

and the rise are given, and the simplest method of finding any other particulars is to put the span and rise down to scale, and find by practical geometry the centre of a curve to pass through the three points, as shown at Fig. 2.

M.M.C. would like to know how to keep out damp from a brick wall 14 inches thick. A detail showing the method or methods would be appreciated.

W.J.D., who is a young carpenter, wishes to know how to find the breaking stress of white pine timber and joists?

J.D.G. would like to know how to make kalsomine that can be put on in successive coats that will not wash up, without mixing with alum or any size?

Young Chip would like if some reader would send a design or two for a handy tool chest. He writes, "I am

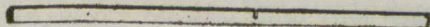


FIG. 4.

going to the North-West shortly, near Edmonton, and I want to make a good tool chest—and fill it—before going, and will be thankful for advice or suggestion?

H.N.:—I have a fire-place to put in the corner of a house, with the hearth built down to the foundation, and I wish to know of some good method to trim the joists around the hearth and chimney breast?

J.W.S. writes: All wiring tables I have come across are figured in algebra. I am not up in the study and would like to know if there are any books or tables published in plain figures so that a person well up in arithmetic could make use of to advantage?

Bricklayer:—How can I make black mortar that will not fade and yet not be very expensive?

J.B.:—The method of kerfing shown in June issue in answer to J.N., does not strike me as being the best by any means. I submit a method herewith which I think is much better. I first lay off my circle, both inside and outside, giving the thickness of the lumber bent, as at Fig. 3, where AB represents the spring line of the arch, C the centre of the circle. From C I draw a straight line at right angles with AB, extending it indefinitely and bisecting the circle at D. I then take a strip of the same thickness as that I desire to kerf and saw in a kerf as indicated in Fig. 4, using the same saw that I expect to use in kerfing. I then lay the strip on as shown by the dotted lines of Fig. 3, and bend the strip until the kerf closes. I then mark the circle at E, which gives the desired distance. After this I set my compasses from E to D of Fig. 3, and step off the same number of spaces to be bent and proceed to kerf. If in stepping off the kerfs the latter do not come out all right at the spring line, I usually close the compasses up and make an extra cut, rather than leave one out. Of course the stuff must be gauged to show how deep the saw must go.

#### THE EFFECT OF THE PREFERENTIAL TARIFF ON IMPORTS OF CEMENT.

The annual report of the Ontario Bureau of Mines shows that the preference accorded to British goods entering Canada has operated favorably to the interests of British cement manufacturers. The imports of cement from Great Britain have largely increased, while those from Germany and Belgium have fallen off in like proportion. The total value of cement imports into Canada during the fiscal year ending June 30th, 1900, was \$520,593, of which Great Britain contributed \$249,280, as against \$125,778 in 1899.

#### TESTING A WIRE ROPE

Testing of a wire elevator rope with flattened strands to give it increased bearing area on the pulleys, was made in Chicago recently. The rope had been in service for five and a half years. The outer strands were found to have parted, but the inner ones were unimpaired. This test corroborates the theory that disintegration of a wire rope begins at the centre. This fact makes necessary frequent examination to prevent accidents.

#### CARBONATE OF LIME STONE.

By a new process, says the *Moniteur de la Céramique*, carbonate of lime stones can be made which have all the properties of natural stones, particularly useful as lithographic stones. It is based upon a discovery made by the inventor, Mr. P. A. Winckler, that calcium hydroxid dry is transformed in a peculiar manner by hydrated carbonic acid into carbonate of lime. This last is then compressed hydraulically in metal moulds furnished with little holes above and below. By employment of a more or less fine powder it is possible to give the stone a variable degree of fineness of grain. Thus one can evidently make flags of any dimensions, etc. There is also this advantage that the stones can be colored any tint in manufacture.

#### STONWORKING IN ATHENS.

It appears that the Athenians worked the marble to an even, but not a very smooth, face with a toothed chisel before they placed the blocks in the work, and that they afterwards went over the whole exposed surface and finished it to the greatest smoothness and nicety, but without polish, taking off in this operation about one-fifth inch; and this has been the practice on the horizontal as well as on the upright surfaces, for the columns of Propylaea are sunk in to about that depth below the general level. The place intended for their reception was sunk before the lower cylinders were placed, and lest any inconvenience should arise from the wet remaining there before the building was completed, a small channel has been cut from the recess to carry off the water. In the steps the adjoining faces are carefully finished at the internal angles, but both are left rough at the external angles, by which means the accidents and wear which take place during the execution would rarely be of any consequence.

#### SUGGESTIONS FOR DECORATORS.

A little girl's room has a dado of blue denim, about three feet high. Above this is a narrow molding, that serves as the bottom of a sort of continuous picture frame, containing a series of the well-known Perry pictures, reproductions of famous paintings, that have been protected by glass, with narrow moldings covering the glass joints, or at every third or fourth picture. Above these photographs is a wider folding, and then a narrow shelf, which serves as a resting place for all those odds and ends which a child will collect and which are as dear to her heart as treasures of many times their value. Here are birds' nests or bits of coral or sea shells, with bright colored stones or pieces of garnet goods, while favors from children's parties are equally well thought of. The upper portion of the wall is hung with a cretonne paper, having bunches of red roses held together with blue ribbons. The woodwork is painted white, and on the oak floor is a blue and white rug. The furniture is finished in white enamel, except the brass single bed, with a coverlet of flowered cretonne.

Wire glass is now the subject of a monopoly. The five companies which own all the patents for the manufacture of this fire-retardent glass have been consolidated into the Mississippi Wire Glass Company, incorporated at Trenton, N.J., with a capital of \$1,500,000. The ruling price for wire glass in stock sheets is fifteen cents a foot for quarter-inch thickness, and it is declared that the consolidation will not be followed by an advance in the present price schedule.