May 28, 1946.

H. B. DALEY

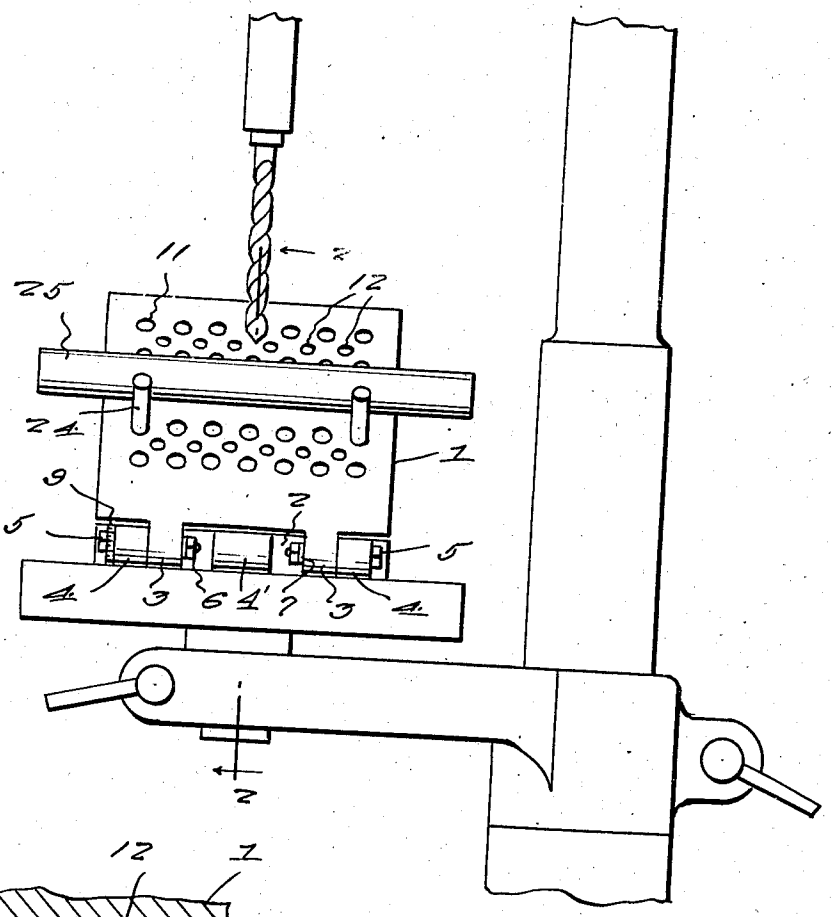
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COMBINATION WORK AND JIG SUPPORT

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4 Sheets-Sheet 1

Fig. 1.



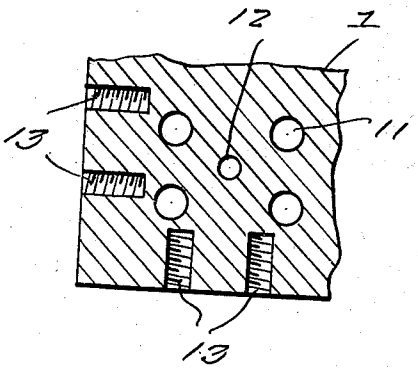


Fig. 7.

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Fig. 7.

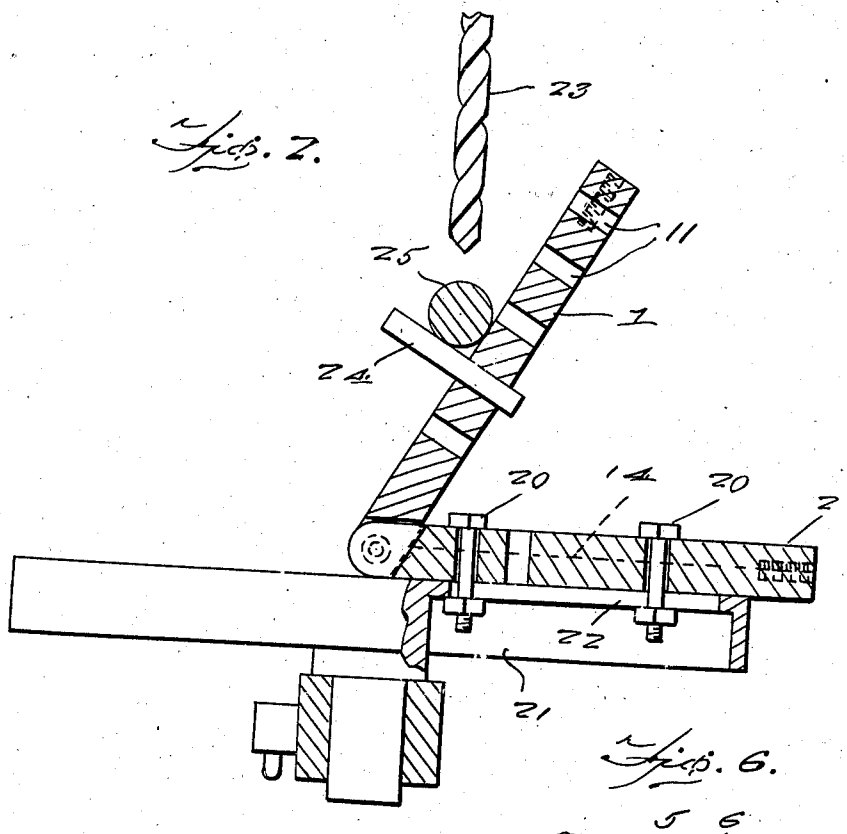


Fig. 6.

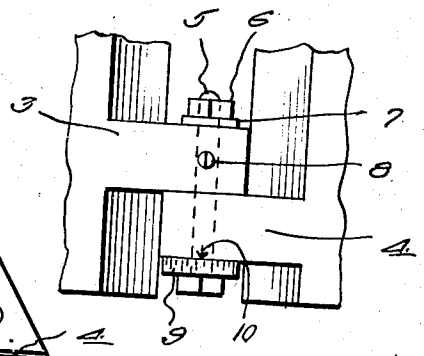
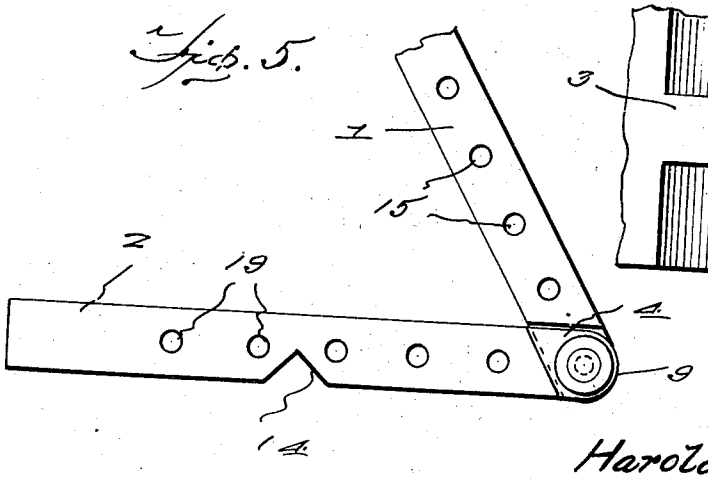


Fig. 5.



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COMBINATION WORK AND JIG SUPPORT

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Fig. 4.

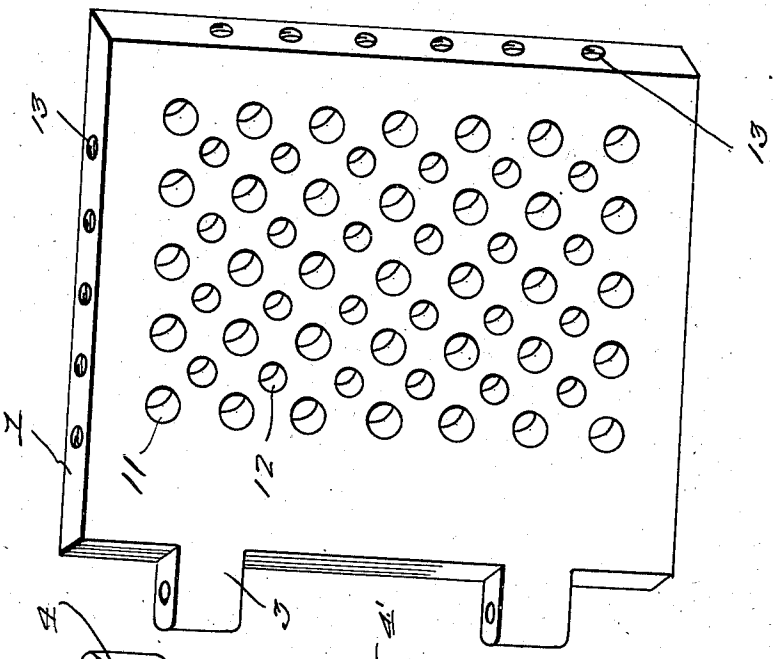
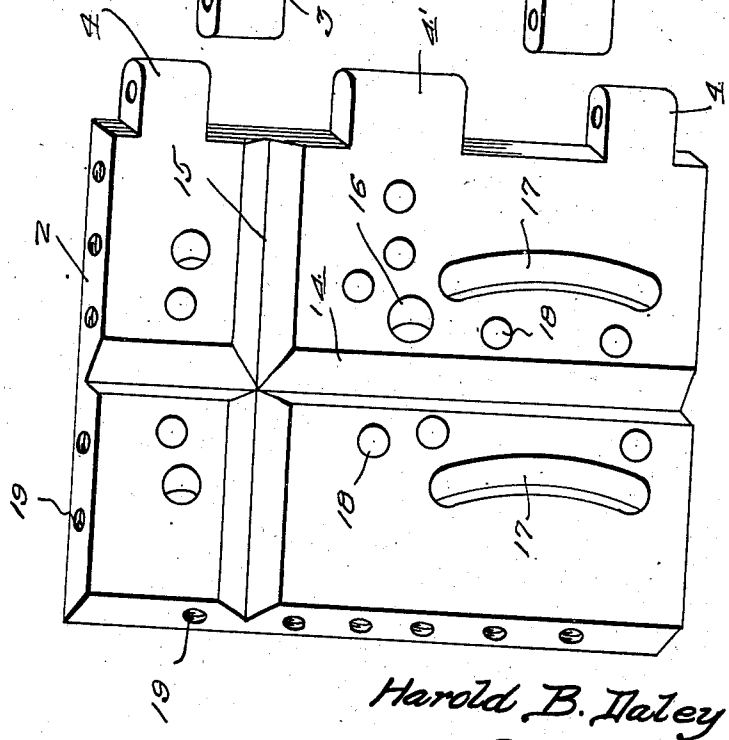


Fig. 3.



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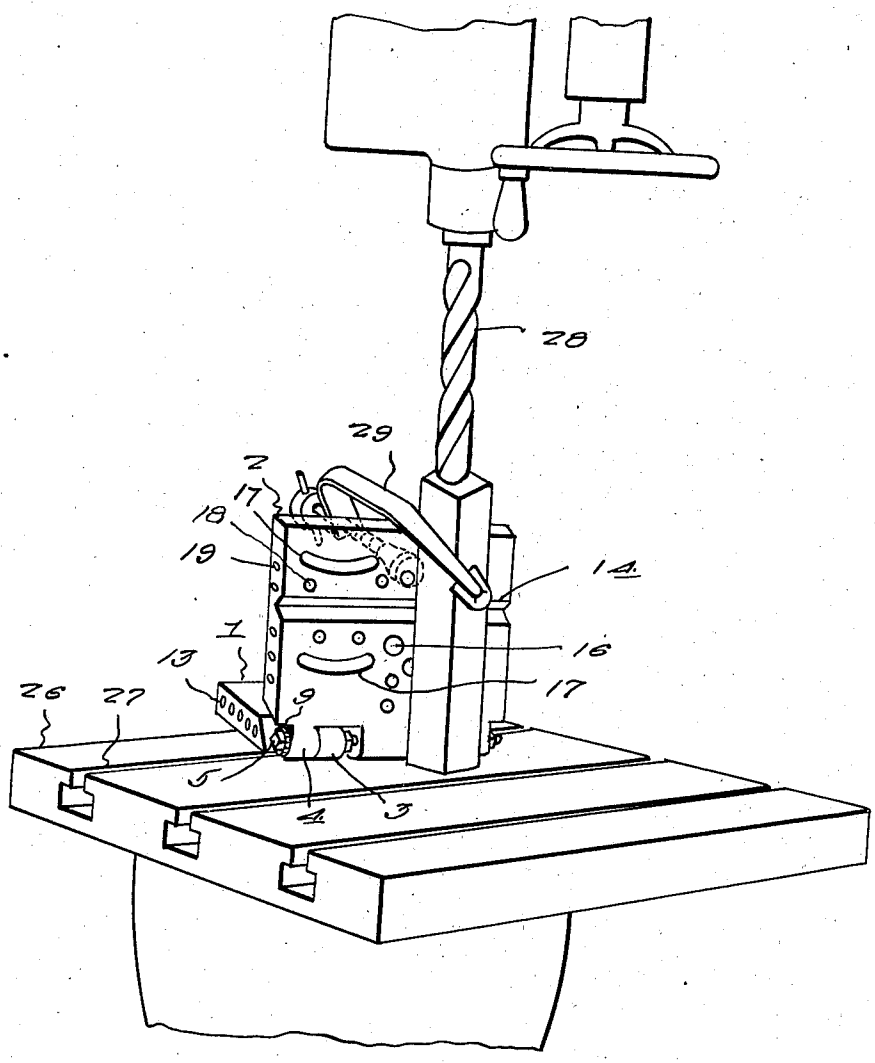
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Fig. 8.



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Patented May 28, 1946

2,401,054

UNITED STATES PATENT OFFICE

2,401,054

COMBINATION WORK AND JIG SUPPORT

Harold B. Daley, Fort Worth, Tex.

Application May 13, 1943, Serial No. 486,872

1 Claim. (Cl. 77—63)

My invention relates to improvements in combination work and jig supports, the primary object in view being to provide a device of the character indicated which is of simple construction and particularly adapted for use in a wide variety of machines, particularly drills, and for holding work in a wide variety of angular positions relative to tools to be engaged with the work.

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 claim are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in front elevation of my improved work and jig support mounted on a bench drill press,

Figure 2 is a view in vertical section taken on the line 2—2 of Figure 1, and drawn to an enlarged scale,

Figure 3 is a view in perspective of one of the plate sections drawn to a further enlarged scale,

Figure 4 is a similar view of the other plate section,

Figure 5 is a fragmentary view in edge elevation showing the plate sections adjusted into the same relation as that shown in Figures 1 and 2,

Figure 6 is a fragmentary view with the plate sections opened relatively,

Figure 7 is a fragmentary view in horizontal section of one of the plate sections, and

Figure 8 is a view in perspective showing my improved work and jig support mounted on a radial drill press and further illustrating another use thereof.

Referring to the drawings by numerals, in the illustrated embodiment thereof, my improved work and jig support comprises a pair of rectangular, relatively thick metal plate sections 1, 2, the plate section 1 being provided, on what constitutes a rear side edge thereof, with a pair of bored hinge lugs 3, coplanar with the plate and adapted to fit between, and against, a pair of similar hinge lugs 4 on the rear edge of the other plate 2, and to straddle in spaced relation thereto a third dummy lug 4' on said edge of the plate 2 provided for a purpose presently seen. A pair of bolts 5 are provided for attaching the adjacent lugs 3, 4, together in pairs so that the plate sections 1, 2 may be swung relatively into different angular positions with respect to each other, said bolts 5 having nuts 6 and washers 7 thereon in the space between the lugs 3 and lug 4. One of the bolts 5 is fixed, as by the screw 8, to the lug 3 through which it extends and on its head end is provided with a peripherally graduated integral collar 9, so that said one bolt and collar rotate when the plate sections are swung relatively to thereby register the graduations on said collar 9 with a mark 10 on one lug 4, the arrangement being such that the graduated collar and the mark provide for micrometically indicating the angular relation of said plate sections 1, 2.

The nut 6 of the other bolt 5 when tightened provides for setting the plate sections 1, 2 in selected angular relation, or for opening of the plate sections 1, 2 out flat if desired.

The plate section 1 is provided therein with a field of through, round, smooth, apertures arranged in longitudinal and transverse rows parallel with the sides and ends of the section, respectively, and including alternate rows of apertures 11 of one and the same diameter, and intermediate rows of openings 12 of smaller diameter, the openings in the alternate and intermediate rows being staggered relatively. The front edge and ends of the plate section 1 are tapped to provide a longitudinal row of holes 13 in each.

The plate section 2 is provided in one face thereof with a substantially central, longitudinal V slot 14, and a similar transverse slot 15. In the transverse center of the plate section 2, adjacent to longitudinal slot 14, is a large bolt hole 16, and adjacent one end of the section is a pair of longitudinally extending arcuate short slots 17 located upon opposite sides of the V, slots 14, respectively. At various points, other smooth round through apertures 18 are provided in said section 2. Also the front edge and ends of the plate section 2 are tapped as at 19 in the same manner as the plate section 1.

Referring now, briefly, to the uses and operation of my invention as illustrated in the drawings, by way of exemplification only, it being understood that the invention is adapted for use in many other ways than those illustrated, and which it has not been considered necessary to illustrate and describe.

As shown in Figures 1 and 2, the invention may be used in a bench drill press with the plate section 2 bolted, as at 20, grooved face down, on the table 21 of the press, and through one of the usual radial slots 22 of said table, the plate section 1 being adjusted, in the manner already described, at a predetermined angle relative to and over the plate section 2, to incline the same beneath the drill bit 23. Dowel pins 24 inserted in selected apertures 11 or 12 are utilized in con-

junction with the plate section 1 to hold a piece of work such as a round bar 25 beneath the bit 23. The bolts 20 may be inserted through any selected holes or apertures 16, 18, or, through the slots 17 to position the plate section 2 on the table 21, so as to arrange the plate section 1 in different positions relative to the bit 23. By placing the dowel pins 24 in selected apertures 11, 12, the work 25 may be adjusted at different inclinations to the horizontal and vertical. Incidentally, the described smaller apertures 12, and relatively larger apertures 11 being staggered provide for closer spacing of the apertures and hence for fine adjustment of the dowel pins 24 in lines inclined relative to the plate section 1, as will be clear. In this arrangement of the plate sections 1, 2, the end series of tap holes 13 of the plate section 1 may be utilized for any desired purposes for which the same may be found suitable. Also the hole 16 may be used as a bolt hole alone to provide for pivotally bolting the plate section 2 to the table 21, and the apertures or holes 18 may be similarly utilized.

As shown in Figure 8, the invention may be used in a radial drill press with the plate section 1 imposed flat on the bed 26 of the press to which it may be bolted in a manner which will be understood without illustration through any one or more of the apertures 11, 12, with the bolt or bolts extending into one of the T slots 27 of the bed. In this use, the plate section 2 is adjusted into vertical position alongside the drill bit 28 and a bar of square stock is clamped in upstanding position in the transverse groove 15 and to said plate section 2 by means of a suitable clamp 29, one end of the stock resting on the bed 26 and the stock being vertically aligned with the drill bit 28. The clamp 29 shown is of the usual U-shaped screw equipped type straddling the plate section 2 and the stock. Obviously by adjusting the plate section 2 into different set positions on the plate section 1, the angle at which the stock will be bored may be varied as desired. In using the plate section 2 as the work holding element, the groove 14 may be utilized similarly to groove 15 in clamping stock lengthwise of the plate section 2.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, together with the advantages thereof, without further extended explanation.

Manifestly, the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claim.

What I claim is:

In a work holder, a pair of flat plates of rectangular form hinged together at side edges thereof for relative swinging adjustment into different angular positions with respect to each other to dispose either plate substantially horizontal for use as a support for the other plate and the other plate upright at different angles to the vertical, means to retain the plates in adjusted position, means to secure work to one of the plates including a field of openings therein and dowel pins for insertion in said openings selectively, and means to secure work to the other plate including right angularly related grooves therein and a clamp for securing work in said grooves.

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