "gang" a-going during the winter, so *somebody* had to go.

I was ignorant then and in my ignorance asked the boss this question: "What rules do you go by in picking out the somebody that has to go?"

"Well," he said, "you see that when business is booming and there is plenty to do, one can use a young fellow to good advantage on rough work that requires but very little skill; but it takes a lot of time and patience on the boss' part to be showing and telling a man how to do this and that and in many cases have to do it all over after him when he has wasted time and perhaps spoiled materials for more than the whole thing was worth; that is why we always lay off the less capable workers when it comes winter and mostly inside work is to be done. Why don't you young fellows," he continued, "try to get at the bottom of this business yourselves by studying a little bit in your spare time, so you wouldn't have to ask so many questions and make so many mistakes?"

Well, that answer set me to thinking. I talked it over with the men and found that some of them were, or had been, doing this, but that most of them —and those mostly who were laid off together with me—had not done so. Most of them were married men, and "what chance," said they, "has a man to study when he comes home tired from work and finds a lot of odd little jobs around the house waiting for him?" "But," said they all, "if I had been as wise when I was young as I am now, I certainly should have done just this very thing."

"That Answer Set Me to Thinking"

That settled it. I went to the city the next day and bought a book on carpentry—Radford's "Practical Carpentry" to be sure—I did not know then of any special publications in the line, but when I asked in a book-store for a book on this subject that was the one they showed me. Then I went home and set to reading. I found some work outside the trade occasionally through the winter, but kept on studying the book nights and stormy days.

When I again went back to work in the spring I found that instead of having forgotten what I had already learned I practically knew much more than before, and it did not take long before I was allowed to work alongside of the men on different kinds of work, while someone else was doing the shoveling and sweeping and carrying of lumber that I used to do.

The next fall we were fourteen men in the gang. At Thanksgiving four of them were laid off and at Christmas six more went, but this time I was kept with the boss and two others all through the winter.

I kept on studying, buying other books and subscribing to the magazines published in the trade, but one thing more and more impresed itself upon my mind: that the more I studied the more I realized how little I actually knew, and how much a man really has

to know before he can consider himself as a master of his craft. Finally I decided to study the business systematically by taking a regular course in it. This I am doing now, and I have never regretted that I took this last step. I am still keeping in touch with the trade-journals and when working on the job try to learn every trick and turn of the trade from my superior fellow workers.

As a conclusion my advice to my young fellow carpenters is this:

If you are a young, ambitious man and have any spare time, *use it for study*. Read the Correspondence Department of this paper and the Noon Hour Talks by the Boss Carpenter; that will give you a desire to know more. Be earnest and awake on the job, and serious about your studies, and you will soon find that you have neither spare time nor undesired vacations, but that what time you must spare for other purposes will have to be borrowed from your work or studies at its full face-value. JENS C. JENSEN.

"Kept on Studying Nights and Stormy Days"

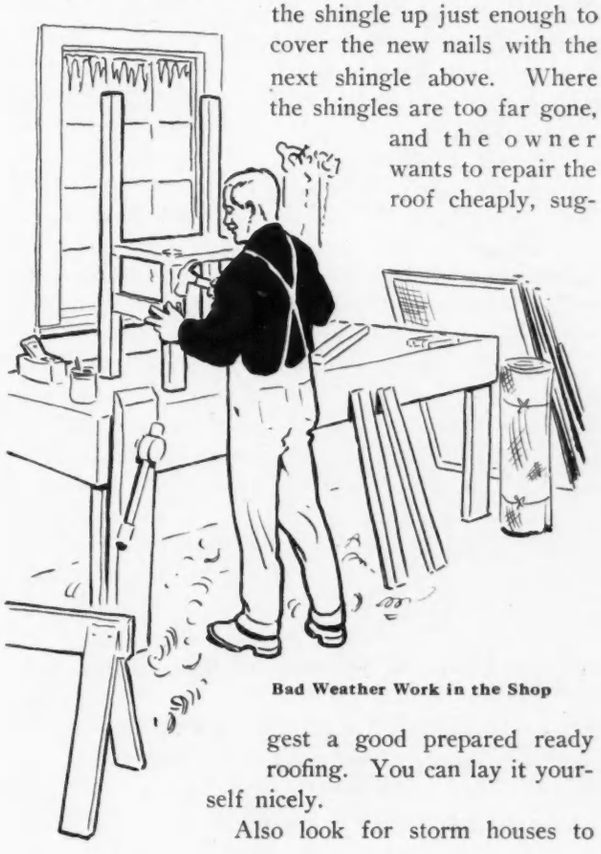
Prize Letter:—"These Ways I Have Tried; They are All Right"

ADVERTIZING THAT PAYS—MANY WORTH WHILE REPAIR JOBS—SELLING ON COMMISSION

By Joseph J. Churchyard, Buffalo, N. Y.

Editor AMERICAN CARPENTER AND BUILDER:

IF a carpenter is out of work, he might go around and notice shingled roofs that need repairing. Today the carbonic acid gas in the air coming from factory and other chimneys causes the wood around the nails to become rotten and the shingles get loose and blow off. I have repaired them by renailing at the bottom of each course and then driving the shingle up just enough to cover the new nails with the next shingle above. Where the shingles are too far gone, and the owner wants to repair the roof cheaply, suggest a good prepared ready roofing. You can lay it yourself nicely.



Bad Weather Work in the Shop

Also look for storm houses to build. A neat storm house made like sash doors, and only 7/8 inch thick. is light to handle and not expensive. It will not detract from a fairly good house, and will add to a very moderately costly house. If the house has a veranada, run the storm house up so as to utilize the veranda roof. It makes a much better appearance than putting an extra roof to the storm house. In many cases you can get the parties to have the whole veranada enclosed, making it like a conservatory. It makes a good sun parlor and gives additional room that can be utilized in many ways. Where advisable get an architect to make a sketch for you.

The use of wall board for wainscoting in dining rooms and vestibules and for beam ceilings is very practical. It can be used nicely in old houses, and most ladies will gladly listen to suggestions on these lines, in connection with plate rails, picture moldings and cornices.

As these wall boards come finished to imitate oak, mahogany and other woods, also plain to be painted or used with water colors, they are adapted for many purposes. They

There are Many Lines that Builders are Specially Qualified to Sell

must be used judiciously and the help of a good draftsman of the company making the board is advisable.

A carpenter out of work should read the advertising in the daily papers and magazines, and also advertise himself. He can pick up work just as well as another man, and it is much pleasanter working for yourself than for another contractor.

Many people are open to suggestions for improving their homes in comparatively small ways, like putting glass knobs and colonial escutcheons in place of old fashioned hardware, that has no character to it.

Advertise for Remodeling Work

An advertisement like this will bring trade, in the Personal or Building column:

"Special attention given to improving all classes of buildings, with wainscoting, beam ceilings, chair rails, oak floors and colonial hardware. Moderate prices. New methods. No muss. JOHN JONES, Journeyman Carpenter, 500 Adams Street."

A carpenter that is out of work and feels he has exhausted all the possibilities of contractors, mission furniture, serving tables, putting together knock-down furniture, fly screens, storm sash and storm houses, can buy and sell old barrels. It is a cash business. The writer has made from $3.00 to $15.00 a day at it. Find out from the Standard Oil Company, vinegar factories and other users what they are paying, and then go to grocers, wholesale and retail, factories and painters and see what you can buy. Then after you have a load, get a cartman to haul them for you, paying him by the piece. You collect your money as you deliver them. $25.00 will start you.

A carpenter out of work can sell lumber and architectural work on commission. The writer has made from $80.00 to $150.00 a month doing this. You can usually get a small weekly salary and your car fare as a guarantee, this to be offset by your commission at the end of the month.

A carpenter out of work can sell builder's books, and many other things if he will open his eyes.

The writer has done all these things, so there is no experimenting. JOSEPH J. CHURCHYARD.

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Prize Letter—Judicious Management of Work Helps

SOME HELPFUL TIPS FROM A BROTHER MECHANIC

By Paul C. Paulson, Contractor and Builder
Winnetoon, Neb.

Editor AMERICAN CARPENTER AND BUILDER:

I wish to say a few words, not for the sake of the prize only; however, it would be fine to get it, but if possible to lend a helping hand to some brother mechanic.

I have some experience in this part-time problem and am overcoming it fairly well. Here is a word

The Spring Robin Comes Early for Contractor Paulson

about it. I live in a small town so I have not tried to build row boats, canoes, motor boats, nor have I done much mill work, still I have a fairly well equipped shop. In the Fall of the year, I manage to get one or more good houses started so as to give me some inside work during the early Winter. On the last few jobs in the fall, I manage to stave the parties off—work such as screens for windows and porches, etc. I make them in the winter. I have now three good jobs of that kind.

Then in the fall I talk up the built-in cupboard proposition. I have two of them at this time to build this winter.

I have the AMERICAN CARPENTER AND BUILDER and Radford's Cyclopedia of Construction (of which I am a subscriber and owner, *and proud of it*), to thank for a large share of this. There are many other ways I could tell how I keep busy—such as talking up building for next spring, drawing plans, etc. I always find the winter short and keep quite busy and make good in the short days. P. C. PAULSON,
Contractor and Builder.

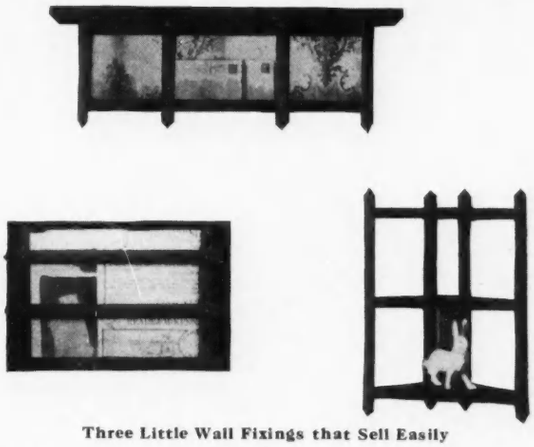
✣

Good Thing in Making Mission Furniture

Espy, Penn.

Editor AMERICAN CARPENTER AND BUILDER:

I AM glad to tell my brother carpenters how I pick up a little extra income during the winter season and at other odd times by making little pieces of house-

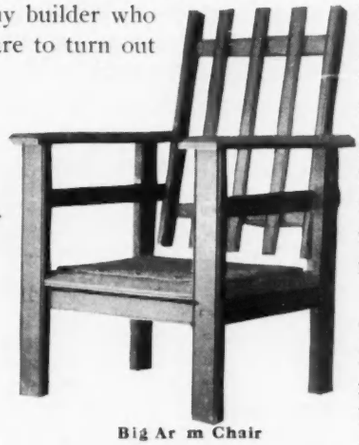


Three Little Wall Fixings that Sell Easily

hold furniture, which I find meets with a ready sale I have made library tables, book cases, book shelves, umbrella stands, etc. Here are some photographs of a mission chair, also of some smaller pieces; table lamp, paper rack, set of corner shelves, etc.

For enticing the "long green" our way during off seasons this furniture business is one of the best. I can recommend it to any builder who has the patience and care to turn out this kind of work.

Mission Lamp



Big Ar m Chair

Most of the lumber I use is left over stuff that I have saved from different jobs. I find it best to look after the loose ends. I always keep together all these scraps and left overs and take good care of them. Then when I have a chance to work them up into little useful articles, what I get for them is all clear money.

CHARLES C. HUMMEL.

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Prize Letter—Money in Writing About Your Work

"I PUT MY IDLE HOURS TO GOOD ACCOUNT—AND SO CAN YOU"

By H. J. Blacklidge, San Rafael, Cal.

Editor AMERICAN CARPENTER AND BUILDER:

I DEVOTE the most of MY time to writing! And it certainly does help to "Keep the dollars coming in." No big, gold mine stream, but from one to five dollars here and there, with an occasional bigger check, helps out considerably. And you would be surprised how easy it is. When I make anything new or handy or nifty or original, as soon as it is finished I come inside and "write it up." Draw a little plan and elevation or sketch, take a picture of the finished product if possible, and send it off to some magazine that uses such articles.

Not long ago I made a small piece of furniture for my wife. Then I sent away a description of it and got $2 for it. When I showed it to the girl she said, "WELL, you certainly have nerve! The idea of making something that is not worth two dollars finished and then go and sell the directions for that much." I told her as long as SHE would not pay me for making it I would have to get my wages some other way.

Say, Fellows, it is really EASY! Just make any new or original design for a table or any piece of furniture, then "write it up" and see how quick it will be nabbed. Most anything will do. Clock shelves, anything new in tables or stands, pedestals, tabourets, dish racks, unique mail boxes, tool chests, sportsman's chest—these are a few of the things that you will find in any magazine that prints this kind of material.

Markets for your articles? Why that is the easiest part of it. Keep a small note book handy. Whenever you find a magazine that publishes these articles just make an entry of its name, address and the editor. Also note the kind of articles they use. For instance, "The American Boy" don't want articles on how to build a dressing table in white enamel. But they might grab at an article on how to make some little contrivance to amuse boys, a new kind of rabbit trap, for instance, or flying machine model. You want to use a little common "carpenter sense" in selecting your markets.

During the idle hours of the winter I do most of my writing, also most of my work on things for the house. Sometimes during the rush season I make or have made something that I think will be worth writing up, but have not the time then to do it. I make a rough, free hand sketch in my note book, also the necessary measurements. Then during the slack season or a rainy day I write it up, make a scale drawing and start it through the mail. When the wife wants a new chest for baby clothes, I make it and then write it up and forward to one of the woman's magazines that publish "such like."

Everybody likes building pictures. Have a good camera; take good clear pictures that are of interest to MANY people, and use a little of the aforesaid "carpenter sense" as to where you send them and—it will pay.

H. J. BLACKLIDGE.

Prize Letter—Work and Pleasure Mixed

THE POETRY OF WINTER WORK

By M. E. Blake
Carpenter and Builder, Meredith, N. H.

Editor AMERICAN CARPENTER AND BUILDER:

HERE is how one charter member of the "A. C. & B." Co. occupies himself in the winter, on the shore of Lake Winnipesaukee.

I've built a power boat, made a desk,
A book case and a table;
I finish off interiors, make
Repairs when I am able.
I build ice houses, even sleds,
Or wagons, if you wish,
But, best of all, is cutting holes
Clear through the ice, to fish.

Sometimes I catch a fine, big trout
That's worth two plunks, or more;
Again I get a dozen shad
Not very far from shore.
I build a hut, just 3 by 4,
On runners, you must know,
Then, like a snail, I take my house
Around where'er I go.

E'en when the ice is two feet thick,
My chisel cuts it through;
I drop some lines and leave them there
To get a cusk or two.
They're good to eat and good to sell,
Or hang my "yarns" upon:—
I'm almost sorry, when, in spring,
The ice at last is gone.

M. E. BLAKE,
Carpenter and Builder.

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Building Up a Power Woodworking Shop Business

"WINTER IS ONE OF MY BUSIEST SEASONS"

By J. P. McLarty,
General Contractor, Wilburton, Okla.

Editor AMERICAN CARPENTER AND BUILDER:

I WILL give you a short account of how I manage to have something coming in. Five years ago I borrowed money and bought a small gasoline engine and an 8-inch jointer. Built a saw table myself. Used that until my business outgrew my equipment. Sold the engine at a reduced price, and put in several other machines and an electric motor.

Right here will say that I had a definite aim in view at the start and worked to that end. Put in a machine as I got the money to pay for it.

I have the following machines: Eight-inch jointer, double arbor rip and cut off saw with extension table, the entire top rolls, which is just the thing for cutting off accurately and for dadoing. Have Huther Bros. adjustable heads for plowing, etc. I also have post borer, band saw, emery wheel and foot power mortiser.

My specialty is window and door frames, but to fill in idle time, I make porch swings, porch seats and massive porch rockers. I get them out in lots of two dozen at a time and have all the equipment that a factory needs for this class of work. I am getting a good trade in general odd job work, store fixtures, etc. Besides I do lots of jointing and ripping for the lumber yards.

To a person contemplating putting in machinery, will say, don't buy too small an engine. Buy 6 H. P. at least. Get machines that have plenty of belt surface. A rip saw should have a 5-inch belt; 6-inch would be better. Get the best of everything and take care of it.

You will need a shop for an outfit like mine, 40 by 40 feet. I started in a place 12 by 24 feet. If any one will use good business judgment and plenty of energy, I see no reason for failure. A great many mechanics haven't got the knack of getting business. That is important and you will have to acquire that to succeed. I could write pages on this subject, but this is all I will say at this time.

J. P. MCLARTY,
General Contractor.

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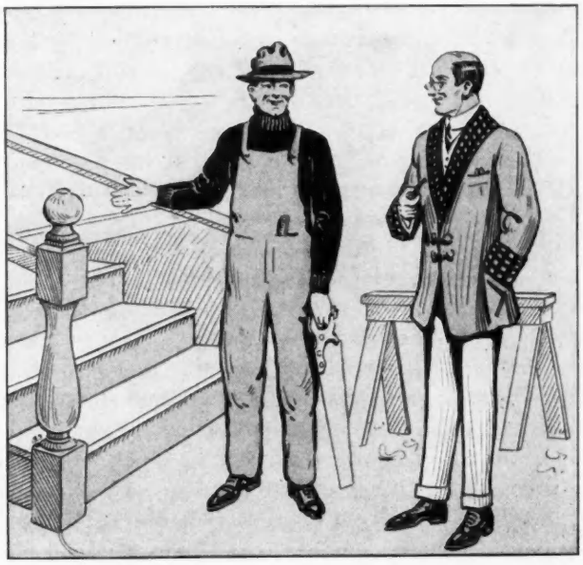
Prize Letter—Stay in One Place and Build Up a Trade

La Valle, Wisconsin.

Editor AMERICAN CARPENTER AND BUILDER:

IN regard to how to keep the coin coming in during the winter season, it is a pleasure to say that I have no trouble in finding all that I can do.

I live in a small country town of six hundred people,



"My Customers are My Friends"

with a good farming country all around. How I manage to keep busy is very simple.

We have work in the country as well as in town. I make a practice of finding out what they have in the line of small jobs that can wait until after the busy season. Most housewives have more or less jobs they wish to have done. The main thing is to do them as they want them, and one will always have work. I am no hand for puttering jobs, but it pays better than doing nothing, and they give more or less experience.

I have a small shop where I can put in spare time making mission furniture, standard frames and cabinets.

Get acquainted with your neighbors and see if they do not want their porches screened for next year. If so, get their job and make the frames. It pays.

I am no writer and cannot express my thought as I would like to, but I think the readers of the AMERICAN CARPENTER AND BUILDER should read the Little Story of Success in the October number that a rolling stone gathers no moss.

I have found that it pays to do your work well. Start in one place and do not think that your reputation will follow you and keep you busy, if you are all the time changing places.

P. H. APPLE,
Carpenter and Builder.

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Busy All Winter

Pleasantville, Ohio.

Editor AMERICAN CARPENTER AND BUILDER:

Our vocation is just what we carpenters make it and what we, also, may make out of it. How can we expect to even scratch the surface of a small fortune, to say nothing of the millionaire probabilities, when the majority of us live like the squirrel—live up in the winter what we lay up during the summer.

For myself, to keep busy the year round. When winter sets in I retreat to my shop and employ the time in building and rebuilding furniture, upholstering furniture, etc., which nets me more than a livelihood in spite of the fact that I have four growing little ones to support besides heavy gas bills to meet.

There is one volume of Radford's Cyclopedia of Construction that is worth the cost of the whole set, yes, worth its weight in gold to the man that will unfold its leaves before him on his bench during the dreary winter days, and go to work on any of the handsome articles of furniture, the details and cuts of which are given therein.

I figure my time as actual worth to me at all times, but do not figure it as high in winter as in summer. It is like any article of merchandise, supply and demand regulates the price.

If a man is ambitious and wants work, and at the same time bears the strain of proper breeding, he can always find something to do. The most of the furniture in my home is of my own hand, made at spare time, while at the same time I have access to a line of furniture at first cost. When I make it, I know its quality and above all, its cost.

JAMES L. BROOKE,
Contractor and Builder.

One of the largest forest nurseries in the United States is conducted by the forest service near Haugen, Montana. It is known as the Savenac nursery and has a capacity of 4,000,000 young trees a year.

An Architectural Detail

The Owner—"In my new house I want a simple breakfast room in addition to the more elaborate dining-room."

The Architect—"I see. What you want is an oatmeal mush room and a grilled mushroom room."

Provident

Her Pater—"Young man what prospects have you?"

Reggie—"W-why, sir, I've got almost enough cigarette coupons saved up to furnish a flat!"

So as Not to Shock

"How do you tell bad eggs?" queried the young housewife.

"I never told any," replied the fresh grocery clerk, "but if I had anything to tell a bad egg I'd break it gently."

In Character

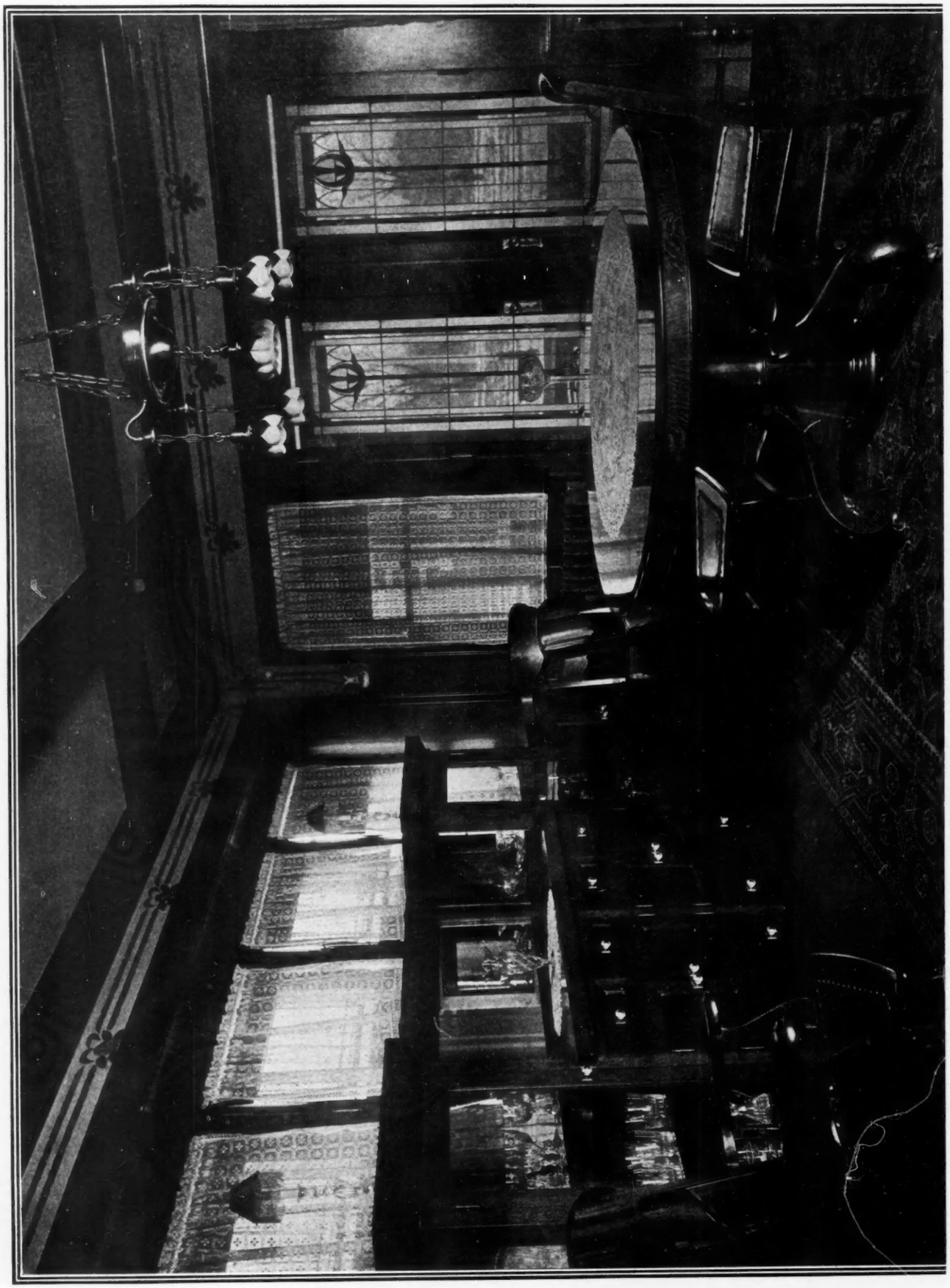
Butcher—What can I send up today, Mrs. Styles?

Mrs. Styles—Send me a leg of mutton, and be sure that it is from a black sheep; we are in mourning, you know.—*Jewish Ledger.*

Some Horn for Strength

The force of the headon collision that drove this horn 18 inches into a sound maple tree can hardly be imagined. Not long ago the Nappanee (Ind.) Carriage Co., while sawing up a maple log, ran on to this curiosity. The tree was sound and solid, about 36 inches in diameter. The horn was imbedded some 18 inches above the ground. How it came there can only be guessed at. The block shown in the photo is 18 inches wide and 22 inches long.

Deer Horn Embedded in Solid Maple Log



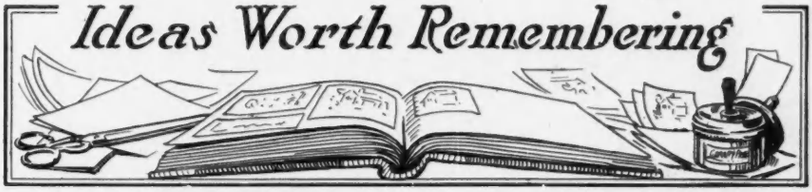
Cheeriness is the Best Idea for Modern Dining Rooms. This One has its Share of Light and Sunshine—One Side Opens Onto a Porch with Double Full-Length Glazed Doors, and Another Side is Practically all Windows. Above the Buffet are Inward Opening Casements and at Each End are Larger Ones. The Harmony Between Art Glass, Chandelier, and Stenciled Border is Commendable.

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 Home Builders' Scrapbook

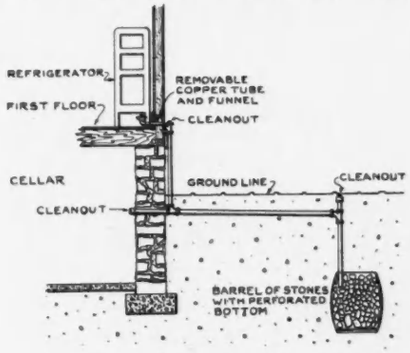
Ideas Worth Remembering



John, You Forgot to Empty the Ice Pan!

CONNECTED intimately with the kitchen and pantry arrangement is the ice box arrangement. How we do cling to the old style and practice! In a new house costing between $5,000.00 and $6,000.00 to construct, the writer recently found a space for an ice box and no drain pipe.

Now, what is more of a convenience than to get up in the morning and not find your ice box and surrounding floor soaked because you forgot to empty the pan under the box before you went to bed? In some cities where the ice box drain has to be run to an extra and special sink in the basement, there may be a little excuse on the account of expense for not putting in an ice box waste; but it is almost always possible



Arrangement of Ice Box Drain Without Sewer

to rig up some scheme similar to the cheap one shown.

The main point to be observed about all ice drains is to provide cleanouts in profusion, as the melting ice often runs sawdust and fibrous matter into the pipes which is very liable to stop them up. On the scheme shown, it can be seen that cleanout plugs give access to all portions of the pipe for cleaning and are a great convenience.

HAROLD L. ALT.

Many people like to have their fireplaces bear an appropriate motto, such as "East, West, Hame's Best," or in a library, "A Jolly Good Book Whereon to Look is Better to Me than Gold." But whatever individual preferences may dictate as to material and treatment, there is no reason why the fireplace should not be honest, artistic and in good taste.

Combined Number and Porch Light

AN interesting and one of the latest features devised for the home is the combined electrical house number and porch light. While in southern California there are hundreds of different house numbers and porch lights, the idea of combining these two has just been demonstrated by Charles M. Retts, a contractor of Tropico, Calif.

This little affair is built on "Mission" lines, in order that it might conform with the general architecture of the house upon which it is located. In shape it resembles very much a small shed, with its slanting and overhanging roof, etc. The framework is made entirely of lacquered brass. The roof which is also of brass, has extension edges of 1½ inches at the front and 1 inch at the ends. The walls of the box, that is, the ends and the front, and the bottom are made of frosted glass, the latter being movable to permit the insertion of the electric lamp. The letters are 5 inches in height and are also of brass. Inside this sign is placed a 16-candle power electric lamp.

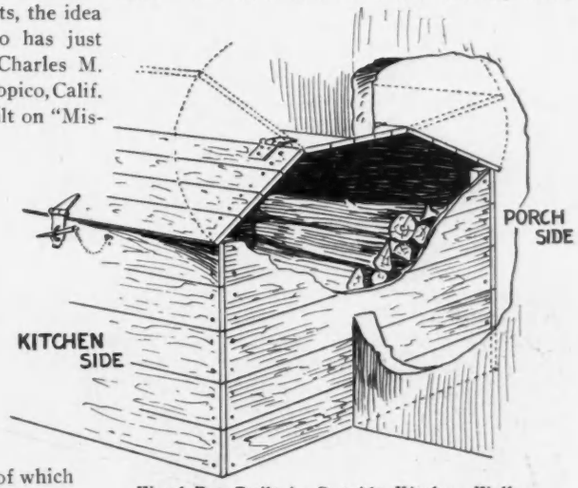
A California Bungalow Shows this Numbered Light

It has been found that this sign can be read during the day or night at a distance of 100 feet and even farther, and that it sheds plenty of light for the ordinary sized porch. ALBERT MARPLE.

A Kitchen Convenience

The bane of the neat housekeeper's existence is the dirty wood box in the kitchen, and the work and muss of lugging in stove wood to put into it.

An ingenious builder recently devised an improvement. He built his wood box in the outside kitchen wall. Made it open both into the kitchen and onto the porch as illustrated. The boys fill the wood box from the outside, which saves them many steps and keeps the dirt and snow out of the kitchen.



Wood Box Built in Outside Kitchen Wall

Putting It Clearly

"Rastus, what's a alibi?"

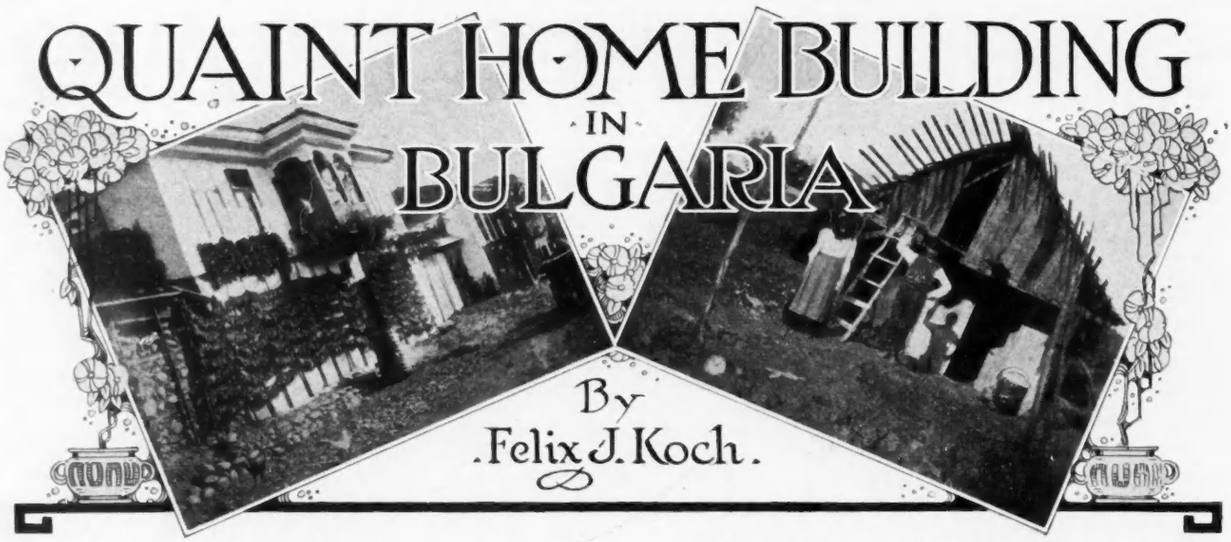
"Dat's provin' dat yoh was at a prayer-meetin' whar yoh wasn't, in order to show dat yoh wasn't at de crap-game whar yoh was."—*Life.*

A Manly Man

"Doesn't it humiliate you to have to go through life this way?" asked the sympathetic woman as she purchased a photograph.

"Yes, mam," replied the Bearded Lady. "If it wasn't for the wife and the kids I'd throw up the job today."

QUAINT HOME BUILDING IN BULGARIA



By
Felix J. Koch.

Walls are Festooned with Drying Peppers and Tobacco

The Peasants' Cottages are Not Much for Beauty or Size

THE somewhat recent Balkan War, in which the first victories at arms and later the penalties of dissention fell so largely to the Bulgarians, lends particular interest to what architecture—home building—may be like among these people of the southeast corner of Europe.

To begin with, in Bulgaria, there are no farm-houses as we understand the term. Instead, every one lives in town or village; and thence each morning men, women and children troop countryward to till the fields, tend the vineyards and harvest the grain. Protection has thus influenced architecture in the kingdom. An isolated home would never be safe from invading brigand bands nor companies of roving Turkish soldiers. Being closely grouped in villages, therefore the homes are naturally altered as to characteristics.

To begin with, they stand closely side by side; and, the better to obtain light, the second story overhangs. It is supported on heavy girders or beams, possibly felled by the tenant himself in the nearest forest. The window frames are from the same trees; so, too, the doors. These things are left unpainted, unvarnished. Lovers of hand wrought work would be filled with delight at the details of these weather-seasoned homes in Bulgaria.

Many Bulgarian Dwellings Have Grape Arbors Built Out in Front Clear Across the Street

The outer facades of the houses are coated over with the brown earth or adobe of the country. This is smoothed over as a plastering would be with us,—then dries and hardens. In sections it is given a coating of a delicate pink, or of blue, yellow, scarlet, etc. Adding to this rugged beauty a still greater charm is given to the street scene through the customs of hanging long cords of ripening peppers or of curing tobacco against these walls. The peppers lie, some green, some pink, some scarlet on the background, say, of brown. The tobacco turns a deeper brown against the first. Between the whole of them you feel yourself in Nibelungen-land for sure!

Of course, while every one is, in last resort, a farmer, yet aptitudes have led to trades; and so one man, skilled at butchering, is the meat-provider of the town; another, handy at the skins, has become its tanner,—and the like. And, of course, there are a few bazaars, and a kavana, or coffee house. And all these places of business are, in each respective case, given space on the lower floor front of the shop keeper's residence. Hence the Bulgar architect designs the house so that this downstairs front shall be open, save for lattices to be drawn in time of storm. Within he leaves space for shelves; he makes room for a counter, and, against the opposite wall, for a divan, where customers may loiter. To the rear is the store-house, the stock-room.

But to reach the residential portion upstairs there's no inside stairway, as with us. Instead, the steps are on the outside of the building, and even in the little native hotels you are taken up these steps to a central hall—off

of which radiate the guest-rooms. Mighty handy, that, for slipping out without paying at dawn!

Behind the house, usually, the architect is called upon to plant a court. Sometimes this court is surrounded by buildings, all of them connected so as to make of it a sort of patio as in the Mexican home. Bedrooms occupy the upper floor; and they are small—much the size of those in American flat-buildings.

Strangely enough, your Bulgar doesn't like a sitting-room down-stairs, even when he can afford it. Tirnova is the skyscraper city of Bulgaria, and there houses actually attain to the dignity of third stories. But where the well-to-do merchant hasn't his bazaar on the street floor, he makes of this ground story what we would do with the cellar; and you pass from it to the living-rooms, kitchen and the like on what with us would be the second floor. From the second story windows there project iron balconies, for holding pomegranate shrubs and fig-trees; and here the village Juliets sit, while the Romeos, down below, do their courting.

Of course every village has its church; and in Bulgaria, as with us, in the smaller towns, church architecture is hardly varied. Often, too, there's a fire-tower—a heavy square affair, rising up sufficiently high that the guard on the top may overlook the city and detect the first trace of smoke arising.

In the few large cities, Sofia and Rustchuk, the governmental buildings and a few others are a heavy, substantial sort, reminding, on small scale of those of Paris. But they are hardly typical of Bulgaria.

More the usual thing is the little hut, four square and with a roof in shape of ark above, which is thrown up by Jan and Hatinka when Jan comes back from the three years in the army which follow right after his marriage. Men marry here before serving their King in order that the wife may live in the father's house the while and till the fields belonging to the husband's family.

It's quite the custom not to be overnice in clipping the board ends that protrude from the house-fronts, and so these upland cabins almost smack of savagery.

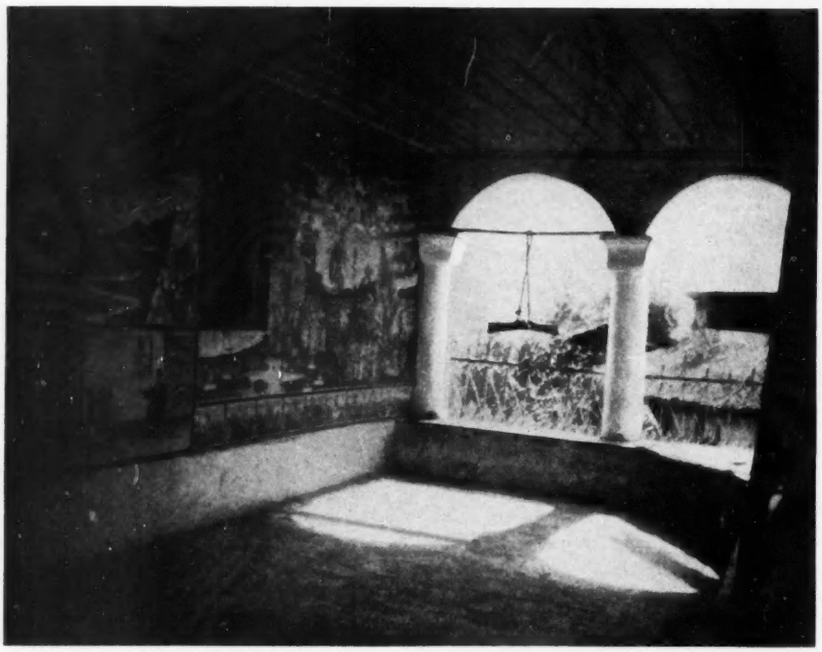
Another element of the picturesque is given by the fact that the town architect, when erecting a house, is instructed to run an arbor across the street before it. Simple lattice work, these arbors not only shade the way but permit of the rider plucking juicy, pendant bunches of grapes as he goes through on his mule.

The world over there are always the rich and the poor, and so in Bulgaria. On the same highway, side by side, for property differences of valuation are unknown in the villages, there will live the town plutocrat and the poorest of artisans. For the latter the home will be one room deep, three rooms across, each one of these belonging to some different family. A roof of the bright red terra-cotta slopes down before. The walls are of the simplest adobe.

Streets are Narrow and Uneven—but there's Usually a Church Spire in sight

High over this towers the residence of the rich man—two stories; a hall down the center on each floor, rooms to right and left, and, out at front on the center of the second-floor facade, a portico. Such a home as that is from the high road, quite apt to deceive the stranger as to its size. At

Interior Court of Bulgarian Home—It's a Fine Play Ground for the Fourteen Children of this Average Size Family



A Church Portico Showing Mural Paintings by Some Local Artist

its rear you'll find wings trending back and then being joined to form one immense court. Two stories high those wings are, too; in places they have no side-walls, but the roof is up-held by supports; and in the arcade so formed, more, every more tobacco hangs, drying. Still again, there isn't the finish given these interior rear-walls, and so one finds just a lathe-work, or, at best, a rude plaster on the walls. Sometimes the walls are built of a close wicker-work, made by matting the willow withes from the rivers together, much as children do braid-work in our kindergartens. Between two walls of such matting a mixture of cobblestones, earth and mortar is filled. Then a cross section of the matting is laid to over-lap, and above that come more stones and mortar, retained by two more such walls. Then again there are walls of planking—it's cheaper than more substantial work.

But Bulgaria has some architectural wonders—despite all this crudeness. Rila Monastery, hidden away in a canon in the far south end of the land is indeed a show-place. The traveler who crosses the drawbridge and passes through the tunnel built into its wall, into the court here for the first time lets an AH! of astonishment escape him that he is never apt to repeat. Arcade on arcade, galleries, color, pillars and porticos, it is so wonderful it is a story, and a long one, in itself!

Business Failure

Tramp—"Yes'm, I wunst had a good job managin' a hand laundry, but it failed on me."

Lady—"Poor man! How did it happen to fail?"

Tramp—"She left an' went home to her folks."—*Chicago Record-Herald.*

The Ground Floor of Practically Every Bulgarian Dwelling is Open to the Street and is Used as a Shop

Decorating the Home

Room Proportions Affected by Decoration

THE Upholsterer has worked out this series of illustrations which shows in a striking way the truth of the generally recognized principle, that vertical lines make anything seem taller while horizontal lines increase the appearance in width.

Nowhere is this principle more important than in interior decoration. A room with a very high ceiling, so high that it seems bleak and cheerless, can be so decorated that the ceiling is brought down. Also decorators often want to make the ceilings of small rooms appear higher. They are able to accomplish this by doing away with horizontal lines.

One of these illustrations shows how a room is made to appear smaller than it is, when a pronounced all-over pattern of wall paper is used. The spacious effect of a wall that is almost plain is shown in contrast.

It is stated that these two pictures were drawn from actual photographs of rooms in a New York apartment building where expense was unstinted. The building was new and in each case the room was decorated and furnished for the first time so that the decorator had a perfectly free hand in laying out his scheme.

One of these groups gives an interesting study of the effect produced by a high paneled wainscoting, as in a dining room or reception hall. Unless the ceiling is very high it is not best to use such high panels. The low wainscoting on the right, together with the vertical stripes of the wall paper increase the apparent height and for the majority of residences is much better than the other.

The over-generous use of heavy plate rails and other horizontal mouldings in rooms of nine foot ceilings becomes rather doubtful economy in the light of these tested principles of interior decoration.

A Dining-room Treatment Showing Two Variations of Wainscoting. The High Wainscoting of the Illustration on the Left Reduces the Apparent Height of the Ceiling. The Low Wainscoting on the Right and the Vertical Stripes on the Wall Increase the Height.

A Bedroom Comparison. The Furniture, Rugs and Ceiling Treatment is the Same in Each Case, but the Compartively Plain Wall in the Left-hand Picture Gives a Much More Spacey Effect than is Possible with the Striped Walls on the Right.

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Peace and Goodwill

A southern Missouri man was being tried on a charge of assault. The state brought into court as the weapons used, a rail, an axe, a pair of tongs, a saw and a rifle. The defendant's counsel exhibited as the other man's weapons a scythe-blade, a pitchfork, a pistol and a hoe.

The jury's verdict is said to have been: "Resolved, that, we, the jury, would have given one dollar each to have seen the fight."

He Knew!

"Perhaps you are familiar with the works of Ingersoll?" smilingly enquired the book agent as he reached under his coat for the sample bindings.

"Sure, I am," replied Mr. Goldberg, the jeweler; "undt it's a good vatch for der money!"

The Front Hall is the Most Important Part of Any Fine Residence. This One Unites Dignity, Hospitality, and Attractiveness. It is not Skimped nor Cramped; Wood Paneled Wainscot is Used; the Decorations are Warm Yet Subdued. A Unique Feature is the Placing of the Stairway in an Alcove by Itself.

Log Cabin Playhouse

Unique Combination of Concrete and Rustic Woodwork Used in Cincinnati Garden Houses

By J. R. Schmidt

THE latest thing in Cincinnati, among the well-to-do, is to have one of these log cabin playhouses built out on the lawn or in the garden. They are used both as playhouses for children or as log cabin dens where the grown-ups may spend an evening or a night in early settler style, close to nature.

The illustrations show an exterior view of one of these houses, also detail of the entrance door and veranda construction. An odd beauty is given this structure by the combination of rough concrete and logs. The main idea in building this cottage, and the other ones of the same sort, has been ruggedness of appearance.

In size, these buildings average about 16 by 22 feet. The interior is one big room open to the rafters, a massive stone fire place fills the side opposite the door; and most of the furniture is built in place, very heavy and rustic in appearance, yet possessing the acme of comfort.

A year or so ago a Chicago man, a great lover of hunting, surprised his friends by having one of the rooms in his new residence finished as a log cabin interior. This Cincinnati idea goes this one better. We often feel the need of getting back to the simple life, and nothing will be more conducive to it than one of these log cabin retreats.

Necessarily Healthy

"Yes," said Mr. Bliggins, "my wife had hay-fever as usual this year, and my daughter had brain-fag from overstudy, and my son had insomnia."

"And wasn't there anything the matter with you?"

"No. There isn't any ailment that you can cure by going down-town every day and working on the books."—*Washington Star.*

In London

The door-bell rings. The mistress of the house answers it. A small child, the child of a near neighbor, is discovered on the door-step.

The Mistress—"What is it, Cissy?"

The Child—"Please, ma'am, mother wants to know if you'll be so kind as to lend her your recipe f'r makin' bombs The last one she made only smelled bad and wouldn't bust."—*Cleveland Plain Dealer.*

Unique Rustic Cabin of Logs and Cement on the Lawn of a Cincinnatian—They are Quite the Rage There

Here Is a Bed Room of Simple Beauty—Finished in White Enamel with Mahogany Doors (Crystal Knobs). The Walls Are Covered with Grass Cloth and the Border is a Cut Out Flower Design on Paper. More and More Are Modern Sleeping Rooms Being Designed with Extra Window Space; in This Room Double French Windows—Full Glazed Are Used

A Plea for Practical Education

WHAT VOCATIONAL EDUCATION AND VOCATIONAL GUIDANCE MEAN TO THE FUTURE OF THE COUNTRY—AN ADDRESS BEFORE THE SEVENTH ANNUAL CONVENTION AT GRAND RAPIDS, MICH., OCT. 23rd

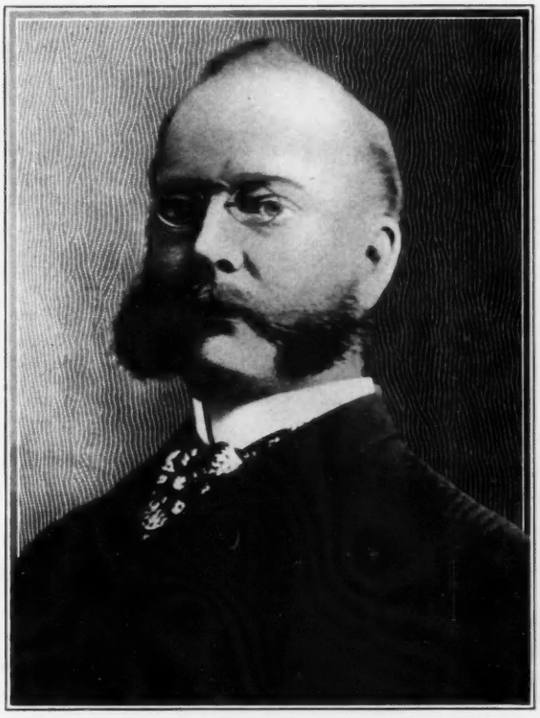
By William C. Redfield

Secretary of Commerce and Labor, and President of the National Society for the Promotion of Industrial Education

WE have so long taken pride as Americans in our system of free public education that it gives us a shock to discover that this scheme of instruction, built up through many decades and sustained at vast cost, fails to secure one of its most needed results. We are not teaching our boys and girls to do any definite work in the world.

If all the boys and girls in but one of our smaller states were to seek now to learn that which would fit them for the daily work of self-support, there are not schools of the kind sufficient for them in all our whole land.

We are doing indeed a little, so to speak, in educating at these things, but we have just begun to realize that education in practical things is one of our serious national duties. In an eastern city some busy men and women gathered about eight hundred boys under the care of an institution meant to assist these boys upward in life. After a little it dawned upon the directors of the work that hardly one of the eight hundred boys knew how to do anything. A good blacksmith was found, a shoemaker, and a carpenter, and strange to say these excellent mechanics were themselves so conscious of the need of instruction in their own trades, that for long weeks, each of them gave his services freely, after a hard day's work, to teach these boys.



Secretary William C. Redfield

The case is not unique; the same wasted powers, the same suppressed ethics, the same unused or misdirected energy are to be found in Buffalo, New York, in Boston and San Francisco, in New Orleans, and everywhere between.

Meanwhile, our national industries suffer, while our young people go to waste. Our American inheritance of alertness of mind has helped us well thus far, and we have been able to make excellent progress in the great competition of nations. But the conflict grows sterner every day.

It is hardly necessary to say that any manufacturer in his right senses, when employing men, would give preference to well-taught boys; and it is equally unnecessary to say also that to advance these boys by eight years in their earning capacity would react most happily upon their homes. Industrial education, therefore, not only trains, but saves boys and girls.

Efficiency and Morals Closely Related

It may be well at this point to call attention to the fact that this question of training for vocational efficiency is closely related to that other question of personal moral ideals. The vast majority of women and men, however humble their means and however hard their privations, are wholesome and pure in life. The strength of character which most working girls show under difficult circumstances puts them among those who do the nation honor.

On the other hand, suppose a girl who has to work for self-support is so obliged to pinch to keep her body and soul together as to be deprived of all wholesome amusements or recreation. All work and no play—and very ill-paid work to boot—is as bad for Jill as it was for Jack and it makes life dull and dreary.

Every man and woman knows that, so to speak, there are impulses in him or her, some of which tend to lift up, some to drag down. Now the difference between $5 weekly and $50 weekly does not make these impulses, but certain of them get a chance on the $50 weekly basis and certain others get a chance on the $5 basis. What we want to do is to create conditions, partly by wages and partly by other things, to strengthen the environments which let the forces which lift up have play and to destroy the conditions under which the forces which drag down have play.

Potency of the Economic Motive

It is to be noted, however, that the present interest in vocational training, just as the present trend toward saving effort and keeping the human mechanism in our factories in good working order, does not arise primarily from moral considerations or altruistic motives but from economic ones. In actual practice in a mill it makes a difference in the financial results whether among a thousand men one hundred or three hundred or more are out of health. Any large amount of impaired vigor among his operatives is a condition whose continuance an intelligent manufacturer should know that he cannot afford.

We often care for minor things and ignore larger ones. We put time clocks in our factories to record the coming and going of our men and we note whether they are a few minutes early or late, and this is well. But we are often thoughtless of the more important questions—whether when they get there, they are in fit condition to do their work, and some of us are careless whether the factory is so ordered that they can work at their best after they come.

Conditions of Efficiency

But, not merely in health alone are we coming to a right sense of human values. It is well to provide moral and healthful working conditions for the workmen we have, but it is quite as important to make good workmen out of boys that are growing up.

Let us look further briefly at this subject called vocational education to see what it means to the family, the factory and the public. It does not mean what is called manual training

or teaching a little facility in some sort of work to a boy or girl. It is much more thorough than that.

If the result of true vocational training were no more than has been said, it would often bring peace in the family and pleasantness in the factory, but because whatever promotes the efficiency of the man and saves waste in the mill is reflected in the cost of goods, the public also profits.

If we look back to the beginnings of things we see that the rise in human values has been great and that it is progressive. It is still going on. It is a plant of slow, strong growth having its roots deep in human nature and in economic truth.

This appreciation of human values in the worker leads normally to the *development* of those values. I wonder what our lawyers, ministers, or physicians would do if the schools in which they learn their professions were closed, if there were no staff of teachers to instruct them, and if each at the opening of his life's work had to pick up the knowledge of his profession here a bit and there a bit, by experience, by mistakes, by questions, but without instruction.

There are employers here and there gladly recognizing now the principle of a minimum wage for women and men, and gaining thereby a selected force that makes the enterprise highly profitable, but were the principle to extend into universal application how many of our young women and young men have skill and training enough to make the minimum wage that is desired possible? It would be a proud day for any state when her governor could say that every boy and girl within her broad boundaries had an opportunity to learn in her public schools some definite work in life. But the pride that would fill the heart of the governor when he wrote that message, and which should rejoice the legislators that heard him, would be as nothing compared to the comfort brought into thousands of humble homes, to the self-respect added to the boys who were struggling upwards, and to the safety brought to their sisters.

Ventilating School Buildings

CRUDE DEVICES OFTEN USED THAT DO LITTLE GOOD—GOOD ARRANGEMENT OF FRESH AIR AND VENT FLUES

By Harold L. Alt, M.E.

LAST month (page 45) I was talking about indirect heating and its accompanying ventilation. Now let us consider the application of this to schools. As a general thing ventilation in school houses does not receive its proper consideration in the design of the building, although this error is being gradually rectified.

The most elementary effort to provide fresh air consists of devices installed in the window openings to admit outside air without draughts—as far as such a feat is physically possible. These schemes usually consist of a board insert under the lower sash (which is partially raised to accommodate the board), small stovepipe elbows with dampers being inserted in the board to permit the entrance of air. Or a board or glass deflector is used to throw the entering air upward into the warmer air of the room to temper the air before dropping to the level of the occupants.

Admission of air at the windows is never satisfactory except, perhaps, in schools where the rooms are smaller and the occupants much fewer than the average. Besides this no method of escape is provided for the entering air unless some of the windows are pulled down from the top. In the case of windy weather it is quite likely that more cold air will blow in by this route than can be properly absorbed by the warmer air, resulting in dangerous cold currents dropping onto the scholars' heads.

In schools of several stories where the expense of running a fan is not desired, reasonably good results are obtained by systems arranged somewhat as shown in Fig. 1. In this case the air is taken in at the basement and heated to the proper degree by steam or hot water radiators located in the base of the fresh air ducts. The warm air then rises in the ducts and passes into the class rooms near the ceilings. Becoming gradually cooler in the class room, it slowly settles floorward, being finally drawn off by the vent duct at the floor.

Circulation in the vent duct is usually maintained by raising its temperature by a steam coil or radiators commonly called "asperating" coils. It is also possible with this system to heat as well as to ventilate, all that is necessary being the addition of sufficient steam surface to heat the air to a point where it will maintain a constant temperature of 70 degrees in the room. It is much more economical, however, to use direct radiators to supply the required heat and supply fresh air simply and solely for ventilation. This is because it is then possible to warm the building without heating cold outside air and the heating results are obtained much more rapidly than by a purely indirect method.

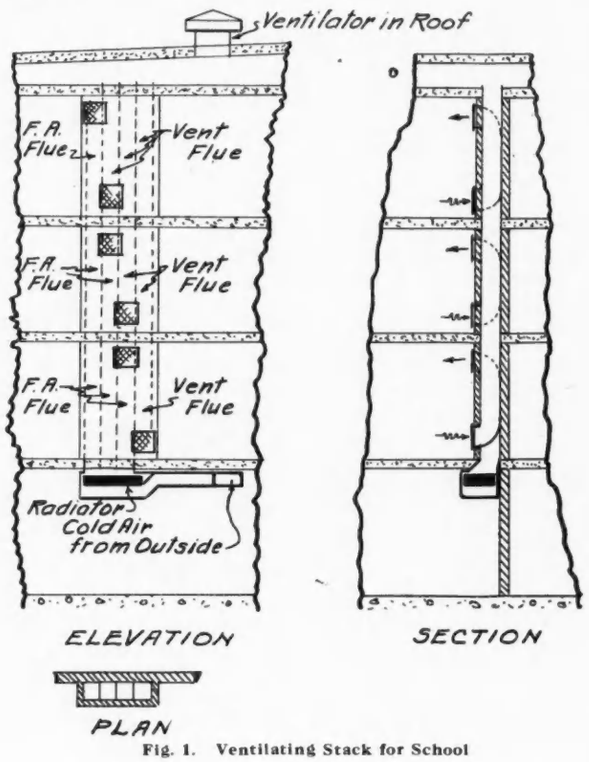


Fig. 1. Ventilating Stack for School

New Grammar School at Cicero, Illinois

MOST public schools should be planned and built to take care of future growth. Some are arranged so that wings and other additions can be built on. The new Drexel School at Cicero, which is illustrated here, was built this spring, complete for the basement and first story only. When the needs of the district demand it, the second story will be added.

This is a very neat, business-like building—nothing about it to get dilapidated or out of date. It is substantially built of brick with stone trimmings. The ground floor provides space for manual training work, lunch rooms, heating plant, etc., while on the next floor there are four standard sized class rooms.

This building was designed by the well known school house architect, Mr. G. W. Ashby, of Chicago. It is one of a large number of his school houses built during the past few years in and around Cicero, which is one of the suburbs to the west of Chicago. This Drexel School is one of the smaller buildings. Cicero is proud of its efficient public school system and of its modern, up-to-date school buildings.

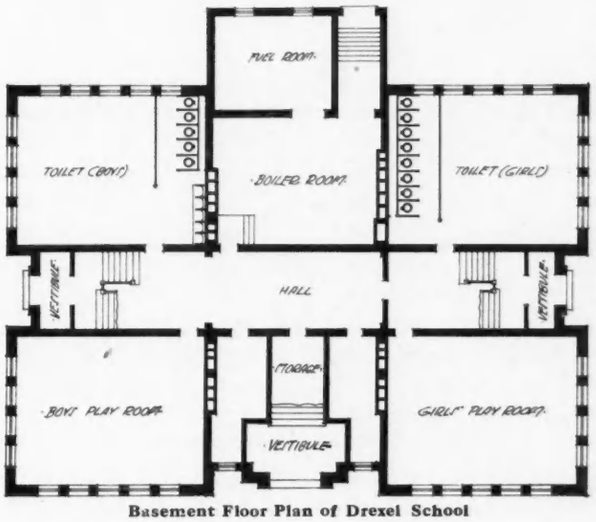
✣

Switzerland has four cooperative associations for the growing and marketing of forest products.

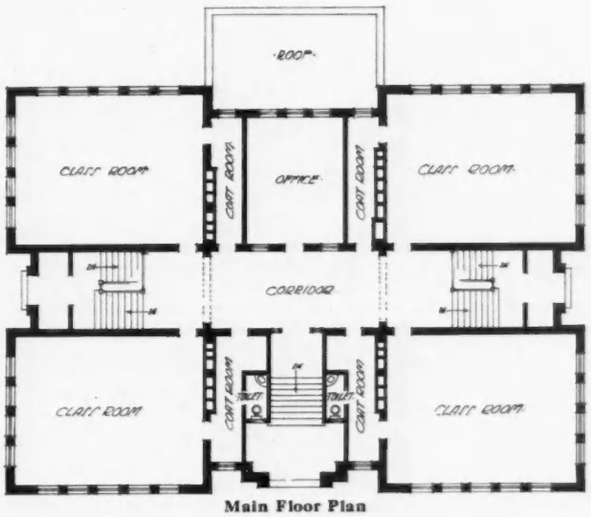
At the national conservation congress held in Washington, November 18-20, the subject of forestry was handled by a main committee, with sub-committees which reported on federal and state forest policies, forest taxation, fires, lumbering, planting, utilization, forest schools, and scientific forest investigations.

Elk have been found in the Uinta national forest, Utah, for the first time in many years. Since they are not from shipments from the Jackson Hole country to neighboring forests, the state and federal officials are gratified at this apparent increase in big game, as the result of protection.

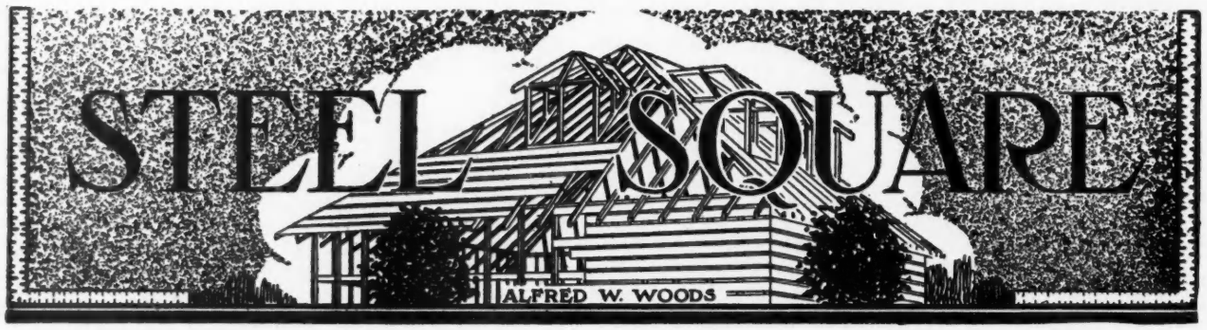
The Drexel School at Cicero, Ill.; A Second Story Can be Added Later



Basement Floor Plan of Drexel School



Main Floor Plan



An Unusual Steel Square Framing Job

ILLUSTRATING HOW TO FRAME MATHEMATICALLY A ROOF OF SIXTEEN EQUAL SIDES IN CONNECTION WITH THE AID OF THE COMMON STEEL SQUARE

By A. W. Woods

WE are in receipt of a letter from a contractor down in Mississippi, who says he has just completed a sixteen sided barn, 60 feet in diameter; that he framed all of the rafters on the ground (the pitch was 9 inches to the foot); and that *they fit, too.* Furthermore he did it his own way, but would like to see how we would go about it to accomplish the same thing with the steel square.

Now, since this furnishes a good topic, we will take the cue for our subject this month. The number of sides does not cut any figure with the system we use. If there were no sides to the building, it would be a true circle and there would be no hips or jacks to contend with. Therefore, they would all be alike—common rafters running to a common center, but as the form leaves the circle, it takes on the hips and jacks.

The first thing to determine is to find the angle formed by the run of the hips to one another. In this example, they rest at 22½ degrees apart, (360 ÷ 16 = 22½). Now, let us see what this angle taken on the steel square will give us; but you say,—how can we find the angle on the square?

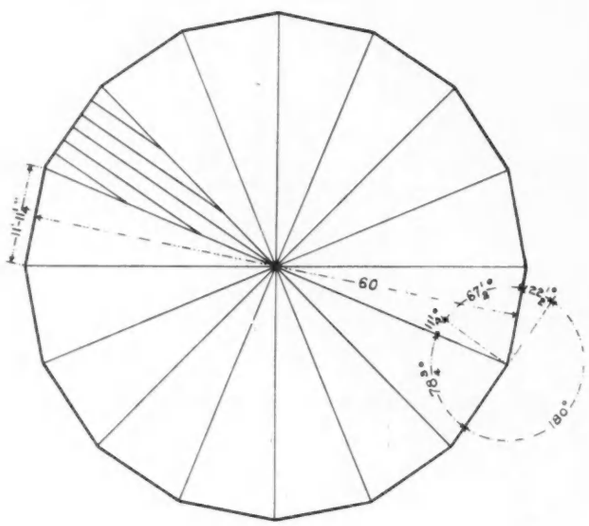


FIG. 1.
Roofing a 16 Sided Barn

Well, in the absence of the "Key to the Steel Square," refer to a table of tangents and it will be found that for 22½ degrees, the tangent for unity is .14421; and this multiplied by 12 equals 4.97052 inches. This is practically 5 inches; 12 and 5 will give the cut of the plates for a lap joint at the corner, which is much better than a miter because it gives better nailing space. However, if a miter is wanted, the angle in degrees is 11¼ or just one-half of that required for the lap joint. Its tangent for unity is found to be .19891 and this multiplied by 12 equals 2.38692 inches, which is practically 2⅜ inches. Then 12 and 2⅜ will give the miter. The side of the square on which the latter is taken will give the angle for the cut. By multiplying the diameter of the building (in this case, 60 feet) by the tangent, will give the length of the required sides. Thus 2.38692 × 60 = 143.21520 inches, or 11 feet 11 5/24 inches for the length of the plates and may be considered absolutely correct.

We do not believe it is possible to obtain as near a correct result by any other system—even by laying it out full size; and to obtain a correct result by a scale diagram, is simply out of the question.

But we are not through considering the tangent 2.38 (2⅜) and what may be obtained with it. If we take 2⅜ on the tongue and the length of the common rafter for a one-foot run, which in this case being a 9-inch rise, is 15 inches on the blade, we will have the angle for the side cut of the jack; the blade giving the angle. Or if we take to scale, one-half the length of one of the sides and the length of the common rafter, we would have the same result, because they are in the same proportion. The first being full scale for a one-foot run, while the latter is to a scale for the full size measurement of the building itself.

Suppose we want to back the hip, which in this case would require but very little,—then set off 2⅝ twelfths of one-half of the hip's thickness from the edge of the rafter along the seat cut line and this will give the gauge point from which to remove the wood on the side of the rafter to a line along the center of its back.

For the seat and plumb cut of the hip, take a scale the length of the line from 12 to 2⅜ and the rise (in

this case, 9 inches) will give the cuts. The side cut of the hip in a case of this kind is not practical because running to a common center they would all run to a feather edge, therefore impracticable. The first pair could be set without any side cut; and the next pair at right angles to the first set could cut against them: and the next two pairs setting at 45 degrees from those already set; and the remaining sets to fit in between the last ones. But even this is not practicable, because it would require different angles for each set and tedious deductions in the lengths to make them come right. So we will not attempt to give the parts to take on the square to obtain these cuts, because there is a better way of doing it.

We would make a solid form for each hip to rest against. Therefore, if we take a block 12 inches in diameter and shape it to sixteen sides, each side would be found to be 2⅜ inches wide. This is our tangent again bobbing up to help us out at the finish. We had it in the miter, the side cut of the jack, the backing of the hip, and in finding the required length of the side of the building. And, after trying or suggesting different ways of joining the hips at the very peak, it steps in again, lending itself for a solid and equal bearing and that, too, with a simple plumb cut, leaving each hip rafter identical with each other and forming a substantial base for a finial or flag pole.

Before we quit, we want to back up a little and say a few more words about miter and lap joints.

Miter and Lap Joints

Did it ever occur to you that by doubling the amount of degrees required for the miter, will give the angle for the lap joint? For instance, 45 degrees taken on the square corner and 90 degrees will give the lap joint

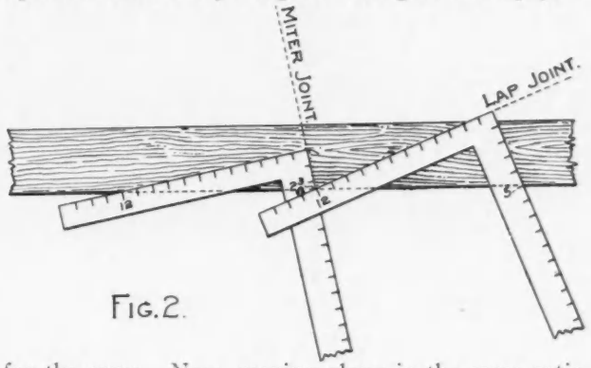
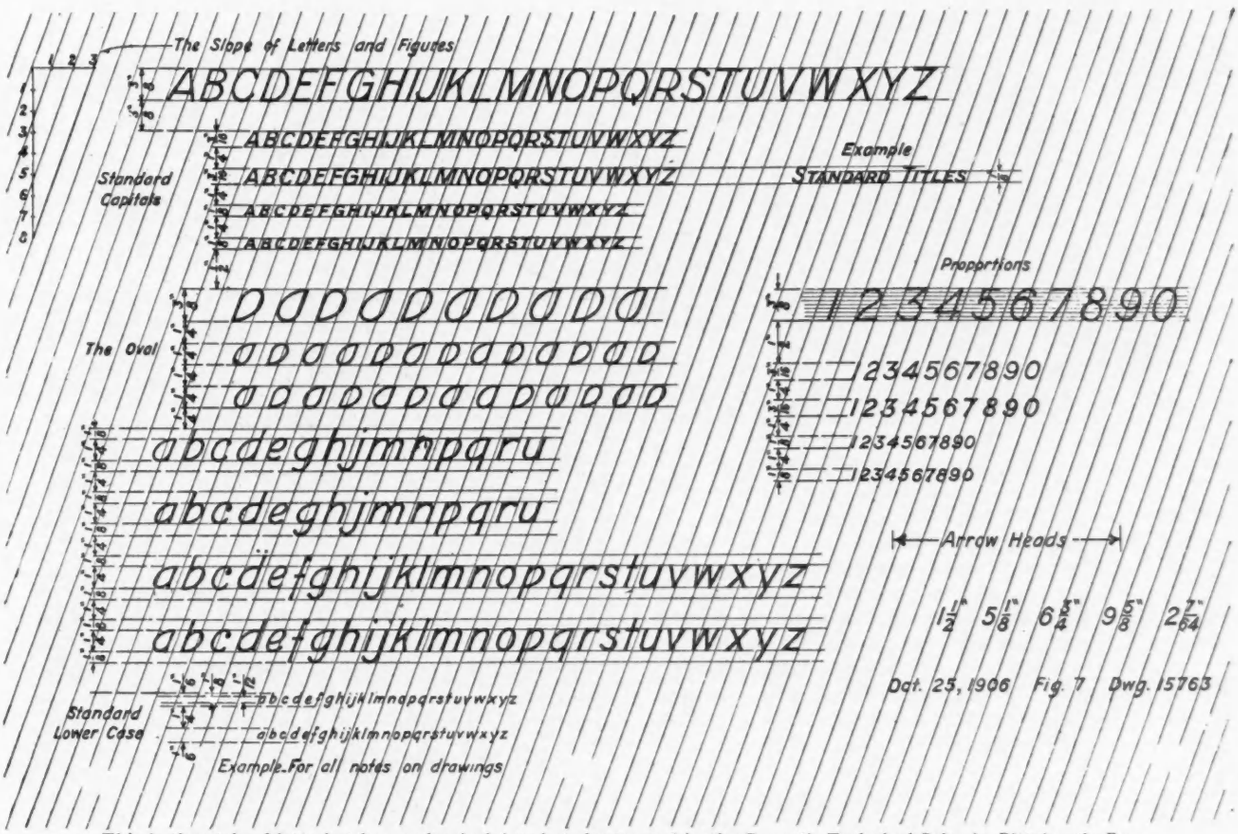


FIG. 2.

for the same. Now, moving along in the same ratio, we will take the octagon; 22½ degrees gives the miter and 45 degrees gives the lap joint. Passing on to the 16-sided polygon, as shown in the illustration, 11¼ degrees (12 and 2⅜) give the miter cut and 22½ degrees (12 and 5) give the lap joint. These are shown in Fig. 2, but in the latter the cut is in the co-tangent.

Thus we could go on doubling the number of sides in the polygon, the tangents for the cuts would decrease in a like proportion each time until finally when there are no more degrees left, we would be back to the place from whence we started,—the circle.



This is the style of lettering for mechanical drawing sheets used in the Carnegie Technical Schools, Pittsburgh, Pa., under the direction of Mr. Charles C. Leeds

Columbus Trade School

ITS WORK IN CARPENTRY AND CABINET CONSTRUCTION

By J. D. DeBra, Instructor,

FOR four years past, the Columbus Trade School has been quietly working along the lines of carpentry and cabinet making, architectural and mechanical drawing, printing, electricity, machine shop work and pattern making, but not until the past year has the carpentry work been introduced on the same basis as the other courses. So quietly has this work been going along that many citizens of Columbus knew nothing of its existence, until a citizen of another community, far famed for its vocational work, happened along one day, and by his stamp of approval, made public, placed the school on the map of Columbus permanently.

The purpose of the school at its foundation, was to take those boys dropping out of the regular grade schools between the sixth and eighth grades—boys fourteen years of age or more—and give them a training to fit them better for entering, as apprentices, into the trade world.

Manual training is taught in the regular course of the Columbus school system, and our first recruits were from the ranks of those who showed some aptitude along that line without much ability along academic lines. These boys as a class, represented the failures in the academic schools. It was soon found, however, that this class of failures, elsewhere, with few exceptions, lacked the earnestness and persistency requisite for becoming proficient along any line. When they discovered how large a part academic work had to play in order to make of them intelligent and efficient workmen, independent of help outside themselves, many of them found it quite as much of a bug-a-boo as it had been elsewhere. We were saving a few, but the expense per capita was too great to permit of a continuance along that basis. Standards of entrance requirements had to be raised that the school might appeal to those boys whose grade of mentality is high and whose bent is manual—the truly hand-minded boy, whose head and hands work in unison.

This article is designed to give an idea of the work being done in carpentry and cabinet construction. The cuts show the special exercises in roof, stair and cabinet construction taught in this department.

In taking up the work in cabinet construction, special emphasis is placed on the correct uses and care of tools, as well as good preparation and rigid construction.

Each pupil is required to make a series of joints that are in use in the construction of cabinet work and carpentry. Gluing, scraping, sandpapering and wood finishing receive their share of attention, in order that the students may be able to do this kind of work with credit.

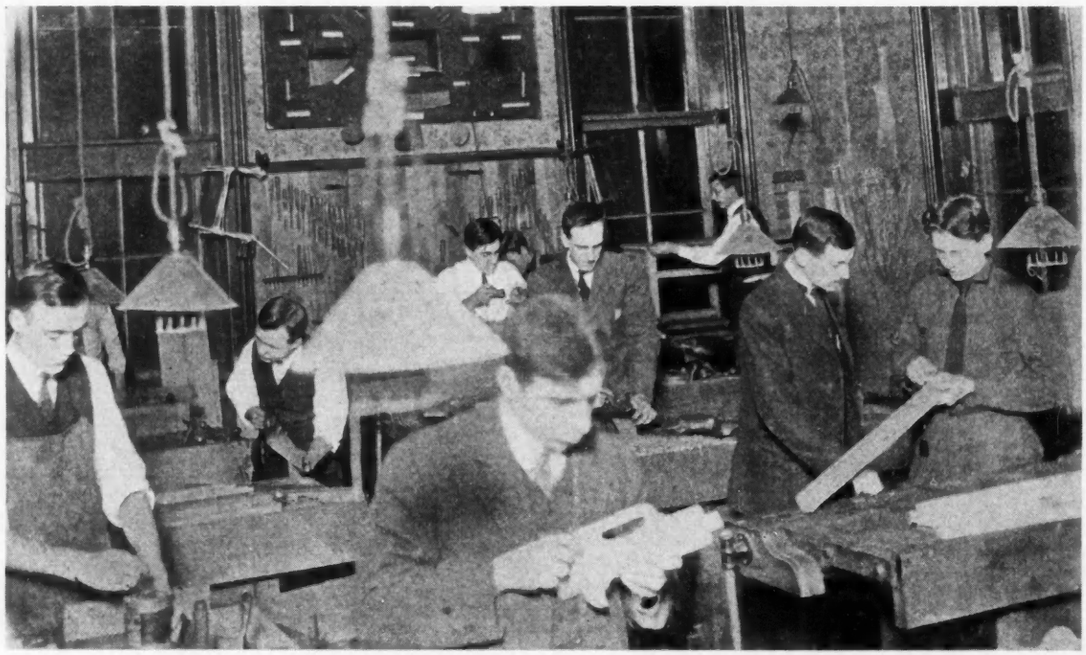
In the course in carpentry it is the aim to teach the students to do a neat and substantial piece of work in a practical manner, in the shortest time possible, and with the use of the least material.

Architectural lectures are given in which detail drawings of the different parts of construction are shown, and the actual framing of the various parts takes place. This enables the student to apply the instruction to actual practice.

Special attention is given to the use of the steel square in complicated roof and stair construction.

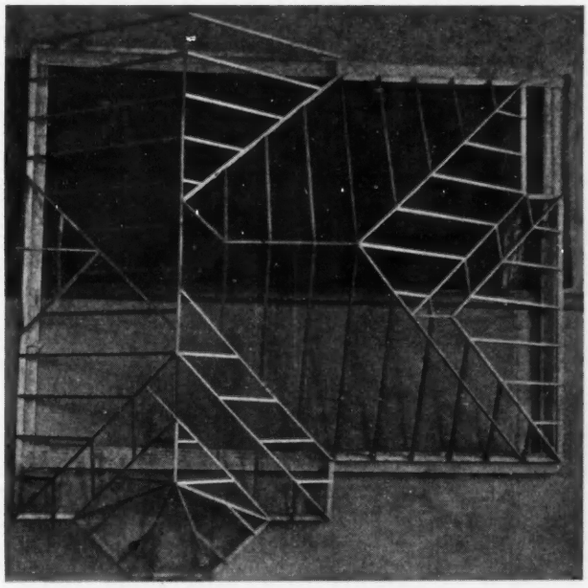
A unit method is used in the application of the steel square in framing polygonal roofs, roofs with different pitches, various hopper cuts, braces, etc., thus doing away with a different method for each polygon. However, several other ways of laying out the work are given.

Architects, contractors and carpenters, who have seen the work done in this department, have spoken of it in the highest terms of praise. They do not hesitate to say that it is just what is needed.



A Part of the Night Class in Cabinet Making and Pattern Making

The architectural lectures, mentioned above, which are given in connection with the carpentry and construction work, cover topics as follows: Selections of sites for dwellings, location of dwellings, nature of soil, laying out foundation, stone and concrete foundations, excavations, masonry terms, inspection of masonry, arches, wood and breeze blocks, fireplaces, braced framing and balloon framing, good and faulty construction, roof construction, gable roofs, polygonal roofs, roofs with uneven pitches, conical towers and domes with vertical and horizontal covering, trusses, cutting door and window openings, outside finish, gable finish and cornice con-



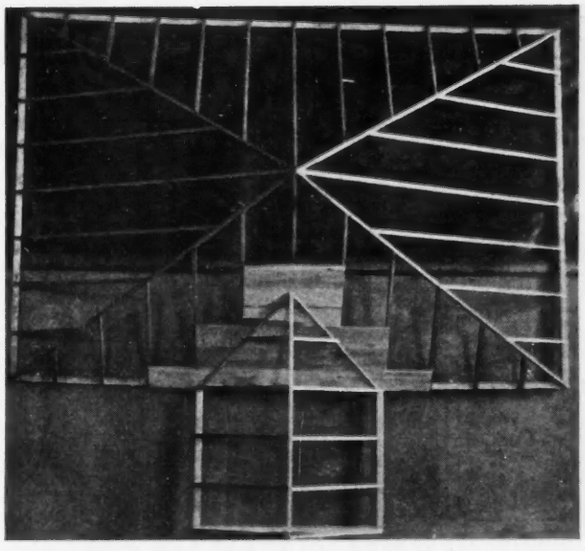
Hip and Valley Roof with Octagon Bay

struction, mouldings, shingles and shingling, floor laying, strength of materials, interior finish, stair building, definitions of stair terms, straight stairs, platform stairs, newel stairs, winding stairs, handrails.

The school day consists of six periods, three of these periods, in most of the courses, being devoted to shop work, exclusively, and three to academic work or study. The courses in the different academic lines have not been definitely fixed until the present year, owing largely, to the fact that we received boys from such widely distributed courses, that frequently an instructor found in the same class boys from the 6th grade and first year high school students. For this reason the work was either individual or presented in such a way as to reach both, which was far from satisfactory.

With the new entrance requirements, we hope to have uniformly prepared students, who can take up definite courses in a regular way, and pursue them to a satisfactory result.

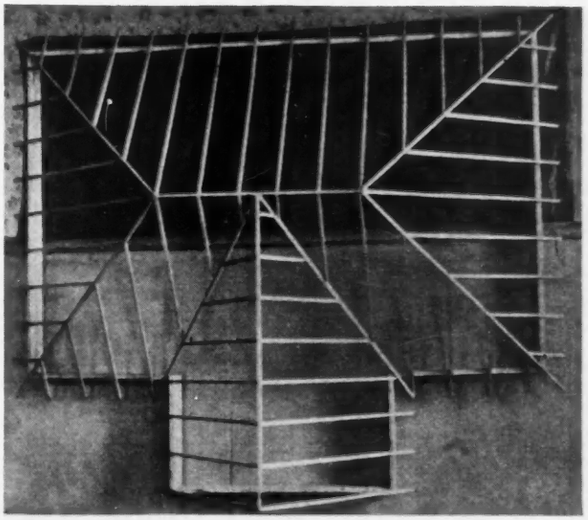
It is difficult to give an outline of the course of study as applied to woodworking classes only, as the courses are planned in a broad way, and frequently find the carpenter and machinist working in the same academic classes.



Roof with Uneven Pitches

However, the following outlines will give an insight into what we plan to have the boys in the woodworking classes cover: Mathematics, problems involving fractions, common and decimal, reduction from one to the other, (subject matter of problems shop calculations entirely), measuration; board measure computing amount of lumber in trees; figuring amount of lumber for floors of all shapes, study of speeds of pulleys, computing framing lumber, and length of rafters, study of right-angle triangles in roof construction, estimating number of shingles required, elementary study of strength of material, (the latter is not given until after trigonometry has been studied).

Drawing: This work extends over a period of two years. The first semester is devoted to lettering, use and care of instruments, elementary projections, drawing to become thoroughly acquainted with the instruments. Under the subject of lettering is given the Reinhardt, Roman, Italic, Black and Modified Gothic. Lectures are given covering these subjects, and the proper use of the instruments demonstrated. Elementary projecting, first, second, third and fourth angles are discussed. The second semester is taken up in making details of construction: windows, doors, cornices, roofs, porches, etc.; cross sectioning; isometric and cabinet projection, line shading, elevation of buildings, from copy. Third



Uneven Pitches with Ridge Boards the Same Height

semester: Free-hand sketching from models in draughting rooms, and from actual buildings, making of plans and elevations from above sketches of buildings.

Fourth semester: Tracings, blue printing, blue-printing processes, design of a building which includes plans, elevations, framing, etc.

English: Spelling of terms from architectural lectures, catalogues, business, technical and other lists of commonly used or misspelled words; orders, and business correspondence of all kinds; contracts, specifications; descriptions; magazine articles on industrial topics relating to this trade—debate and discussion for development of oral English; correlated with the work in literature are themes, e.g., on "Dutch Architecture" inspired by reading of Irving's "Sleepy Hollow," and Norman Architecture from reading "Ivanhoe," containing comparisons as to construction, building, housing condition, and sites of the different ages compared with those of today, biographies of the world's famous carpenters and builders.

History and Civics are also taught. A course in strictly industrial history is being planned for another year. Previous to this a course consisting of lectures given by the different instructors in the building, covering various industrial phases

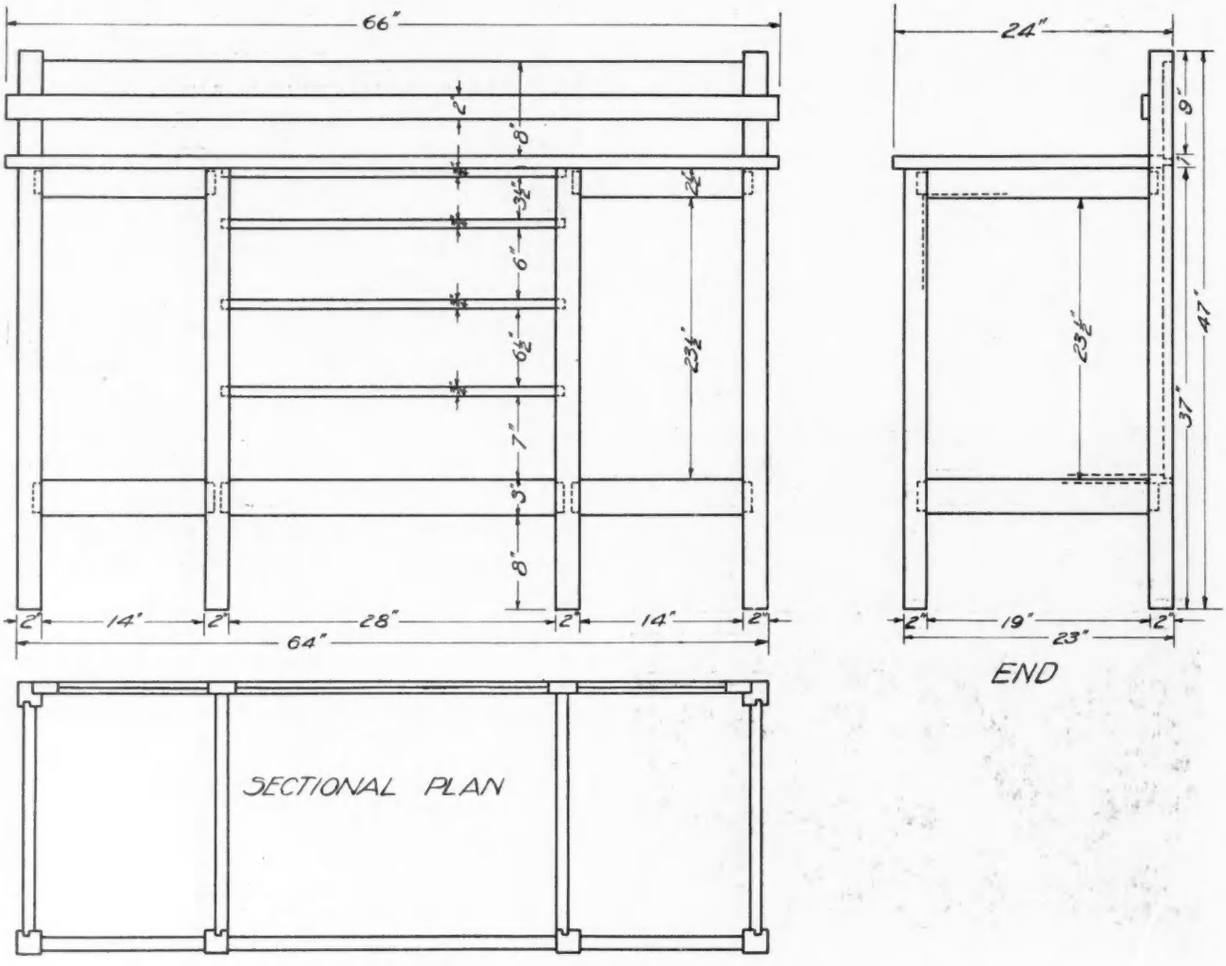
One of the Many Pieces of Cabinet Work Constructed During the Year

along all the lines taught, and a study of the origin and development of these lines; was given, with compositions based upon the lectures, and correlated with English work. It is planned for the following year to conduct this work by recitation rather than by the lecture method covering approximately the same field as heretofore.

The school worked a dozen boys on the co-operative plan during the present year—the boys working in pairs on the various assignments, and being in school and shop alternate weeks. These boys have done us credit wherever they have been employed. The training has given them an independence of thought and action, and the kind of confidence one sees in a seasoned worker. They command much more quickly than the average apprentice a man's position and salary.

Night school sessions begin in October and last through April, and classes are open to those workmen who have unhappily been caught in the meshes of the specialization system of the present day, while apprentices and who of necessity have had to work on one phase of their trade through, perhaps, years, without hope of broadening their horizon.

It is almost pathetic to see the eagerness with which middle-aged workmen seize this opportunity to learn the ramifications of the trade, to one phase of which they have been tied for so long. With these men shop kinks, short cuts to quick

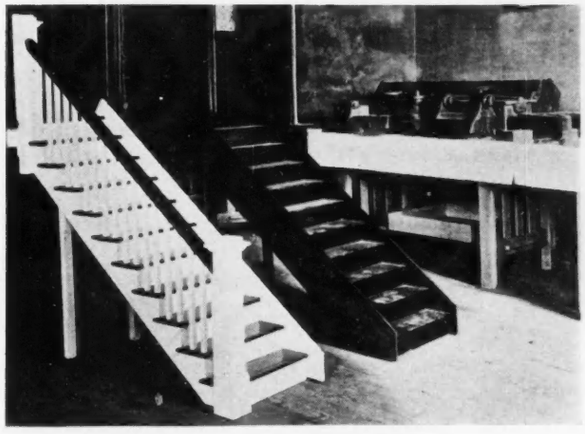


ELEVATION AND SIDE VIEW OF BUFFET

results seem to be the most interesting. Many contractors and carpenters of much experience became absorbed in the course of training afforded in these classes and were regular attendants.

The instructor in the night work finds this work very gratifying, for it is here that the help he is given is most appreciated.

This year finds six boys graduating from the Trade School —two of these having completed the course in wood-working.



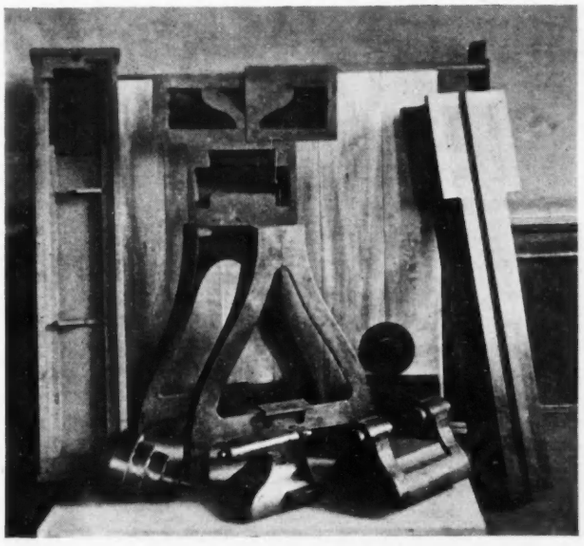
Model Stairs Built by Pupils

The Columbus Trade School is awaiting with hope the erection of a building to fit its needs, in the near future. The necessity for shops built to meet the requirements of the various trades, giving ample scope for construction, assembly, and display work, with proper ventilating and spacing systems to secure the highest grade of work under the most favorable shop conditions.

In the same way ideal class-rooms are desirable, away from the hum and buzz of machinery and tools, where clear thinking may be done with less distraction.

One feels that when the work can be done under ideal conditions, the result of the output in workmen will revolutionize methods and efficiency in the local industrial fields. When it is considered that these boys are being instilled with a high grade of civic pride and spirit, with a love of reading for its own sake, when we know that they have, in class, wrestled with industrial problems as they develop, that they have an intelligent grasp of situations and can look them fairly in the face, what may we not hope for in years to come?

May this not be the very way to attain that idea of Ruskin's of finding sufficient amusement in life's daily tasks, through the pleasure of doing them well? May it not be the answer to that problem the world is now facing, concerning the feverish unrest of the Industrial world? To train useful, self-respecting efficient citizens, prepared for a definite work in life, and sent forth into the world accompanied by a large confidence, well-grounded in the line they are to pursue—is not this the real mission of the educator?



Patterns for Wood Turning Lathe

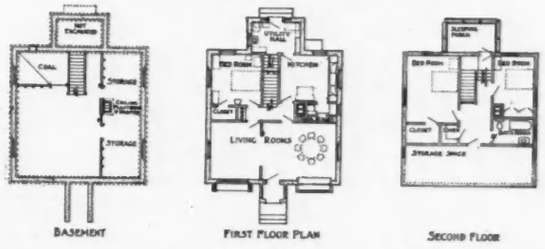
✣

Cement Block Farm House

A splendid farm house can be built of cement blocks and in these days when concrete plays such an important part in farm building, it is only natural to extend its use to the house. The chief value of block construction is that blocks may be made a few at a time, in slack periods. They may be made over a period of months, costing almost nothing in labor this way, and when sufficient blocks are made and cured, the house walls can be built in a very short time.

The excellent farm house shown here could be built under average conditions for $2,000 including heating and plumbing. The rough sketch and plans show that it is in no sense a cheap house, but has good lines and is particularly planned for a farm dwelling. The "utility hall" holds milk cans and the sundry articles that are otherwise brought into the kitchen.

Design for a Cement Block Farm House of Low Cost



BASEMENT FIRST FLOOR PLAN SECOND FLOOR

The cellar entrance is handy. Each bedroom has ample closets and there is a large storage space under the roof.

A full second story could be built with little extra expense, thus utilizing the storage space for another room and giving a full attic above.

The walls are of cement blocks, with an air space. The inner wall surface should be furred and plastered and the outside needs no treatment. Preferably, a plain face block should be used.

The farm house cannot be a duplicate of the city residence as the needs are very different. This plan is simple and suited especially to rural needs. The plumbing takes for granted a pressure supply from an elevated tank or pneumatic system which is not unusual to-day among progressive farmers. The upstairs sleeping porch is just as much appreciated in the country as in the city, where almost every house has one or more.

This house was designed by Mr. A. A. Pollard, architect, of Minneapolis.

MAKING POWER

Jimmie's Combination Machine

Part IV

JIMMIE TRIES OUT AN ENTIRELY NEW WAY TO USE WALL BOARD—ALSO EVOLVES SEVERAL ECONOMIES (WHICH PROBOBLY ARE'NT MUCH GOOD)

By W. D. Graves

THE demands of that chicken house, enforced by Harriet, have been so pressing that I've been near to not seeing Jimmie at all this month. With full intent to build a poultry palace in short order, I rubbed some of the rust off my steel square, fitted up my saws and waded in. It's curious, though, how hand saws seem to act now-a-days; how they pinch, run askew and generally "act up" in ways that they didn't used to. As we get out lumber from farther west, too, it seems to be of more cantankerous fibre—not by any means "wooly," but certainly "wild."

I admit that it doesn't seem quite reasonable to suppose that saws and lumber have very materially "gone to the bad" (Blaysdell says that saws are better and that lumber is much the same except for the higher prices and the availability of a greater variety); but the fact remains that I soon decided that building even a chicken house wholly by hand involved too much bone labor for me.

I felt that it would be money in my pocket to sit on the fence and smoke till such time as Jimmie happened to be passing with his machine, rather than for me to undertake to haggle tamarac plank into stair stringers and rafters with a hand saw. But even the fences are of a piece with other things of this unrestful age, and neither pickets nor barbed wire are inviting to the weary. For the matter of that, though, I could take full as much comfort sitting on a strand of barbed wire as on anything else, around our place, when Harriet wants something done; so I shortly floated around to Jimmie's latest job.

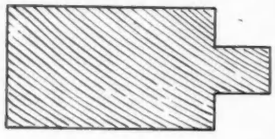


Fig. 1.

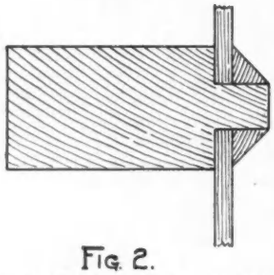


Fig. 2.

Studs Rabbeted Out and Wall Board Held with Triangular Fillets

A Brand New Way of Using Wall Board

This job is for a man who evidently has some ideas of his own and, though the one which he is now working out doesn't strike me as especially brilliant, it is certainly making a lot of work for Jimmie and may have in it something of value to others. As a matter of fact I sometimes think that the value of an idea is inversely as it appears to me; for my most brilliant (?) thoughts usually come to naught, and the things that appear puerile to me are very apt to prove popular and valuable. Other people are *so* contrary! Any way, the question of value is up to you.

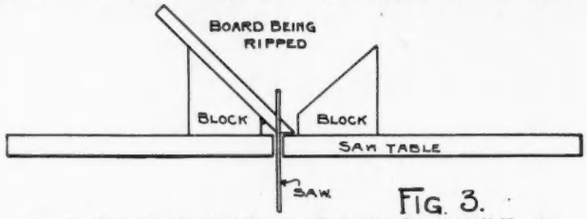


Fig. 3.

Rig for Ripping Out Triangular Strips to Cover Nail Heads

This man's idea is striking in that he has evolved what is, to the best of my knowledge and belief, an entirely novel way of using wall board, and that he wholly eliminates door and window frames and inside standing finish. Whether he will save anything on the cost or not is an open question, but he is certainly getting something different. He has all of his studding rabbeted as shown in Fig. 1—that for the partitions having all four corners cut out—and nails the wall board in these rabbets. The nail heads are covered by a triangular strip as shown in section in Fig. 2. This strip is considerably cheaper than a quarter round, or moulding of any sort, as Jimmie rips it out of half-inch board with almost no waste at all. He puts a jig on his saw blade—similar to that he used in sawing V gutters from plank—so as to tilt his board at an angle of 45 degrees on either side of

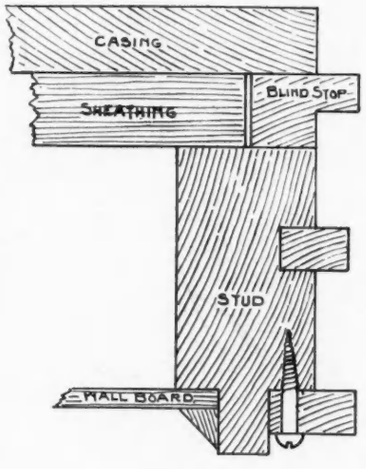
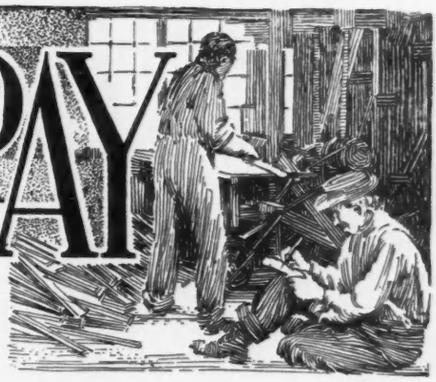


Fig. 4.

Stud Made to Serve as Window Jamb

WOOD WORKERS PAY



the saw, and rips as indicated in Fig. 3. He uses a fine saw and, as the board is S-2-S, he gets the wide side planed and the other two sufficiently smooth so that no other handling is required.

Window frames are avoided by grooving two studs for parting strips, setting the stool directly between these, using a rabbeted blind stop and screwing an inside stop in the rabbet in the stud; all substantially as indicated in the sectional sketch, Fig. 4. Doors are to be hung between the studs and a stop nailed on. No inside casings will be used, though the windows will have stool caps and aprons. I suspect that the ingenious owner is paying Jimmie more extra than the frames would cost (a suspicion about which Jimmie and I are keeping industriously silent) but he may be accomplishing quite a saving. Of course the whole scheme will be authoritatively pronounced impracticable, even impossible; to which I can only reply that it is done, or nearly so; also I well remember father's apologetic manner when he first used inch-and-a-half stuff, instead of 2-inch, for inside door frames—a bold departure which he never would have dared to make except on his own house.

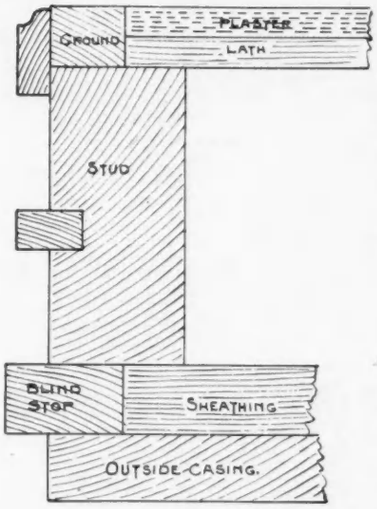


Fig. 5. Section Through Stud Jamb

Whether or no the scheme proves, as a whole, a matter of beauty or economy, practical builders will doubtless be able to find some hint of value in it. Invention is apt to be, like virtue, its own—and only—reward; and those who blaze trails don't ride in automobiles.

Doing Away with Window Jambs

Jimmie says that, on the next job where the specifications will permit, he is going to make the 2 by 4's constitute the window frame jambs as sectionally shown in Fig. 5. By selecting the studs rather carefully, and by using spring sash balances instead of weights, this would doubtless be entirely practicable and would probably make a worth while saving in many localities. Any way, it is by figuring on such stunts as this that one finds ways to trap an occasional stray dollar.

An Economy in Bungalow Cornices

Speaking of Jimmie's economies reminds me that I didn't say quite all that I intended to, last month, about his treatment of bungalow rafters. He uses his buzz planer attachment to smooth the projecting ends, thus using ordinary dimension which is S-1-S-1-E; and he also makes his jet finish a little more economically than some builders do. The outside, or hanging, rafter he rabbets 13/16 by 13/16 inch and cuts that much higher than the others. He then stops his rough roof boarding at the end walls and makes the ceiling which constitutes his plancher a continuation of it, as shown in section in Fig. 6; thus using only one thickness, that of the ceiling, on the projecting parts of the roof. This necessitates some care in driving the shingle nails; but, by driving them at a considerable slope they are kept from coming through and are made to hold as well as though there were two thicknesses of board. In case of need, to make the hanging rafter more secure, he lets an occasional strip of the ceiling run on far enough to nail to another rafter.

But there, Harriet insists that chicken house rafters are the most pressing need with us at present; and, however that may be, it is plainly evident that I will not be allowed to do much in the way of revolutionizing the building trade till I get a roof over the heads of my own chickens.

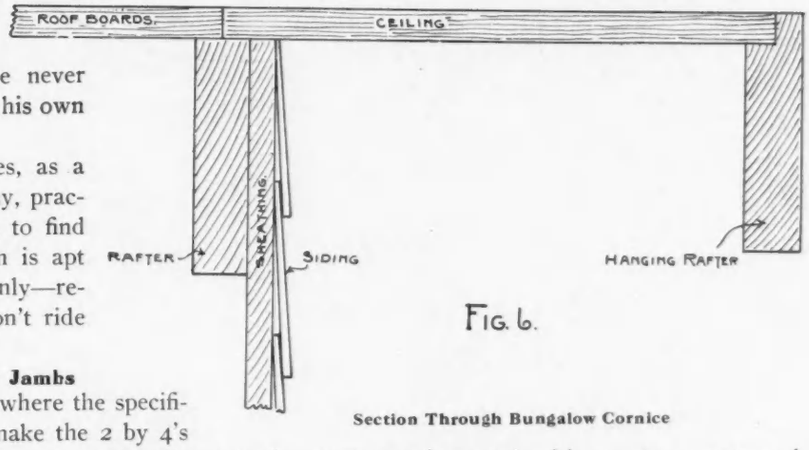


FIG. 6.

Section Through Bungalow Cornice

ADVENTURES IN HEATING

Vapor-Vacuum Heating Systems

THE ADVANTAGES OF THIS TYPE OF HEATING AND HOW IT WORKS

By Cecil F. Herington

"IN all the types and systems of heating we have so far taken up," the Old Builder remarked after he had got comfortably seated in his favorite chair, "it has been a most noticeable fact that they one and all possessed marked defects. The furnace is suitable only for houses in certain locations and of limited size—steam heat is hard to control and graduate—and hot water is subject to circulation ills and is slow to respond to opening and closing of draughts.

"Now there has been recently coming into favor a new scheme known as 'vapor heating' or 'vacuum heating' or 'vacuum-vapor heating.' These names all apply to steam heating which is carried out at a pressure equal to or below that of the atmosphere.

"Practically all these systems which are suitable for residence work are patented and it must be plainly demonstrated that they are materially better than the ordinary steam or hot water system before they will be generally demanded by the home builder or purchaser. My experience has seemed to indicate that it will not be long before the up-to-date purchaser will be demanding these systems and the builder who is not familiar with them does not know his business—at least not *all* of it.

"Let us first see what advantages vacuum or vapor heating possesses over the furnace, steam, and hot water.

"Advantage No. 1 consists of its being a steam system with a small amount of water only and therefore quick to respond to an increase or decrease of fire intensity.

"Advantage No. 2 consists of the fact that in extreme weather it can be run as a plain steam system without the vapor or vacuum characteristics and with pressure up to any desired amount; therefore they can furnish as much heat with as little radiator surface as any steam system in common use.

"Advantage No. 3 consists of the fact that in mild weather by increasing the vacuum it is possible to reduce down the pressure of the steam (and therefore its temperature) until a very low temperature is reached making the temperature control almost equal to hot water.

"Advantage No. 4 is contained in the fact that a graduated supply valve is used which permits as much of the radiator to be heated as desired—an advantage obtainable with no other steam or hot water system—and the supply valves are located at the *top* of the radiator in a most convenient location.

"Advantage No. 5 is that there is

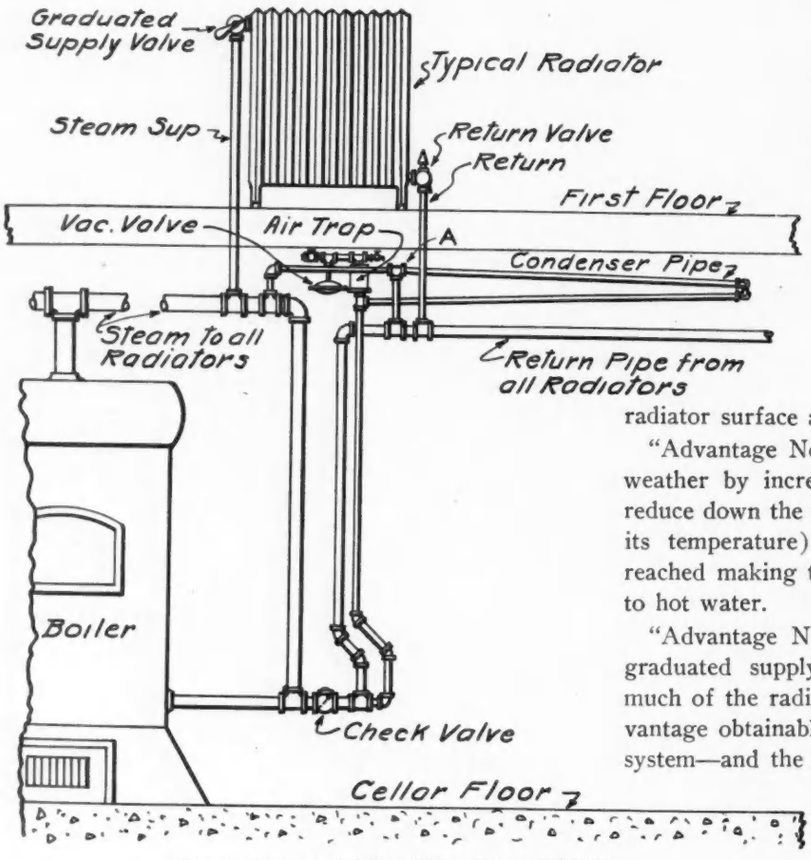


Fig. 1. Layout of Typical Vapor.Vacuum System

no danger of freezing the radiators since they contain little, if any, water.

"But one thing that makes these systems so advantageous is the economy in their use in mild weather. You remember that the economy in the operation of hot water lay in the small fire necessary in mild weather and with vapor and vacuum systems the same small fire answers.

"Why this is so may be better appreciated when we stop to think that as the steam pressure rises so does the temperature and the reverse is also true. That is, as the steam pressure drops so also does the temperature; and water under a vacuum or partial vacuum will boil at a much lower temperature than otherwise; therefore a much lower fire will continue to make steam (even though of lower temperature) if the water is under the influence of a vacuum.

"So all the various systems are simply schemes of producing a steam circulation and on some also the removing the atmospheric pressure; and the simpler the means by which this is accomplished the more desirable the system.

"One of the most simple of the systems in use and an arrangement that is giving excellent satisfaction depends on a little ejector working on the same principle as the water injector of a common steam boiler.

"This ejector draws the air and vapor out of the return line and thus expells all the air from the system quickly filling it with steam. Under these conditions the circulation on starting up is assisted and the air rapidly expelled after which the fire can be allowed to go down, the vacuum increasing as the fire drops, and continuing for an indefinite period until the leakage around the valve stems and at other points spoils the vacuum at which time it is only necessary to repeat the process.

"In Fig. 1 there is shown every bit of apparatus necessary for such a system and it will be seen that the connections at the boiler are a little different than usual. The ejector which is located at the point marked 'A' is shown in detail in Fig. 2.

"A study of Fig. 1 shows that the steam pressure rises in the steam supply pipe when a fire is started and starts the ejector at 'A' working as soon as any pressure at all is present. This ejector draws the air up out of the return line, the combined air and steam blowing into the condensation pipe where all the steam coming through the ejector is condensed into water flowing back into the system through the vertical pipe connected to the bottom of the 'Air Trap.'

"The Air Trap is a device somewhat on the type of gigantic air valve such as is usually installed of ordinary size on the common steam radiator but with a capacity much greater than the combined capacity of all the valves on an ordinary system.

"The air escapes through this trap until it is entirely expelled from the system and the trap prevents the return of any air automatically. As soon as the air is entirely expelled we have a system entirely filled with steam and on shutting down the fire the vacuum action comes into play for as the steam in the radiators condenses a partial vacuum is formed making the boiler supply more steam or 'vapor' at a lower pressure and temperature. This vacuum may be increased by letting

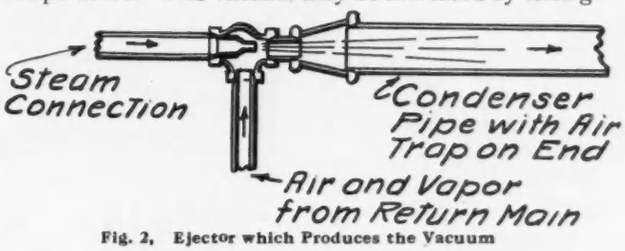


Fig. 2, Ejector which Produces the Vacuum

the fire go down farther or it may be lessened by increasing the fire, the temperature rising and falling with the decrease and increase in the vacuum.

"As far as cost goes even with the patented parts these systems cost no more than hot water; they are just as economical to run as hot water and they respond to changes in the fire draughts even more quickly than the common steam.

"Other methods are in use for producing the required vacuum such as hooking a small pipe into the chimney flue and depending on the chimney draught to pull the vacuum on the system. This method is of course limited in vacuum effect entirely by the chimney and on warm days when the draught is slight and the fire low the vacuum will be of slight extent. This is just the time when the vacuum should be the greatest and therefore I do not regard the chimney with as much favor as the other.

"Besides this, there is always some loss of steam up the chimney and this is a constant loss. Even though of small extent its continuation during a whole heating season leaves grave doubts of the economy of such a loss."

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Forest Notes

The railroads of the United States use about 150,000,000 wooden ties each year.

Cadillac, Mich., is reported to be the foremost city in the country for varied and close utilization of forest products.

More than one-fourth of all the sheep in the eleven states nearest the Pacific coast are grazed on the national forests.

The national forests contain water powers with an aggregate estimated capacity of 12,000,000 horse-power, available for use under permit from the secretary of agriculture.

Much of the piling, wharf material, and lock gates of the Panama canal are made of green heart, said to be the most durable wood known for these purposes, which comes mainly from British Guiana.

Germany is said to have an oversupply of foresters, so that well-educated men have hard work to secure even inferior positions.

Noon Hour Talks by the Boss Carpenter

Talk No. 16—Concrete Foundations

THE BOSS GIVES PRACTICAL WORKING VALUES FOR QUANTITIES ENTERING INTO THE CALCULATIONS FOR CONCRETE FOOTINGS AND FOUNDATIONS FOR RESIDENCES AND SMALL BUILDINGS

"YOU will remember," said the Boss, "that the last time we met I gave you practical working rules for determining the sizes of foundations and footings for use in building construction. Today I am going to give you a few of the common quantities which are used in figuring both the strength of concrete work and the amount of materials needed in any given case.

"In the last talk we considered the method of building a concrete foundation wall and footing where the sides of the wall are vertical and are formed by moving the timber forms upward as the work progressed. Today we will consider two other types of foundation walls.

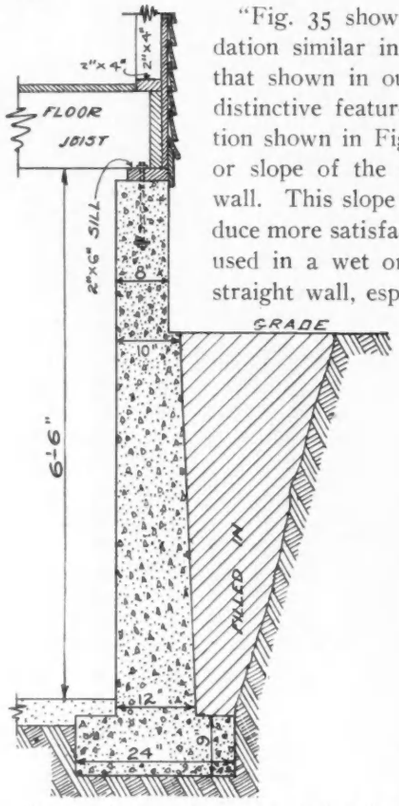


Fig. 35. Concrete Foundation Wall with Sloping Face

"Fig. 35 shows a type of foundation similar in some respects to that shown in our last talk. The distinctive feature of the construction shown in Fig. 35 is the batter or slope of the front face of the wall. This slope is claimed to produce more satisfactory results when used in a wet or clay soil than a straight wall, especially in climates where frost causes the ground to 'heave.' As the ground works up, it leaves the wall, lightening the pressure against it and not producing the pushing tendency found in a vertical face wall. If the soil is dry or not affected by frost, the vertical wall will give good results at less cost. If a finish is desired on a wall above grade, strips of wood may be nailed to the forms to give the effect of cut stone.

"Fig. 36 shows a cheap poured concrete cellar wall for use in stables or light buildings, built upon dry soil and where not affected by frost. This illustration also shows the method of building the forms for a foundation of this type. Attention is called to the bolts placed in the concrete when poured, thus providing a means for firmly holding the plates or sills.

"You will remember," said the Boss, "that we found out last time how to determine the width of cellar wall necessary to sustain the weight imposed upon it by the building and its loads. At that time, the working value of the compressive strength of concrete was given as 400 lbs. per square inch of horizontal section of wall. For the benefit of the contractor who watches his work carefully, the following table of ultimate compressive strengths of various mixtures and ages of rock concrete is given. These should be used with a factor of safety depending upon the importance of the work, its liability to be subjected to impact or shock, the age of the concrete before load is placed upon it, and the care in which the ingredients have been mixed and rammed to place.

STRENGTH OF CONCRETE TO RESIST CRUSHING, IN POUNDS PER SQUARE INCH.

Mixture	At 7 days	At 1 month	At 3 months	At 6 months
1:2:4	1500 lbs.	2500 lbs.	2900 lbs.	3900 lbs.
1:2½:5	1300 lbs.	2250 lbs.	2700 lbs.	3400 lbs.
1:3:6	1200 lbs.	2000 lbs.	2500 lbs.	3100 lbs.
1:4:8	1000 lbs.	1700 lbs.	2000 lbs.	2500 lbs.

"For cinder concrete, although the use of same is not advised in foundations or in any place where any considerable weight is liable to be resisted, the following table is given for the sake of comparison.

STRENGTH OF CINDER CONCRETE TO RESIST CRUSHING, IN POUNDS PER SQUARE INCH.

Mixture	At 1 month	At 3 months
1:1:3	1500 lbs.	2000 lbs.
1:2:4	900 lbs.	1300 lbs.
1:2:5	800 lbs.	1000 lbs.

"While the values in the above tables are given as ultimate strengths of the materials, various authorities claim that a working stress of not over 500 pounds per square inch should be allowed in ordinary practice when using stone concrete, and if shocks are to be resisted, not over 250 pounds per square inch. For cinder concrete, working values from 100 to 400 pounds per square inch may be used, depending upon the age, nature and quality of the mixture.

"In determining the total weight upon the bottom layers of concrete in a wall or pier, the weight of the wall or pier itself must be added in as well as the weight resting upon the top of the structure. In connection with this matter, a few common weights of concrete are given.

WEIGHTS OF CONCRETE.

Cinder concrete	110 lbs. cu. ft.
Sandstone concrete	140 lbs. cu. ft.
Limestone concrete	148 lbs. cu. ft.
Conglomerate concrete	150 lbs. cu. ft.
Gravel concrete	150 lbs. cu. ft.
Trap concrete	155 lbs. cu. ft.

"For a value to be used in general calculations, 150 pounds per cubic foot for stone or gravel concrete will give satisfactory results. It is claimed that the addition of steel for reinforcing purposes adds but an average value of 4 pounds per cubic foot of concrete reinforced when used in the ordinary proportions.

"If care has been taken to figure for a thickness of wall necessary to sustain all loads and not exceed the working crushing strength of the concrete which has been decided upon, the result may show that only a very thin wall is needed. Practical design and conditions may enter in at this point. For instance, it is more difficult to place concrete in narrow forms and ram it sufficiently than in wide ones, also more expensive not only in raming, but in placing. Another point to be considered is that it has been found by experience that a 4-inch wall of ordinary concrete is likely to be penetrated by moisture during heavy rains. Kidder and others recommend that for cellars and foundations, nothing less than 8 inches in thickness be used, except for very small buildings. Interior walls which support weight should be at least 6 inches thick, while partitions which support no weight may be as thin as 3 inches.

"It may be of service if we consider at this place a table giving the general proportions of mixtures of stone concrete commonly used for different types of work, as we may have occasion to refer to it in later talks. Taylor and Thompson in their work on 'Concrete, Plain and Reinforced,' recommend the following:

"'A rich mixture for columns and other structural parts subjected to high stresses or requiring exceptional water-tightness: Proportions 1:1½:3, that is, one barrel (4 bags) packed Portland cement, to 1½ barrels (5.7 cubic feet) loose sand, to 3 barrels (11.4 cubic feet) loose gravel or broken stone.

"'A standard mixture for reinforced floors, beams and columns, for arches, for reinforced engine or machine foundations subject to vibrations, for tanks, sewers, conduits, and other water-tight work: Proportions 1:2:4, that is, one barrel (4 bags) packed Portland cement, to 2 barrels (7.6 cubic feet) loose sand, to 4 barrels (15.2 cubic feet) loose gravel or broken stone.

"'A medium mixture for ordinary machine foundations, retaining walls, abutments, piers, thin foundation walls, building walls, ordinary floors, sidewalks, and sewers with heavy walls: Proportions 1:2½:5, that is, one barrel (4 bags) packed Portland cement, to 2½ barrels (9.5 cubic feet) loose sand, to 5 barrels (19 cubic feet) loose gravel or broken stone.

"'A lean mixture for unimportant work in masses, for heavy walls, for large foundations supporting a stationary load, and for backing for stone masonry: Proportions 1:3:6, that is, one barrel (4 bags) packed Portland cement, to 3 barrels (11.4 cubic feet) loose sand, to 6 barrels (22.8 cubic feet) loose gravel or broken stone.

"'The above specifications are based upon fair average practice. If the aggregate is carefully graded and the proportions are scientifically fixed, smaller proportions of cement may be used for each class of work.'

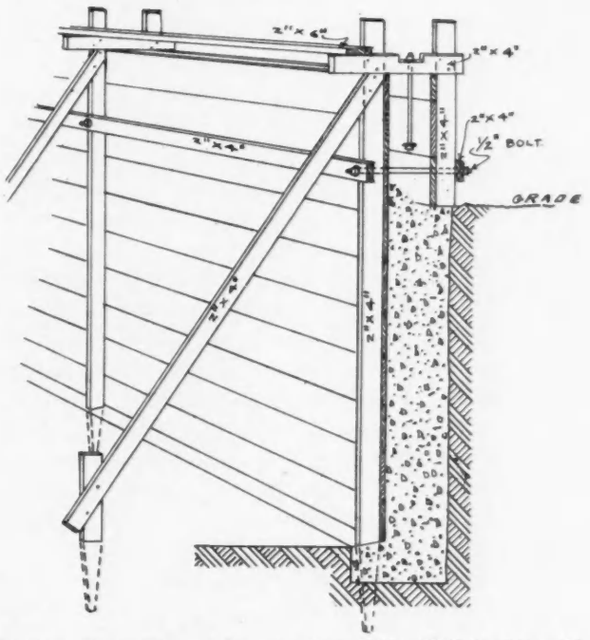


Fig. 36. Cheap Type of Concrete Foundation Wall for Use with Light Building

"As a guide in determining the quantities of the various ingredients needed to make up concrete of the mixtures named above, the following table may be used:

QUANTITIES OF CEMENT, SAND, AND AGGREGATE TO MAKE ONE CUBIC YARD, USING STANDARD MIXES.

Proportions	Cement Barrels	Sand Cubic Yards	Stone or Gravel Cubic Yards
1:1½:3	1.85	.42	.84
1:2:4	1.46	.44	.89
1:2½:5	1.19	.46	.91
1:3:6	1.01	.46	.92
1:4:8	.77	.47	.93

"The above figures are based upon the amount of materials needed for one cubic yard of the concrete desired. For the foundations which we have already described, we would use either a 1:2:4 or a 1:2½:5 mixture as given above. The 1:2:4 mixture would be

used where water-tight work was needed. From the table above, we find that the materials needed per cubic yard of concrete after the volume of concrete to be placed was determined, would be as follows for a 1:2½:5 mixture: Portland cement, 1.19 barrels, weighing about 376 lbs. net, each, this being equivalent to 4 bags per barrel, and as 'packed,' not loose; .46 times 27 cubic feet, the number of cubic feet in one cubic yard, or 12.4 cubic feet of loose sand, an equivalent of 3.25 cement barrels full; and .91 times 27 cubic feet, or 24.5 cubic feet of loose stone, an equivalent of about 6.5 cement barrels of 3.8 cubic feet each.

"As to the size and quality of the ingredients used to make up the above, it is needless to say that a Portland cement should be used together with a good clean, sharp, and not too fine sand, which is free from loam or foreign matter, for the mortar or binder which shall hold the stone together. For very coarse or massive work, the crushed stone may be in pieces as large as 2½ inches in diameter, but the more common sizes for ordinary foundations are from ¾-inch to 1¼-inch in largest diametrical dimension. Different cities demand different sizes in their local building laws. San Francisco allows a 2-inch stone for foundations, but only a 1-inch stone as a maximum for floors, etc. New York, Chicago and St. Louis require that ¾-inch shall be the size for ordinary work, while Cleveland provides for a 2-inch stone for foundations, but allows a ¾-inch stone as a maximum for floors, etc.

"Individual piers or short columns used for supporting girders or other weights at different points in a cellar are designed to safely bear the load which comes upon them. If their length in inches does not exceed from 8 to 10 times their least dimension of cross-section in inches, they may be figured simply as a block set up on end, but for greater ratios of length to least dimension, they must be reinforced and figured for bending stresses. The load in all cases to be applied to the exact center of the pier, and pier to rest upon a firm and secure footing. Tests on full size plain concrete columns have shown that a 12-inch square column 8 feet long, made up of 1:2:4 concrete, the stone consisting of ½- to 1½-inch trap, column 6 months old, had an ultimate or breaking strength of about 2000 pounds per square inch of cross section. A test on a 12-inch diameter 1:3:6 plain concrete column of the same length and of same kind of crushed stone, but only 5 months old, showed a strength of about 1450 pounds per square inch.

"From these tests, and from the table of strengths given previously, we would consider that we could safely count on a working crushing strength of 500 pounds per square inch for quiet loads, using a factor of safety of 4 for a 1:2½:5 concrete in a 10-inch or 12-inch pier under a girder. For a cellar 6 feet and 6 inches from pier footing to bottom of girder, it would be hardly safe to use a less dimension, for reasons stated above. At this rate a 12-inch square plain concrete column of the above mixture would support a central pier load of

$12 \times 12 \times 500$ equals 72,000 pounds

with a factor of 4.

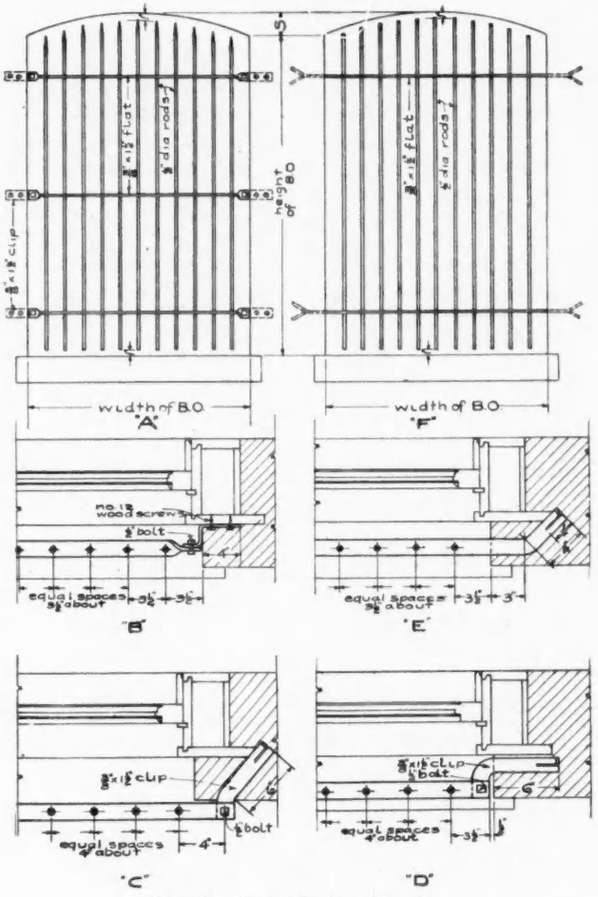
"The footing for a simple pier of this sort should be designed in a manner similar to that given for wall footings.

"Where soils are soft or loads are heavy, plain concrete may not be able to withstand the bending stresses produced in footings which have been designed of sufficient area, or projection out from the wall or pier, to allow the safe pressure of the soil on their bottom surfaces to balance the downward weight. Such footings require the introduction of material in the concrete which shall provide the property of tensile strength in bending which the concrete itself lacks."

Window Guards on Brick Buildings

By John S. Edmund

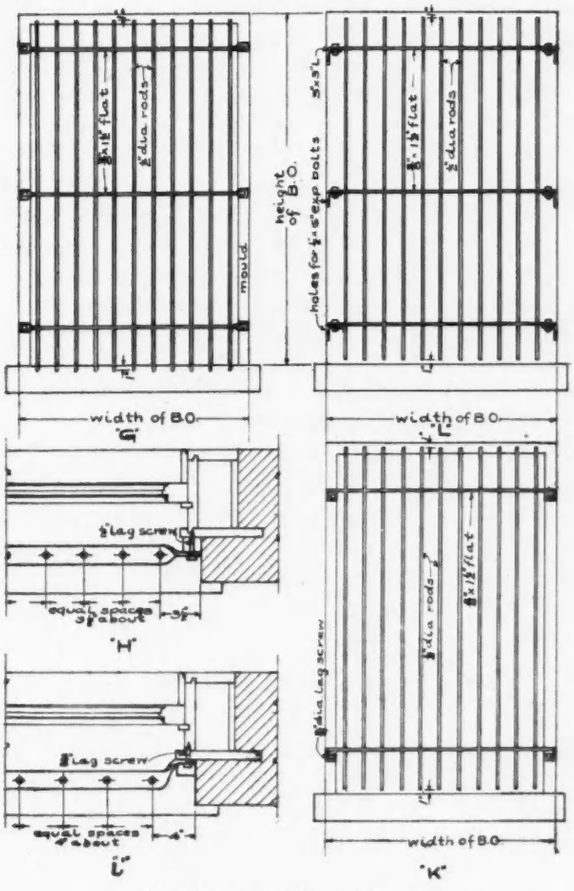
Iron guards are used to strengthen the windows in buildings to prevent robbery, and to keep the glass in the sash from being broken from the exterior. The guards are of two kinds: those made of rods and flats and the other the wire screened guards. The first are made of rods ½ inch in diameter and flats ⅜ inch thick by 1½ inches wide for windows up to 4



Details of Iron Window Guards

feet wide by 7 feet high. For larger windows than this the rods should be increased to ⅝ inch diameter and the flats to ½ inch thick to 2 inches wide. The spacing of the rods should be either 3½ or 4 inches on centers. The correct spacing of the rods in fractions of an inch, however, are determined by the brick opening. The rods could be square if desired. The tops can be made with pointed or blunt ends. The ends of the cross pieces or flats are usually cut and one-half bent up and the other half down. The bent ends strengthen the hold in the brickwork and they cannot be pulled out as easily as those where the ends are left straight.

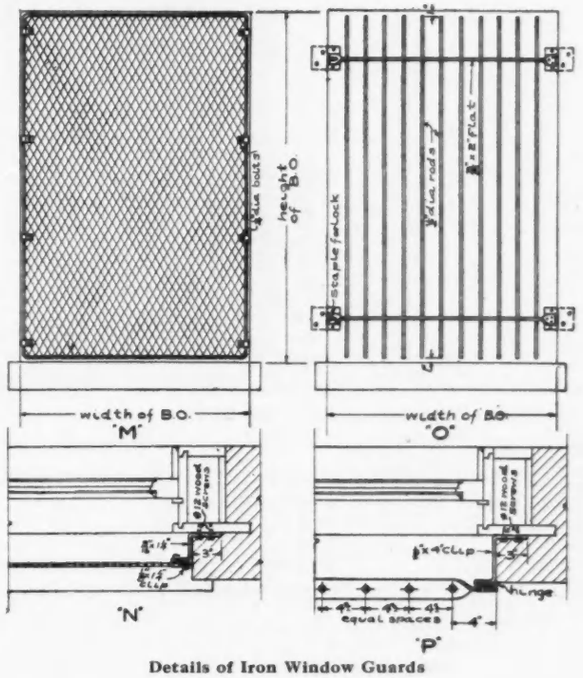
Sections B, C and D show the window guards fastened to clips that are built in the brickwork. These clips are built in the brickwork at the time the wall is



Details of Iron Window Guards

run up. This is a very common method for securing the window guards to the wall, especially when the work is being rushed and cannot be held up waiting for the guards themselves. These clips are very cheap and quickly made. The ends of the bolts should be riveted to prevent the nut from being unscrewed. Illustration A is the elevation of how the winodw guard shown in section B would look when on the building. The elevations for C and D are somewhat similar.

Section E is the method for building the guard in the brickwork. Illustration F is the elevation of this guard. This is the most common way for making this



Details of Iron Window Guards

particular guard, and it is to be preferred over the former ones, if the brickwork can be held up till the guards reach the building.

Sections H, J, K and L are designs for securing the guards to the building when they are not installed at the time of the erection of the same. In figures H and J the flat is twisted and fastened to the window frame mould with lag screws. Elevation K, the flat is turned down against the mould and then screwed with a 3-inch diameter lag screw. Elevation L shows a 3 by 3 inch clip first fastened to the brickwork with a ½-inch diameter by 6 inches long expansion bolt. The flats are then bolted to the clips.

Illustrations M and N are for a screened guard of No. 24 gauge galvanized iron wire. A small clip, ⅛ inch by 1¼ inches wide, is fastened to the screen frame which is a ⅜-inch diameter rod. This clip is bolted to the window guard clip which is screwed to the window frame. This is a very neat and substantial way for making this kind of a guard.

Illustrations O and P shows a hinged window guard. This style is used on windows where it is necessary to open the window to carry machinery, bundles, etc., through. A hinge, one leg of which is 2 inches long is riveted to the flat and the other leg which is 4 inches long is bolted to the ½ by 4 inch clip with countersunk head bolts.—Paterson, N. J.

✣

Army bayonets now form part of the emergency telephone outfit of forest rangers, used chiefly in fighting fires. This emergency line consists of small instruments and a coil of fine coper wire. The wire is attached to the nearest telephone line, the bayonet is thrust into moist ground at the other end, and with the circuit thus completed the ranger can talk with headquarters, report his position, and summon fire fighters if necessary.

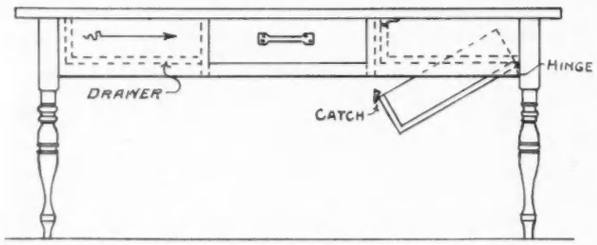
More Shop Kinks

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

By Wm. C. Jasbury

NOW that the heat of 1913 has worn off, I shall try to send in a few sketches of mill products with the necessary amount of explanation to atone for my poor draftsmanship. The only place where I shine at drawing is wages, but if my pencil keep faithful, I will try to describe and illustrate an unique table I once built for a man who had two pronounced features—money and whims. The latter being more easily acquired, it predominated in his assets.

TABLE WITH SECRET COMPARTMENTS. The article I intend to rave about, is a table. The arrangement of the drawers and secret pockets, etc., would baffle the renowned Raffles to desperation, or at least that is the kind of stuff the designer kept oozing out of his talk tank. The height was 2 feet 6



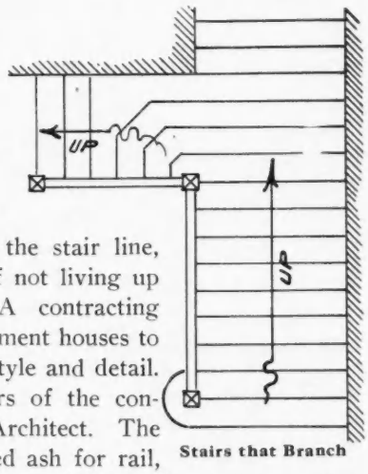
The Two Side Drawers are Hidden

inches, width 3 feet, and length 6 feet. The drawer was of the ordinary slide kind, but behind it, inside of the opposite rail, was one of these pockets. To the right of the drawer was a hinged compartment, or drawer, that let down. When put up in position, this was held there by a catch, which was hidden behind the apron. On the left of the drawer, was another sliding drawer that went in through the main drawer slide, parallel with the table's length. This could not be moved unless the main drawer was taken entirely out, then this drawer had to be taken entirely out to put anything in it. When all was closed, the only drawer visible to a casual observer, was the one in front,—the one that looked reasonable and harmless.

The man seemed to be pleased with this piece of furniture and I was pleased to get it done also, because one is apt to catch this "inventiveitis" these days; but there is no danger of my ever building one of these things for my own use. One of the reasons is, I have nothing to hide.

SOME STAIRS. In laying out housed stair strings the housing for the floor nosing should be left unhoused until the strings are actually on the job, because eight cases out of ten, the carpenter who put up the rough horses has not made the correct allowance for the floor, or floors, in relation to the top tread. This may seem to some of the stair men, very easy to get over; however, it will happen. This case is particularly so in carpenters roughing up the stair before the stair man gets to it.

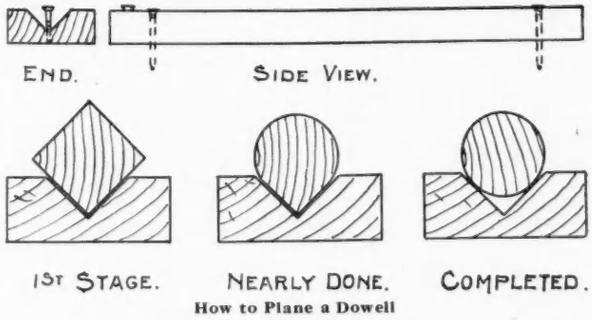
Speaking about stairs. I saw a couple of carpenters put up a flight of stairs in a factory. The regular run was from the front hall to the second floor; but a messanine or intermediate floor was put in, for a foreman's room, etc. So they branched a short flight out from the main flight, sort of grated it on, as it were. Here is a sketch of this stair.



Stairs that Branch

Continuing along the stair line, I know of a case of not living up to specifications. A contracting firm had seven apartment houses to build, all the same style and detail. One of the members of the concern offended Mr. Architect. The building concern used ash for rail, balusters and strings, where oak was specified. When the seven buildings were completed, Mr. Architect and Owner made Mr. Contracting Company tear out and put in all oak according to the specifications. The loss was about all their profit on the houses. That case proved that the builder has to keep to the specifications and not insult the Architect. Such is life in the building business.

A SCHEME FOR MAKING DOWELS. I saw a pattern maker making some ½-inch dowels a few days ago, out of square strips ½ by ½ inch, 10 inches long. He had a trough to lay them in and a screw in each end to act as a stop. The idea was a good one,



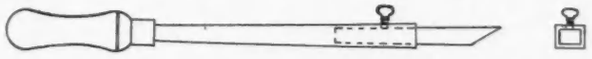
How to Plane a Dowell

because he was making them all right. Here is a water color sketch of it (minus the water and color).

MULTUM IN PARVO. Some years ago I was a traveling turner. I had worked in a few different shops where I had answered ads, but it seemed to me then the jobs a fellow would get out of newspaper ads all had something the matter with them, —too small revenue, too long hours, or too much foreman. As I was knocking around New York and Jersey City, I found that the less number of tools I carried, the better I could get around,—going into booze emporiums to hit the free lunch, if the numbers of turning tools under my arm was

small, I could make a better get-away when my appetite was fully realized by the man behind the bar.

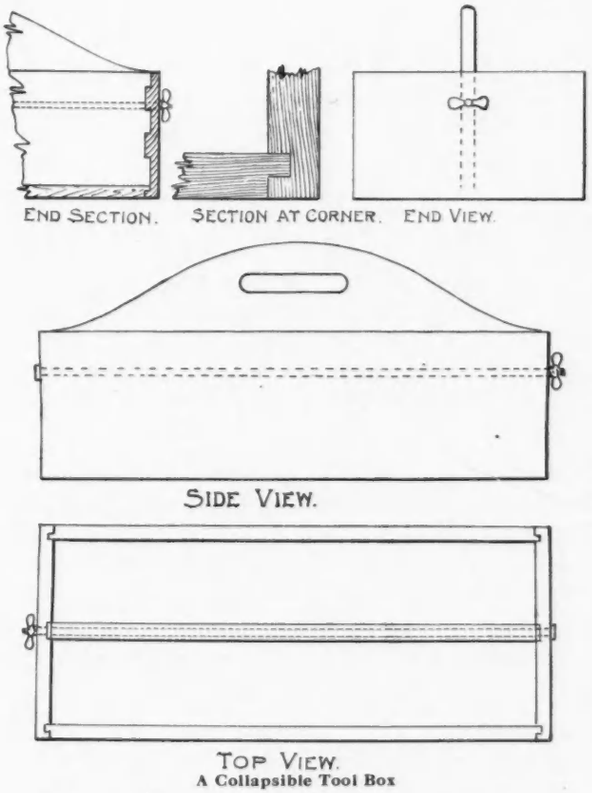
So I had my brother, who is a mill machinist, make me a combination handle, that I could fit in various sizes of parting tools, screw drivers, bead-



Wood Handle with Steel Socket for Holding Many Turning Tools —Measures 12" Over All, ½" Square at End

ers, etc. For that made it so I could carry many more sharp ends but only one handle. I had it nickel plated in a shop near where I was working and, being a turner, I made and polished a handle. This made a nice looking tool and a mighty handy one. I have it yet, although I do very little turning now, except over in bed and turning grey.

COLLAPSIBLE TOOL BOX. I saw an English carpenter who had made himself a collapsible tool box for carrying on the shoulder, one that he could carry in his chest when tripping, as he called it. The illustration will give a fair idea of how it was constructed.

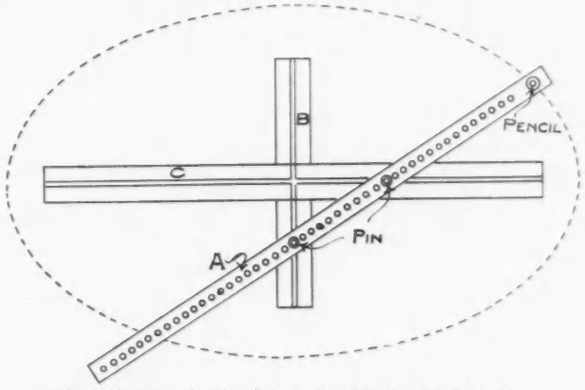


A Collapsible Tool Box

SOME OF THE BOYS WENT WRONG. I once worked with a glazier who was sent over the road for pulling off a job. He gained entrance to a house by taking a handful of soft putty, which he shoved against a glass until it adhered thereto, then holding the left hand to the putty, he cut a circle with the diamond with the other. He then gave the putty a quick circular jerk and out came the glass, then thrusting one hand through the opening, threw back the bolt; entered, robbed, jailed.

I also knew another fellow, a carpenter, who bored a three inch opening through a door panel; he also entered, robbed, jailed.

AN ELLIPSOGRAPH. I once worked in a shop where the draughtsman made a rough sketch of an ellipsograph, an apparatus for striking out ellipses. I made the thing and will endeavor to describe it,—here goes. This budlysock is made of two cross pieces of mahogany halved in the middle; each had a slot plowed from end to end, as shown in the illustration. There is a third piece ⅜ by 1½ by 3



The Ellipsograph—An Interesting Tool to Make and a Handy One to Have

in. in which I bored ¼-in holes on ½-in. centers, its entire length. In two of these holes we put hard wood pins to slide in the aforesaid slot and through the holes according to the size of ellipse wanted. At one end of this stick we bored a 1-in. hole and put in this a disk 1-in. in diameter and ⅝-in. thick, fitted in so that it revolved freely, and in this disk another hole was bored to hold an ordinary pencil. When laid on a paper, the trammel (A) would be slid up and down the slots in the arms (C and B), same as you would lay out an ordinary ellipse with nails in a stick, but the wood pins are adjustable so that any ellipse within range of this instrument can be laid out. The thing is still in use and making good.

A HAIR PIN STUNT. When it comes to doping out ways and means to keep everything in the furniture line around the house appearing good, you certainly have to hand it to a woman. I had a mahogany rocker with a cane seat to repair sometime back. The side rail to which the loops of cane were fastened had split down through the center line of holes. Some ingenious (house) foreman had slipped hair pins through the loops, one through each loop crosswise the rail. This had taken 26 pins and some patience and ingenuity. The cabinet maker who glued up the frame pieces, threw the hair pins on the shop floor; they created more wonderment than an Eskimo photographed under a date palm tree.

A Timely Crack at Bum Work

A CLOSE OBSERVER SPEAKS RIGHT OUT IN MEETING ABOUT SOME THINGS HE SEES BEING DONE

By C. Bryant Schaefer

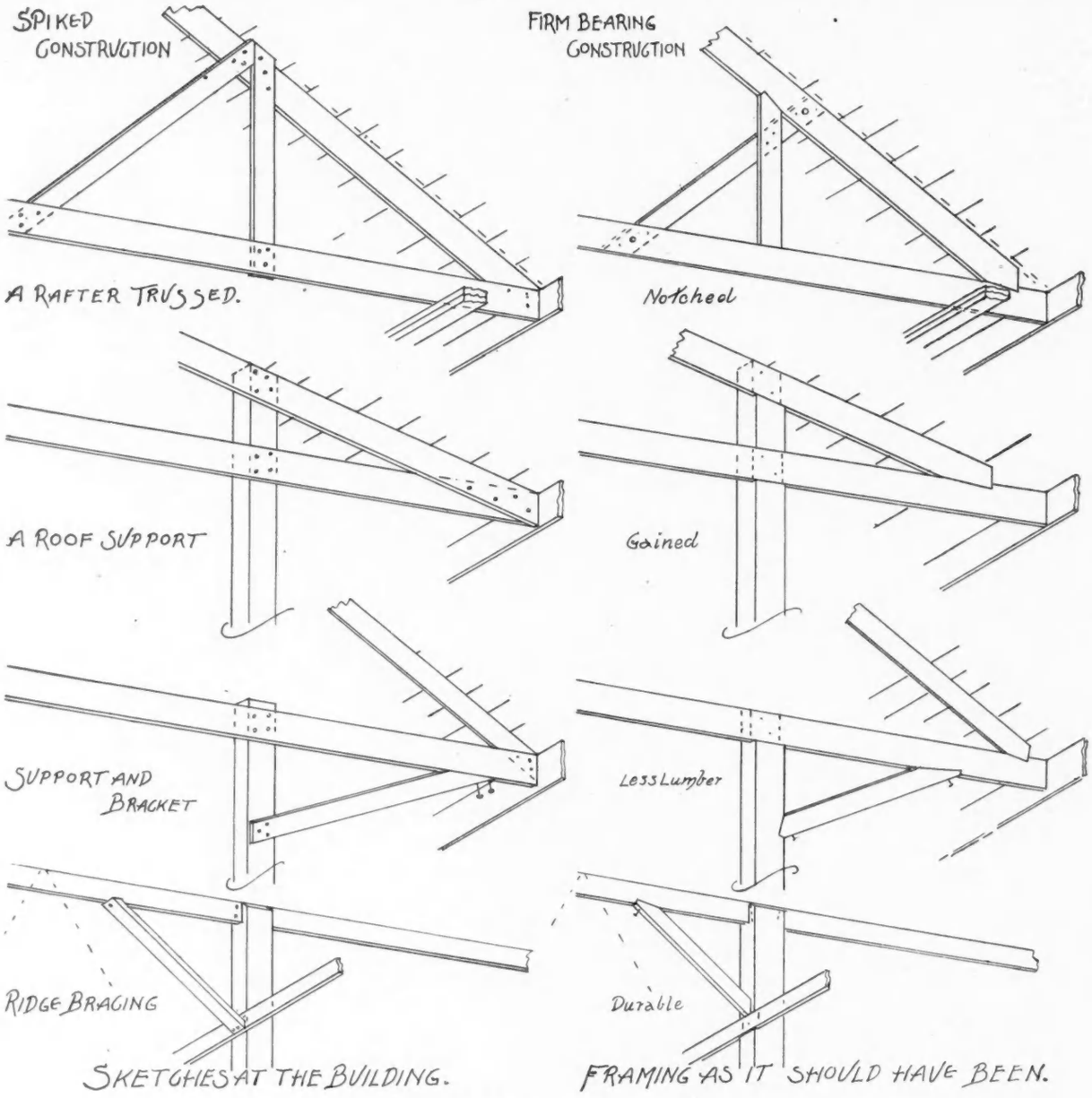
THE kind of building work represented in these sketches hardly holds itself up. But for the fact that these illustrations were made from the actual buildings one would not believe that such a way of piecing lumber together was creeping into carpentry work.

As the use of these buildings is of a semi-public nature, their criticism is especially justifiable. That such shaky kind of work is conspicuous in a state requiring architectural supervision would not by any means be expected.

Work like this, intended to shelter many people in storm and strain is dangerous as well as unserviceable. That people, with laws for their protection in just such cases, are put to the expense of politics. legislation and sham enforcement without any return for their safety, is an example of one of the heavy items that increases the cost of living.

Carpentry Work Gradually Committing Suicide

Why skilled carpenters, with the law in their favor. allow any irresponsible man with a hammer to drive them out of employment is inconceivable. There are also manufacturers of good tools who ought to protect their business by discouraging such work. When a man asserts himself for the sincere benefit of other



At the Left is How Schaefer Found the Work Being Done; at the Right the Better Way is Shown

people he should not be deterred by a hue and cry that he may be benefiting himself. A good move is an all around benefit. We have no more right to expect others to benefit us at their loss than we have to allow shysters to profit at other people's expense and suffering.

Another thing to be remarked about this dry goods box construction is that it belongs to the income class of work. It is put up for investment. There are people who have capital and they, unfortunately, think they can secure an income on their money without having to give any personal supervision to its employment. That is where they begin to speculate and lose. The investors in this kind of building work will soon have assessments coming in to replace it. Their families, whose futures they think they have provided for, should, instead, be prepared to turn out and hustle. If stockholders did their duty they would earn their dividends and be a co-operating benefit to the rest of society.

The main responsibility rests upon the man on the spot.

In this case the men who did the work have used wire nails to make it stand up. Look at the rafter truss. Any laborer knows the nails will draw out with hardly any strain; but under intermittent winds, the vibration of machinery or cars the nails will begin to draw out. Wire nails are especially weak because they have no seat or holding surface. They work around and out.

In the roof support it is inexcusable that the rafter was not placed firmly on top of the post. The mistake is systematically continued, as may be seen where a bracket is introduced. The nails will hardly keep this stick of wood in place.

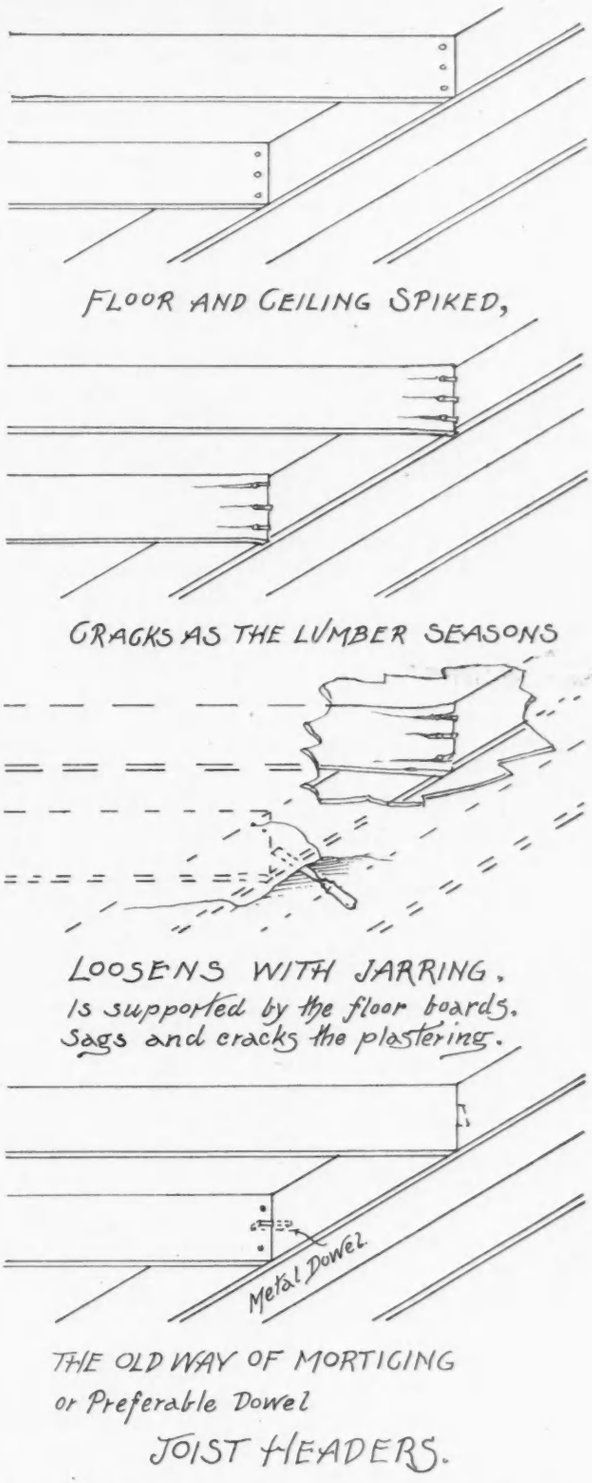
In the ridge bracing these pieces of scantling actually look ridiculous. This brace almost wabbles in the sketch.

There is an evident effort to make this kind of work look snug. It would not take any more time to make the job strong. A little material would also be saved. There is also some thought expended in arranging the construction, but there is no foresight evident as to the operation of the arrangements.

Whether schools turn out men who, in making working drawings, cannot comprehend the push and pull and hold of construction, may be uncertain. It is the fault of examinations and civil service requirements that the person who may be able to glibly roll off all the formulas may nevertheless be deficient in applying them. Instead of being a help in securing good workmen, clerical examinations are often a hindrance to the spontaneous insight of the practical man.

In the corresponding sketches is shown how this work should have been made firm and serviceable. It may not be the only way of doing it. Some of the short pieces might even be omitted as unnecessary.

It is the simplest feature in workmanlike construc-



What Happens to Spiked Joists; Doweling Recommended

tion to make a notch to secure a structural bearing. To gain out the lumber where there are many similar pieces required is very easy. To add stick after stick to brace up for lack of proper framing only increases the expense.

A man should not be discouraged if doing good work is slow at first. Ease and saving of time come with practice. That is the skill of it.

Long joists are often made to depend on nails for support, as we found in this case. Such work seems firm at first, and heedless persons may think it secure, because they do not take into consideration that the wood seasons, cracks and checks out with time. Then it is unfit to stand any strain whatever.

Diagonal nailing always frays out. No one knows why it should be resorted to. Such work is responsible for the building slums which are the curse of most cities. It is the ruination of the occupants as well as the investors. We are saddled with corrective systems because the man on the job does not do conscientious or reliable work. It increases the cost of his living. Sometimes a mechanic will go out on the street to drive away the most unsuspecting person who happens to stop and eye his work.

There are many inventions put on the market to relieve the careless workman. Like careless people, they die an early death, for a loose workman is the last person to lend a hand, even in his own interest.

It is not a pleasant task to criticize. It is not agreeable for a good workman to see his trade misused. Perhaps it would be encouraging to those who know the value of thoroughly learning their trade to point out that there are honorable duties in which they should interest themselves when they are no longer at the bench or in the office. Persons of good and practical judgment are needed to encourage more self-assertion among worthy craftsmen.

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First Forest Product Show to be Big Event

THE lumbermen and others interested in the utilization of wood are laying big plans for a great educational exposition to be held next spring, first in the Chicago Coliseum, and then in the New York Grand Central Palace.

It is expected that this show will be one of the most interesting both from a popular aspect and also from the more technical side of any of the business shows staged during recent years in these two famous exhibition buildings. There will be exhibitions of lumber and other forest products through the whole range of production, from the original state in the forests to

This is the Official Symbol of the Forest Products Show

the finished products. The process of manufacture will be demonstrated and the multitudinous uses of forest products will be brought forward in a new way. Decorative, constructional, and useful adaptations of these materials will be shown.

Exhibitions will comprise wood in its native state, reproductions of logging camps and timber areas, wood products of all descriptions, forest service demonstrations, processes of wood treatment, woodworking machinery, architectural and structural uses, etc.

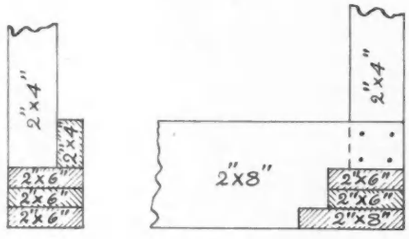
Probably every reader of the AMERICAN CARPENTER AND BUILDER is concerned in some way with forest products. Carpenters, contractors, woodworking machinery men, architects, owners of buildings are all concerned with timber and its uses. All will gain instruction and enjoyment at this First Annual Forest Products Exhibition.

Framing Sills and Joists

BUILT UP TIMBERS THAT ARE JUST AS STRONG AND SAVE WORK

By I. P. Hicks

THE following illustrations show a method of framing sills for the ordinary residence. It is customary in many localities to use a 6 by 6 for a sill and gain in the floor joists; but I think a better result is obtained by using timbers as marked in the sketches spiked together. By using a 2 by 8 and two 2 by 6's spiked together for the sills where the joists have their bearing, the joists can be broken



Two Methods of Framing a Sill

so that the sill that is formed of the three pieces is as good as if it were a solid piece from end to end.

In building in this way there is no trouble to get a straight sill. The 2 by 8 for the bottom piece makes a good bearing for the joists as will be seen by referring to the sketch. The joists are notched out so that they rest on top of the sills, thus getting full strength of the sills and joists with the least amount of framing.

The end sills can be framed all of 2 by 6's with a 2 by 4 placed on top to receive the flooring as shown in the sketch. This method of framing is quick and will produce as good a job as the solid sill. In keeping a frame straight and the splices strong, it is ahead of the old solid sill system with gains, halves, mortices and tenons, as the case may be. In the matter of lumber, the cost is just about the same; it is in the saving of time where the most advantage is.

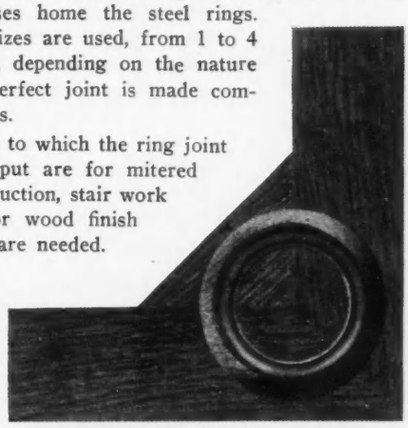
The Editors Drawer

New things worth while

The Evans Ring Joint

Did you ever see a joint in wood that *cannot come apart?* It is here. And there are so many applications of it, so many ways in which it can be used, that there is hardly any branch of the woodworking industry that will not be affected by this new invention.

There is an automatic woodworking machine that cuts the grooves and presses home the steel rings. Rings of various sizes are used, from 1 to 4 inches in diameter, depending on the nature of the joint. A perfect joint is made complete in ten seconds.



Steel Ring Pressed into Groove Makes Tight Joint

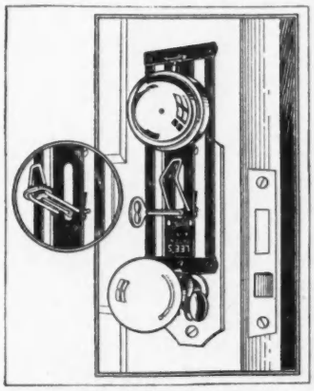
Some of the uses to which the ring joint are already being put are for mitered casings, door construction, stair work and for all interior wood finish where tight joints are needed. Also for table tops, drain boards, newel post caps, closet seats, refrigerators, furniture, screen doors, window screens, etc.

The illustration shows a corner joint stiffened with a brace, the three members being tightly and permanently held together with the steel ring. This is a great joint for screen doors and windows, and for gates and frames that require great strength.

For work that is to be erected on the job there is a small ring joint press to put on the rings, the grooves having already been milled out at the factory.

Door Knob Burglar Alarm

A new burglar alarm device which can be attached to any door is being offered. A thumb screw fastens the alarm firmly about the knob shank and the device is so arranged that when the knob is turned a good loud-voiced bell is rung. It is a small and compact device, 2½ by 7 inches, weighs 8 ounces, hence will appeal to travelers. It can be used on any door and is applied without use of any tools.

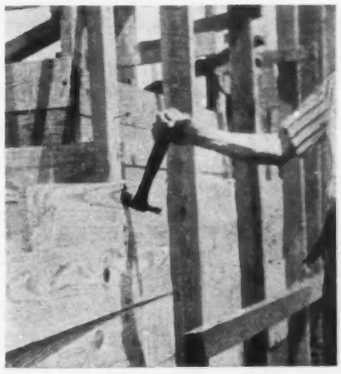


Door Knob Burglar Alarm and Key Lock

An extra security feature in connection with this bell ringer is the fastener which prevents the door key from being turned in the lock from the outside.

A False Work Nail

As a direct result of so much form building for concrete there has been brought out a new idea in a nail that is convenient for braces and all other false work as well as putting up forms for concrete. This new thing is a wire nail with an extra head. It is a nail that is always ready and easy to pull with a claw hammer and yet it draws the work down as firmly as a nail driven clear up to the head. This is because there is a second head or washer on the nail that is driven up firmly to the work, leaving the original head and about three-eighths of the nail body extending convenient for hooking on with the claw hammer to pull out. The one seen and illustrated in the accompanying photograph is a regular eight-penny nail with a heavy body at the head end carrying a shoulder about three-eighths of an inch down.



Double Headed Nails are Easy to Pull

This nail was evidently invented especially to meet the needs of the trade in putting up false work for concrete as this is where it is found in most extensive use. It makes it easy to take down the false work and draw out the nails without that wasteful splitting of lumber which results where the work has to be driven apart with a hammer. There is enough in the way of convenience and labor-saving qualities about it that every carpenter should find it worth while to have a supply of them on hand.

New Storm Sash and Screen Hangers

Every fall when it comes time to take down the window screens and put up the storm sash we get black in the face at the nuisance of it. Ours are on hinges that go on with wood screws. Much screwing and unscrewing has broken down the wood and we have a deuce of a time with it generally.

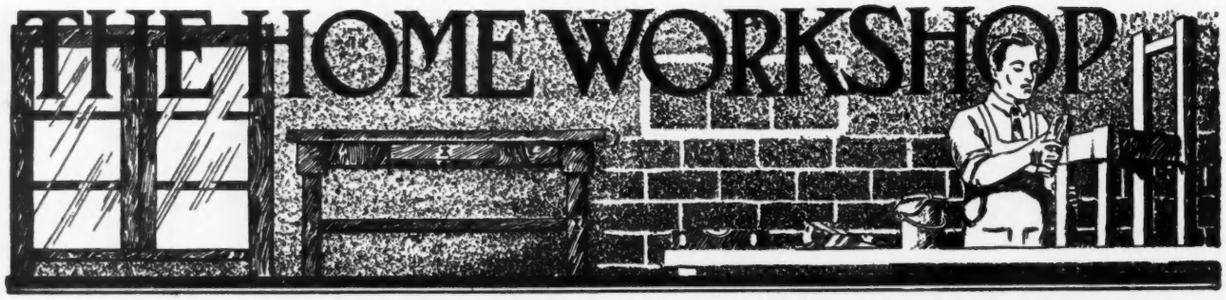
Every fall we wonder why we have to unscrew one set of hardware for the screens and then fasten up another set for the storm sash.

Other home owners must feel the same way. It has been and is a national aggravation.

But now (as the poet says), comes the dawn of a new day. We have just been examining a new hanger that does for both screens and storm sash. Once you get these fixtures properly in place, anyone can hang the screens or storm sash from inside the windows. Think of not having to scurry out and borrow a long ladder!

Good for Screens and Sash

Carpenters who are public spirited will bring these 2 in 1 hangers to the notice of their customers, even though it will beat them out of some possible future work.



How to Make a Stool and Table

COMPLETE DETAILED DIRECTIONS FOR MAKING THE TWO ATTRACTIVE PIECES OF FURNITURE ILLUSTRATED

By Ira S. Griffith

THE table and taboret shown this month are both made of quarter sawed white oak. For the taboret the following stock is needed:

STOCK BILLL FOR TABORET

Top, 1 piece, ⅞ by 12½ inches square, S-2-S.
Shelf, 1 piece, ⅞ by 8 by 8 inches, S-2-S.
Posts, 4 pieces, 1⅜ by 1 ⅜ inches. S-4-S.
Doweling, 2 feet, ⅜ inch diameter.

If the stock is ordered mill planed to the sizes specified herein, it will be necessary only to remove the mill

Library Table and Stool of Oak

marks from the four sides of the posts and from the two broad surfaces of the top and shelf.

Square the posts to length. Square the shelf to the dimensions indicated in the drawing being careful in cutting the corners off to make sufficient allowance so that these corners may be housed into the posts a little. With the bow saw cut the top to shape and smooth with plane and spokeshave. In placing the dividers in laying off the top it is advisable to place a thin piece of wood upon the center and, holding it firmly, place the divider point upon it and then describe the circle wanted.

The hardest part about making this piece is the proper laying out and working of the mortises for the posts to fit into the top. A device which enables one to do this easily is obtained by taking a scrap of stock and planing a straight edge along one side. Hold this edge so that it makes a tangent with the circle and then describe an arc of a circle at the other edge, using the center of the top as a center. Or a shorter radius might better be used. The one essential thing is to have the center of the arc on a line perpendicular to the tangent edge. By means of this board, placing it against the curved edge, and then scoring lines across it from the tangent edge onto the circular top at distances apart equal to the width of the post the lines locating the sides of the mortises may be located. The lines locating the depth of the mortises are obtained by holding the board in the same positions and gauging from the tangent edge with the gauge stick clear over the auxiliary board with the spur on the circular top.

The parts are to be fastened together by means of dowel pins. These pins are to be glued in place and the heads rounded off so as to give the effect of wooden buttons.

The finish described for the table will be equally suitable to the taboret.

How to Make the Library Table

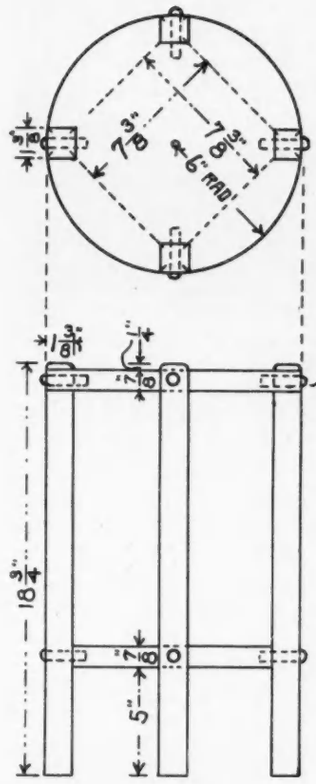
The library table is more difficult to make than the taboret, but is well within the ability of the amateur craftsman.

STOCK BILL FOR LIBRARY TABLE

Top, 1 piece, 1 by 30½ by 45½ inches, S-2-S.
Legs, 4 pieces, 2½ by 2½ by 29½ inches, S-4-S.
Back rail, 1 piece, ¾ by 5¼ by 37 inches, S-2-S.
End rails, 2 pieces, ¾ by 5¼ by 26 inches. S-2-S.
Front rail, 1 piece, ¾ by 2 by 37 inches, S-2-S.
Shelf, 1 piece, ¾ by 11¼ by 40 inches, S-2-S.
Drawer facings, 2 pieces, ¾ by 3¼ by 16 inches, S-2-S.
Drawer sides, 4 pieces, ⅜ by 3¼ by 26 inches, S-2-S.
Drawer backs, 2 pieces, ⅜ by 3 by 16 inches, S-2-S.
Drawer bottoms, 2 pieces, ⅜ by 26 by 16 inches, S-2-S.
Drawer slides, 3 pieces, ¾ by 2¾ by 26 inches, S-2-S.
Drawer guides, 3 pieces, ¾ by 1½ by 26 inches, S-2-S.
Tie, over drawers, 1 piece, ½ by 2¾ by 36 inches, S-2-S.
The remaining pieces, keys, and short facings about the drawers may be got from scrap stock.

The top may be squared first, the mill marks removed by means of a scraper. Next the posts may be cut to length and the ends squared. Work the rails and shelf or stretcher to size.

Stand the posts upright and mark the approximate



TABORET.

locations of mortises. Now lay them on the bench top side by side and accurately lay them out. After all mortises have been laid out and worked and also the tenons on the rails the main frame may be assembled. In assembling care should be taken to see that the rails fit the posts squarely and that the diagonals measure alike.

The cross tie which rests above the drawer fronts is to have single dovetails on either end and these are to be housed into the ends of the posts. This with the cross tie just below the drawers give a stronger front than as usually framed.

The drawers are to be framed in the usual manner and the slides and guides attached to front and back rails by grooving their ends into the rails and gluing them in place.

Method of Finishing

A suitable finish for either piece is obtained as follows: Sandpaper all the parts clean then apply a coat of water stain of a color desired for the lightest part of the final finished surface. Sandpaper this lightly when dry with number oo paper and then apply a second coat of stain diluted by the addition of an equal amount of water. Allow this to dry then sand lightly and apply a thin coat of shellac. White shellac should be used in case the finish is to be rather light, otherwise orange shellac will answer.

Upon this shellac, after it has hardened over night and been sanded lightly, apply a paste filler colored somewhat darker than the water stain. Clean off the surplus filler after it has flatted and leave the surface with highlights clear and transparent.

Upon the filler apply a coat of shellac and then several coats of a good quality rubbing varnish. Rub the first coats with hair cloth or curled hair and the last with pulverized pumice stone and raw linseed oil or crude oil.

The two pieces shown were made by Mr. N. C. Murray.

✣

Forest Notes

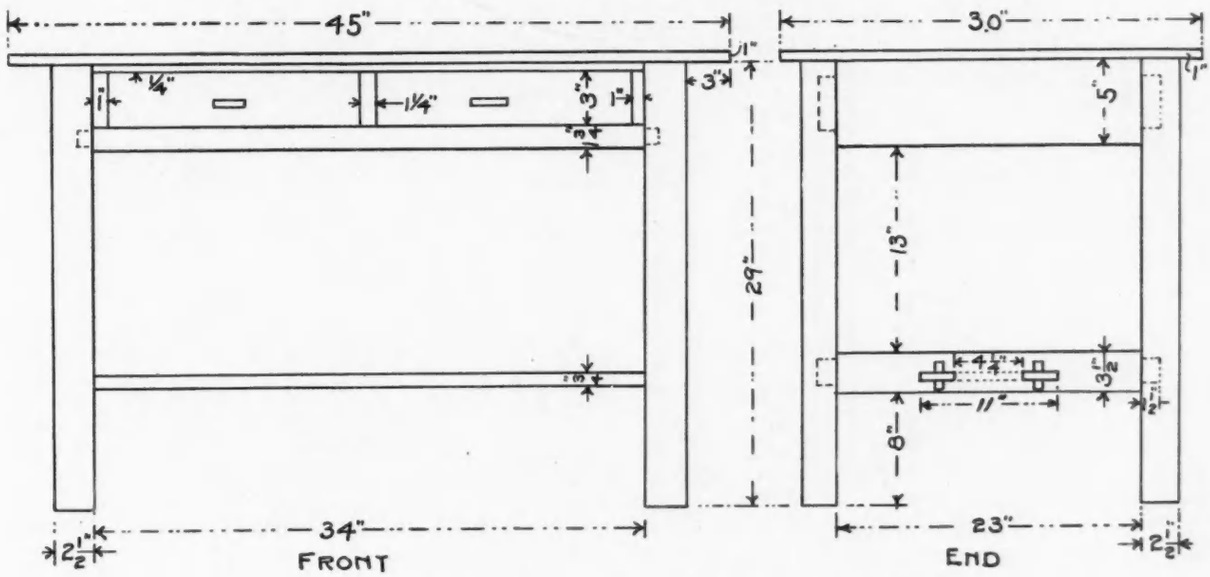
Siam exports about nine million dollars worth of teak a year.

Oils distilled from the needles of spruce and fir trees are being used to scent petroleum floor oils which are sometimes objectionable on account of their odor.

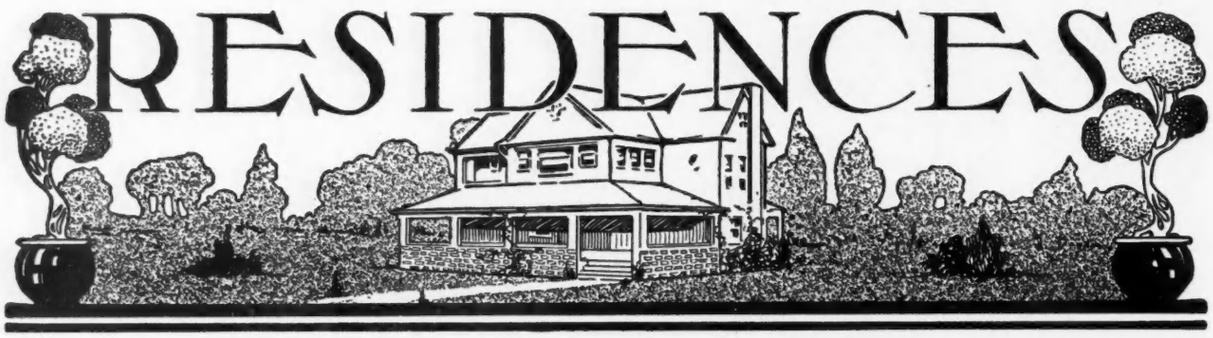
The governor of Iowa has set aside a fire-prevention day, urging that the citizens discuss conditions and create a sentiment against forest fires and other conflagrations.

The average area administered by a ranger on the federal forests of the United States is about 100.000 acres. In Germany the area administered by a man of equivalent rank is about 700 acres.

The republic of Colombia is said to have excellent regulations for its national forests. Lumbermen who take cedar and mahogany are required to plant young trees of the same species in the cut-over spaces.



LIBRARY OR STUDY TABLE.



Plans for Six Room Dwelling

COMPLETE SET OF ARCHITECT'S DRAWINGS, TO SCALE, OF A MODERATE COST, MEDIUM SIZED RESIDENCE OF AN ATTRACTIVE DESIGN

THIS little story-and-a-half cottage measures 28 feet in width by 30 feet in depth. There are three rooms on the main floor and three rooms upstairs. Some very attractive features are embodied in this set of plans. You will notice that the front porch is recessed in a way that protects the front door. Hence, a vestibule is not needed. Entrance is direct into the large living room; an apartment measuring 14 by 23 feet. This is a very comfortable and attractive room. The ceiling is finished with wooden beams. There is an electric light at each of the four beams intersections, also a central lighting fixture. In the farther end of the room is an open fireplace with red pressed brick mantel. To the right of this is a built-in bookcase, and to the left a cozy built-in chimney corner seat.

The dining room and kitchen occupy the balance of the first floor to the left. This a modern kitchen

Six-Room Story and a Half Cottage to Cost About $3,000

COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE SIX PAGES FOLLOWING

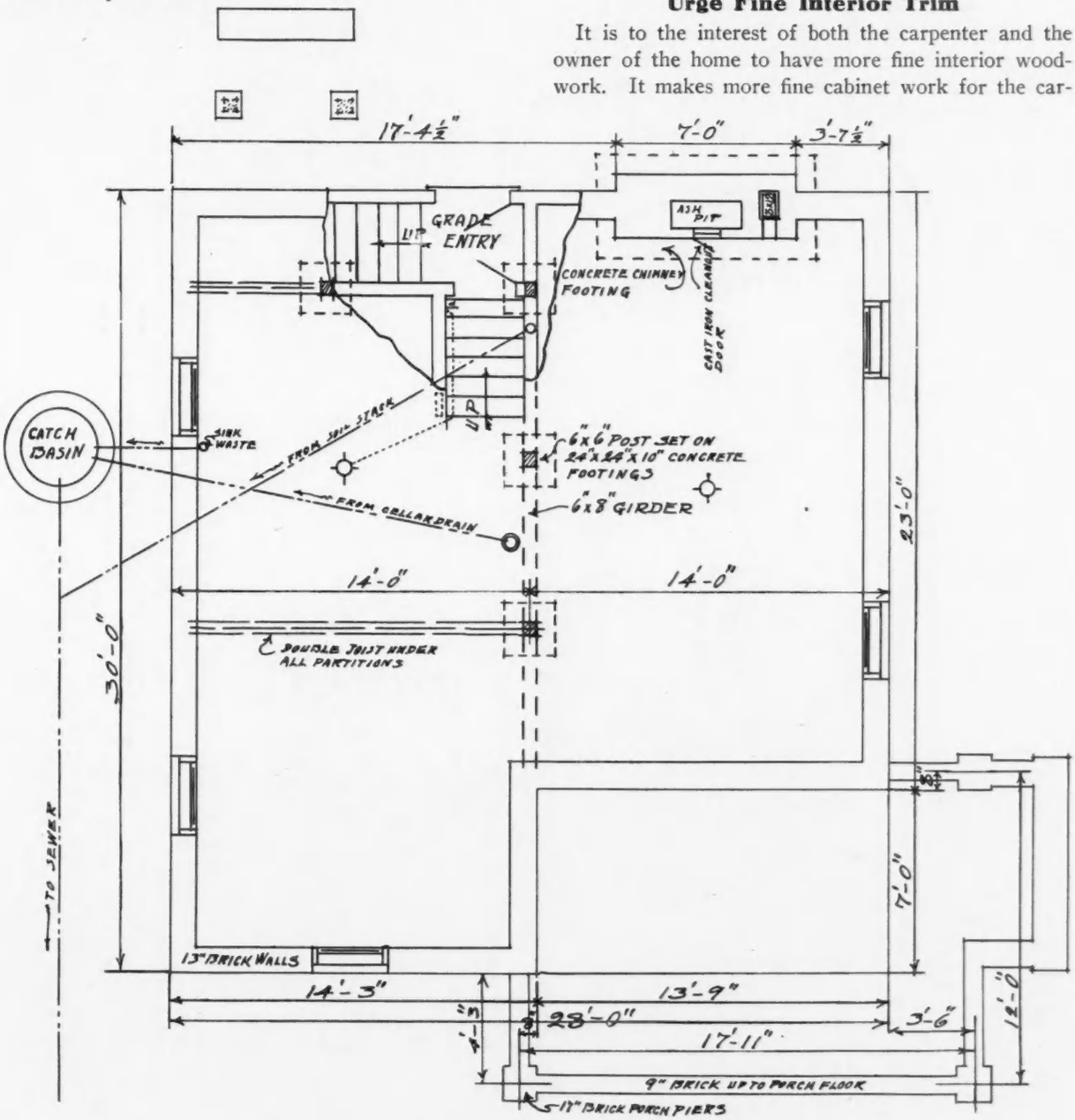
wherein large cupboards take the place of a pantry. Note that the sink is placed directly in front of the windows, assuring good light. The back entry gives a place for the ice box. The cellar stairs are convenient from the kitchen, and the arrangement by which the grade entrance feature is combined with this stairway deserves special notice.

This house has been designed for frame construction on a brick foundation. The basement floor is cement. The cost of this dwelling built and finished with good grade materials throughout will run from $2500.00 to $3000.00.

✣

Urge Fine Interior Trim

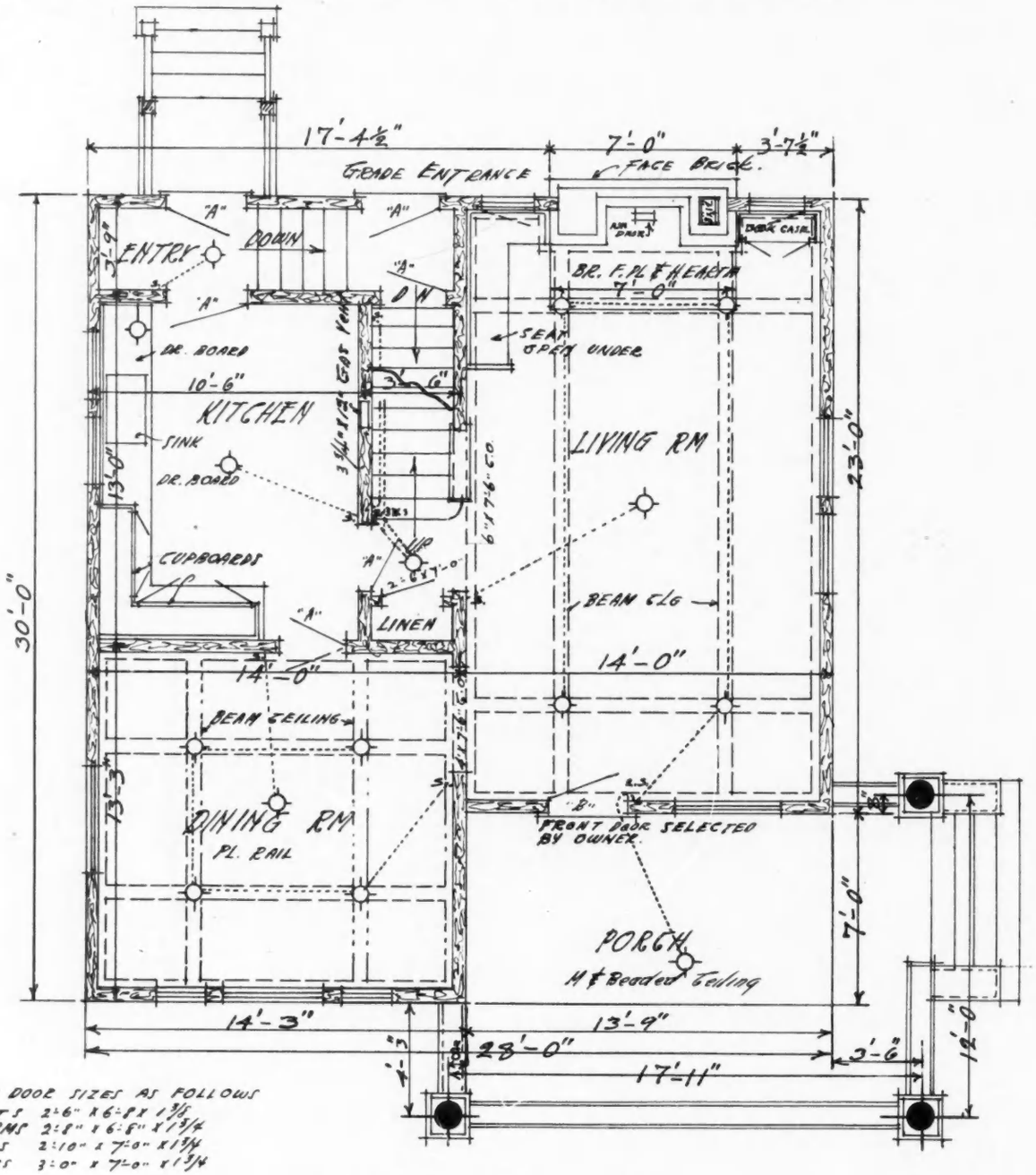
It is to the interest of both the carpenter and the owner of the home to have more fine interior woodwork. It makes more fine cabinet work for the carpenter, and the quality of it remains to give pleasure to the owner long after the cost is forgotten. It is a matter somewhat analogous to the well-known logic about good tools and poor ones. The price is soon forgotten but the thing itself long remains to please or to pester according as the choosing has been. A home with cheap millwork hastily put up soon loses



BASEMENT AND FOUNDATION PLAN
(House Shown on Opposite Page)

its charm,—just about as soon as the newness wears off. And then the man owning it, even though he may have been a willing party to the selection for the sake of first cost at the time, will feel that he hasn't a job to be proud of, and when he gets into some other man's home where better interior trim is

same thing in floors and interior trim? This is a question the carpenter may well ask himself, and also the home builder, and then discuss the matter of how much beauty may be added here and there by paneling as well as by the use of cabinet woods for trim, and for building in certain furnishings.



FIRST FLOOR PLAN

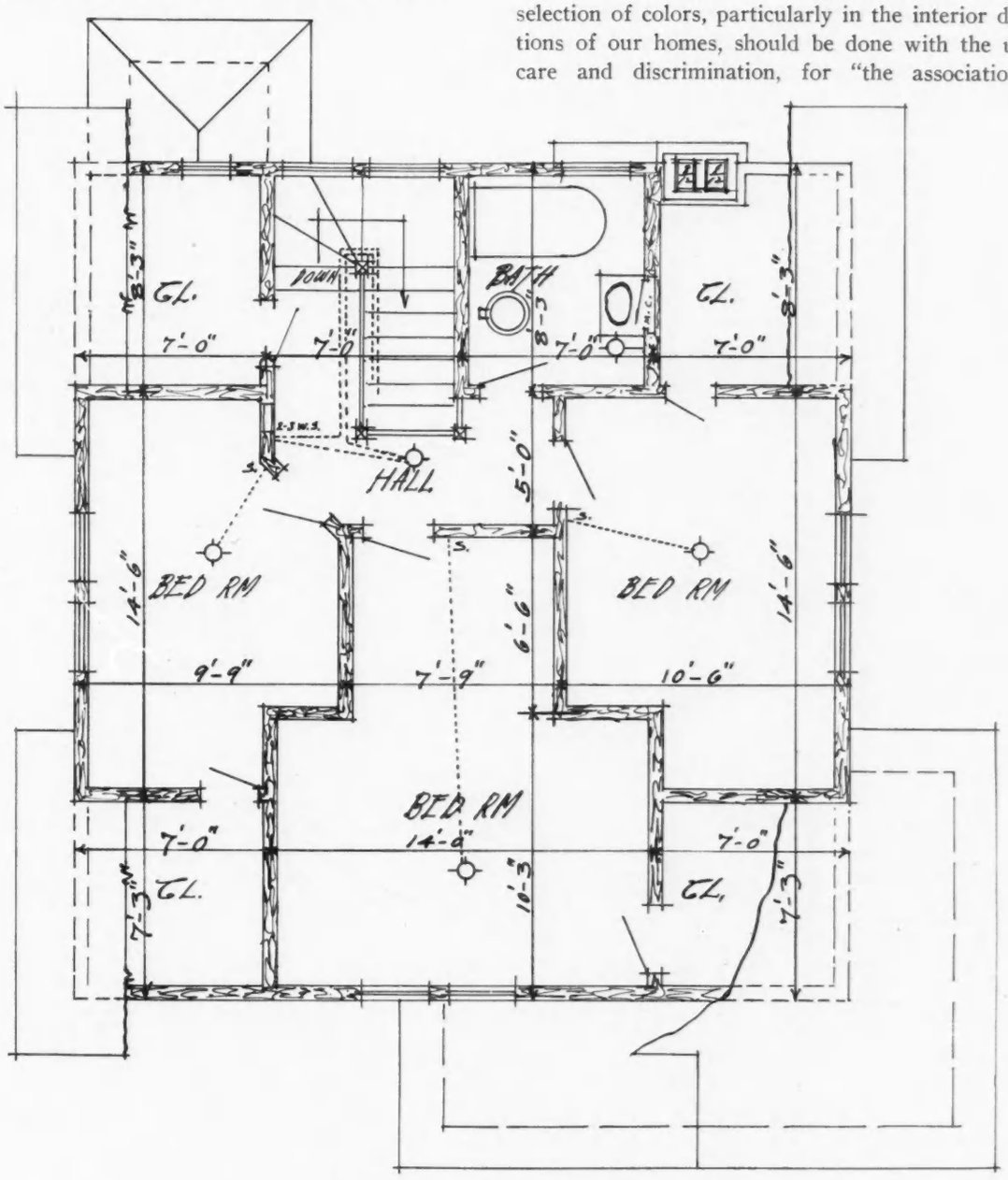
(House Shown on Page 82)

the order he is likely to be disappointed in both his own home and the builder of it.

One of the best arguments that has been advanced lately for finer millwork for the interior of homes has come from the hardwood folks, who point to the hardwood used in the furniture of the home, much of which is covered up, and ask why not have the

One may increase the amount of good cabinet work in the home by building in book cases, china closets and many of the things that are included in the modern apartment building. Yet, following the right idea, this should be supplemental to, and not take the place of fine trim itself. Things of this kind really take the place of furniture that the owner would

otherwise have to buy, and it is purely a question of plans and preference. The trim and the wall, as well as the doors, are an essential part of the house in either case, and for these we have reached the time when it should be best for all to urge the home builder to pay the price and have something that he can be pround of even after the new wears off.



SECOND FLOOR PLAN

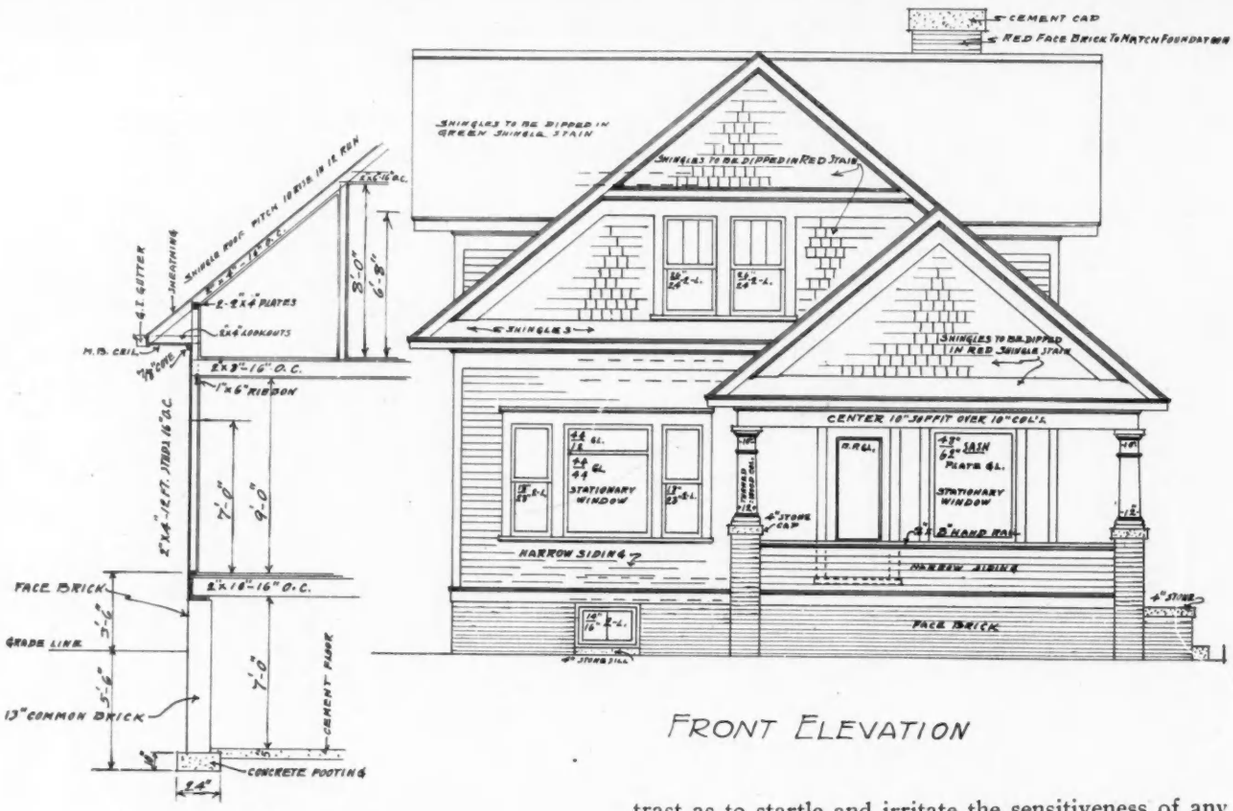
(House Shown on Page 82)

Influence of Color on the Mind

The time has come when the reflective mind is not content to gaze on barren white walls, and as colors have much to do with temperament, even to the extent of dominating our thoughts and inclinations, we should choose them with the same care that we would choose our associates and companions. As each of our associates has an effect directly or indirectly in influencing our minds and character, so colors will subdue or irritate us.

The wrangling, discordant tones in decoration instigate a wrangling and discordant feeling upon all who come in contact with their influence. The soft, mellow tones have a soothing environment, and the selection of colors, particularly in the interior decorations of our homes, should be done with the utmost care and discrimination, for "the associations of our early days have a strong influence on our future lives."

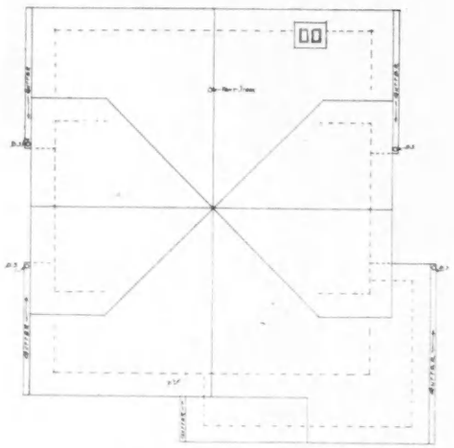
"My most earnest advice," writes a prominent architect in "Brush and Pail," "to the journeyman, tradesman and decorator who have problems of this kind, would be to consult the color card often and read up on articles on interior decoration.



FRONT ELEVATION

SECTION OF WALLS

"My advice would also be not to use inharmonious colors just to satisfy the particular whim of the owner of the building."



ROOF PLAN

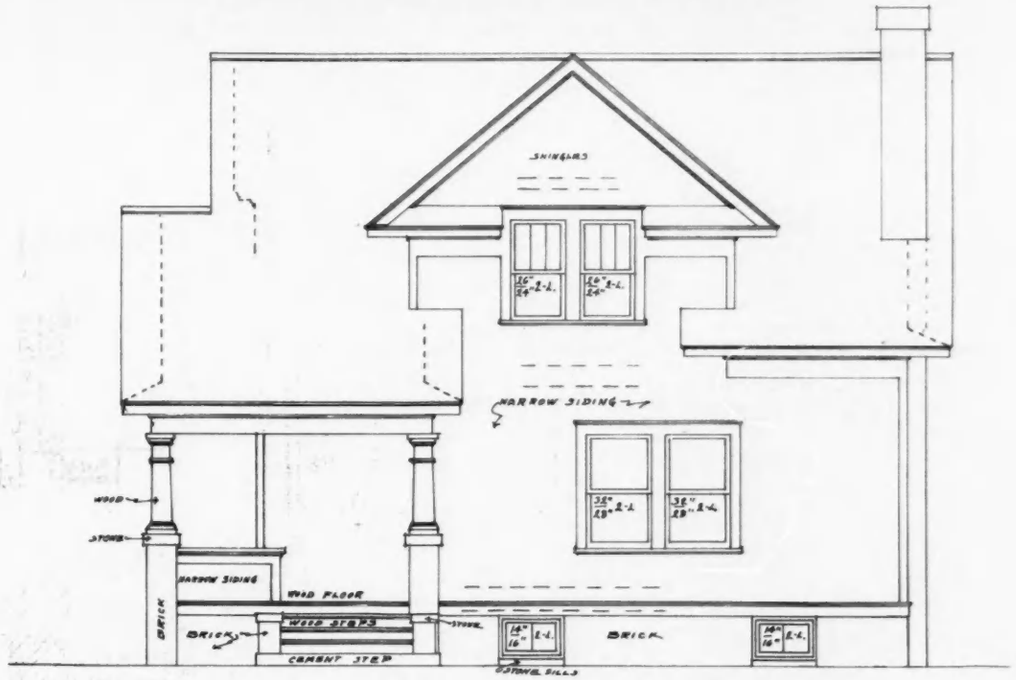
In residence decoration a good plan to follow out would be that all the ceilings in adjoining rooms be of the same harmonious shades. The treatment of the walls should be in keeping with the trim and the furniture in the rooms, and the change of color from one room to another should not be in such a contrast as to startle and irritate the sensitiveness of any one passing from one room into another.

Where the ceilings of the adjoining rooms in a home are of the same shade, they tend to make the rooms look larger, more spacious and better proportioned than if radically different tones are used, or the rooms laid off in different colored cubes.

The frieze and the height of wainscot or dado

REAR ELEVATION

(Plans of House Shown on Page 82)



RIGHT SIDE ELEVATION

will not be treated in this article, as this is a matter that can best be governed by the use to which the room is to be put, and the interior arrangement of the trim, that is, the height of the picture mould, plate rail, photograph rail or pipe rack, the latter used in dens particularly.

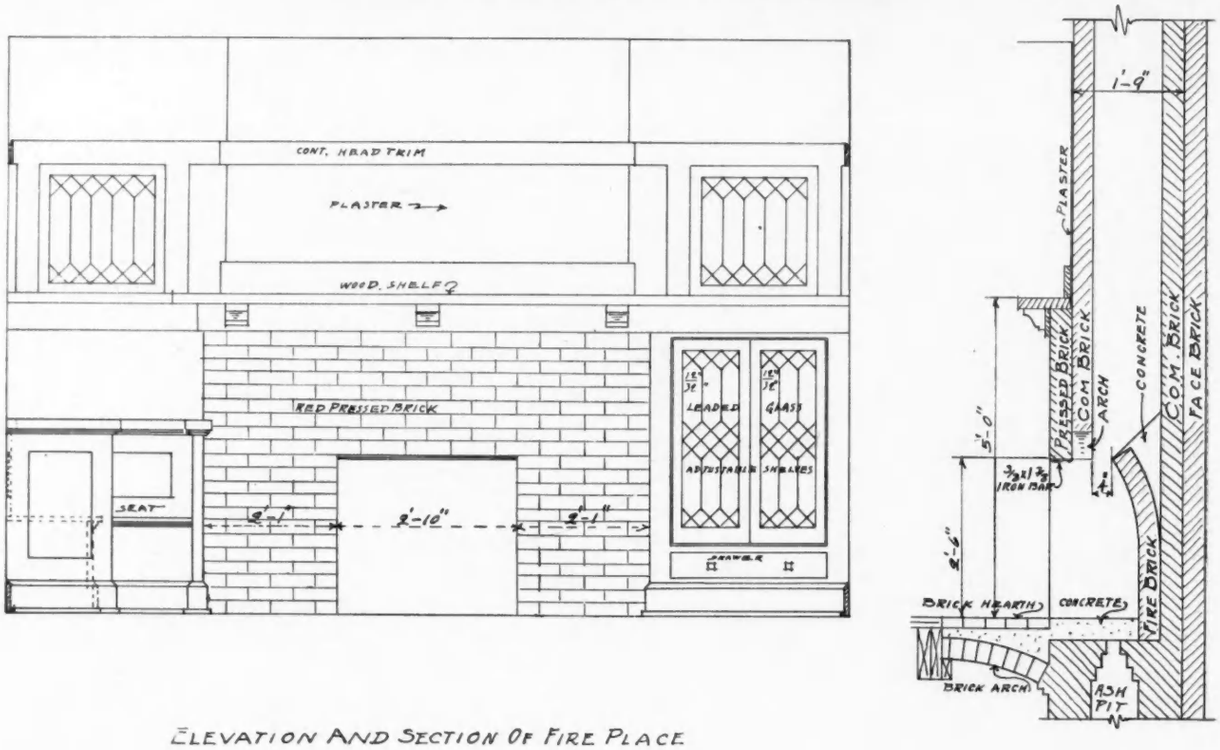
Where the furnishings of the room and the trim are rich, or above the ordinary, the decorations should be rather subdued, although the colors may be deep. In large rooms and usually empty rooms, like halls, lobbys, theatres and opera houses, the decorations should be rich.

The colors chosen for a room having an abundance of sunlight should be such as to modify and subdue its brilliant rays. Rooms with a northern exposure should be brighter and with higher colors, all of which

LEFT SIDE ELEVATION

(House Shown on Page 82)

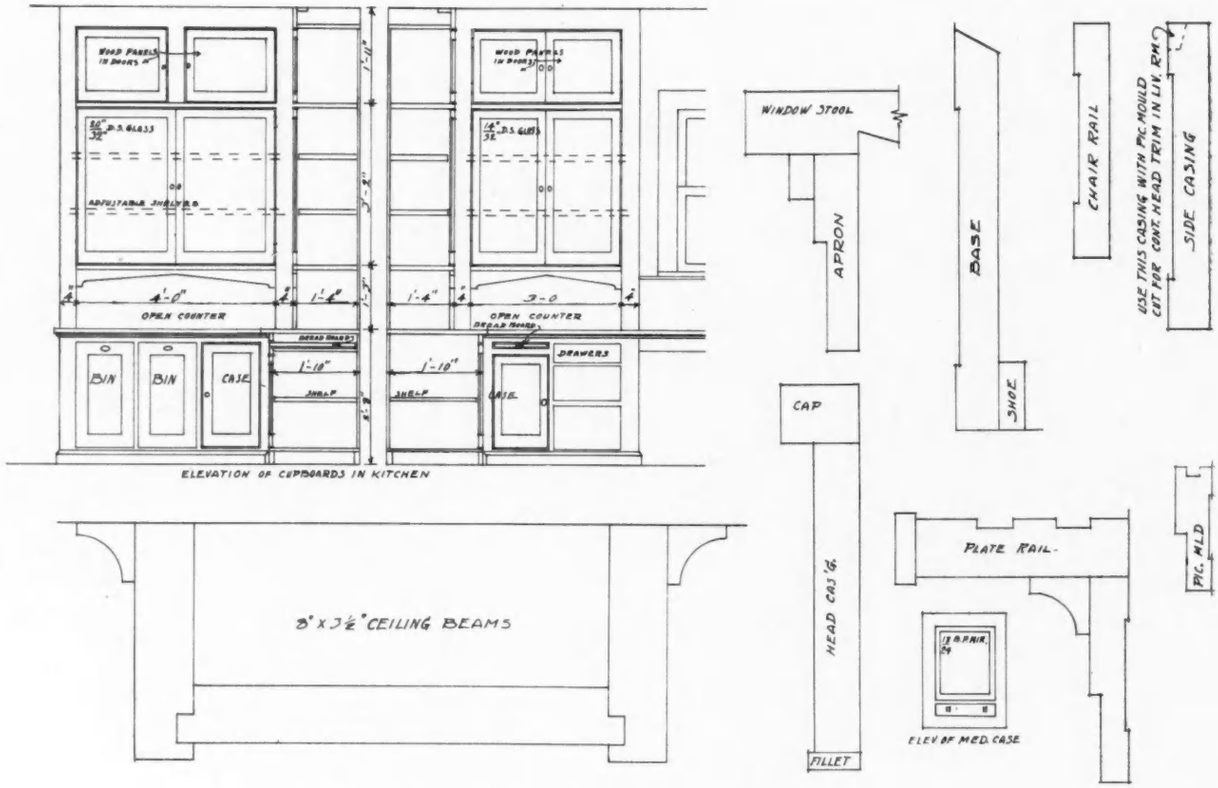
Plans for Six Room Dwelling



ELEVATION AND SECTION OF FIRE PLACE

can be best determined by each particular piece of work executed.

Colors can be used as mediums to diffuse light. For instance, a light wall will reflect brightness to the opposite side of a room which, under other influences, might remain in darkness.



DETAILS OF INTERIOR FINISH

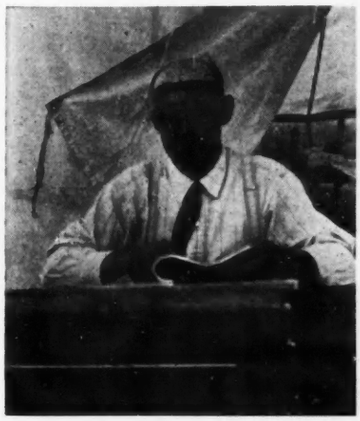
(House Shown on Page 82)

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

Caught in the Act

To the Editor: Ft. Hays Exp. Station, Hays, Kan.

Here are some pictures which may prove interesting. Two of them show a dairy barn—for which I drew the plans last January—in course of construction. At present I am roofing the silos with a shingle roof, circular at the ends. The barn is not entirely finished. I hope to send you the plans later on.

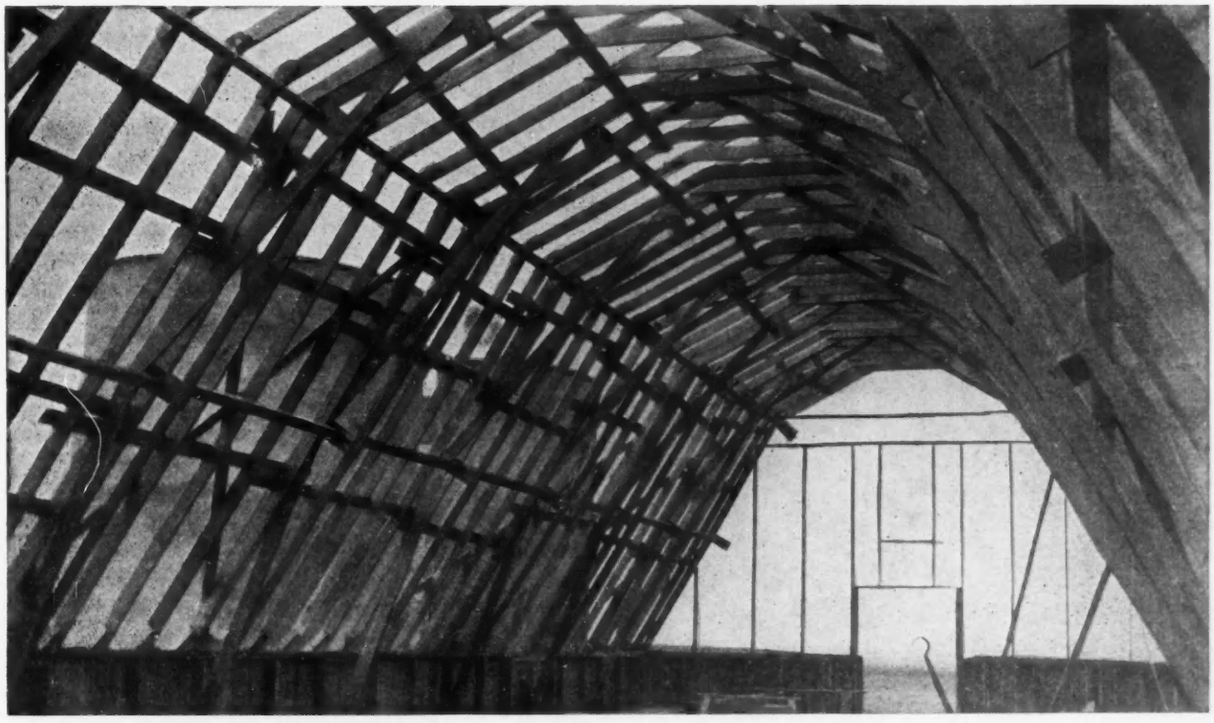


W. A. Richter in His Tent "Pondering" the A. C. and B.

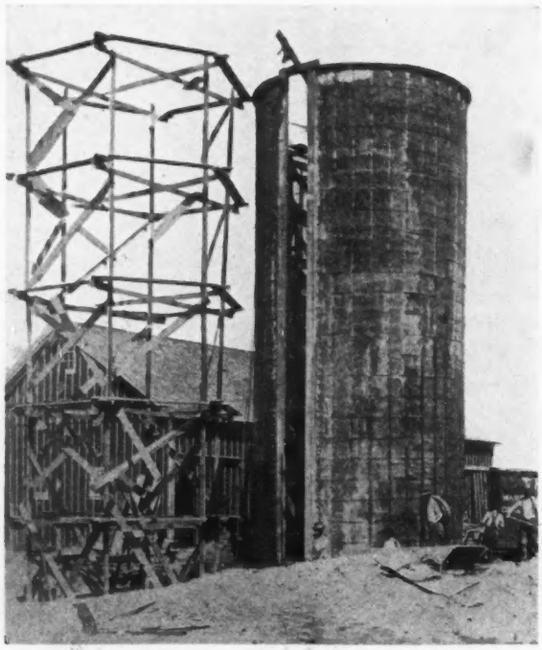
One of the two small pictures represents your humble servant caught in the act of pondering on something he has just read in the AMERICAN CARPENTER AND BUILDER.

I have read the articles on gambrel roofs with great interest. For my part, I do not believe one should follow an invariable rule. I consider the exigencies of the case in hand. For instance: In planning the roof of the cow barn—the smaller building is for horses and young stock—I struck a semi-circle—this I always do—on my plate line, with my run for a radius. Then, with my dividers I stepped off 8 feet, my run being sixteen; then took my 60 degrees triangle, set it on my T square for plate line, and let it hit semi-circle where it would. At this point I drew a line parallel to plate line, changed my triangle to 30 degrees and drew the upper slope of the roof. At the wall line, to make the eaves,

Large Barn Being Built by W. A. Richter



Detail View of Self Supporting Barn Roof as Seen from Underneath; Braced to Stand Up to Kansas Winds



One Silo Nearly Done and Staging up for the Second

I used my 45-degree triangle. The roof on the horse barn is 45 degrees and the silo roof is also 45 degrees.

Take this for what it is worth.

I meant to get all the hay room I could and still have a neat roof and one that would stand up in our western Kansas breezes. W. A. RICHTER.

✣

It is a Blind Valley

To the Editor: Portland, Oregon.

Will you kindly explain how I can get the length and cut of a valley rafter shown in the enclosed sketch? The part marked by the arrow is what bothers me on account of its running up against the hip rafter. You have no doubt dealt with this same thing before, but I must admit that I have not been able to solve it. G. W. BISSELL.

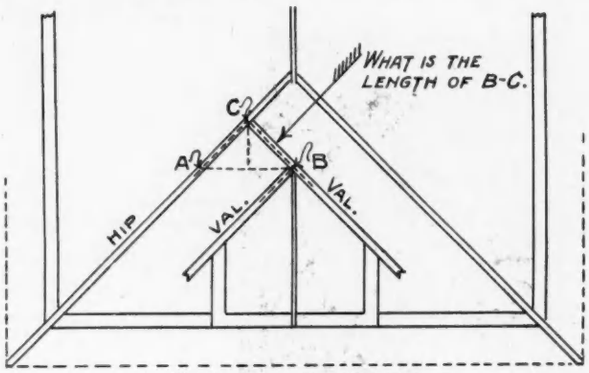
Answer: The illustration is a reproduction to Mr. G. W. B.'s problem that he wishes explained. We have added to it the dotted lines in the way of explanation to show how to get the desired information. To begin with, we want to say that this is the proper way to frame a roof of this kind to make it self supporting. We have seen dozens of valleys in cases of this kind, framed the same length, letting them come together at the intersection of the main roof, without any other support, and have seen as many sag at that point. It is all right, if there can be a support under it, but this cannot always be done, as in the case of an attic, where the plastering extends higher in the main part than the point of intersection. Then there is no better way than to let one of the valleys extend over to the ridge. or hip. That part above the intersection is generally known as a blind valley or hip, as the case may be.

We have heard fellows contend that the jacks, which are only nailed at the upper end of the ridge, will support them. We used to take that kind of dope, but it don't go down any more with us, since we later saw the results. The roof boards are cut off at the valley, leaving only those that come above the intersection to support it; and if the dormer is of only medium size, there is in time going to be more or less of a sag. Now, if there are any doubting Thomases that have constructed roofs in this fashion, just let them go back and draw a bead over the plane of the roof that they constructed several years previous, and see where they are at.

Now, going back to the diagram, we show how to proceed to get the length for the blind part of the hip, and it is not so blind, either, if one just stops to think a little. As we said before, we have added only enough to the diagram to find the extra required length. By leveling over from the point of intersection to the hip, as from A to B, we have the length of the span for another gable. Therefore, one-half of this length is equal to the run for said gable. Then by finding the length of a valley to correspond with this run as at BC will be the length for the blind part. This, added to the length of the valley for the dormer, will give the total length.

As for the cut to fit against the hip, that is simply a plumb cut, provided the two roofs are of the same pitch.

However, there are some knotty little problems in connection with this that should be understood to obtain correct results, that is, whether the valley is backed or unbacked. because it will affect the cuts accordingly. If the valley is



How to Frame Roof Dormer

not backed, or rather V'd out, that part that is blind should be backed one way just the same as required for one side of the hip. On the other hand, if the valley is V'd out, then the blind part should all be backed or beveled one way. The measurement line in either case remains at the center of the back. If the cut to fit against the hip is not made before the valley is backed, it would have the appearance of not being a plumb cut on account of the line across the back not being square across.

In short, to master these little details to gain perfection requires diligent study and patience—"Oh patience, thou art a jewel." A. W. WOODS.

✣

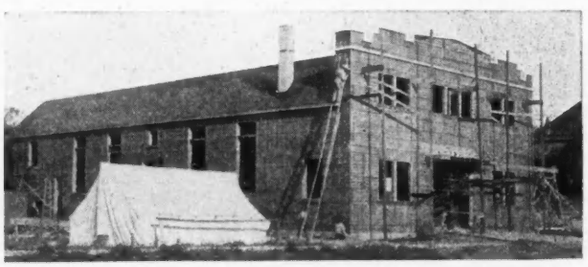
Creditable Piece of Work

To the Editor: Valentine, Nebraska.

Here is a photo of our new Womens Improvement Club Auditorium for which I have the contract. It has a spatter dash finish.

Good luck to the AMERICAN CARPENTER AND BUILDER.

G. B. FEHMERLING,
Contractor and Builder.

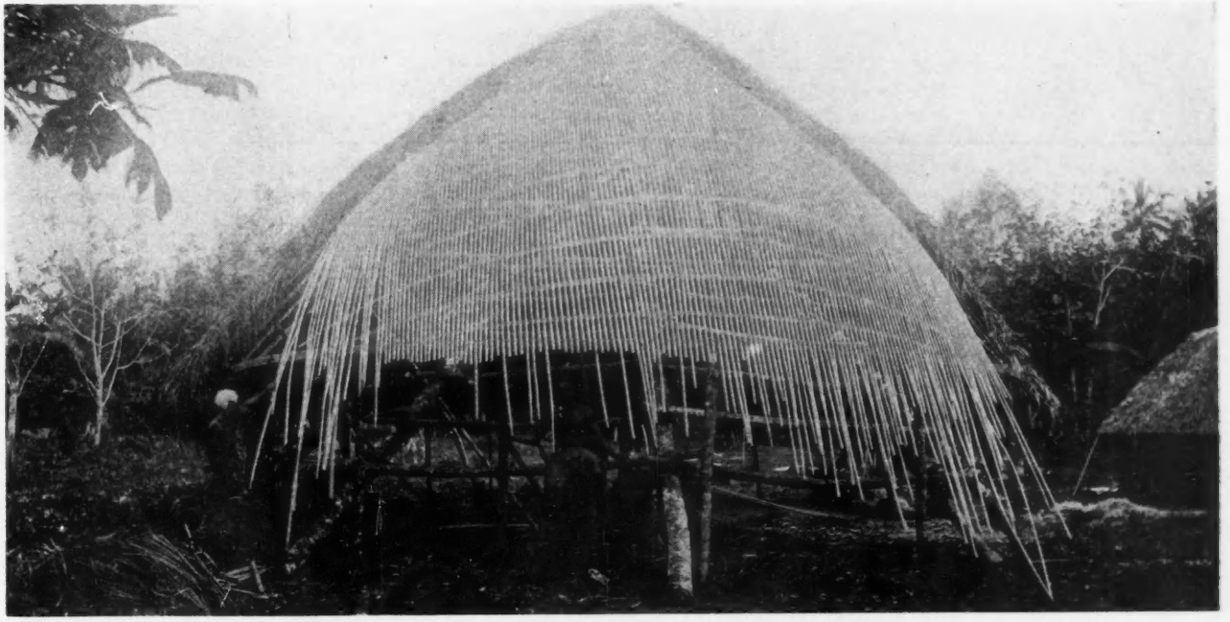


Furred and Metal Lathed Ready for the Masons

The Builder of Roc's Eggs in Samoa

To the Editor: Cincinnati, Ohio.

When Sindbad the Sailor in one of his adventures encountered the giant roc's egg, he had probably gone to Samoa and what he really saw was a specimen of the native builder's art, in the form of some aborigine's huts, not quite completed, —for, from afar, this is what these curious structures most closely resemble.



Native Samoan Builders at Work on Dome Shaped Hut

Homes are simple on the island. Boughs are arranged teepee-fashion, though rather more arched than is the average Indian teepee, and then series of palm strands are set as basis for the thatch which is eventually to form the cover. To see these unfinished domes rising, here and there, amid the tropic foliage, is one of the most curious sights presented the traveler the world about. Felix J. Koch.

✣

Length of Sash Cord

To the Editor: Dannebrog, Nebr.

A party here claims that a sash weight hung lower on a window, that is, given a longer rope, say 6 or 8 inches, will show a difference of about a pound. Andrew Nelson.

Answer: We can't see why an extra six or eight inches added to the length of the sash cord would increase the power of the sash weight. The sash cord is usually made just long enough so that when the window is closed the weight operating the lower sash will be right up close to the pulley, missing it by perhaps two inches—just enough so that the weight or the knot in the cord will not interfere with the easy working of the pulley. Having the cord longer than this, certainly wouldn't add anything to the balancing power of the weight and if you get the cord too long, the weight will come banging down against the bottom of the weight box when the window is thrown open; and cause trouble. Editor.

✣

Gambrel Roof Question

To the Editor: Queen City, Mo.

Will you please tell me the correct way of cutting rafters for gambrel roofs? I have my way, but would like to know the correct way. T. R. A.

Answer: So far as we know, there is no standard for correct proportion to give the pitches in a gambrel roof. Most every carpenter has his way, as Mr. A. says, and doubtless most of them think they have the correct way. Personally, we think about 60 and 30 degrees with equal runs make a good proportion. There have been a number of good examples given in recent numbers of this paper.

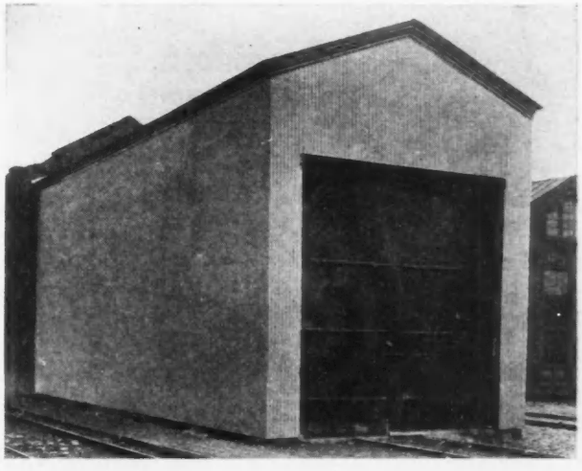
A. W. Woods.

A Huge Oven for Drying Paint on Cars

To the Editor: Buffalo, N. Y.

The accompanying illustration shows the exterior of a large oven recently erected at the Altoona (Pa.) shops of the Pennsylvania Railroad for use in drying paint on all-steel passenger cars. It is maintained that by this process the time required for painting a car is greatly reduced. This oven is 90 feet long, 15 feet high and 13 feet wide. The walls are 8 inches thick, insulated with magnesia and with a corrugated iron exterior. The oven contains a large number of pipe coils which, under pressure, will heat it to a temperature of 250 degrees Fahrenheit. There are ventilators in the roof which allow for the escape of volatile portions of the paint used and for the introduction of fresh air required or drying the various coats.

Frank C. Perkins.



Paint Drying Oven at Altoona Car Shops

A Sander Made from an Old Shaper

To the Editor: Tonawanda, N. Y.

There may be some carpenters or contractors who own a small wood working shop of their own and may find some idle moments during the coming winter to add further attachments to their present line of woodworking equipments, which may prove of indispensible value to them in time saving and at the same time add more profits to the output.

Of course, at the present time there are all kinds of devices in the way of machinery on the market for doing most all kinds of work; and some of these indeed fill a long felt want,—especially those required for use in the small woodworking shops. However, there is one device which I have never yet seen used in any shop. except one little out of the way shop, which I had the pleasure of visiting recently.

I had several S-shaped table legs to make for which I did not have any suitable tools, so I took them to this place and when I called for same the foreman said to wait a minute and he would sand them up for me. He started up

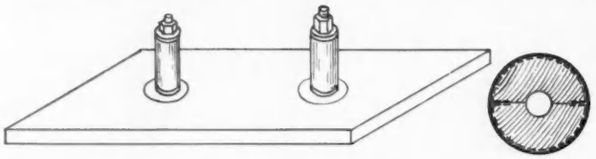


FIG. A. FIG. H.

Sanding Device to go on Shaper

the shaper, which had sand paper cylinders like Fig. A, and sanded up every curve, even some that I had thought, up to this time, impossible to get at.

The sander, which was put over the shaper spindles, consisted of a cylinder with a hole in the center the size of spindle which had then been sawed in two halves like Fig. H, which were then placed on the spindle. Then regular sand paper,—the kind that is used on drum cylinders, was put around the cylinder, cut to cover each half and to lap on the flat surface. Then iron rings were placed on top, the bottom one having been placed on the spindle before the cylinder parts were put on. Then regular tightening screws were used, and—presto change! the sander was ready to run.

Cylinders of any size from 1½ inch up to 4 inches may be used in making this simple device for sanding. Boards up to the heighth of cylinder, which in most cases is six inches, may be readily sanded as well as the many irregular and curved shapes which come up from time to time in every workshop. In fact, nothing will be found better.

Fig. A. is a regular shaper table, with two spindles, on each of which is placed a sander. The cylinder should be made of maple or other hard wood. The dotted lines shown in Fig. H show the mode of applying the sand paper,—no glue or paste is necessary—simply wind around each half and put on the spindle and tighten up and that is all there is to it. RICHARD NEWBECKER.

✣

Jasbury Jasburies about Apprentices

To the Editor: Asbury Park, N. J.

An apprentice is a man who is in the sap-going-up stage, he is a mechanic picked before he is ripe—he is the low gear of craftsmanship. An experiment. If he is an apt apprentice he will lap up the trade like a calf in milk; he will be a human blotter. The few years he can call his own give him the faculty of retaining any knowledge that he may fancy with ease, as the youthful brain is more susceptible (that's a good word) than the same organ in an older model, because the apprentice has room for the new stuff while the gent of the earlier vintage has to push some of it aside or into cold storage to make room. (Although as the conductor says, there is plenty of room up front).

There is as much difference in apprentice boys as there is in any other staple article. Some boys wear their hair so long they cultivate the habit of giving their finial a sudden nod to keep the over abundance of hirsute adornment from obstructing their view. Some spend so much time mussing with a misplaced eyebrow in the shape of a mustache, that they take an order from the foreman to do a job as a personal injury. Then there are other apprentices that have the snap and push of a high speed turbine engine, they will swoop down on an idea, or suggestion with such alacrity that the process is the inspiration for light heartedness and goaheadness of all present.

There is also the apprentice who has mastered the art of doing what he is told. That kind of a boy is worth a Wabash box car filled with radium. Then there comes the professional question asker of an apprentice; he has the right idea if he does not exceed the speed limit. If he goes too far with his system some of the men will have it in for him, thinking their jobs will be jeopardized by young comers on. Their families, with its expenses, cares, etc., loom up as large as the prevailing auto mortgage.

Then there is the boy known as a "fresh kid." He is a specimen who is merely a drummer for a family who has not been cultivated,—a family of rubes that has never developed the idea of gentility in the most minute form. This boy is simply showing his goods. He is dishing out the stuff that they have at home in plenty. This type of apprentice boy knows more (in his narrow dome) than all the Marconis, Edisons, Wilsons, Sousas, etc., put in one pew. He has such a complete line of rough stuff in the shape of brimstone and vice he would disgust the blue ribbon artist of a swine ranch. Of course he don't stay long, merely piping the bunch off, as he would say.

Then there comes the apprentice who borrows the trade magazine, takes a course in some good institution, does little favors for the older hands, always ready to learn the business Of course we can see this chap, some day, step out of the cheap help class and be one of the worth while tribe. Now we have another specimen, the fellow who has landed the job with the aid of a relative somewhere hidden in the underbrush of the business. This chap has a collar so high his head looks like the tower on a baseball field surrounded by a board fence. He dresses better than the ordinary dyed-in-the-wool apprentice. He takes the jobs that are most velvety, and, when coming in late, assumes an air of a Wall Street crooker. This fellow eventually slides along on his chasis until he reaches the office and there he has his innings in all its glory.

Then there comes the lazy apprentice. This fellow and perspiration are the bitterest of enemies. He has such a case of nigger rheumatism that he stumbles over his own shadow. This type or breed of apprentice is on the job merely to keep awake. If some one now and then lets a plank fall, he will for a moment look nearly human, but soon sinks back in his comatose landau of inactivity and slumbers on. Saturday night is his trump card. He will face the paymaster with a heart that would make some of the valor of Col. Bowie appear like a bowl of tryhosa in July. Then there is the apprentice who is trying to support a helpless, fatherless family. This poor soul is as meek as a lamb and strives to do his utmost to hold his job. He is oftimes much underpaid according to circumstances. He usually has the good will of the force and invariably gets along with ease. This fellow is the type that make men worth knowing.

Some apprentice boys when being shown something begin

to contradict and harass their instructor in order to be someone, while others show a spirit of appreciation and their countenance looms up like Loftis Bros. Jewelry Store window the night before Christmas. Of course, in the run of working people one comes in contact with many kinds—some good, some very good and some good for nothing.

The time of apprentice boys serving seven years and getting a bunch of papers called indentures is gone; but these fellows made good mechanics because they were started right and finished right. Of to-day there are few apprentices that really bind themselves out for a stipulated time because the ways of the world and people have changed and improved. Boys nowadays seem to want to be professional men, or bank clerks or some other soft hand calling. A few get to be chauffeurs—this avocation is an improvement on the coachman. There is something about the chauffeur that appeals very strongly to every boy. It may be the smell of gasoline or it may be the wage end of it. Some apprentice boys have the motorcycle habit, they try to put up with the day's work in order to get at their pet space annihilator. Others that can't afford a motor mania cycle can get the same effect by drinking a pint of machinery oil, pour gasoline on their vest, set off a pack of fire-crackers between their legs and get down in the dust; the effect is very similar.

Then comes the apprentice who has a girl. This type is more to be pittied than censured. He tries to sing a few juicy love songs for himself, he has those soft boiled onion eyes, and taken all together is a harmless specimen. Then we have the cursing apprentice. This germ speaks two languages, English and profane. He is full sure the way he emits the rough stuff is all there is to the curriculum of a regular job. He is as careless with his adjectives as though they were all his. Then we have the apprentice who tells lies. This one is the measliest sample of the entire troop. He is always conspicuously inexact. He handles the truth in the most represensible degree of laxity. This fellow or insect is sooner or later "canned" on nearly all jobs.

Now a few words for the full-pledged, manly, honest apprentice, one whom we know will make a good mechanic and later a good citizen. This chap holds to the old adage, "Once a gentleman always a gentleman." He makes friends by his uprightness, straightforwardness, integrity, recognizes the authority of his superiors and is in general a boy well worth knowing. I have seen many kinds of apprentices, worked with many and, like the older hands, they have their strong and weak points,—we all have.

WM. C. JASBURY.

✣

To Build a Strong Hopper

To the Editor: East Bloomfield, N. Y.

Please tell me the strongest method of building flaring hoppers. T. N.

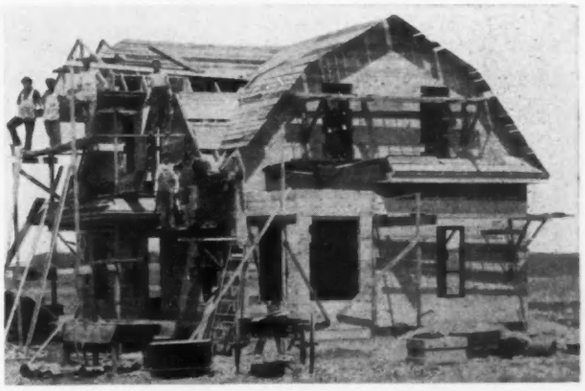
Answer: There are hoppers and other hoppers; hoppers for a coffee mill, cider mill and hoppers for grain bins in elevators, which require great strength. If it is for a hopper made from boards alone, we would say, dove-tail the corners; on the other hand, if it is for a grain bin, we would say, build a frame work on which to nail the boards to form the hopper. In the latter case, we would frame it with timbers like the rafters of a square hipped roof, only it would be inverted. The sheathing boards would be the same as for the roof sheathing, but would be on the under side of the rafters; and when inverted, they would be on the inside and would form the lining of the hopper. See?

Of course, not every roof as they are generally built, when inverted would make a good hopper, but the principle is the same, and a man that can build a tight fitting roof ought to be able to build a good hopper. A. W. WOODS.

We Want to See It

To the Editor: Pekin, N. D.

I am enclosing a postal photo of a modern residence which I am building here. I will send you a photo of my new shop as soon as I get it complete, and machinery installed. I shall give my brother carpenters a little drawing



O. S. Houge and Gang on Gambrel Roof House

and specifications of my shop later on if you care to publish it.

The only trouble with your paper is that it doesn't come two times per month. O. S. HOUGE,
Contractor and Builder

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Troubled With Leaky Ce ar

To the Editor: Washington, D. C.

I am afflicted with a home which has a leaky cellar. Whenever it rains, water seeps in through the bricks, particularly between the bricks at the front and back of the house. Furthermore, my next door neighbor has a cellar which is still worse, and the water from their cellar leaks through into mine at the junction of the wall with the floor. I should explain that the houses are built in a row with no space between them. How can I remedy these two ills?

J. MILTON JESTER.

Answer: A Portland cement plaster coat placed over your walls and floor will remedy this trouble, if it is due only to seepage water which is under no great pressure.

A ¾-inch thick coat of Portland cement and sand mortar mixed 1 part cement and 2 parts sand and containing some good waterproofing compound should be sufficient for the side walls. The brickwork should be thoroughly cleaned, the joints raked out to a depth of about ¾ inch, and the walls wetted before the plaster coat is applied. This wall coating should be put on in two coats about ⅜ inch thick. The first coat should be well troweled and pressed into the crevices and scratched lightly to aid in holding the second coat.

The second coat should be put onto the damp first coat before it has reached its final set.

The floor coating may be applied in a similar manner, but should be about 2 inches thick. The mixture of mortar is the same in both cases. EDITOR

✣

Architect Wants Samples

To the Editor: Pineville, Ky.

Am sending you coupon with remittance of $2.00 for renewal of my subscription to the A. C. & B.

Am now opening an office at this place for architectural work and would be much pleased to have you announce in the most valuable magazine of its kind, the A. C. & B., that I wish to have samples of material from manufacturers of building supplies. E. EBNER.

A Home to be Proud Of

To the Editor: Indianapolis, Ind.

I noticed in your valuable paper a request for photos, therefore I enclose a little glimpse of my front hall, and by peeking through the sliding door opening you can see the bookcase that I wrote about in the very first issue, I think, of your paper.

Now at the first glance likely you will think, "well, there is nothing very attractive about that." Possibly that will all be true, but remember this is not a rich man's mansion; it is only a poor man's home. And as there are so many poor people in this little world I believe it's worth one's time to look into them.

What I thought might be of interest to your readers is the features that are a bit out of the ordinary.

First I want to call the attention to the newel post at the landing, while there is none at the foot of the stairs,—something I believe you seldom see; and yet I have never had this job criticised.

Stair Hall in Residence of Dwight L. Stoddard

I want to call particular attention to the seat, which was made practically out of scrap lumber. Half of it is oak I had left from finishing the room, while the other half is maple left from the room above.

Now another feature about the newel is making it largest on top and making it useful as well as ornamental.

The tilting mirror and place to hang our callers' wraps was designed by my wife and carried out as you see it by your humble servant. One stepping on the landing to get his wraps can get a complete view of himself from head to foot; and yet the mirror is not large.

But the dearest corner in the whole house to me is where my Grandfather's clock stands. The first thing I can remember in life is my grandfather and his most wonderful clock that he bought before he was married. This grand old clock runs as regular as the sun, and it has never needed the skill of a jeweler, for the wheels are made of wood, so that when one loses a cog, being a carpenter I simply glue one in and on it goes; and when the cord wears out so we can't wind it any more, I simply lose a few feet of my chalk line (which I don't particularly miss) and the clock is chalked up and in line again.

Now some might at first wonder just how we were able to fix such a deserving place for the dear old clock. Well, on the other side of the partition is a fireplace; it shows in that room the full five foot front, and therefore gives that excellent place on one side of the flue in the hall stair for the clock, while on the other side of the flue farther up the stair is a case where I enclose my many badges that I have had on many occasions.

Now in many other parts of my home I have features somewhat out of the ordinary, and yet I have aimed to be economical and practical in every feature. As an illustration, I finished two rooms in quartered oak, while the front hall that you see is plain oak, and the room that you can get a peep into is finished in black walnut. As I stated before, one upstairs room is finished in white maple, so you see I have used the very lightest and very darkest woods and other varieties. Now it is quite common to use different kinds of woods in different rooms, but my out of the ordinary feature in this was that I finished my rooms not only in different kinds of wood but in different styles of finish as well.

I have never yet got tired of those two kinds of wood in the front hall seat, and I have never got tired of the mixture of woods and finish throughout the entire thouse.

I love my home, be it ever so humble there is no place like it. DWIGHT L. STODDARD.

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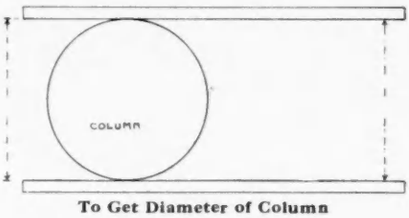
Improvised Caliper for Measuring Column

To the Editor: Topeka, Kan.

Referring again to a back number (May) I was interested in Mr. Jasbury's way of finding the diameter of a column. I have tested it and find it all right. I have another way which, "though it may have been known and used before the Egyptian pyramids were built," was new to me and the best way I know of.

Having no calipers to get the diameter of my column, I improvised a pair by taking two straight pieces two or three feet long and placing one end of each against the column — on opposite sides of course—and then adjusting the space between the other two ends so that it exactly equaled the space between the ends next to the column. The spacing was done in a moment's time by the aid of my rule. The instant that was done I had already read the diameter I sought.



To Get Diameter of Column

I want to say that I have been just as deeply interested in looking over my back numbers as I would be in reading a love story. Long life and great success to you.

✣ H. N. POND.

Who Will Help Jack Leg?

To the Editor: Benson, N. C.

Please excuse Jack Leg for coming again, for he wants to know how to do things up-to-date. He wants to know how to fix an outside door, so that a beating rain will not run under it into the house. It is very annoying to have the floors and carpets wet most every time it rains. Will some of the boys that know come to my rescue? JACK LEG.

Carpentry and Millionaires Again

To the Editor: Pleasantville, Ohio.

Now, Mr. Editor, I cannot recall the brother's name (I call him brother because he is a man in the profession) who started the "Carpenter as a Millionaire" subject, quite a while ago; but I think he should be taken as a sort of a joker, and not seriously. While many of our millionaires started in life as wage earners, none of them ever became millionaires as such. No one ever heard of a carpenter or any other wage earner becoming a millionaire, as has been stated in these columns. But, as in many other professions, the carpenter occupies a position in the first rank of becoming a man of moderate means, and may stand as well within this rank in citizenship.

Bear in mind that the writer takes the term "carpenter" at what it implies. Wood butchers, scrubs, roustabouts, saw-and-hatchet men are not implied in the meaning of the term. The fact of the case is, so many fellows of this lower title have classed themselves with the carpentry profession that a man of brains and mechanical ability has become ashamed of the term that has been applicable to him, and has taken a stand and title that he considers higher up, in "Contractor and Builder."

It is indeed alarmingly shameful what a host of would-be carpenters there are in this broad country who have been inspired to set themselves up as mechanics, unable to master the construction of even an ordinary house and do it properly. It may look so in the eye of the ordinary observer, but it is far from being so, and to this very fact is due the cause of small compensation to the mechanic following the profession. He is thrown into competition with what is practically nothing more than an ordinary day laborer with tools of similar character in his possession.

The only probable and perhaps possible way of mastering the situation would be for the various states to enact laws requiring a license for every man who may undertake to superintend the building of even an ordinary house. Another good and plausible idea would be to perfect an organization of such merit that would demand the recognition of the public wherein the members may be graded, if at all eligible to become members. Please understand that the writer refrains from touching upon the "union" question, as it is too vital a one, but will venture to say that this is wherein the unions as a general thing, are weak—the proper grading of membership with wage accordingly.

Now, I do not care to have my words misconstrued by your host of readers, in a way that I am one of those "know-alls," but I do pride myself in knowing perhaps the first and primary principles of good carpentry, and I assure all of your readers that it is a trade that I like to study as well as to work at, and I hope that I will never see the day come when I cannot learn something new. Down with the old fogie. I always feel sorry for the man that thinks he knows it all; he will always remain on the lower rungs of the ladder with only consolation that he will never suffer from a severe fall.

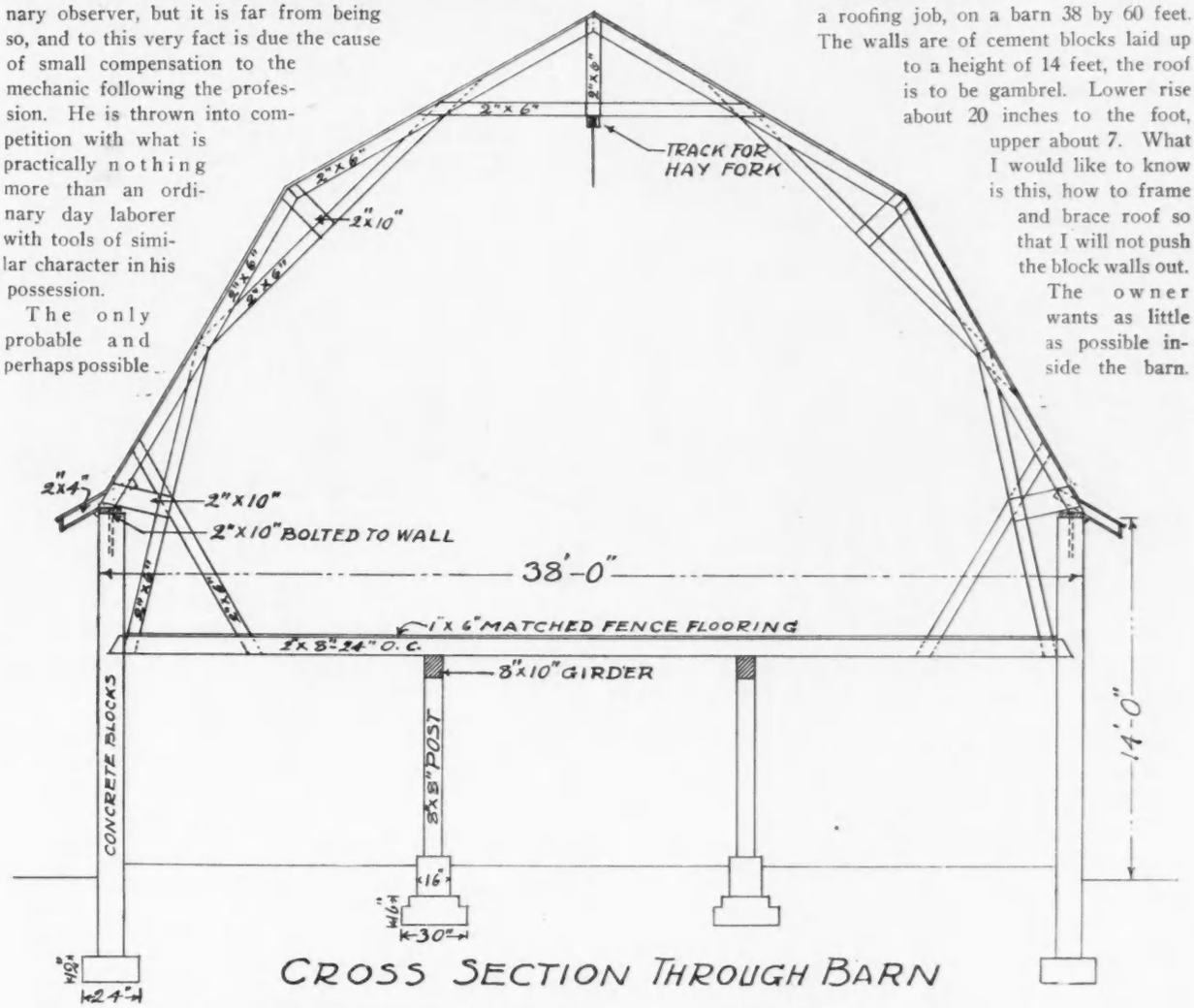
James L. Brooke,
Contractor and Builder.

✣

A No-Spread Roof

To the Editor: Endeavor, Wis.

I would like some information about a roofing job, on a barn 38 by 60 feet. The walls are of cement blocks laid up to a height of 14 feet, the roof is to be gambrel. Lower rise about 20 inches to the foot, upper about 7. What I would like to know is this, how to frame and brace roof so that I will not push the block walls out. The owner wants as little as possible inside the barn.



Suggested Method of Framing Self Supporting Barn Roof of 38 Ft. Span

Have been a reader of the AMERICAN CARPENTER AND BUILDER for some time and I positively could not get along without it now. C. H. Parrott.

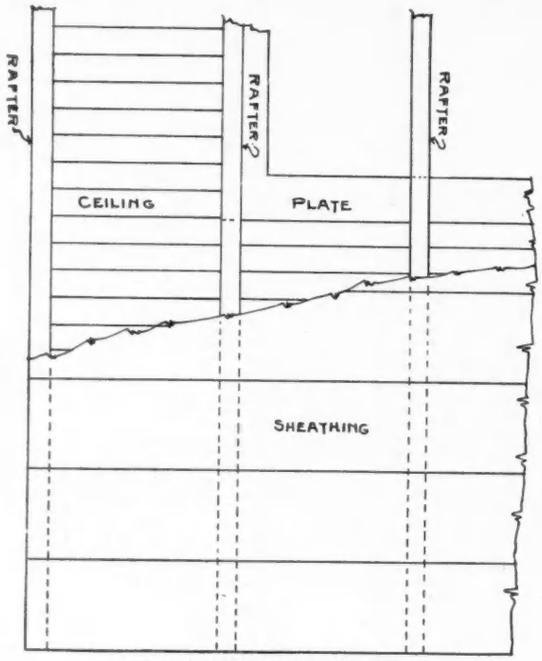
Answer: We believe that the type of roof framing shown in the illustration on page 95, will explain our method for this type of construction. The plates are firmly bolted to the top of the block walls, and the bolts are bedded in blocks filled with cement mortar. All joints and connections are securely spiked and held in place. EDITOR.

Bungalow Cornice Work

To the Editor: Topeka, Kan.

When I subscribed for the AMERICAN CARPENTER AND BUILDER something over a year ago, I cut out several articles that I thought most important for my use, intending to keep all such in a scrap book; but I immediately gave up the idea because I found the magazine altogether too valuable to mutilate in that way. Since then I have several times found myself sitting by my east bay with a pile of back numbers, looking them through carefully from cover to cover—advertisements and all. I consider the ads. quite valuable intact in the "book." I think very highly of the paper. Although 70 years young I have got from it many a new idea that was a help.

I agree with Mr. Hicks in the February number that a bungalow cornice is not necessarily more expensive than a box cornice, and approve of his way up to a certain point.



Framing of Bungalow Cornice

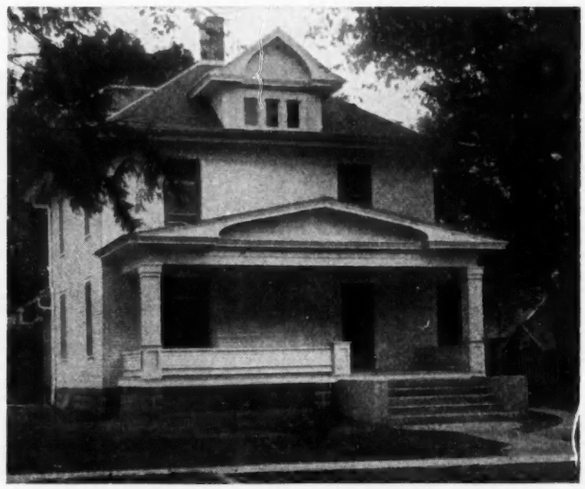
For instance, putting on the beaded ceiling from the rafter ends up as high as the plate and then furring out with shingles to even up, so that the roof boards will go on all right. But there Mr. Hicks and I must differ. He stops the ceiling flush with the outside of the gable rafter and then runs it up the gable lengthwise under the roof sheathing. Instead of that I run the ceiling out onto the outside projecting rafter say 30 inches, if that is the projection of the cornice. Then I continue on up with 30 inch pieces connecting the gable and outside rafters.

One man can do that work very quickly. For me it is a much faster way than to have two men put on the ceiling lengthwise and nail up under the roof boards. After the ceiling is on of course the roof boards go over it all right, no furring being necessary to even up as in the first case, because the inside rafter, 2 ft. away, makes that all right. Then, again, running the ceiling at right angles to the gable makes a more tasty looking job—for this boy. Apropos of this, I notice that the ceiling on many nice houses is run the same way, both on cornice and underneath. H. N. POND.

His First Design

To the Editor: Columbus Junction, Ia.

Here is a photo of a house I built this year. This is the first house I ever designed, the porch being my special plan.



Nifty Porch Designed by V. A. Banta

I would like to see it in the AMERICAN CARPENTER AND BUILDER. I am 22 years of age and have been working at the carpenter trade for three years. V. A. BANTA.

Sharpening Scrapers

To the Editor: Tuolumne, Cal.

I saw in the September number a question by Jas. R. Jamison, "Which is the best way to sharpen scrapers?" I find it will do very nice work to sharpen it at about 60 degrees with a flat mill file and finish on an oil stone with a keen edge and take a piece of steel that is round and tough.

I find that a nail set will work fine; begin with the same bevel, 60 degrees, and gradually raise until you are at right angles with the scraper and you will have a nice, keen edge on it. I find that by holding it at about 20 degrees it will cut very nicely.

If Mr. Jamison will kindly mail me one of his scrapers I will sharpen it for him free of cost. (Yes, I will return it.) M. C. SILVA.

Figuring Steam Radiation

To the Editor: So. St. Paul, Minn.

I would like some information regarding the ratio used for heating an office building by direct radiation, with three sides exposure to weather. We are to use low pressure steam. How do you figure the allowance for windows and exposed openings? JOHN PECK.

Answer: In reply to this question I would rather not advise the correspondent as to what factor to use as a cubic divisor since the information is so lacking in detail—for instance, are two of the walls exposed to the North and West or are two exposed to the South and East? This point would make a difference of about 25 per cent in his amount of radiation needed. Again, how many windows and how large? This could easily make a difference of 50 per cent in his required surface. It is surmised from the question that the in-

quirer has not read the "Old Builder's" discussion of radiator sizes published in the June issue of the AMERICAN CARPENTER AND BUILDER, and this article is earnestly recommended to his attention.

In case this copy of the magazine is not available, I would suggest that the inquirer figure up his wall surface exclusive of all windows and doors, then figure up his doors and windows in square feet and his cubic contents. If he will divide the wall surface by 20, the glass surface by 2 and his cubic contents by 200 he will have the respective amounts of steam surface necessary to counteract these three sources of loss. If there is a cold attic above, 10 per cent must be added to the total of the three quotients obtained above and if a cold cellar below, there should be 10 per cent more added. If the exposed sides of the room generally face the North or West, add 20 per cent, but if facing the South or East no correction is necessary.

Thus: Supposing a building faces West with the front and two sides exposed. The wall surface (exposed to the weather) amounts to 8000 square feet and the glass and doors to 2000 square feet, while the cubic contents are 200,000 cubic feet.

Then 200,000 divided by 200 equals 1,000
8,000 divided by 20 equals 400
2,000 divided by 2 equals 1,000

Total surface of steam radiator....2,400 sq. ft.
Cold Attic above, 10 per cent more.. 240
Cold Cellar beneath, 10 per cent more 240
North Exposure, 20 per cent more.. 480

Total required.....3360

Office buildings usually run between 1 square foot of heating surface to 50 cubic feet, and 1 square foot to 100 cubic feet. To check the above let us divide the cubic contents by 3360 and we find that 200,000/3360 equals about 60 in this particular assumed case. CECIL F. HERINGTON.

✣

Solid Comfort

To the Editor: El Paso, Texas.

Here you see me enjoying myself to the fullest. I am just going through my latest copy of the AMERICAN CARPENTER AND BUILDER. This view was snapped in Houston Park.

S. M. HYTEN.

✣

Shampooing a Skyscraper

To the Editor: Cincinnati, Ohio.

Did you ever see a big skyscraper get a shampoo? It is not probable that you did, or that you ever had such a job to perform, for the custom is of recent origin and the work is a special line. The structure here shown undergoing this novel treatment is the big Ingalls building, in Cincinnati, Ohio, which was the first reenforced concrete skyscraper built. It had not been washed off since it was erected some ten years ago; consequently, being in Cincinnati's smoky atmosphere so long, the necessity was apparent.

To clean the tall structure was some work. At first it was thought that a sand-blast would be the only solution; but it

Workman "Shampooing" a Skyscraper

was soon discovered that the dirt gave way more readily to a good old-fashioned shampoo of soap-suds and water, with the aid of a muriatic bath to cut the dirt.

The muriatic acid bath is spread on first to cut the dirt, and then comes the shampoo of soap and water with big sponges. This leaves the snow-white surface behind, and causes hundreds of pedestrians to stop and gaze in wonderment at the magic change going on.

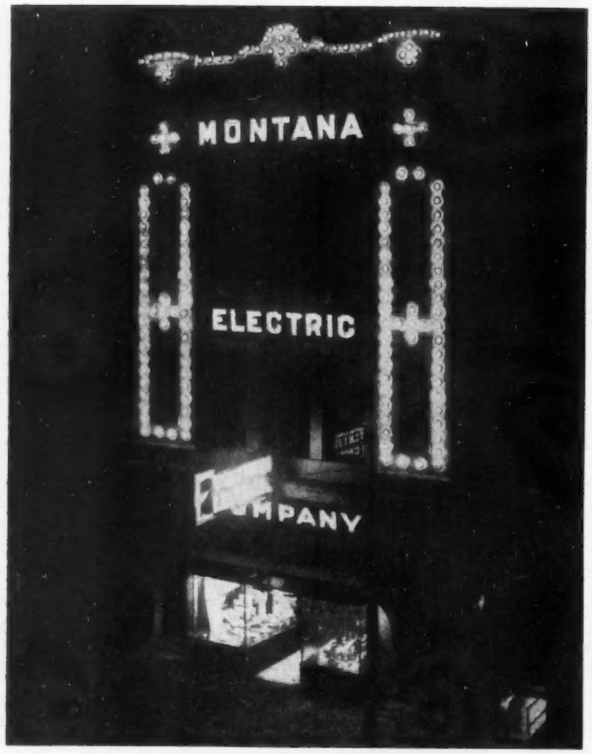
It is estimated that if all the dirt removed from the building by the shampoo were in solid form, it would fill several wagons. And all of it came out of Cincinnati's smoky atmosphere. Can Pittsburgh beat it? Chicago is "not so slow," either, in this respect. J. R. SCHMIDT.

Workmen on Hanging Scaffold "Shampooing" the Ingalls Building, Cincinnati, Ohio, at About the 12th Floor

A Business Getting Electric Store Front

To the Editor: Butte, Mont.

The photo of the Montana Electric Co.'s building here, taken at night, shows a new idea in electric signs and building illumination. The lamp reflectors are imbedded in the cement plaster front during the course of construction. The



Electric Lights are Embedded in Cement Front of Building

letters are set with a perfectly white enameled background which gives them the even white effect. RUSSELL WALDO.

A Careless Trick

To the Editor: Pontiac, Mich.

To you this may seem to be a simple question. but when one is confronted by a leading contractor and builder, it is best to have good backing in order to hold good one's argument. The question is this: The casing on one side of a door is full width, while the side next to the wall is only one-half full width. The casing in this example is 3½ inches wide. Now, in using a band mould, should the mould run full width clear around both sides and head, or should it be discarded at side next to the wall, which admits of only 1¾ of an inch casing scribed and ripped to fit plastered wall?

I was told to rip the outside, or face of the band mould off and nail the narrow casing, allowing the mould to run clear around on the narrow side. This only leaves the rounded corner of the regular casing to show, as nailed to door jamb. The casings are ⅝-inch in thickness and band mould about ⅞-inch thick, which, when ripped off, is about 3/16 of an inch in thickness to nail over narrow casing. Is that correct, or should the band stop with a square cut at plaster line with no mould showing at all over the narrow casing?

For my own benefit and that others may profit by it, will you kindly answer through the columns of the AMERICAN CARPENTER AND BUILDER, of which I am a subscriber and to which I am greatly attached. L. H. D.

Answer: While we feel honored in being called upon for an opinion on this question, we cannot answer it with any pretence of being an authority, though we have very pronounced ideas on work of this kind and we are clearly on the side of Mr. L. H. D.

In laying out a plan, we always work for a full casing next to the wall at least; it is better to have an inch or two to spare, because it looks better than to have the casing fit snug up to a corner. Then, again, even the best of plastered walls will vary in surface more or less and will show up when the straight edge of the casing fits up against it. Carelessness on the part of carpenters are more often to blame for narrow casings than any other cause, in not properly setting the studding to receive the full casing, even when shown on the plans. They allow the error to go through the different stages of work until they get up to the casing and then usually make a bad matter worse by trying to doctor it up to be presentable; when by a little foresight. the whole thing might have been made right.

This calls to mind, a number of years ago, a wealthy stock-raiser down in the state of Missouri, the show-me State. He had prospered and had reached the point when he wanted to build a new house, modern in all its appointments, so he employed an architect and, in turn, a builder, and intrusted the erection to them, while he looked after the welfare of his short-legged hogs and long-eared mules and white-faced cows. Well, the house arose in stately majesty and was nearing completion when we chanced to pass that way. The carpenters were then putting on the trimmings and most every closet door had but a half casing next to the wall; and, to make matters worse. it was quite the style then, to see how many reeds and querks they could get into the face of the casing, curved face base blocks and extended corner blocks; so you can imagine how the job looked and also how the owner looked at his architect and boss carpenter. But we will not say what he said, except that it was on a par with his pedigreed stock with one ear cut off. We believe he was about right.

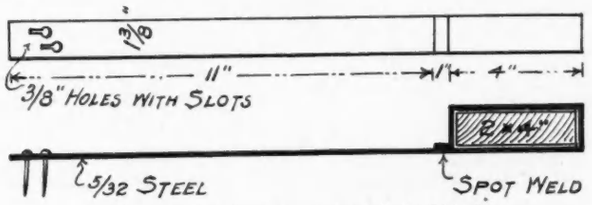
There was plenty of room in every closet to have a full casing and the plans showed that it was meant to have, but here the architect fell down. Although he had shown it right on the plans, he either carelessly or ignorantly allowed the work to go along until he, too, was up against it. The plastering was done and the doors were on hand, and so they went ahead ripping the casings and splitting the blocks at every stage, making a bad matter worse instead of correcting the error when first discovered.

We say get a full casing every time, where it is possible. even to narrowing up the door to the smallest accessible width and then, as a last resort, get what you can of the full casing and let it go at that, without any patching or fixing up about it. This, of course, has reference to a band casing. A. W. WOODS.

A Handy Bracket

To the Editor: Benton Harbor, Mich.

I am sending you a detail of a roof bracket that I am using and which I have found to be very handy, especially on felt roofs, as the felt shingles can be turned up and the bracket slipped in by driving in a couple of nails and by slipping in the foot rest, it is ready for use. C. C. BROOKS.



Roofing Bracket for Use with Asphalt Shingles

Roof Area Question

To the Editor: Chicago, Ill.

I have seen it stated that in the case of two buildings, if the pitch of the roof is the same, size of building and projection the same, the mere fact that one roof has hips and valleys while the other is plain, does not add to the surface of the roof to be covered with roofing. As an example: Two buildings of the same size to be roofed—one with plain pitch and gable roof (that is, two plain sides), while the other has four hips, four gables. and eight valleys. The statement is, that if the two roofs have the same pitch, they will measure the same.

I would like to see what some of the Brothers think of this proposition, and would be glad to see a diagram and solution of same from some of our thinkers.

ONE OF THE BOSS CARPENTER'S SQUAD.

✣

Strength of Pine Beams

To the Editor: Sterling, Ill.

Please advise me as to the approximate weight yellow pine timbers of the following dimensions will carry in an evenly distributed load:

6 by 14 inches by 24 feet in length.
6 by 12 inches by 24 feet in length.

A. J. PLATT.

Answer: A 6-inch by 14-inch long-leaf yellow pine timber 24 feet in length will carry about 5500 pounds of uniformly distributed weight with a factor of safety of six. This same size timber in short-leaf yellow pine will only carry about 4600 pounds of uniformly disturbed load with same factor of safety.

A 6-inch by 12-inch long-leaf yellow pine timber 24 feet in length will carry about 4000 pounds of uniformly distributed load with a factor of safety of six. The same timber in short-leaf yellow pine will carry about 3300 pounds.

It should be noted that the timbers referred to above are too long for use where the allowable deflection is limited to 1/360 of the span, such as is common where plastered ceilings are to be used on the underside of the timbers.

EDITOR.

✣

Oregon Fir and Yellow Pine

To the Editor: North Towanda, Pa.

I would very much like to know how Oregon Fir compares to Southern long leaf Yellow pine in tensile and crushing strength lasting, and in fact anything that will give me an insight on this lumber. FRANK R. JOHNSON.

Answer: There are so many kinds of fir grown in the Oregon region that it is very hard to determine just what kind you mean. Since this is the case, we are going to give you the physical qualities of several different kinds of fir and then compare them with long leaf pine.

Timbers known as Douglas Spruce, Oregon pine, red fir, and Douglas fir are all native to the Puget Sound region. These timbers are of medium weight, about 32 pounds per cubic foot; fairly strong (21st in this list); very elastic (10th in this list); medium hard (45th in this list) shrinkage about 3 or 4 per cent; durable; difficult to work; split readily, commonly used in heavy construction, masts, flag poles, and railroad ties.

Timbers known as grand fir, white fir, lowland fir, and silver fir are also grown in this same region. The physical qualities of these timbers are: very light (62nd in this list); weight 22 pounds per cubic foot; weak (62nd in this list); elastic (34th in this list); soft (65th in this list); shrinkage about 3 per cent; warps little; not durable; works easily; splits readily. These timbers are commonly used as ordinary lumber and for packing cases. Not a very valuable wood.

The physical qualities of long leaf yellow pine are as follows: heavy (18th in this list) weighing about 38 pounds per cubic foot; very strong (7th in this list); very elastic (4th in this list); medium hardness (33rd in this list); shrinkage about 4 per cent; warps but little; quite durable; works hard; tough; splits badly in nailing. Common uses of this timber are for joists, beams, bridges and building trusses, interior finish, ship building, and general construction work.

EDITOR.

✣

A "Crooked" Table

To the Editor: San Rafael, Cal.

When you tire of making straight things, square things, Mission things, just try your hand at this table. It looks very trim and neat when made well, but you should get the legs well proportioned and just the right shape or it will look like—something else.

Parlor Table of Graceful Design

The legs are of 1¼-inch stock, the frieze of 4-inch, and the top should be of 1½ or 1¼-inch material. I made a mistake in making mine of only inch stuff. The top is 22 by 30 inches. The legs should be only 27 inches long, because the table looks too high if it is the regulation height of thirty or thirty-one inches.

One thing to remember is to square the leg tops before you cut them out. If you don't you are apt to have trouble squaring them later. The photo shows plainly how the legs are put on, also the shape of them. Of course you can have them made at the mill. But that is not half as satisfactory as getting them out yourself with a compass saw and spoke shave,—and plenty of sandpaper. Use lots of glue and you will be agreeably surprised to find how strong and substantial the little table will turn out. Toe nail from the inside of the frieze into the top with 1¼-inch No. 16 brads. A lower deck may be put in easily at the inward bend of the legs.

In laying out the legs I used a paper pattern. It saves lumber (also language). See that a line at right angles with the top cut will pass through the points A and B. This will give the legs their proper position.

Any hard, fine grained wood may be used. A coarse grain in the legs is apt to cause splitting. Maple, gum, birch, walnut, almost any of them. Stain it if you wish, or better still, dye the wood with the desired color of wood dye. Then fill it with paste wood filler and wax. Or you may use more wax and use nothing but wax. You may leave it without any color whatever and put only wax on it. In that case it will probably require four coats.

H. J. BLACKLIDGE.

✣

"Here's a nickel," said a thrifty housewife to a tramp at her door. "Now, what are you going to do with it?"

"Well, mum," replied the hungry man, "if I buy a touring car, I shan't have enough left to pay me chauffer; if I purchase a steam yacht there won't be enough left to defray the cost of manning her; so I guess, mum, I'll get a schooner and handle it myself."—*Everybody's Magazine.*

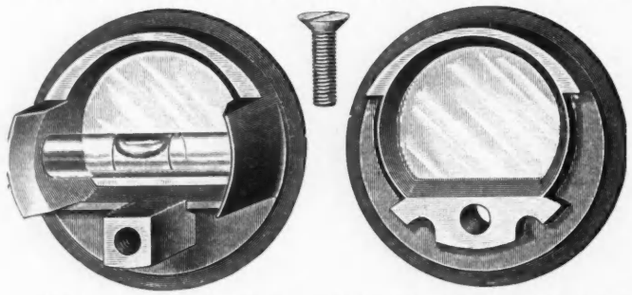
TRADE NOTES AND ITEMS OF INTEREST

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.

A Money Saving Level for Builders

A new level made by the Cadillac Tool & Sales Co., Detroit, Michigan, is recommended to the attention of our Builders. The simplicity of this little device, its accuracy and the fact that it enables a carpenter to make his own levels are real points that ought to be considered.

The Ezset Level, as it is called, is made of aluminum and so is rustproof, at the same time having the desirable qualities of lightness and strength. A heavy plate glass protects the spirit glass from dirt and other foreign substances. We give here an illustration of the Ezset Level, showing how it looks when the screw is removed and the level taken apart.



The Two Parts of the Ezset Level are Fastened with this Screw

Now if a carpenter wants to make a six foot level, he simply obtains a piece of stock of the necessary thickness, bores the holes, inserts two Ezset Levels—one for horizontal and one for vertical leveling. After adjusting so that the level is true both ways, he tightens the screws and has as fine a level as any man could wish for.

As a square level or bench level, the Ezset is hard to beat. You'd be surprised to find how many ways it can be used and it's just as good and true as any level you can buy.

The Cadillac Tool & Sales Co., Detroit, Mich., are offering the Ezset Level at a ridiculously low price. Undoubtedly it will be to your advantage to get further particulars about the Ezset and also the complete catalog of builders' specialties that the manufacturers are sending free.

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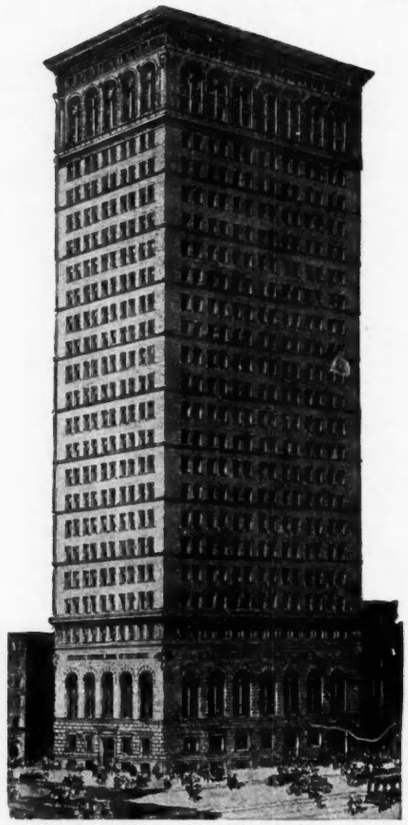
How a 26-Story Office Building Solved Its Smoke Stack Problem

The smoke stack of The First National Bank Building, Pittsburgh, Pa., raising 400 feet in the air, is lined throughout with 2-inch J-M Vitribestos manufactured by the H. W. Johns-Manville Co., and applied by their Pittsburgh branch. The advantages of J-M Vitribestos for this purpose are of sufficient importance to make the following brief recapitulation of its merits interesting to the readers of this journal.

J-M Vitribestos—vitrified asbestos—is attached to the interior of the stack to a thickness of only 2 inches, consequently it does not occupy much flue space. It presents a solid interior surface impervious to gases, fumes and acids of combustion. J-M Vitribestos, therefore, serves the double purposes of protecting the metal stacks from sulphorus and other destructive acids and insulating them from great heat.

Many smoke stacks are lined with radial brick about 5 inches thick, weighing 100 to 150 lbs. per cubic foot. Large slabs of J-M Vitribestos 3 feet, by 6 feet of 2-inch thickness, weigh, with all attachments, only 30 lbs. per cubic foot in place, or around 5 lbs. per square foot of stack area. The brick lining, on the other hand, weighs at least 50 lbs. per square foot or at least 10 times as much. This weight must be considered in determining the strength of foundation and in its general strain upon the entire building.

While this building was designed to be 26 stories in height, only 5 stories were built in the original undertaking completed four years ago. This part of the building is nearly all occupied by the bank, which continued to occupy it while the remaining 21 stories were being erected. Four years ago the stack erected for the 5-story building was lined with J-M



First National Bank Building, Pittsburgh, Pa.; Smoke Stack is Lined with J-M. Vitribestos

Roofing Bargains —Great Fall Sale!

Huge Stock—'Way Below Market Prices

We are among the largest buyers and sellers of Roofing in the World. Our tremendous purchases have put us in a position to offer Contractors and Carpenters the best grades of guaranteed Roofing at a big reduction from market prices.

We list here some of our famous brands, offered during this great Fall Sale at bargain prices which no builder who uses Roofing can afford to overlook.

Orders will be filled direct from this advertisement under our usual guarantee of Quality, Safe Delivery, Goods as Represented and Absolute Satisfaction or every penny refunded.

We also call your attention to the great sale of Storm Goods. Write for the Special Proposition to Contractors and Carpenters, also for our big General Catalog of Millwork and Building Material.

"Quality" Rubber Guaranteed Roofing

$1.25 Per Roll. The remarkable wearing qualities of this splendid Roofing are universally conceded. It is elastic, pliable and tough.

Not affected by changes of climate. Will outwear tin, tar or gravel and stand as long as the average shingle roof.

Guaranteed not to contain an ounce of tar. Made of heavy, strong, long-fibre felt, thoroughly saturated with asphalt.

1-Ply	2-Ply	3-Ply
Weight 35 lbs. Price per roll of 108 sq. feet	Weight 45 lbs. Price per roll of 108 sq. feet	Weight 55 lbs. Price per roll of 108 sq. feet
$1.25	**$1.50**	**$1.80**

"Jap-a-Top" Slate Surfaced Roofing

$2.25 Per Square. Furnished in two colors—Red or Grayish Green. This extra fine Roofing combines beauty, durability and economy.

Makes artistic roofs for fine residences, bungalows, garages, etc.

The heavy felt foundation is saturated and *Double-Coated* with Asphalt. The weather side is surfaced with *Chip Slate*, imbedded in the hot asphalt. Gives a rich pebbled effect. *Strong, rich colors—*

NEEDS NO PAINTING. Will outwear wood shingles.

Price per square of 108 square feet, $2.25. Roll weighs 80 pounds.

Composition Roofing

(Not Guaranteed)

80c Per Roll. If you want something "dirt cheap," for use on temporary buildings—*here it is!* We don't guarantee it, but if you want this kind of roofing, *we'll sell it to you.* Local dealers ask $1 50 to $2.00 per roll for the same roofing.

Roofing Nails and Cement for Seams FREE in Every Roll of Our Roofing

"JAP-A-TOP" Slate Surfaced Shingles

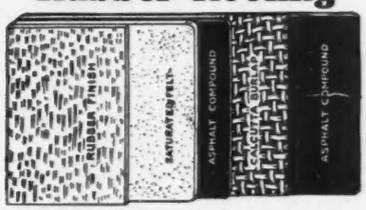
These beautiful shingles are furnished in *Red or Grayish Green.* Never need painting. Made by the same process as "Jap-a-Top" Roofing. "Jap-a-Top Shingles are made 8x12¼ inches, packed in crates. Each crate contains shingles to cover 100 square feet.

Weight, 220 pounds.

Use ordinary roofing nails.

Price per square, 424 shingles (crated), choice of Red or Grayish Green **$4.50**

Burlap Reinforced Rubber Roofing



Combines the strength of felt roofing with a reinforced piece of heavy burlap. Saturated with mineral rubber compound. Will last from 15 to 20 years. Price per square of 108 square feet..... **$2.85**

Cut Prices on STORM SASH AND DOORS—Get Our Offers

We are making a big cut on high-grade, guaranteed Storm Sash and Doors. Also making a Special Proposition to Carpenters and Contractors to buy Storm Goods from us this fall. *Worth looking into.*

Order Direct From This Adv. or Write for Big Free Catalog

The prices quoted here are bed-rock. If you are in the market for Roofing, *better get your order in at once,* while we are prepared to ship from stock. And don't forget that our proposition on Storm Goods means money in your pocket.

GORDON-VAN TINE CO., 668 Federal St., Davenport, Iowa

(260)

Vitribestos, and this stack it then became necessary to build to a total height of 400 feet without interfering with its use, as the bank required operation of the furnaces for heating purposes during the winter.

✣

A Christmas Suggestion

Now that Christmas time is coming, one begins to think of suitable gifts to gladden the hearts of friends and relatives. Gifts, to be appropriate, need not be terribly expensive. In fact, the more useful a thing is, the greater its value as a present.

Our carpenters and their wives can make someone happy by giving him one of those wonderful Master Slide Rules which are not high-priced and can scarcely be beat for use-

The Master Slide Rule Sold by The Dahl Mfg. Co., New York City

fulness. The Master Slide Rule is very handsome—made of boxwood and neatly timmed with brass plated steel. It is a handy tool for taking both inside and outside measurements as it is marked for both the same as other rules. When the Master Slide Rule is extended, strong steel springs hold it rigid.

In the illustration the lower slide is extended 2½ inches, making the distance between the two extreme points of the rule 10½ inches, as indicated by the arrow.

The Dahl Manufacturing Co., 51G East 42nd St., New York City, who make this handy rule, will be glad to send you free circulars if you write them. They also want agents and perhaps you can qualify and make some extra money. At any rate, just keep the Master Slide Rule in mind and when Xmas eve comes, slip a rule into somebody's stocking.

Water Supply for Country Homes

Home comforts and conveniences are. after all, the foremost things to be taken into consideration when building either for yourself or for your client. This is particularly true in the rural districts. The man in the country or in the small town today demands that his home shall be as complete as that of his city cousin. What were considered luxuries a few years ago are now necessities.

Can you think of anything more necessary to the country home than a water supply? Water is used so frequently during the day and yet the old method of carrying it in and out is still used. Have you ever stopped to consider that if you were in touch with modern necessities, water supply systems for instance, you could serve your clients' interests and your own by advocating and installing water systems? They are part and parcel of the building contract. You will be surprised to know how easily they sell in connection with your building contract. This is because they are considered as necessities,—a household convenience which it is harder to do without, than to pay down the few dollars necessary to purchase such a system.

The advertisement of the Perry System of Water Supply is shown in this issue of the AMERICAN CARPENTER AND BUILDER. By referring to it, any builder may see that its installation is within his province. The Perry System is the one that pumps water direct from the source of supply. There is no unsightly tank encumbering the roof nor is there any need of any kind of storage tank. Water supplied by the Perry System is always direct from the well.

But the booklet tells you all about it. Tells how you can make an attractive profit by installing Perry Systems; and when all is said and done, profits are what we are all after. Write to the United Pump & Power Co., 495 Old Colony Bldg., Chicago, Ill.. and ask them to show you the way to quicker profits.

Dealer's Estimate $419 - Ours $269

For over a year we have been telling you how we can save you 40% to 60% on lumber and millwork. Here's an instance of how this saving works out in dollars and cents.

Last April, Mr. L. H. Willrodt, of Chamberlain, S. D., sent us a bill of materials for prices, getting figures also from his local dealer. Our bid of $269 against Mr. Dealer's $419 secured us the business. After the lumber arrived, Mr. Willrodt wrote us as follows:

> "I am highly pleased with the quality of your lumber. I find it better than I have been able to get at our yards here, besides the great saving in cost."

A great many of our customers write and tell us of the big saving we make them. Among those who have written since the first of June are:

> J. D. Johnson, Fallon, Mont., $327 saved; Christ. Smith, Flaxton, N. Dak., $103 saved; S. B. Dillenburg, Pierz, Minn., over $200 saved; Fred. J. Brown, Grandview, Wash., $260 saved; H. G. Stocking, Lakin, Kans., $75 saved.

This gives you a good line on the saving we can make you.

From forest to mill—direct to you

We own thousands of acres of the finest forest lands in the Pacific Coast states. We cut, log and manufacture this timber—all under one overhead expense. One profit is all you pay. That's how we save you 40% to 60%. The lumber is of the finest quality—clean, straight-grained and free from sap and large knots.

Send your bills for quick estimate

Distance is no draw-back to our saving you money. No one else is so well equipped as us to give quick, accurate estimates. Every estimator on our large staff is an experienced lumberman.

Our orders go out within twenty-four to forty-eight hours of receiving. Seven railroads—keenly competitive—hurry our shipments to destination within an average of two weeks. With the time gained with our prompt shipping service, we can get lumber to you as fast as you'll be needing it.

Better lumber at 40% to 60% saving

will make you our steady customer if you order once

Why not give us a chance to figure on your next bill? You can't lose. *You must win.* We quote you delivered prices. *We guarantee satisfaction or money refunded.* If you're not ready right now to send in any bills of materials or schedules, at least use the coupon to get our price list and catalog.

If silos are used in your neighborhood, you can make a big profit selling **Seattle Silos** of clear fir, equipped with patented swinging doors.

Hewitt-Lea-Funck Company
408 Crary Bldg., SEATTLE, WASH.

Hewitt-Lea-Funck Co.
408 Crary Building, SEATTLE, WASH.

Kindly send following, with price list:

☐ Catalog of lumber and millwork.
☐ Special Silo Folder.

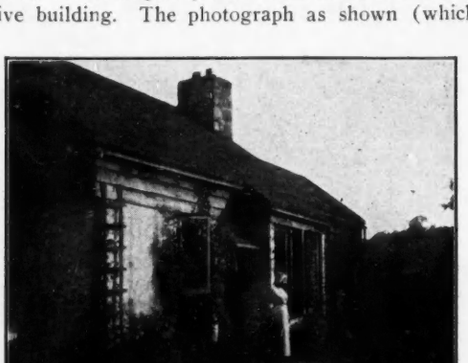
Name _____

Address _____

Business _____

The Artistic Home of an Architect

The accompanying photograph shows what a truly artistic and homelike house J. Acker Hayes, architect of New York City, has built for himself. Nothing could be more unpretentious, and yet it radiates a more perfect atmosphere of the restful, homelike quality than a much more elaborate and expensive building. The photograph as shown (which is a



Home of J. Acker Hayes—Stucco Stained with Cabot's

work of art in itself), suggests this atmosphere in its soft lights and in bringing out the values of the architectural details, trellises, vines, shrubs, etc. Everything has been made to harmonize perfectly, including the coloring of the stucco, which is done with Cabot's Waterproof Cement Stains to give the soft, unglossed tone and preserve the natural texture of the stucco.

✣

New Edition of Hendricks Comercial Register

We have just received a copy of the 22nd Annual Edition of Hendricks' Commercial Register of the United States for Buyers and Sellers.

As in all previous editions, the publishers have made many additions and improvements; over six thousand additional classifications have been added, each one of which represents the manufacturers of some Machine, Tool, Material, Apparatus or Specialty that appeared in no former edition.

The present book requires 138 pages to index its contents. As each page contains about 412 lines, the 138 pages make a total of over 55,000 classifications, the grand total representing over 300,000 American business firms, covering every state, city, town and hamlet throughout the country.

The special and ever-to-be-remembered feature of this book is that every firm is fully classified, regardless of patronage, therefore the book represents about everything that is required in the above mentioned industries, from the producer of the raw material to the consumer of the finished product.

It is expressed to any part of the country on receipt of $10.00. Address, S. E. Hendricks Co., Publishers, 74 Lafayette Street, New York, N. Y.

✣

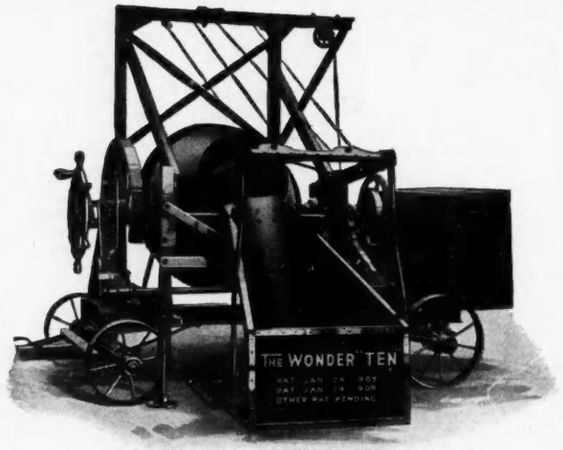
"Surely a Wonder"

This, in a nutshell, is the verdict of thousands of enthusiastic contractors regarding the Little Wonder "Five" and the Wonder "Ten" concrete mixers. Those are the exact words in many of their letters, some of the latest of which the Waterloo Cement Machinery Corporation, Waterloo, Iowa, have printed under the title of "Recent Remarks." These letters are from men who accepted the now famous "Man to Man" proposition of the manufacturers, and know whereof they speak.

The Little Wonder "Five" is said to have worked a complete revolution in the small job field. Its capacity is five cubic feet per batch and it will mix 35 to 50 cubic yards a day. Its swift, sure work, ease of operation, simplicity, economy and durability, fill the need of the concrete industry in a department that was at a disadvantage until the appearance of this handy little mixer. It is claimed by those in touch with conditions that this machine is making, for the contractors who buy it, hundreds of thousands of dollars more, in the aggregate, than they have ever made before. For building sidewalks, curbs, foundations, cisterns, culverts, bridges—the hundred and one small things in which there is good money provided they can be done quickly and well, the Little Wonder "Five" has largely displaced hand work, and does it better.

When one stops to think that even in the ten days' free trial of the machine on his own work there is a profit of 50 cents per cubic yard over hand work, and that the mixer pays for itself in less than twelve days on this basis, it is plainly a matter of self interest to try the machine. There is no obligation in this, the manufacturers agreeing that if the mixer is not satisfactory in every particular they will even pay the freight on it.

The Wonder "Ten" is making an equal sensation in the field of heavy work. It is a "sack to the batch," or ⅓-yard machine, and mixes from 60 to 90 cubic yards per day, according to arrangement of materials, the efficiency of the crew, etc. With the Side Loader the capacity is about doubled. The Wonder "Ten" is built on the same general lines as the "Five," only larger and heavier. It is provided with a friction clutch and has a back geared dumping device. The control levers are so placed that one man can operate the Side Loader, the dumping, engine, etc. The loader bucket does not clog nor choke. The mix is always visible and its consistency is easily regulated. A first class



Waterloo Cement Machinery Corporation Mixer

gasoline engine of ample power and under steel housing completes the outfit.

Both these machines are the products of manufacturers who have reputation for high grade, scientific construction, and for knowledge of the needs of contractors which only long experience in the building of concrete mixers gives. All their machines are thoroughly standardized, and their patents cover many of the most valuable improvements ever made in mixers. Those who are familiar with the famous Polygon Tilting Batch Mixer need no further recommendation to the Wonder line than the fact that it comes from the builders of that machine.

The Waterloo Cement Machinery Corporation will be pleased to send "Recent Remarks" to those interested in concrete mixers for small work.

At Last The PERFECT Floor Scraper Blade

Every Carpenter and Contractor, Read:

YOU men at the trade know that the business end of a Floor Scraper is the blade—it's the real life, the real working feature. Without a good blade in your Floor Scraper the machine is useless to you. I have realized the necessity of a good scraper blade and have experimented with and tested every known brand of steel of American and Foreign manufacture. Fox Special Carbon Steel is the basis of the extraordinary wearing qualities of Fox Floor Scraper Knives. This steel is rolled to my special order and analysis and is the result of years of persistent work and study. The result is a perfect Floor Scraper blade—a blade that is in a class by itself—the best that money can buy. To obtain this peculiar temper required in Floor Scraper blades it is essential to combine both hardness and toughness. A blade must be hard enough to hold its edge and tough enough so it will not crack and chip out when the hook is turned. The tempers in your chisel and your saw are different, and so it was found with the Floor Scraper blade; the grade of steel used in the saw or chisel would not do for scraper blades. Each tool requires a special grade of steel and a temper peculiar to its requirements.

First: It's the quality of the steel.
Second: It's the superior hardening, toughening and tempering process accomplished after years of knife making.
Third: It's a dozen different points of skill and care gained from the infallible teacher—experience.

There are secrets in every trade within the trade. A maker of blades would be no blade-maker if he could not temper his blades in some superior way; each one thinks his are the best—when the fact of the matter is, the service the blade gives tells the story of material and temper better than the maker does.

All I can say about the way I temper our blades would not prove how much better they are than other blades—unless you tried them. They cost no more than other blades—mark that.

SPECIAL OFFER—
6 Blades, $3.00 Transportation Charges Paid.

Order a half dozen as a test; make me prove my statement. Six blades $3, shipping charges prepaid. Try them—if not found as I claim them to be, return them and back goes your money.

If you have used Fox Scraper blades you know they are good; they have stood up. The Fox Supply Company has maintained a reputation for making the best blades for years. I have made their knives for seven years and know the merits of this new blade.

Frank W. Campion
Manager.

Fox Supply Co.

Dept. A. Brooklyn, Wis.

HOW TO ORDER SPECIAL FLOOR SCRAPER BLADES

I will make blades for any make of Floor Scraper you may have. If you are using a Floor Scraper other than the Fox, merely mention the name of the scraper, or better still, send me one of the old blades by Parcel Post, or draw a rough sketch of your old blade by laying it on a sheet of paper, marking out the slots, length of blade and approximate width and I will duplicate your blade, guarantee it satisfactory in every way, or refund your money. Six blades to your order $3.00, transportation charges prepaid.

—and Here's The Perfect Floor Scraper

Light on the operator. Lifts easily and quickly. Rubber tired wheels that cling but will not mar. Solid cast head—nothing to get out of order. 96% of weight rests on cutting edge. Works on any floor. Cannot "chatter," comes completely equipped including:

1 Clamp Block for sharpening Knives.
4 Crown Knives, large size.
3 Old Floor Knives, small size.
1 Special Knife, substitute for sander.
1 Burnisher.
1 File.
1 Wrench.
1 Oilstone.
Complete set of instructions for operating.

Ten Day FREE Trial

Every scraper must make good in actual service before it is sold. Order a Fox No. 1. Use it 10 days. Then decide. Pay no money. Send for scraper on 10-day trial now.

$25 INCLUDING

Fox No. 7 Completely Equipped

1 clamp block for sharpening knives; 4 crown knives, large size; 3 old floor knives, small size; 1 special knife, substitute for sander; 1 burnisher; 1 file; 1 wrench; 1 oilstone; complete set of instructions for operating

A Moisture-Proof Wall Board

Just as the automobile is universally replacing the horse, so is Wall Board being used instead of lath and plaster. Its advantages over lath and plaster are numerous, yet wall board has still one shortcoming. Occasionally dampness in a house will cause some wall boards to buckle or warp. From the start the Plastergon people have realized the advantage of placing on the market a moisture proof board. They have spent large sums of money in experimenting and now subject their product to a costly chemical process which they inform us makes the board as near moisture proof as it is possible.

The fact that they are advertising their board with a guarantee indicates their confidence in their moisture-proofing process.

This board, although only a few years old, is having a tremendous sale, and today is sold the world over, even in Korea, where the humidity is intense.

Plastergon for Stores and Public Buildings

The adaptability of Plastergon is wonderful, to say the least, and therein lies one of the big secrets of its money-making power for the progressive carpenter and builder. With perfect harmony it lends itself to every style of home, whether the costly mansion, or the inexpensive cottage. The attic, so often bare and empty or filled with odds and ends, can be quickly transformed, and beautifully, too, into children's playroom, billiard room, extra bedrooms or workshop. And this at a cost which will actually surprise your customers.

Many of our readers are turning their former dull seasons into busy periods by advocating the use of Plastergon wall board. It can be installed at any time of the year and is used in offices, factories and other buildings. It is also used for remodelling and repair work.

We suggest our readers getting in touch with the Plastergon Wall Board Company, Tonawanda, N. Y., and receiving further details of their product.

Plastergon for Cosy Residences

A New Wire Tightener

One of the new conveniences which deserves special mention, is a wire tightener, shown in the accompanying illustration made by the Luther Grinder Mfg. Co., Milwaukee, Wis. This is a very simple yet efficient device, by which one man can tighten slack wires, and at the same time nail them to the post where he is doing the tightening.

Luther Wire Tightener

This is a great convenience, especially at this time of the year, or in the spring when people want to tighten up the slack wire around their fields. All wire fences are constantly in need of repair, but in the fall and spring there are certain fields which a farmer usually wants to pasture for a short time, and the fences invariably need some repairing. It is a great inconvenience to have to carry a bunglesome wire tightener, which has to be fastened around the second post from where you want to do the tightening.

How it is Used

With this simple device, one man can do the tightening in about one-third the time that it would take two men with a common wire tightener. If you have any wire fences to keep in repair, it would be to your interest to investigate this article.

Cement Grout Buildings

In the construction of the many houses, barns, kennels and other buildings on the extensive country estate of Joseph B. Thomas, at Middleburg, Va., cement grout poured in steel forms has been adopted with marked success, both in cost saving, and in producing permanent, attractive buildings with the unskilled labor and utilizing rough stones cleared from the fields. The plans of this interesting group were prepared by Frederick J. Sterner, architect of New York and a new system of steel forms, the invention of a Washington architect, Milton Dana Morrill, were employed for the work.

Liquid grout of cement, lime and sand were first poured into the steel forms and into this grout, rough field stones of all sizes and shapes were dropped and bedded. The forms were coated with rosin and sand to give rough face, and after the forms were removed, a thin coat of cement stucco was applied to the walls. As from 7 to 9 feet in height was poured at one operation, the work was rapidly done.

This grout construction is in no way new. The Romans employed it largely in the Coliseum which for centuries withstood the ravages of time. These walls, of course, were tremendously thick; and the inside and outside faces were first laid up and the middle part poured full of grout afterward. In our own time this construction has been largely used in Southern France, where wood forms have been employed to receive this grout.

These forms must be built watertight, which has made the cost prohibitive, especially for the lighter forms of construction. Steel forms, however, have been successfully used in the above mentioned work and the cost per square foot is practically nothing, as these forms are in the nature of a permanent equipment to be used over hundreds of times.

Mr. C. H. Haga, the Superintendent of Construction for

Two Big New "BERGER'S Classik METAL CEILINGS" Steel Ceiling Features

A benefit to both the purchaser and ceiling erector

The Bead is made extra long in shape of half an oval, reinforcing the ceiling plates at joints, fitting snugly over under lapping bead, making a tight and perfect fitting joint.

Calking, therefore, is not necessary with our ceilings unless the conditions have been made so by the ceiling erector, which would be no fault of the construction. This expense, which heretofore has been such an important item to the erector, is eliminated entirely.

The top of the Nailing button is counter-sunk, forming a self-centering, self-guiding, never-slip nailing point, preventing the nail from slipping while driving, and acting as a guide for the erector in placing the nail at the correct nailing point without any inconvenience to the ceiling erector.

These two features alone permit a saving in erecting, which cannot but look good on the profit side of your ledger.

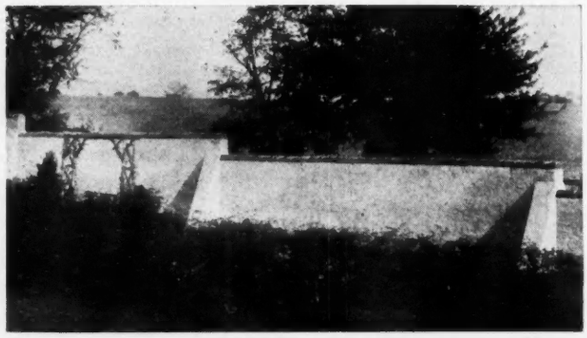
Our ceilings are dust and vermin-proof, fire retardant and made of No. 29 gauge steel.

The Berger Mfg. Co., Canton, Ohio

For the best service address the nearest branch.

NEW YORK ST. LOUIS BOSTON MINNEAPOLIS SAN FRANCISCO PHILADELPHIA

We also manufacture Rib-Trus, Ferro-Lithic and Multiplex Reinforcing and Furring Plates, Metal Lath, Roofing, Eaves Trough and Conductor Pipe, and Sheet Metal Building Products of all kinds.



Concrete Wall on Thomas Estate. Made with Morrill Forms

the Thomas Estate, has given the following interesting cost data on these grout walls which would indicate that this form of construction might be used with considerable saving on foundations, and walls, generally where there is a scarcity of skilled labor.

On rough stone walls it is difficult to get all stones perfectly bedded in mortar. In the grout walls, this is much easier, as the stones are dropped and immersed in the wet mixture and a smooth finish is left inside and outside. Mr. Haga reports that this grout construction has been used on over 1000 cubic yards of 12-inch wall, with common labor at 19½c per hour. The cost per cubic yard was:

1 yd. field stone	$0.60
¾ yd. sand at $1.50	1.12
300 lbs. cement at $1.50 bbl	1.12
100 lbs. lime	.48
Mould setting and pouring	.89
Total cost	$4.21

As one cubic yard makes 27 square feet of 12-inch wall, the cost per square foot of finished wall is slightly less than 15½ cents.

This grout construction showed a considerable saving over rough stone walk which must be laid up at least 18 inches in thickness.

For full particulars about the steel forms used, address Read & Morrill, 179 Jeralemon St., Brooklyn, N. Y.

✣

Athletics as an Aid to Efficiency

The American Pulley Company is to be congratulated on the form displayed by its employes on their first annual field day held not long ago on the company's big athletic grounds. The "American" boys showed there that muscles developed by hard work are as capable of prowess, in the various departments of field sports, as sinews trained by expert professional coaches.

The record made by the "Americans" compared more than favorably with those of college athletes and other amateurs. But that is not all. The company has a greater claim to congratulation in its progressiveness and farsightedness in providing such ample facilities for, and promoting interest in athletics among its employes. Other large plants would do well to take to heart the motto which the officers of The American Pulley Company have, perhaps unconsciously, adopted, "All work and no play makes Jack a dull boy." One thing is certain, "American" Steel Split Pulleys have not suffered in quality nor has their number per day diminished since field sports were introduced at the company's Philadelphia plant. Every day during the noon hour the large athletic field owned by the company is used by the employes. The company has an organized baseball team for the summer and soccer and basketball in the winter.

Tennis is the favorite of the office corps.

It is said that Wellington won the Battle of Waterloo on the football field of a great English public school. May we not, then, believe that some of the energy and determination —some of the "up and at 'em" acquired on the company's athletic grounds is daily being transformed into "American" Pulley efficiency?

✣

"Time—Money—Men"

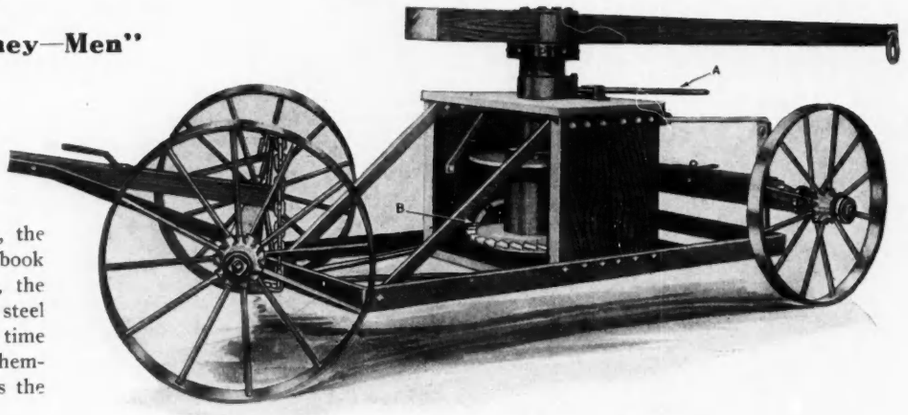
That is what the House Movers Supply Company, 520 East Lack Court, Cedar Rapids, Iowa, state in their circulars, are put into every moving job. The less time, the less money, the fewer men, the better for the contractor's pocket book and peace of mind. Therefore, the circular goes on to say, modern steel trucks and capstans will cut the time and labor costs and pay for themselves on a few jobs and that is the kind of an outfit to have.

The accompanying illustration is a portable capstan that the House Movers Supply Company sell in connection with their Little Wonder and Little Giant two, four and eight-wheeled trucks. The capstan is described by them as follows:

Spool is all steel and supported in a heavily braced and substantial frame and will stand every possible pulling strain you may put on it.

Frame is hung in front by a chain, and raised and lowered by raising tongue and hooking chain in angle plate at base of tongue. Attached to rear axle by ratchet bars which easily raise and lower capstan. Spool holds 800 feet of ⅝-inch steel cable. Sweep, 4 by 7 inches, 12 feet long.

Three-story brick buildings weighing 2,800 tons and over have been pulled with these capstans, as they develop 45 horsepower with two horses. The front gear makes a very quick stake puller and does away with the old time killing way of pounding and jerking with a chain.



Portable Capstan, Sold by the House Movers Supply Co.

Circulars fully describing and illustrating the full line of house moving apparatus manufactured by the House Movers Supply Company will be mailed on request.

✣

"The Standard" Mixer for Side-Walk Construction

The high cost of mixing concrete by hand for sidewalks has been a money losing proposition to the contractors for many years and it was not until the investigation into the

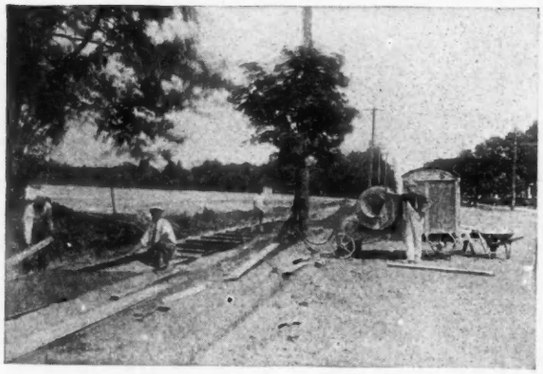
merits of small mixers for mixing concrete that the contractors were able to reduce the cost sufficiently low enough to insure them a moderate profit for their work.

J. E. Neuman of Belmar, N. J., investigated several machines particularly adapted to sidewalk construction, and says that he finds "The Standard" Low Charging Concrete Mixer to be ideally adapted for this purpose. The illustration shows one of "The Standard" mixers, size 103, which has a capacity of about 4½ cubic yards of mixed concrete per hour, at work at Belmar, N. J., making sidewalks.

Mr. Neuman writes that he is proud of his machine and it is doing splendid work, in fact much better work than several other machines which are working in the vicinity of Belmar, Red Bank, and throughout the section that he has been doing work in.

This machine is rated as the Baby Machine by "The Standard" Scale & Supply Co., New York, Philadelphia, Pittsburgh, and Chicago, and while it was at work at Belmar, N. J., it was in a position to accomplish a very unique feat of coming to the aid of a contractor who had a larger machine which had been broken and would have tied up the work for about two days.

The Bay Dredging & Contracting Co., was the party who



"Standard," in use by J. E. Neuman, Belmar, N. J.

took Mr. Neuman's little baby machine and used it for a day and a half for mixing concrete at the inlet of the Sharks River, at Belmar, N. J. They placed a double sized load in the drum and claim that the engine carried the load very satisfactorily, and the concrete turned out A No. 1. This example only goes to show that "The Standard" Low Charging Concrete Mixers are rated under their capacity to a great extent.

Although The Standard Scale & Supply Co. do not recommend that the contractors over-load the machine, it can be done in such cases as shown in this particular example.

The Low Charging feature, Mr. Neuman claims, is a great advantage to the contractor who is doing work where the machine is constantly on the move, as the simplicity and portability of this mixer enable it to be moved from one place to another without any large expense or loss of time to the contractor.

The economical work of "The Standard" Low Charging Concrete Mixer has convinced Mr. Neuman that it would be possible for him to go into a larger sphere which he claims he is going to do, and will under no circumstances consider any mixer but "The Standard." This goes to show that once a "Standard" Owner always a "Standard" Booster. Copy of the latest catalog gotten out by "The Standard" Scale & Supply Co., New York, Philadelphia, Pittsburgh, Chicago, can be had upon request from any of their branch houses.

Valuable Oak Flooring Booklet

A new edition of "Oak Flooring" has just been issued by the Oak Flooring Bureau, 890 Hammond Building, Detroit, Michigan. This is a booklet that every one of our readers should have for reference. In preparing it special care has been taken to present nothing but practical advice for handling, laying, scraping, finishing and care of oak floors. Every detail, from the bundle to the finished floor, has been carefully considered, so that it will be easily understood. A section, of particular interest to carpenters at this season of the year, is devoted to winter work; remodelling old homes by laying thin oak floors right over the old floors.

✣

How to Subdivide an Irregular Plot of Land

NOTE: Previous installments of these instructive papers on the use of the Transit and Level appear on page 110 April, page 96 June, page 110 July, page 120 August, and page 132 October.

It recently became necessary to divide into three equal parts a plot of land such as that shown by solid lines in Fig. 1. The following description shows how this was done by the use of an inexpensive transit (the Starrett) and a little computation.

The sides *AB* and *AD* run along streets intersecting at an angle of 63 degrees. They measured respectively 412 and 158 feet. The side *BC*, 219 feet 4 inches in length, made an angle at *B* of 70 degrees 50 minutes. The side *DC*, with a length of 276 feet, made an angle of 14 degrees with the lines *DK* and *JL*, both of which are parallel to *AB*. The two lines of division *FJ* and *GH* were required to be perpendicular to *AB*.

The first thing was to find the area of the plot. Knowing the distances *AB* and *BC*, together with the angles at *A* and *B* it is a simple matter of trigonometry to obtain the distances *AE*, *EM*, *BM*, and *MC*, the lines *ED* and *MC* being perpendicular to *AB*. For those who are not familiar with trigonometry, however, a simple method of obtaining the same result by means of the transit may be used.

Set the instrument at *D* with the plumb bob directly over the station mark or corner of the plot. The instrument should then be made as nearly level as possible by adjusting the lower parts of the extension legs. It should then be brought to a perfect level by using the leveling screws between the plate and the tripod head. This is done by

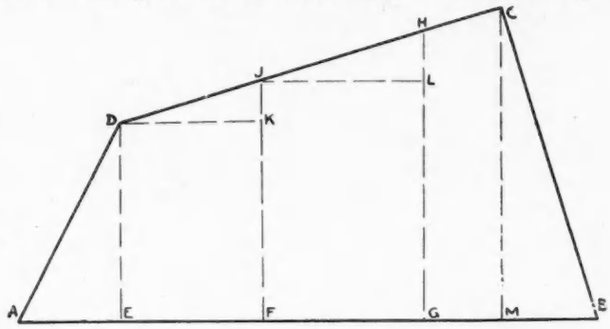


Fig. 1. Irregular Plot of Land to be Divided into 3 Equal Parts

bringing the level over one of the screws and turning one screw in and another out until the bubble appears in the center of the level glass. Then turn the sight tube or telescope through approximately a right angle and again adjust the bubble to the center of the glass by means of two leveling screws. Continue this operation until the bubble will stand in the center of the glass, no matter what direction the level may be turned.

Sight to a rod or stake at *A*. Clamp the sight tube by means of the clamp screw and nut. Then turn the graduated arc until the index finger can be pressed into the zero

mark by means of the push pin. Screw the graduated arc into that position by the clamp lever. Then turn the eye end of the sight tube or telescope to the left until it has turned through an angle of 27 degrees (to make a right angle at E, the sum of the angles at A and D of the triangle ADE must equal 90 degrees; as A equals 65 degrees, the angle at D must be 27 degrees). Drive a stake at E, directly in line with the new sight and on the line AB. Then the line ED will be perpendicular to AB. In a similar manner, by making the small angle at C equal 19 degrees 10 minutes, the point M is obtained. Measure AE, ED, MB, and MC. The area of the plot will be the sum of the areas of the two triangles ADE and BCM added to the area of the trapezoid $CDEM$. We now know all of the dimensions of these three figures and can easily obtain the area. It is found that AE is 71 feet 9 inches, ED is 140 feet 9 inches, MB is 72 feet one-fourth inch, and MC 207 feet 2 inches. Now, the area of a right angle triangle is equal to one-half the product of the two sides meeting at right angles, hence, ADE equals $\frac{1}{2} \times 71.75 \times 140.75$ equals 5049 square feet.

Similarly, the other triangle is 7459 square feet. The area of the trapezoid will be equal to the product of the height, EM, multiplied by one-half the sum of the bases, ED and MC. Thus the area is

$\frac{1}{2} \times 268.25 \times (140.75 - 207.17)$ equals 46,669 square feet.

The total area is therefore 59177 square feet and each one of the three equal shares is 19726 square feet.

The first plot will include the triangle ADE plus the trapezoid $DEFJ$. We do not know the distance EF or the distance FJ. We do know that the angle JDE is 14 degrees, and that for any such angle the ratio of $JK:DK$ is 0.24933; that is, JK equals $0.24933 \times DK$. Also the area of the trapezoid will be equal to 19726—5049 equals 14577 square feet. This makes an equation which can be readily solved by algebra, giving the dimensions DK equals 95 feet 1½ inches. By using the ratio between JK and DK we find that JK is 25 feet 3½ inches; hence, FJ is 166 feet ½ inch. In the same manner the distance FG may be found such that the area $FGHJ$ will equal 20,609 square feet. In this case we will remember, of course, that JL equals $0.24933 \times JL$ and obtain our result as before. In this way FG is found to be 114 feet 3½ inches.

Having obtained all the dimensions shown on the sketch it is advisable always to check the result in order to make sure that no errors have occurred. For instance, knowing FG, FJ and GH, we know that the area of the middle one of the three equal plots (20,609 square feet) must equal $\frac{1}{2} FG \times (FG - GH)$. By making the actual multiplication we find that the area checks with the required area almost exactly. ✣

Catalog of Drawing Instruments, Etc.

One seldom sees a more complete catalog of drawing instruments and supplies and of surveying instruments than that just issued by Kolesch & Co., 138 Fulton Street, New York City. This is a cloth bound book of 336 pages. The simple fact that it takes 10 pages to index the contents shows the very wide range of materials illustrated and described. Anyone connected with the building or architectural business will be surprised in looking this catalog over at the number of useful and labor saving instruments and supplies he has been trying to worry along without. A study of it will suggest dozens of ways for increasing ones efficiency. Everything is very clearly illustrated, fully described and priced in plain figures. Write Kolesch & Co. today regarding a copy of this book.

No. 1.

No. 2.

No. 3.

No 4.

No. 5.

No. 6.

No. 7.

No. 8

How Frank W. Campion, Manager of the Fox Supply Co., Brooklyn, Wis., makes their New Fox Floor Scraper Blades
—For Discription see page 124

Statement of the Ownership, Management, Circulation, Etc.,

of **American Carpenter and Builder**, published monthly at Chicago, Ill., required by the Act of August 24, 1912.

NOTE.—This statement is to be made in duplicate, both copies to be delivered by the publisher to the postmaster, who will send one copy to the Third Assistant Postmaster General (Division of Classificaion), Washington, D. C., and retain the other in the files of the post office.

Editor, Wm. A. Radford, 5341 East End Ave., Chicago.
Managing Editor, Bernard L. Johnson, 5422 Ridgewood Court, Chicago.
Business Manager, E. L. Hatfield, 1255 Thorndale Ave., Chicago.
Publisher, American Carpenter and Builder Co., 1827-1833 Prairie Ave., Chicago.

Owners: (If a corporation, give names and addresses of stockholders holding 1 per cent or more of total amount of stock.)

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H. M. Radford, 5341 East End Ave.
Roland D. Radford, 5341 East End Ave.
Wm. A. Radford, Jr., 5341 East End Ave.
Geo. W. Ashby, Berwyn, Ill.
E. L. Hatfield, 1255 Thorndale Ave.

Known bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities:

There are no bonds or other securities outstanding against the American Carpenter and Builder.

E. L. HATFIELD, Business Manager.

Sworn to and subscribed before me this 30th day of Sept., 1913. SOREN MATHISON,
(Seal) Notary Public.
(My commission expires Mar. 19, 1914.)

Floor Scraper Knives

Everyone who has used a floor scraper knows that it is the knife, the scraper blade, that does the work. The blade is the business end of any floor scraper. Without a good blade in your floor scraper the machine is useless to you.

Fully realizing this fact, Mr. Frank W. Campion, Manager of the Fox Supply Company, Brooklyn, Wisconsin, has been concentrating on the problem of producing the perfect floor scraper blade. He states that he has experimented with and tested every known brand of steel of American and Foreign manufacture. None of them proved just right. At last, following his special formula, and under his personal direction, "Fox Special Carbon Steel" has been produced. This is the basis of the extraordinary wearing qualities of Fox Floor Scraper Knives.

Owners and users of floor scrapers will be interested to know how these new floor scraper knives are made. And by the way, these blades are made to fit any of the standard floor scrapers or special blades will be made to order. The illustrations on page 122 show the series of operations from the time the blank of special steel goes into the tempering oven until it is finally sharpened.

Given a piece of steel of the proper composition, expert work at the tempering furnace produces just the degree of hardness and toughness required by a floor scraper blade to stand up to the work it must do. These new floor scraper knives are each tempered separately, no blade is ever put through the fire more than once. They are heated to just the right temperature, held there just an instant and then chilled in a tempering oil. This operation requires only two seconds, but it is the crises of the whole matter; the blade is either made or ruined here.

After the blades pass through the chilling process and are allowed to cool slowly, they are tested as shown in the second photograph. This test is a most severe one; at the Fox plant any blades that do not possess full merit are thrown out.

No. 3 shows the first grinding. This is done with a fine grain "Cool" Norton wheel. In No. 4, the next operation, the blade is placed in the "filing form" such as the Fox people supply with each floor scraping outfit. An ordinary 10-inch mill file is used to obtain the best results. "I draw my file the full length of the blade at each stroke," says Mr. Campion. "This gives a perfect bevel from one end of the blade to the other. Continue to file until you have a light feather edge across the entire cutting edge.

"The next operation is to get a keen, smooth cutting edge; this is done with the hone, or oilstone. Hold your hone at an angle of about 15 degrees, thus removing the feather edge left in filing. Twice or three times across the blade should leave it in perfect shape. Note Cut No. 5.

"Cut No. 6 illustrates the blade placed in the filing form ready to turn the hook edge. The blade is now placed on the side of the block, cutting edge up. Start the burnisher at an angle of about 45 degrees, take five strokes forward and backward, putting a reasonable amount of weight on the burnisher; then five strokes at an angle of 30 degrees, five strokes at 15 degrees, and five strokes at 3 degrees, as you will note in Cut No. 7. *It's the hook that does the work.* By exercising the same care with your scraper blade as you do with your saw or chisel, most satisfying results will follow."

The Fox Supply Company, Brooklyn, Wisconsin, desires to get into touch with everyone of our readers who owns or operates a floor scraper, either a Fox or any other make. They want to explain and demonstrate this new floor scraper blade proposition, and give you the inside facts in regard to their special introductory offer.

A Tool for Master Builders

An elegant builders' hatchet is being made by the Germantown Tool Co. The prominent features of this tool certainly recommend it to the attention of all those who desire the best in tools at a medium price.

Unlike many hatchets, the Master Builder Hatchet has no malleable iron in it. It is good, highly tempered steel throughout and the edge can be ground to a razor-like thinness. It holds an edge, too. The hatchet is evenly balanced with the handle; and the perfect hang makes the tool as efficient in driving nails as is a hammer. The extra thinness of the bit does it.

The "Master Builder," All Steel Hatchet of the Germantown Tool Works

Attention is directed to the handle of second growth hickory. You will notice that it is octagon in shape and slightly swelled at the end. This prevents the handle from slipping or turning in the hand. The unusual shape is also very restful and does not tire one in the least. As for the head coming loose,—such a thing is impossible on account of its being specially wedged.

The manufacturers claim that the Master Builder is the best hatchet that money can build. On account of the individual attention given to each tool, it ought to be; to say nothing of the excellence of the material they put into it. Each hatchet is individually tempered and tested. The Master Builder Hatchet is made in two sizes, with a 3½ inch or a 3¾ inch bit. Either size is the same price. A free brass cap or shield to protect the cutting edge is given with each hatchet.

If you would like to investigate the Master Builder Hatchet or know more about it, write the Germantown Tool Works, 518 Commerce St., Philadelphia, Pa., and they will send you circulars.

✣

Everything in Sheet Metal

A catalog has recently come to our attention which we believe to be the most complete cataloging of sheet metal products we have ever seen.

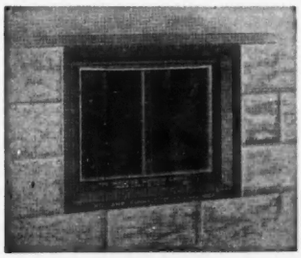
Every conceivable need of the varied types of building construction is anticipated and every imaginable building material is illustrated and thoroughly described including roofing, siding, eaves trough, conductor pipe, gutters, ventilators, skylights, metal ceilings, metal furniture, metal lumber, metal stock room equipment, cornices, finials, reinforcing and furring plates, metal lath, metal shingles, tin plates, metal tile, etc.

Everything is classified in so thorough a manner that it is immediately located and many tables are given which will prove especially valuable to the sheet metal worker or to the prospective buyer of these materials.

The Berger Mfg. Co. of Canton, Ohio, is the publisher of this book and their line needs no introduction to the building fraternity.

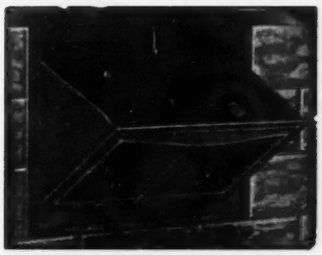
It appears that this company operates their own steel plant, rolling mills, galvanizing plant and factories, enabling them to control the quality of their materials from the ore to the finished products.

We are advised that a copy of this book will glady be sent to any of our readers interested.



The Window Chute

A Real Window—A Perfect Coal Chute



Useful 364 days in the year for light and one day for the coal man

A Burglar-Proof, Air-Tight Window which conforms with architectural lines. Looks best and is best. Write for booklet giving full description.

Holland Furnace Co.

Dept. "A. C." :-: Holland, Mich.

—"Holland Furnaces Make Warm Friends"—

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

UNDERFEED

FURNACE OR BOILER Cuts Your Coal Bill ½ to ⅔

BECAUSE the Underfeed *successfully* burns the cheaper grades of hard and soft coal, coal bills ean positively be cut ½ to ⅔. A saving of such magnificent proportions makes the Underfeed the most economical heater for any building.

To SPECIFY the Underfeed is to insure all-time, clean, even heat at *least* cost—while adding to the RENTING and SELLING value of the building.

The Underfeed has *lowered* heat cost in over 25.000 homes and buildings—getting *clean, even heat* from pea, buckwheat or slack coal that costs from $2 to $3 a ton *less* than the more expensive grades required in ordinary heating plants. The Underfeed entirely consumes gases and smoke, and converts them into warmth, thus utilizing valuable heat units, which escape in topfeeds, *wasted* up up chimneys. Write today for FREE book which fully describes

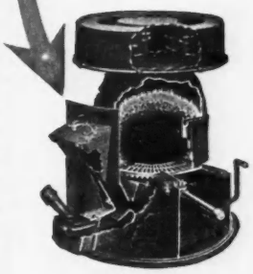
Boiler

THE PECK Williamson Underfeed FURNACES BOILERS

Here are two testimonials used in our November National advertising:

You Can Figure the Difference

Mr. L. C. McMillen, Fort Atkins, Wis., writes: "I enjoy taking care of the Underfeed far better than I did my old hard coal furnace. Just to think of the difference in price of coal! I pay $4 a ton and my brother's hard coal costs him $8.50 a ton. Best of all, you always have a fine bed of coals, even if you have gone one, two or three days without looking after heater."



Furnace

Wins Out in a Severe Test

The Ideal Belt Co. of Detroit, Mich., has used an Underfeed Boiler in their factory five years, and Mr. Frank C. Jansen writes; "It is entirely satisfactory, not only as a great fuel saver, but it requires very little attention. The smoke-consuming qualities are excellent, as we burn a great deal of our scrap leather and this is giving it a severe test. Our new building will surely have an Underfeed in it."

The Underfeed has many exclusive advantages. All fire is on top. No heat-retarding, soot-covered, hard-to-clean heating surfaces. No clinkers, few ashes. Requires least attention.

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.

Send rough sketch or blue print of your floors and basement, and we will submit FREE Heating Plans and estimate of cost. Write TODAY for FREE Warm Air Furnace or Steam and Hot Water Boiler Book.

THE PECK Williamson Co.

436 W. Fifth St. CINCINNATI OHIO

Beaver Companies Build New Plant

The Beaver Companies, makers of Pure Wood Fibre Beaver Board, the material that successfully takes the place of lath, plaster, and wall paper in all kinds of buildings, are now constructing their fifth and latest plant at Thorold, Ont.

The other Beaver Board plants are at Buffalo, N. Y,, where the administration offices are located, at Beaver Falls, N. Y., at Roanoke Rapids, N. C., at Ottawa, Can., the headquarters of Canadian activities. There is also a branch in London, England, 4 Southampton Row, and distributing points throughout the world. The building of the Thorold plant marks a significant point in the growth of the Beaver Board industry.

Thirty carloads of machinery, most of it parts of one

Form Work on New Beaver Board Plant at Thorold, Ont.

machine, manufactured by the Sandy Hill Iron and Brass Works, Hudson Falls, N. Y., have gone forward, a record shipment.

The Thorold plant will cost some $500,000. The main building is about 350 by 74 feet, with a north addition of 150 by 74 feet, and a south addition of 150 by 150 feet. The output will be about 60 tons per day.

The power to operate the Beaver Companies' Thorold plant has been contracted for from the Ontario Power Company. Already 2,500 hp. has been arranged for for a period of thirty years. Eventually the plant will require about 6,000 hp.

The new Welland Canal will pass the Beaver Companies' property, making it easy to obtain quick delivery of supplies. The Grand Trunk Railroad has its branch running down to the plant, offering another means of bringing supplies and carrying out the finished product.

Although Ottawa will remain the chief Canadian office for Canadian Beaver Board interests, it is planned that the Thorold plant will carry much of the burden of production entailed by the increased demand for Beaver Board among the provinces.

The plant will be completed in April, 1914, about a year from the time the sod was turned.

✣

Durable Sun Parlor Construction

In a good many cities everything is running to sun parlors or living porches these days. All of the new apartments in Chicago are being built that way. At Indianapolis it is the same. Every apartment of every new flat building has its private solarium, and private houses, if they are at all up-to-date, include some room that is practically all window space.

Sun porches have been built of flimsy material, sort of temporary appendages tacked on as an after thought. This was

STANLEY'S
Wrought Steel Screen Door Hardware

Set No. 1750

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

The Razor That Shaves

Get acquainted with the cleverest safety razor you or any other man ever drew over his face. It's the

KEEN KUTTER

Junior Safety Razor and sells for $1.00, packed in a neat traveling box.

No matter how many Safety Razors you have tried, buy a Keen Kutter Junior. It is the *safe* Safety Razor. It is a revelation in shaving. It makes the natural sliding stroke possible to the most awkward shaver. It is always ready for a fine, cool, close shave—not a pull or a balk

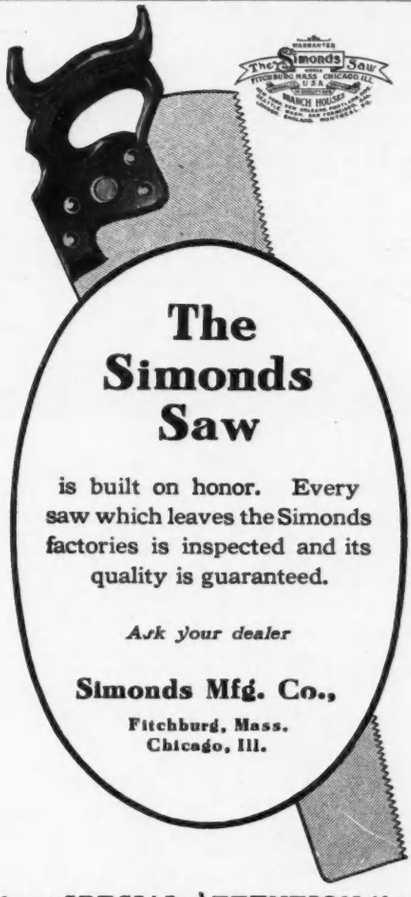
"The Recollection of Quality Remains Long After the Price is Forgotten."

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



The Simonds Saw

is built on honor. Every saw which leaves the Simonds factories is inspected and its quality is guaranteed.

Ask your dealer

Simonds Mfg. Co.,

Fitchburg, Mass.
Chicago, Ill.

Glass Top

ROYAL VENTILATORS

Whether it be a stable, barn, house, school or store, it should be ventilated. The builder who provides for **Royal Ventilators** on his buildings, will by this attention to thoroughness command the respect of the man for whom he is building.

You will find it easy to set Royal Ventilators. You need no experience. The price at which we sell will allow you to make a neat profit. It is decidedly worth your while.

ALL SIZES—ALL STYLES
FOR ALL BUILDINGS

Royal Ventilators are honestly made of the best materials, and thoroughly braced. They are storm-proof and owing to their scientific construction, exhaust more air per minute than any other ventilator now marketed. The **Royal** is fully endorsed and recommended by all architects and builders.

Write for our Free Catalog which gives detail drawings, descriptions and prices.

Royal Ventilator Company

417 Locust Street

Philadelphia - Pa.

Price and McLanahan, Architects

United Steel Casements, Hinged at Sides to Open Out. F. H. Wheeler Residence, Indianapolis, Ind.

while the idea was still young; no one knew whether it would last or not. But now we are building sun porches and out door living rooms better. In this sun parlor for instance, which we illustrate here, the residence of F. H. Wheeler, Indianapolis, Indiana, the highest grade brick and tile construction has been used and in these windows are steel casements. There is nothing about this room to show the effects of time and the weather; nothing to rot out.

Sun parlors are usually open to the weather on three sides; they should be built even more staunchly than the rest of the house. The extra expense then of these metal casements is fully justified.

The arrangement of the roof in this sun parlor of Mr. Wheeler's is worth noticing. The roof is a double sky-light.

United Steel Casement Doors. F. H. Wheeler Residence, Indianapolis, Ind.

Even on dark days or in the winter time this room will be bright and cheery. Shade rollers are arranged just about the inner sky-lights so that these ceiling windows can be covered when the sun gets too bright.

Double casement doors fully glazed and surrounded by glazed panels separate this sun parlor from the rest of the house. In this way very little light is cut off from the inside apartments.

United Steel casements, the product of the Trussed Concret Steel Company, Detroit, Michigan, are used on this job. This work and many other interesting examples of various uses of United Steel Sash are fully illustrated in the new 112 page book which this Company have just issued. A copy will be mailed free of charge to any of our subscribers who will write for one.

✣

New Designs in Metal Shingles

The Berger Mfg. Co., of Canton, Ohio, have just issued a new catalog illustrating many new patterns of Metal Shingles and Spanish Tile Roofing.

The Spanish Tile is a reproduction in sheet metal of the original Spanish tile in clay, and in addition to possessing the achitectural beauty of clay tile, is much lighter in weight.

The illustrations in this catalog are shown in color, which gives one an idea of the effect when materials are painted.

All construction features are very completely described and illustrated, and complete directions are given to show the ease and simplicity of erection.

It certainly is a catalog of valuable information and one our readers will find of value.

The Berger Company advise us that they will gladly send a copy to any one interested.

"Pay Me as it Pays You!"

"Pay me as it pays you," says John F. Weber, President of the Weber Mfg. Co., makers of the well-known Weber Double Acting Floor Scraper, "my scraper will earn more than enough extra profits to take care of the small monthly payments I ask."

That is the pith of a proposition Mr. Weber is sending out to contractors and carpenters to meet the requests of a number who wish to buy a good scraper on payments. He says, having one of the largest floor scraper factories in the country, and employing the best mechanics to be had on this class of work, he is able to sell, at a standard price, a machine that would ordinarily cost about a third more money. And that, on this account, he can, for a limited time only, accommodate contractors and carpenters by granting term payments that exceed but very little the amounts generally asked as rental on inferior machines—payments based on his cash price.

As to the economy of using his double-acting floor scraper, Mr. Weber says there is no comparison between its work and hand work—either in speed, ease or quality. His records show conclusively that putting the daily saving over hand work at $8.00 is conservative, indeed. In fact, the gain made on the floors of two buildings pays for his scraper.

The quality of work is said to be par excellence. Whether the scraping is done with or against the grain, the surface is left as smooth as ivory, free from all trace of waviness.

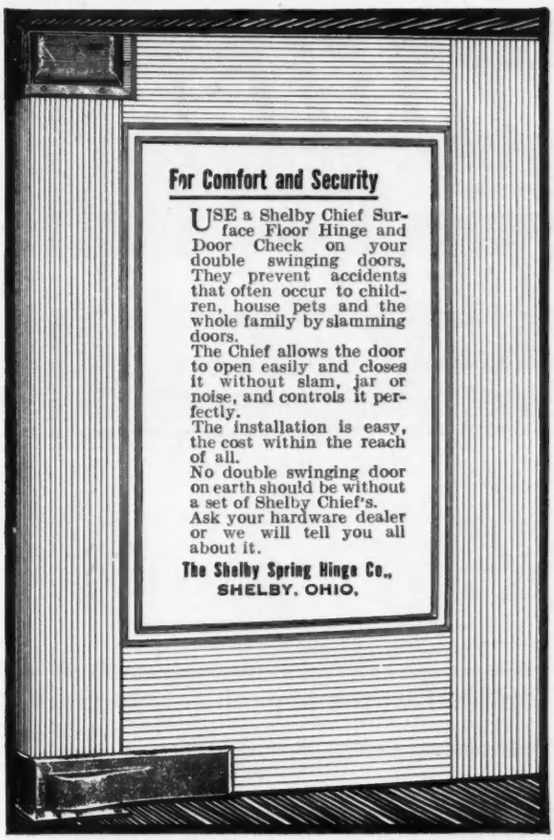
Mr. Weber has some interesting literature for every one who will drop a card to "John F. Weber, Pres., Weber Mfg. Co., 670 71st Ave., West Allis, Wisconsin." He also wants one responsible carpenter or contractor to represent him as agent in each town This looks like a good opportunity for a great many to fill in spare time during the coming cold weather.

Contract for Over a Mile of Roofing

Some interesting figures appear in the contracts issued in connection with the construction of the new Michigan Central Terminal at Detroit.

One of these items is for 200,000 square feet of J-M Built-Up Asbestos Roofing, involving five carloads of material, to be used for railroad sheds alone. If placed end to end these sheds would extend over a mile.

The contract for this roofing was given to the Detroit branch of the H. W. Johns-Manville Co., the well-known manufacturers of asbestos products, who are also furnishing the waterproofing, J-M Vitribestos Smoke Stack, Lining, two thousand feet of J-M Sectional Conduit, and 16,000 lineal feet of J-M Asbestocel Pipe Covering for plumbing, heating and power lines throughout the building.



For Comfort and Security

USE a Shelby Chief Surface Floor Hinge and Door Check on your double swinging doors. They prevent accidents that often occur to children, house pets and the whole family by slamming doors.

The Chief allows the door to open easily and closes it without slam, jar or noise, and controls it perfectly.

The installation is easy, the cost within the reach of all.

No double swinging door on earth should be without a set of Shelby Chief's.

Ask your hardware dealer or we will tell you all about it.

The Shelby Spring Hinge Co.,
SHELBY, OHIO.

HE can't afford to take chances. When he sees the Irwin stamp, he's sure. He knows an

Irwin Bit

is made of one-piece flawless extra high-grade crucible auger-bit steel and tempered by the secret Irwin Process. He knows it will not bend or break where twist and shank unite—the weak spot in common bits.

He knows the Irwin is the only solid-center-stem bit made in all sizes and styles, for every purpose — 6,500 different sizes and styles to cover every requirement.

He appreciates the fact that the Irwin hand-filed, sharp edge will bore true into the hardest wood known, even lignum-vitae.

He has learned that his work with an Irwin will be rapid, true and sure. That his knowledge and workmanship will be backed up to the limit of efficiency when he has Irwins in his kit.

Therefore, he asks his dealer for Irwin Auger Bits.

The Irwin Auger Bit Company
Largest in the World
Station K-18 **Wilmington, Ohio**

Save $60.20 on a Standard $100 Typewriter

Sold Direct From Factory on 30 Days Trial

No typewriter is built better or stronger—no machine does better, faster or cleaner work than the Harris Visible. Yet our price is only $39.80 because we sell direct from factory. We ask you to try a Harris alongside any other standard typewriter built. Be your own judge as to which is the better machine. If you like the Harris best you've saved $60.20. It is a standard size visible writer. **HARRIS VISIBLE TYPEWRITER**

Has twenty-eight keys, eighty-four characters, two sets of shift keys, shift lock, release key, tabulator, back spacer, marginal release, 11-inch carriage, writes 9 inches wide, manifolds perfectly. Thirty days' trial will convince you. Write today for our new free book.

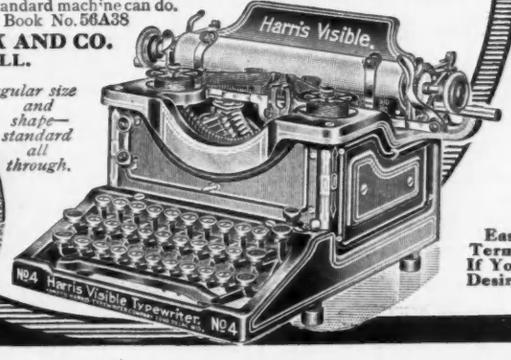
Book of Facts FREE The Harris is sold for $39.80 cash, or on easy terms which we will quote when we hear from you. Don't buy any typewriter at any price until you read our free book. It will prove to you conclusively that the Harris Visible offers you the greatest dollar-for-dollar value obtainable in a really efficient typewriter that does everything any other standard machine can do.

Please request Typewriter Book No. 56A38

SEARS, ROEBUCK AND CO.
CHICAGO, ILL.

Regular size and shape—standard all through.

$39.80



Easy Terms If You Desire

"Opportunities"

Have you anything to Sell, Barter or Exchange, Want Help, Agents, or a Situation? Use our

Classified Department

RATES 5 CENTS A WORD. CASH WITH ORDER

No Display Type Allowed in Classified Advertisements

Patents

O. L. PARKER, PATENT ATTORNEY. Formerly member Examining Corps, U. S. Patent Office. 920 G. St., Washington. D. C. Pamphlet of instructions sent upon request.

PATENTS THAT PROTECT AND PAY—Books free. Highest references; best results. Send sketch or model for free search. Watson E. Coleman, Patent Lawyer, 622 F St., Washington, D. C.

PATENTS secured. Legal protection our specialty. HARRY PATTON CO., Suite 355 McGill Bldg., Washington, D. C.

Instruction

DRAFTSMEN'S, BUILDERS' AND FOREMEN'S COURSES—Day, evenings or by mail. MAACK'S ACADEMY OF ARCHITECTURE, 1742 Chouteau Ave., St. Louis, Mo.

ATTENTION, CARPENTERS!—Become a building foreman. For sale cheap, if taken at once. Building Foreman's course with the I. C. S. schools of Scranton, Pa. Cost, $91.00. You get all lessons and examinations (through the school direct). Course never used. Brand new. If interested write to MR. H. W. REBEC, 918 So. First St. West, Cedar Rapids, Iowa.

Wanted

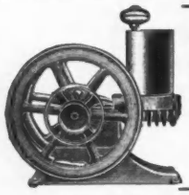
AGENTS WANTED for house lighting machines, supplying gas for small country homes as well as large. Simple and economical. Guaranteed. A live proposition. Write for terms. THE ALEXANDER F. MILBURN CO., Baltimore, Md.

Miscellaneous

FREE—$1.00 Self-Setting Plane Certificate and Pencil Free. See advertisement on page 25. Self-Setting Planes on trial. GAGE TOOL CO., Vineland, N. J.

ARCHITECT

For an experienced, up-to-date Architect an excellent proposition is offered by an established Consulting Engineering and Architectural Corporation, based on a co-operation plan. Main offices in Cleveland. The position requires a man thoroughly capable of handling an Architectural department independently, both inside and outside work. Highest references and financial interest required. Contract with salary, commission, and interest in business guaranteed. Answer; "Architect," American Carpenter & Builder, Chicago, Ill.



USE THE SUPERIOR FOR POWER

Prices are 2 h. p., $42; 4 h. p., $70; 6 h. p., $98; 10 h. p., $154; 16 h. p.,$238, for the next 10 days.

CANFIELD ENGINE WORKS,
East End Binghamton, N. Y.
6-16 Abbott St.

STOP THOSE RATTLING WINDOWS

Do away with sash weights, cords, pulleys and pocket frames and save money by using

AUTOMATIC SASH HOLDERS

Proved by Use— Unexcelled for windows without pocket frames. Excellent for new windows.

Send for circular and prices, or $1.00 for trial set prepaid; state approximate weight of sash.

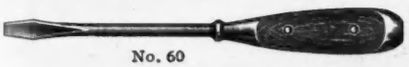
AUTOMATIC SASH HOLDER MFG. CO., 52 Church St., New York.

THE UNIVERSAL PITCH GAUGE

marks more roof-framing in less time than any other tool or method. Any one pitch — of 100 — in FIVE MINUTES, with 22 cuts, lengths, etc., for each pitch; including plancher, fascia, and perline bevel, etc. This done by those who don't even understand framing. Gauge marks hundreds of irregular hips; octagon hips and jacks; hopper bevels and much more framing. Fits any square. Makes a most perfect stair and brace gauge. Steel nickeled.

JOHN PARKHILL, Rochester, Minn.

Pioneer Drop Forged Screw Drivers



No. 60

One pi[illegible]. Bead prevents [illegible]ping. Most practi[illegible] durable, improve[illegible] driver made.

Show this ad to your hardware dealer, or write us fo[illegible] talog.

SOUTHINGTON MFG. CO., Southington, Conn.

THE ZIMMERMAN IRON BASE

is the ONLY BASE having a CENTER BEARING.

It carries the required weight without allowing the corner supports to sink into the floor and prevents the base of column and floor from rotting.

See "SWEET'S" page 956.

Bottom View Showing Center Bearing

S. CHENEY & SON, MANLIUS, N. Y.

Triumph Light!

EVERYBODY WANTS BETTER LIGHT. HERE IT IS

This new 100 to 700 candle power light turns up and down like gas. One-third cost of electricity, gas or kerosene. For home, church or store. Anyone can operate. Perfection guaranteed or money back. Write for catalog. (A. C. B.) Dept. 20. Agents Wanted.

BRILLIANT GAS LAMP COMPANY
1009 S. Wabash Av., Chicago, Illinois

Berger's *Metal Lumber*

a simple form of steel construction which replaces wood lumber.

A strong, light, fire-proofing material.

Write for Catalog

The Berger Mfg. Co.

CANTON
OHIO

For the best service address nearest branch
New York Boston Philadelphia
St. Louis San Francisco Minneapolis

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

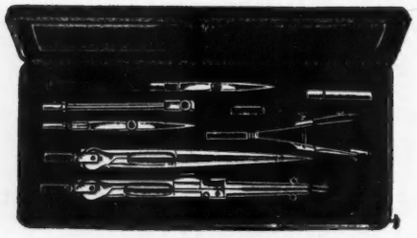
DRAWING MATERIALS

OWING to the increasing number of inquiries which we receive for drawing materials of all kinds, we have decided to carry a complete line for the convenience of our customers. We can now supply you with any drawing instrument or any drawing material you may need. A few of the items carried in stock are described below and all prices given include carrying charges.

Every order is shipped the same day it is received.

DRAWING INSTRUMENTS

Made of German Silver with Steel Points



No. 1053

No. 1053—Containing: Ruling Pen, 5 inches; Steel Spring Bow Pen, 3½ inches; Plain Divider, 5 inches; Compass, 5½ inches, with fixed needle point, pen, pencil point and lengthening bar, box of leads and key.

Dividers and Compasses equipped with straightening device.

In morocco Bar Lock Case, per set, postpaid..... **$4.20**

WOODEN T SQUARES

No. 2176

No. 2176—PEARWOOD, fixed head, extra quality.

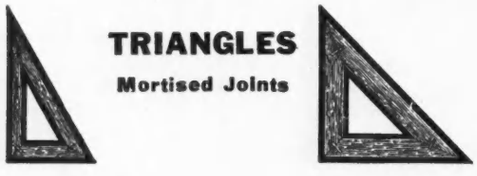
Size, inches....	15	18	24	30	36	42	48	54
Each $0.25	.30	.35	.45	.55	.65	.90	1.10	

No. 2192—TRANSPARENT AMBERINE LINED, maple blade, black walnut fixed head.

Size, inches.....	18	24	30	36	42	48	54	60
Each $0.90	1.25	1.50	1.75	2.00	2.50	3.00	3.50	

TRIANGLES

Mortised Joints



No .2117 No. 2118

No. 2117—MAHOGANY, EBONY LINED TRIANGLES, 30°x60°.

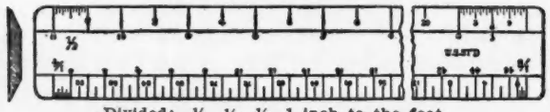
Size, inches.....	6	8	10	12	14	17	20
Each $0.30	.35	.40	.55	.75	1.20	1.50	

No. 2118—MAHOGANY, EBONY LINED TRIANGLES, 45°x45°.

Size, inches.....	5	6	8	10	12	14	16
Each $0.30	.35	.40	.55	.75	1.20	1.50	

BOXWOOD SCALES

Flat—U. S. Standard



Divided: ⅛, ¼, ½, 1 inch to the foot

	Each
No. 1456—BOXWOOD SCALE, flat, 6 inches long.....	$0.45
No. 1461—BOXWOOD SCALE, flat, 12 inches long.....	.70
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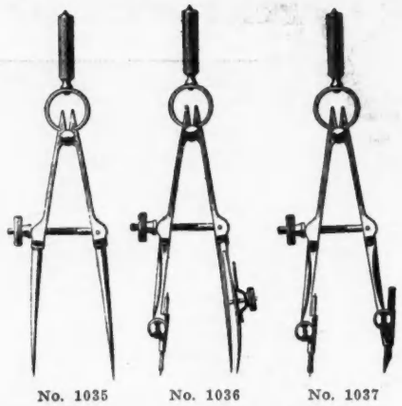

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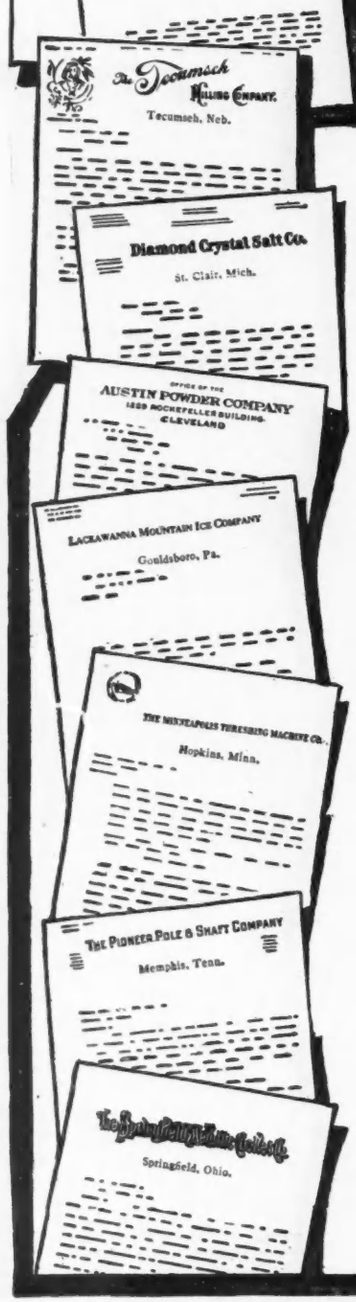

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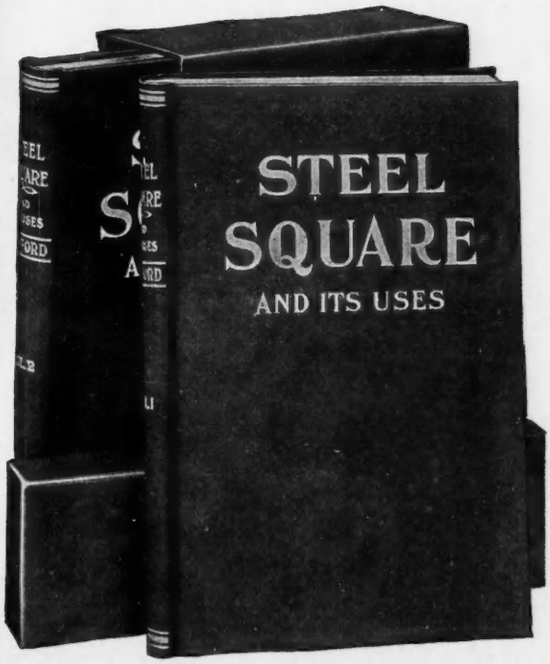

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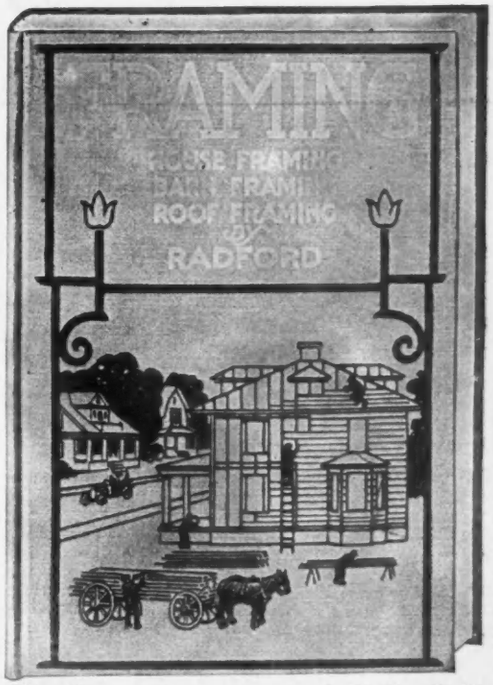

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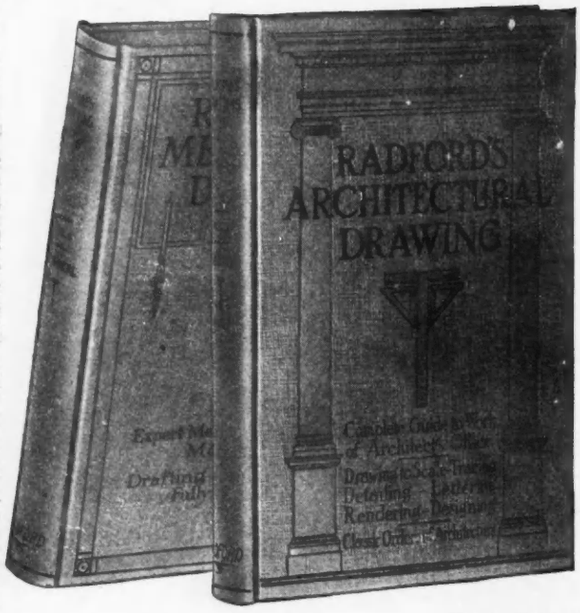

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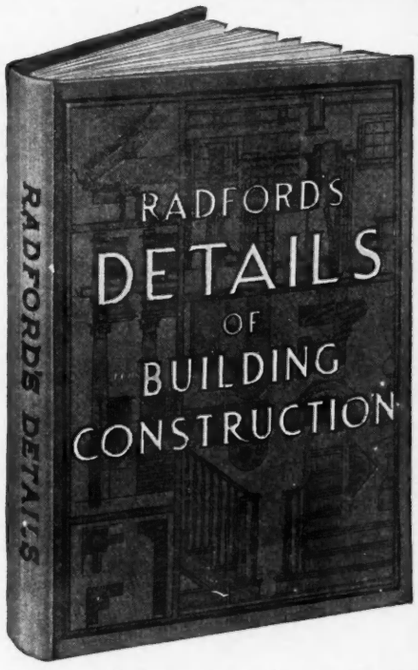

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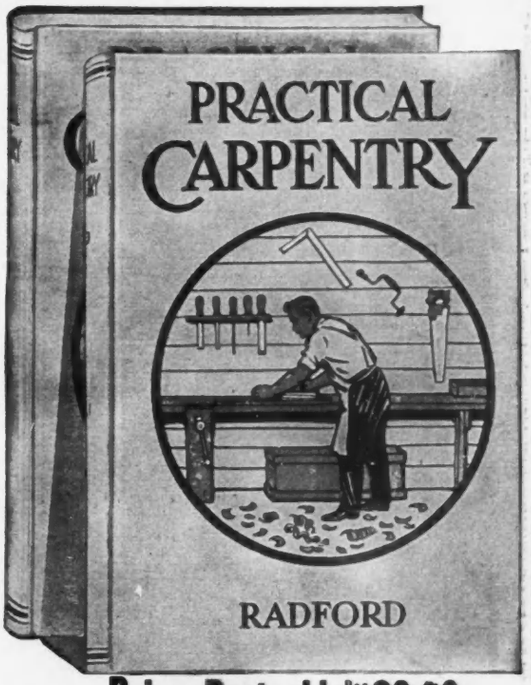


These two volumes, **"Practical Carpentry,"** are absolutely new. They are the latest works to guide the carpenter, builder and contractor in the many problems of construction that arise daily. A reliable textbook to which to refer in work that is new or unusual is indispensable, and these two volumes are written to supply the need.

FOUR HUNDRED SPECIAL ILLUSTRATIONS

There are over 400 illustrations in the two volumes of **"Practical Carpentry."** Many of these illustrations cover an entire page and they completely and instructively illustrate the text. They show the detail and work down to the very minutest point.

OVER 600 PAGES OF UP-TO-DATE INFORMATION

Each volume of **"Practical Carpentry"** measures 6 x 9 inches and is bound in cloth with cover design attractively stamped. Each volume contains more than 300 pages, making the complete work over 600 pages of useful and necessary information, written so that any reader can understand every sentence and follow the text and illustrations.

Price, Postpaid, Per Set $2.00

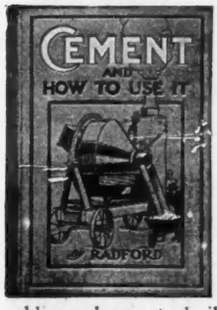
SPECIAL CHAPTERS ON GOOD AND FAULTY CONSTRUCTION

There are special chapters devoted to good and faulty construction and all kinds of framing, besides information on geometry, arches, centers, window and door heads, steel square in carpentry house framing, roofs and roof construction, building construction, covering of roofs, mouldings, joints, straps and other fastenings, stair building and many questions and answers on all subjects pertaining to building.

ACCURATE AND COMPLETE IN EVERY DETAIL

"Practical Carpentry" is the most complete, most accurate, most practical and most up-to-date work of its kind. It describes the best and quickest methods for laying roofs, rafters, stairs, floors, hopper levels, mitering, coping, splayed work, circular work and, in fact, for forming all kinds of joinery and carpenter work.

CEMENT AND HOW TO USE IT



A big, practical, up-to-the-minute book for the cement manufacturer, dealer and user, as well as the architect, draftsman, construction man, contractor, builder and carpenter.

This book contains the boiled-down essence of all the accurate information on the subject of **"Cement and How to Use It,"** possible to obtain. It is indispensable to the man who in any way has anything to do with construction or the use of cement in any one of its multitude of applications.

Nothing is omitted that will help and guide in the construction of residences, public and private buildings of all descriptions, paving, bridgework, engineering, and all kinds of small or large jobs in which cement is used. Particular care has been taken to exclude any and every method that has not been given a thorough and convincing test by experienced and practical men. It deals with the subject of cement in its multitude of uses, as well as cement appliances, cement machinery, reinforcing, waterproofing, etc., in a most thorough and comprehensive manner.

PRACTICAL FEATURES OF THIS GREAT NEW BOOK

"Cement and How to Use It" is the largest book of its kind ever published. It consists of 370 pages, size, 6x9 inches, and is printed from large, clear type on a high-grade book paper, especially made for it.

"Cement and How to Use It" is written so that any reader can understand every page, every term used, and every detail shown. It is entirely free from technicalities, and yet its pages are filled with practical information for all classes of cement users.

"Cement and How to Use It" is illustrated with over 350 drawings, diagrams, details, etc., including many pages of full-page plates reproducing architects' original drawings and details of construction.

"Cement and How to Use It" is divided into many parts, making it especially valuable for the reason that each particular use in which cement can be applied is given separate and distinct treatment, and anyone in search of needed information can find it instantly.

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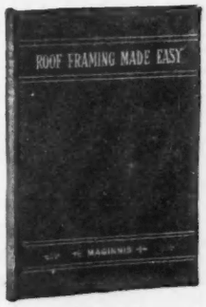

By OWEN B. MAGINNIS, Architect
Inspector of Buildings of the City of New York
Author of "How to Frame a House," "How to Measure Up Woodwork for Buildings," "Bricklaying," etc., etc.,

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The language used is that of the practical workman—scientific phrases and confusing terms have been avoided where possible—and everything has been made so plain that any one who will faithfully study the book will understand it from beginning to end. In fact, every problem in the book was "tried" on a boy who had had no experience in building work, and he understood every problem with a little study. This will show that the book is valuable to the beginner as well as the advanced workman.

Any intelligent mechanic will be able to save at least ten times the cost of this book and material during the first few weeks that he has it in use.

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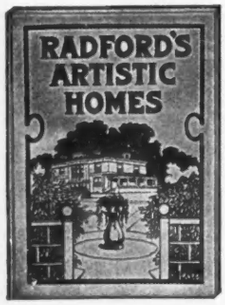
Architectural and Building Books



Artistic Homes

A book of 280 (8 x 11 inch) pages showing perspective views and floor plans of 250 artistic modern homes. A large variety of designs are given so as to meet the taste of the majority of home builders. There are artistic houses for people of moderate means and others for the more wealthy, but in every case the design is made with reference to comfort and economy.

Every design shown has been made by the best architects in the world, who have made a study of home architecture and that alone. In a word, the designs are the best that could be secured.

Every design shown has been made with reference to comfort, convenience and economy in materials. Every house is planned from the inside and not from the outside, that is to say, the convenience of arrangement has been the first consideration .....

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and How to Build Them

This large book of 176 (8 x 11 inch) pages contains illustrated details of cement construction—standard specifications for cement—concrete blocks—general information concerning waterproofing, coloring, aggregates, mixtures, paving, reinforcing, foundations, walls, steps, chimneys, floors, etc., together with perspective views and floor plans of 87 stucco and concrete block houses.

The illustrations show the houses exactly as they will look when built and give a very clear idea of their appearance. All the floor plans are shown, giving the location and dimensions of all rooms, closets, porches, etc., with detailed information as to both interior and exterior.

The houses illustrated range from the small to the medium large in size, such as will appeal to the average man or woman who intends to build a home .....

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The first book of its kind published, containing 82 (8 x 11 inch) pages giving the latest ideas in two, four, six and nine family flat buildings, stores, lodge hall, bank buildings, double houses, etc., containing perspective views and floor plans of 57 stores and flats in different constructions—cement plaster, concrete block, brick, stone and frame, perspective views and floor plans of each and every design are shown, giving a picture of the completed building and detail drawings of the interior arrangement. Included in this collection of designs are a large number of stores and bank buildings suitable for the small town or village, as well as the large city.....

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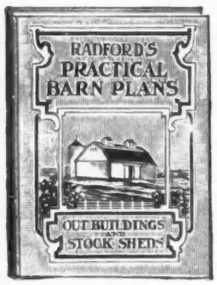

Barn Plans

Better farm methods require better buildings, not necessarily expensive ones, but buildings that are well planned and properly adapted to the work for which they are intended. This book of 150 large (8 x 11 inch) pages describes and illustrates a large number of dairy barns, general farm barns, horse barns, cattle sheds, poultry houses, silos, ice houses, granaries, corn cribs, wagon sheds, tank houses, smoke houses, hog houses, etc.

Not only one plan of each, but many of each are shown, with all the latest inventions and contrivances for saving time, money and labor.

All drawings are reproduced on a large scale sufficient to guide any carpenter and builder in the construction of same. It is a book which should be in every farm home.....

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Bungalows

The bungalow age is here and anyone contemplating the erectioin of a country camp or a permanent residence, will do well to look into this form of construction, as the bungalow offers advantages not to be found in other forms of houses. To the average family a bungalow is ideal, as all the principal rooms are on one floor, thus making the housewife's work easier and giving you the conveniences of a city flat.

This is the largest and most complete book of its kind ever published, containing 218 (8 x 11 inch) pages. It gives perspective views and floor plans of 208 bungalows of different styles and varieties suitable for any climate. A large variety of styles are shown so that almost every taste and purse can be satisfied. The designs shown range in cost from $900 up to $5,000.....

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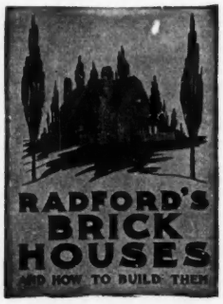

Brick Houses
and How to Build Them

Containing 219 (8 x 11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home builder as well as to the builder and bricklayer.

The houses shown are all of artistic design drawn by leading architects and show what can be accomplished by the use of brick as a building material. The floor plans have received very careful attention so as to have a convenient and economical arrangement of rooms, with ample closet room and all modern conveniences provided for .....

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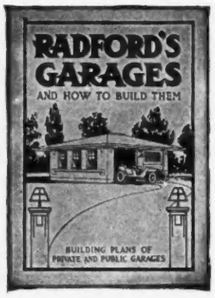

Garages
And How to Build Them

A book containing 158 (8 x 11 inch) pages giving 55 new, original and artistic designs for up-to-date private and public garages adapted to frame, brick, stone, cement, stucco, or concrete construction together with estimates of cost. Also remarks on garage construction explaining the advantages of each form of construction and giving details about the manner of erection, selection of materials, hints on supervision, etc., etc. There is also an extensive chapter on garage equipment and accessories in which is described the construction and operation of turn tables; gasoline storage and pumping; oil cabinets; constructing a repair bench and tool cabinet; lockers; rules to prevent freezing of water in cylinders, radiators, etc.; washing apparatus; lighting apparatus; etc., etc.

It is just the book to give you important points and ideas if you are about to build a garage. Its information will save you money .....

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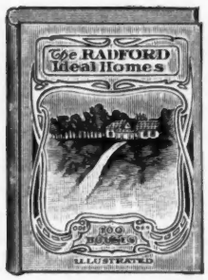

Ideal Homes

Size of book 8 x 11 inches, bound in English cloth, cover embossed and printed in two colors. All houses illustrated with half tone cuts on the very finest enamel paper. The illustrations show the houses exactly as they will appear when built, and no liberties have been taken to make them appear otherwise. All the floor plans are shown, giving the size and location of all rooms, closets, porches, etc., so that ideas are given as to both the interior and exterior of these 100 homes.

As this is the first of this series of books published all of the designs are of frame construction and medium in cost.....

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RADFORD ARCHITECTURAL CO., 1827 Prairie Ave., CHICAGO, ILL.

INDEX TO ADVERTISEMENTS, NOVEMBER, 1913

NOTICE TO ADVERTISERS

Forms for the December number of the American Carpenter and Builder will close promptly on November 20. New Copy, changes and orders for omissions of advertisements must reach our business office, 1827 Prairie Ave., Chicago, not later than the above date. If new copy is not received by the 20th of the month preceding date of publication the publishers reserve the right to repeat last advertisement on all unexpired contracts. AMERICAN CARPENTER & BUILDER CO.

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The Only Wall Board Reinforced with Lath

In Less Time and for Less Money

Keyed Lath Keeps Plaster In and Up

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OF INTEREST TO EVERY AMERICAN CARPENTER AND BUILDER

OUTSIDE

Your work will pay you better, both in money and results, when you use Bishopric Wall Board for interiors.

Makes you independent of lath-and-plaster troubles and after expense. Comes in handy sheets ready for instant nailing to studding. The moment it is up the walls are ready for paint, paper, kalsomine, burlap, or any other kind of decoration.

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"CAN'T CRACK, BUCKLE OR PULL LOOSE"

Needs no paneling. One man with a hammer and saw can apply it and do an expert job. It can't crack, shrink, buckle or pull loose in any climate—winter or summer. All this is guaranteed by our

$5,000 Anti-Warp Bond

First you have kiln-dried lath, next a heavy layer of toughened Asphalt-Mastic in which the laths are imbedded, and through which vermin **can't** penetrate. Next a **layer** of heavy-size fibre board. Air-tight, damp-proof, and **sanitary.** Once up **stays** up.

Prepare the outer walls instantly for cement, stucco, plaster or concrete. By simply attaching the handy sheets of Bishopric Stucco or Plaster Board just as they come, one man can keep far ahead of the plasterers.

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holds the outer material everlastingly tight in its **keyed** laths.

Saves 50% of the outer material, 50% of the workman's time and 100% of **all after trouble.**

Plaster **simply can't** fall down.. Winds can't enter. Damp can't penetrate. Rats can't gnaw through. Sun can't affect it. Makes a cool house in summer—warm in winter.

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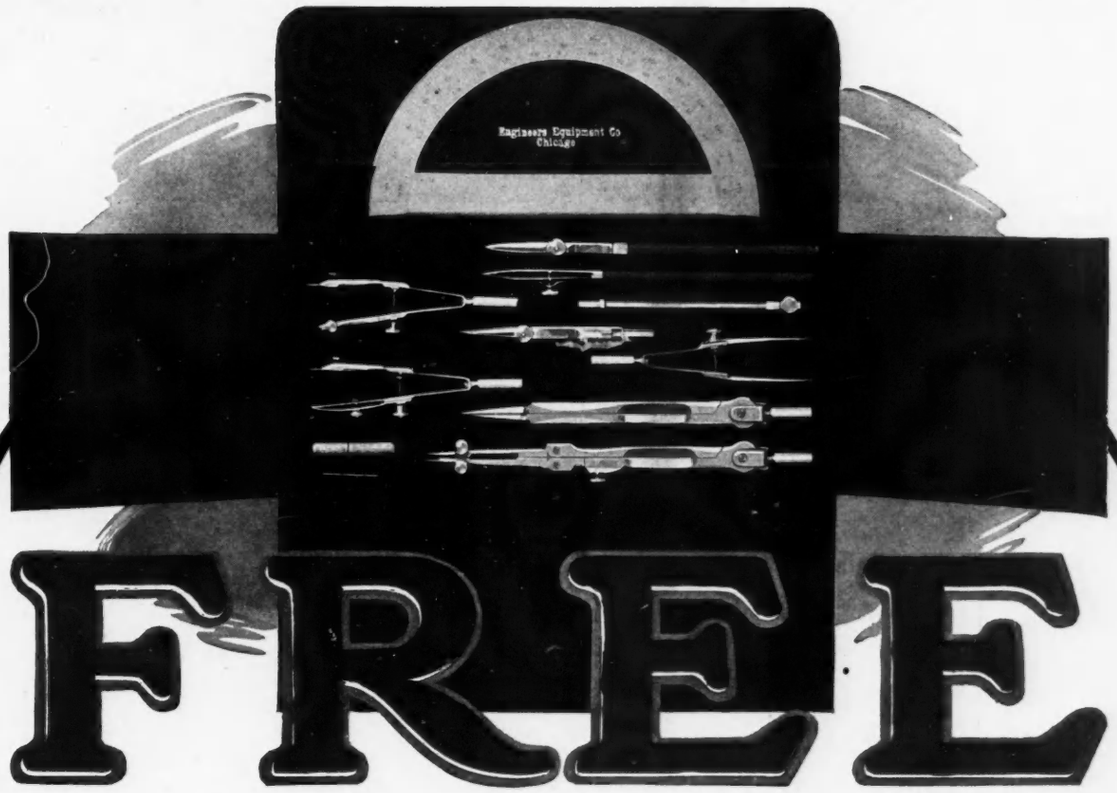

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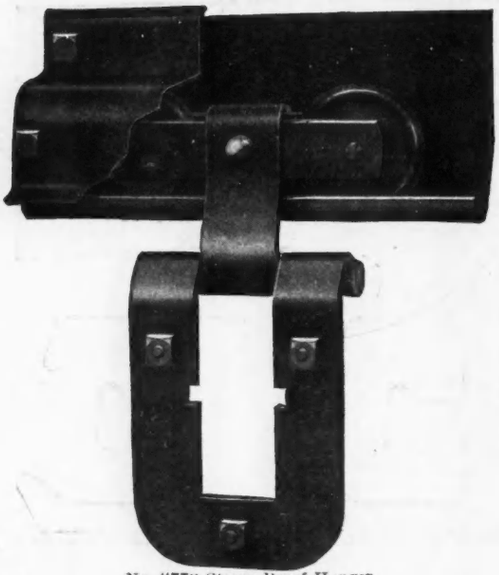

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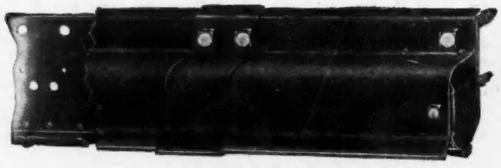
They are packed one pair in a box with bolts for attaching the hangers to the door; also lag-screws for attaching the rail to the building, end-caps and cover-splice for rail. Illustrated directions in each box.

STORM-PROOF RAIL

TITE-FIT

View Showing Cross-section of Hanger and Rail. Also Roller Bearings in Wheel.



Storm-Proof Rail.

A departure in Barn Door Rail. It fits close to building and forms a perfect water shed. No housing or brackets required. Easy to attach.

Made in 4, 6, 8 and 10 foot lengths, two pieces of length in a bundle.

NATIONAL MFG. CO.

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