

J. COYLE.
DOWELING JIG.

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DOWELING-JIG.

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To all whom it may concern:

Be it known that I, JAMES COYLE, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Doweling-Jigs, of which the following is a specification.

My invention relates to adjustable jigs for guiding the tool in boring holes for dowel-pins; and it consists of a simple construction for adjusting the tube for guiding the boring-tool and a simple construction of said tube for boring-tools of different sizes, as herein-after fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved doweling-jig in its simplest form with a piece of work indicated in dotted lines. Fig. 2 is an end elevation with a part in section on line $x x$, Fig. 1, and also with the piece of work indicated in dotted lines. Fig. 3 is a plan view of the same form of jig as represented in Figs. 1 and 2. Fig. 4 is a side elevation of the jig provided with an expanding guide for boring-tools of different sizes and also provided with an adjustable clamp-jaw for adapting the jig for greater range of variations in thickness of objects to which the tool may be applied. Fig. 5 is a plan view of the jig represented in Fig. 4. Fig. 6 is a transverse section on the line $y y$, Fig. 4; and Fig. 7 is an end view of the apparatus of Figs. 4 and 5 with the boring-tool guide removed.

On the bar a of a clamp having a fixed jaw b and a clamp-screw c , adapted to be clamped on the sides to secure the bar above and cross-wise of the edge of a piece of wood, as d , dotted in Figs. 1 and 2, I mount a guide-tube e or f for a boring-tool by providing slideways g on both sides of the bar with a groove h between them and a slot i through the plate between the slideways, also providing the guide-tube with bearing-faces j , corresponding with the slideways g , and a tongue k between them to fit in the groove h , and also providing the clamp-plate l and clamp-screw m for securing the tube to the bar, said clamp-plate also having bearing-faces and a tongue adapted to apply to the slideways g and the groove h of one side of said bar and clamp the tube to the opposite side, so that the tube may be readily set at any distance along the bar from the jaw

b within the range of the slideways and the slot, and also so that the tube may be applied to either side of the bar by reversing it and the clamp-plate l and screw relatively to each other and to the sides of the bar, and also so that tubes of different sizes may be applied for different sizes of boring-tools. By thus making the guide-tube applicable alike to either side of the bar holes can be bored closer to the ends of the work than when only applicable to one side, which is of considerable importance in some cases.

In Fig. 2 it will be seen that the edge of jaw b under the guide-tube coincides with the axis of the guide-tube, and therefore serves as a gage for setting the tool, said edge being placed at a mark previously made on the face of the work. Guide-tubes e for different sizes of boring-bits will also have their axis in the same line, the variation being in the thickness of metal bearing on the ways g .

For an extensible guide-tube for enabling boring-tools of different sizes to be used I provide the fixed V-plate n in lieu of the tube e , and having the projecting arms o , forming slideways for a sliding plate p , having the tapered face q , corresponding to the face of the plate n , and having the small reverse V-notch s in the point, said plate being arranged to slide toward and from the plate n and having the slotted tongue t , clamping-plate d' , and clamp-screw u to secure it in position on the slideways o , this device being employed for small boring-tools varying in size up to a certain limit.

For larger boring-tools I provide the V-plate n' of larger size than the notch s and contrived for detachable connection to the notch s in the tapered face of plate p , so as to serve, with plate n , for boring-tools of a larger range of sizes. The plate n' is secured to the lower extension of plate p by a set-screw w' , said plate p being extended above and below the slotted tongue, as seen in Fig. 4, for suitable length of the guide for the boring-tool. Plate n is also similarly extended.

For doweling it is desirable to be able to affix the tool readily and accurately to the work for boring the holes exactly at predetermined points, indicated on the work by lines or marks previously made on the face of the work, to match the two pieces exactly. For

this purpose I have made the axis of the guide-tube coincident with the edge of the jaw *b* for such gage in the arrangement of Figs. 1, 2, and 3, as before stated, and for the adjustable guide-tube I provide a gage *v*, consisting of an angle-plate bolted to the back of the fixed jaw of the clamp by a screw *w*, so that the edge *z* of one of the sides of the angle-plate will be in line with the face of the fixed jaw *b*, against which one side of the work is clamped, and the face of said side (seen in Fig. 4) will be in the same plane as the center of the boring-tool, whereby when the tool is applied so that said plane coincides with the mark on the work the hole will be accurately bored on the mark.

As the distance from the supporting-bar *a* of the centers of the different sizes of boring-tools used vary in consequence of the different sizes, the gage *v* is adjustably secured to jaw *b*, as seen in Fig. 7, to enable it to be adjusted accordingly.

In Figs. 4, 5, and 6 I represent the jaw *a'*, carrying the clamp-screw *c*, as adjustable along the bar *a*, with notches *b'* in said bar and a pawl *c'* on the jaw to shift said jaw and set it in different positions for a wide range of adjustment to work correspondingly varying in thickness.

The V-plate *n'* has the edges *e'* projecting slightly over the arms *o*, said edges being suitably notched therefor to hold the plate in the right position for receiving the screw *w'*. Said plate is turned a little sidewise for freedom of its edges from conflict with the arm when it is being put in and taken out.

I am aware that certain special gages of complicated construction for making lock-mortises have been made, and I do not claim such devices broadly. My invention is a simple special gage for doweling, in which there is a bar adapted to be clamped crosswise of the edge of the board between a fixed jaw formed on one end of the bar and an opposing clamp-screw of very simple construction, said bar adapted for the application of the boring-tool gage alike to either side of the bar.

The manner of mounting the boring-tool guide on the clamp-bar by means of the slideways, tongue of the guide-tube between the slideways, and the clamp plate and screw is an especial feature of advantage for simplicity and cheapness of construction and for substantially holding the guide-tube in use.

I claim—

1. The combination in a doweling-jig, of the clamp-bar having the fixed jaw at one end

and the opposing clamp-screw adapted to be clamped on the sides to secure the bar above and crosswise of the edge of a piece of wood, said bar also having the slideways for the adjustable boring-tool guide on one side, the slideways on the opposite side for the clamp-plate, and the slot for the clamp-screw; the boring-tool guide having the faces corresponding to the slideways, and the intermediate tongue, the clamp-plate and clamp-screw for adjustably securing said tool-guide to said clamp-bar and the gage for setting the boring-tool to a predetermined mark on the work substantially as described.

2. The combination in a doweling-jig, of the clamp-bar having the fixed jaw at one end and the opposing clamp-screw adapted to be clamped on the sides to secure the bar above and crosswise of the edge of a piece of wood, said bar also having slideways for the adjustable boring-tool guide on opposite sides, the said adjustable guide fitted alike to either side, means for adjustably securing said guide-tube to either side and the gage for setting the boring-tool to a predetermined mark on the work substantially as described.

3. The combination in a doweling-jig, of the clamp-bar and the extensible tool-guide consisting of the V-plate attached to said bar and having the projecting slideways, and the adjustable plate having the taper end with the V-notch therein, and fitted adjustably in said slideways toward and from said V-plate substantially as described.

4. The combination in a doweling-jig, of the clamp-bar and the extensible tool-guide consisting of the V-plate attached to said bar and having the projecting slideways, the adjustable plate having the taper end with the V-notch therein, and the V-plate detachably connected with said taper and V-notched end of the said adjustable plate substantially as described.

5. The combination in a doweling-jig, of the clamp-bar, adapted to be clamped on the board crosswise of the edge, the adjustable tool-guide attached to said clamp-bar, and the gage on the fixed jaw of the clamp and being adjustable laterally to the bar supporting the tool-gage substantially as described.

Signed at New York city, in the county and State of New York, this 14th day of May, A. D. 1894.

JAMES COYLE.

Witnesses:

W. J. MORGAN,
S. H. MORGAN.