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COMBINATION DRILL GUIDE AND CLAMP

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Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

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My invention relates to improvements in combined drill guides and work clamps, the principal object in view being to provide a simply constructed, efficient device for guiding drills in exact 90 degree angular relation to the work, clamping pieces of work together side by side, and which furthermore is adapted to function as a hole finder.

Other and subordinate objects are also comprehended by my invention, all of which, together with the precise nature of my improvements, will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in side elevation of my improved drill guide and work clamp in its preferred embodiment.

Figure 2 is a view in plan.

Figure 3 is a view in longitudinal section taken on the line 3—3 of Figure 2.

Figure 4 is a view in transverse section taken on the line 4—4 of Figure 1.

Figure 5 is a view in side elevation of a modified form of the invention.

Figure 6 is a view in longitudinal section taken on the line 6—6 of Figure 5.

Figure 7 is a view in horizontal section taken on the line 7—7 of Figure 5.

Figure 8 is a view in side elevation of another modified form of the invention, and

Figure 9 is a view in side elevation of a modified form of holder.

Referring to the drawings by numerals, and first to Figures 1 to 4, my improved drill guide and work clamp, in the preferred embodiment thereof, comprises a U-shaped holder 1 embodying a pair of laterally spaced parallel arms 2 terminating in enlarged bearings 3 each provided with an internally threaded transverse bore 4, the bores being axially aligned. A pair of externally threaded, tubular, combined drill guides and clamp members 5, 6 are turned into the bores 4 for adjustment in the holder 1 toward and from each other into and from clamping relation. The inner end of one of said members, at least, if said members be formed of soft metal, may be provided with an annular, flat-faced bushing 5 fitted onto a reduced portion 1 of said end and secured thereon by upsetting said end against the bushing. The outer ends of said members 5, 6 are enlarged and knurled to form hand grips, as at 8, 9, for use in turning said members.

In the use of the described drill guide and work clamp, the work is clamped between the inner ends of the members 5 and 6, in a manner which will be clear, and the drill, not shown, operated through either one of said members, as desired. In this connection, it is to be understood that members of different internal diameter for different sizes of drills are comprehended by my invention. Assuming that it is desired to drill a hole in a piece of work 10 opposite a hole in a piece of work 11, the two pieces are clamped together side by side between the members 5, 6 with the hole 12 in the piece of work 11 aligned axially with the members 5 through the medium of a suitable instrument inserted through the appropriate member into said hole. The drill may then be operated through the other member, as will be clear.

In the modified form of the invention shown in Figures 5 to 7, the holder 13 is provided at one end with an internally threaded bearing, similar to bearings 3, for turning therein of a tubular combined drill guide and clamping member 14, similar to members 5 and 6, but having rotatably mounted on its inner end, in any suitable manner, a bowed clamping foot 15. The other end of the holder 13 is provided with an inwardly extending lateral stud 16 and together with said stud is bored, as at 17, to provide another drill guide axially aligned with the drill guide 14. A clamping plate 18 is mounted on the inner end of the stud 16 by means of a ball and socket joint 19, 20 formed in part on said stud and in said plate and arranged in the center of the plate. The plate 18 is centrally apertured, as at 21, to permit a drill to pass therethrough. As will be apparent, the clamping plate 18 is universally adjustable whereby it is adapted in cooperation with the foot 15 for use in clamping work pieces having irregular sides, for instance, wedge-shaped pieces.

In the modified form of the invention shown in Figure 8, the holder 22 is provided in one end with a combined drill guide and clamping member 23, similar to members 5 and 6, and in its other end with a suitable bushing 24 forming a second, stationary drill guide and clamping member axially aligned with the member 23.

In Figure 9, a modified form of holder 25 has been shown and which is provided with an enlarged loop end 26 for facilitating positioning the holder over certain types of work.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.
Manifestly, the invention is susceptible of modification in other respects than as herein disclosed, and within the scope of the subjoined claims.

What I claim is:

1. In a device of the class described, a substantially U-shaped holder having opposed ends, and a pair of tubular combined drill guiding and work clamping members at the ends of said holder axially aligned and one threaded in the holder for adjustment toward and from the other, one of said members having mounted on the inner end thereof a bowed clamping foot rotatable on said end.

2. In a device of the class described, a substantially U-shaped holder having opposed ends, and a pair of tubular combined drill guiding and work clamping members at the ends of said holder axially aligned and one threaded in the holder for adjustment toward and from the other, and a clamping plate mounted on the inner end of one member for universal movement thereon and provided with an aperture therethrough in the axis of said member for passing a drill therethrough.

3. In a device of the class described, a substantially U-shaped holder having opposed ends, and a pair of tubular combined drill guiding and work clamping members at the ends of said holder axially aligned and one threaded in the holder for adjustment toward and from the other, a clamping plate mounted on the inner end of one member for universal movement thereon and provided with an aperture therethrough in the axis of said member for passing a drill therethrough, and a bowed clamping foot swivelled on the inner end of the other member.

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