

A NOVEL MUSIC STAND OR BOOK REST.

BY I. G. BAYLEY.

To make a music stand or book rest, such as shown in Fig. 1, out of one and the same piece of wood, without joining or the use of pins, seems almost impossible. Nevertheless, a novice, so far as the use of woodworking tools is concerned, will be able to make one by following the instructions here laid down.

The size of the stand will depend upon the use to which it is intended to be put. If for a music stand or a large book rest, eighteen inches wide by three feet long will be a nice size. If intended for the table, for smaller size books, the length would better be only eighteen inches, the same as the width.

The board should be one and one-eighth inches thick, free from knots, cracks, and other defects. Either walnut, oak, or mahogany will do.

It would be well for a novice, in fact it would save time in any case, to have the saw cuts shown in Fig. 2 done at a mill or carpenter's shop. As seen by the dotted lines and in the end elevation, these cuts do not extend the full length of the board, but to within two inches of each other, at the center of the timber.

The board being cut, the next step is to mark five equally-spaced divisions, as shown in Fig. 3. The four short vertical lines are to be cut straight through the board, but the horizontal lines, joining them at the top and bottom, must only be cut half way through, or to the saw cut. The parts shown shaded are cut with a flat chisel, at an angle of forty-five degrees from the center, down to the vertical cut of the horizontal lines, as clearly shown in the side elevation. The board is now turned over, and the same cutting done, but alternately, as clearly shown in Fig. 4, and in the halftone cut, Fig. 1.

The lower part of the stand can be cut out as shown in Figs. 1 and 4, or ornamented as may be desired, but the upper half should be kept perfectly plain. The whole must be sandpapered down, first with rough and then with fine paper, and afterward varnished or stained.

To hold the stand in a certain position, according to the use to which it is being put, an ornamental brass chain is connected across the bottom, by means of a screw eye at one end and a hook at the other. The stand can be folded and leaned against the wall when not doing service.

A small model of the stand makes a very interesting puzzle. If made as shown in Fig. 5, the two pieces of wood can be separated and twisted around at right angles to each other, as in Fig. 6. The device can then be given to a friend with a request that he get the two pieces apart, without breaking them. If the wood is sandpapered, and robbed of all traces of saw cuts, etc., the "puzzle" will deceive the most wary.

A MACHINE FOR HANDLING COKE IN THE YARD.

A radical departure from the method ordinarily employed to handle storage coke is illustrated on our front page.

Owing to the fact that coke is a very friable material, the use of a grab bucket or a steam shovel is

avoided where it is possible to do so; for it is necessary that the coke be delivered to the furnace in large pieces, and both of the above-named devices materially break up the fuel. The scraper conveyer of the machine here illustrated moves at a slow speed, and mechanically takes the coke from the base of the pile without in any way damaging it. The conveyer is filled by the coke rolling down the pile.

The photograph shows the machine at work on one

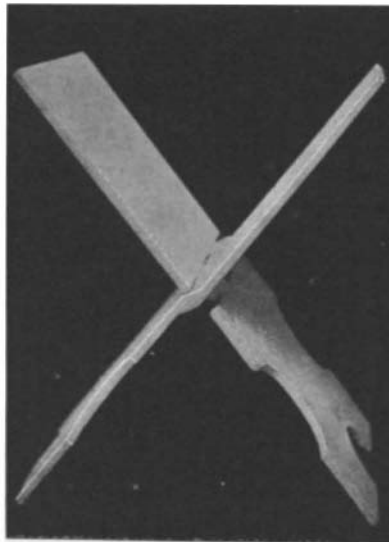


Fig. 1.—A Music Stand Made, Without Joining, of Two Intermeshing Pieces.

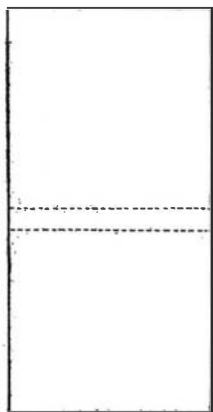


Fig. II.

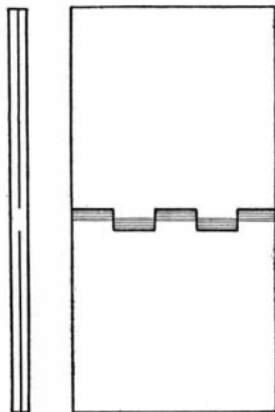


Fig. III.

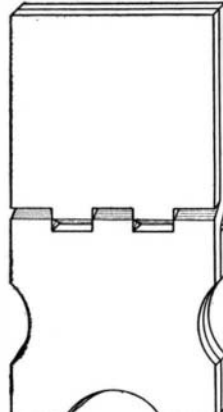
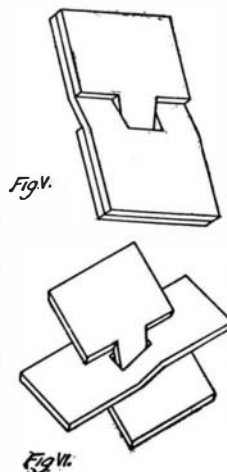


Fig. IV.



A Puzzling Bit of Woodwork.

The Evolution of the Book Stand.

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end of a yard at Stockton, Ind., where it is loading coke from a strip or siding one hundred feet wide, extending along the railway track about half a mile.

In one run, 4¾ hours' time, there were loaded 24 steel hopper-bottom cars, containing in all 732 tons of coke. Three men operated the machine at a cost of \$7 a day for wages, making the cost per ton for loading less than one cent. The cost of loading this material by hand, which was heretofore necessary in order to prevent breakage, is 19 cents a ton. The machine consumed an average of 20 E. H. P., which may be counted at 30 cents an hour. Adding this to the labor cost gives a total actual cost of a cent and a half per ton for the coke loaded. This means a saving over hand loading of about \$125 on the day referred to, exclusive of charges for depreciation.

The machine delivers the coke into the car in very much better condition than is done even by hand load-

ing, and it is estimated that a saving of probably 5 per cent will be made on this point alone. Coke on the yard costs about \$5 a ton, and this saving may be reckoned at 25 cents a ton. The machine has four times the capacity of a locomotive crane and grab bucket, and handles the material without breakage.

The same argument as to breakage applies to stocking the coke on the yard, for the machine also does this part of the work. The coke is dumped on a platform from hopper-bottom cars, on the trestle, the nose of the machine being swung underneath the trestle; the delivery conveyer stocking the coal at the apex of the pile, which may be as high as 40 feet, if desired. The common method of putting coke into storage has been to dump a trainload of coke on the yard, jack up the track on top of the coke, and continue this operation until the grade the track takes to the top of the pile prohibits further storage. In doing this, every three feet of the pile is successively pounded down by a locomotive and train of loaded cars. The coke that is used for ballast in this way is poor stuff for the furnace man. The machine delivers the coke to the top of the pile without any drop, as the delivery conveyer may be raised or lowered to suit the height of the pile. When the pile has reached the desired height, the machine moves by its own power a few feet farther down the platform.

The Difference Between a Hydroplane and a Gliding Boat.

Structures embracing notch-bottom hulls are not hydroplanes, but gliding boats, as are also all those whose operation entails the use of supporting plates

brought to the surface of the water, which is unavoidable in the absence of means for regulating the lifting force of said plates.

The known methods of regulating the lifting force of a hydroplane plate are either to reduce its angle relatively to a longitudinal horizontal line as the speed increases, or to superpose upon it other plates which shall rise above the surface of the water, and thereby reduce the supporting area as the speed increases.

The word "hydroplane" properly applies to those boats designed to ride on submerged "planes," as distinct from the type that

splash along the surface with the front edge of the plates protruding, the relation of which latter plates to the water is similar to that of the bottom of a motor boat.

The submerged plate of a hydroplane proper, being below the waves and foam of the surface water, may be compared, for illustration, with the supporting surface of an aeroplane. As a matter of fact, the upper surface of a hydroplane plate is almost as efficient as is the lower surface.

It is mentioned in an item in the Horseless Age that the city of Milwaukee will, in a short time, use no horses for municipal purposes, except to draw fire engines. The city officials are convinced that the automobile is so far in advance of the horse in cost, maintenance, and utility, that there is hardly any room for a comparison.



A Coke Storage Pile 100 Feet Wide and Half a Mile Long. The Machine is Shown at the Extreme Left.

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