March 6, 1928. 1,661,808

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DIE

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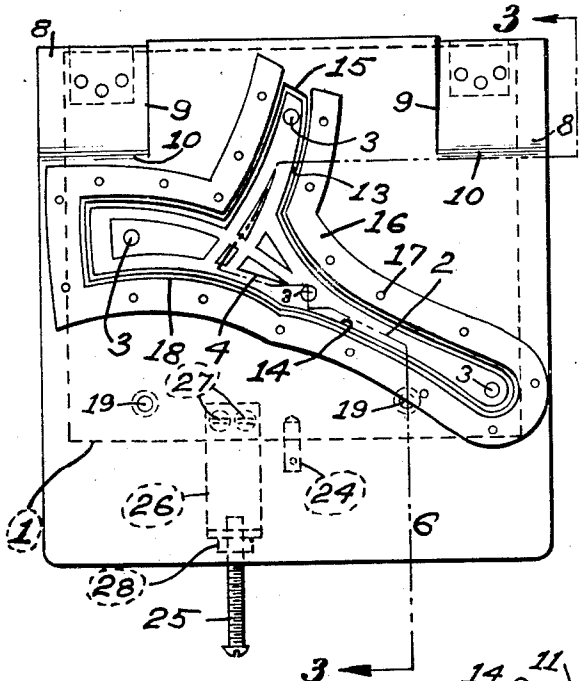


Fig. 1.

Fig. 2.

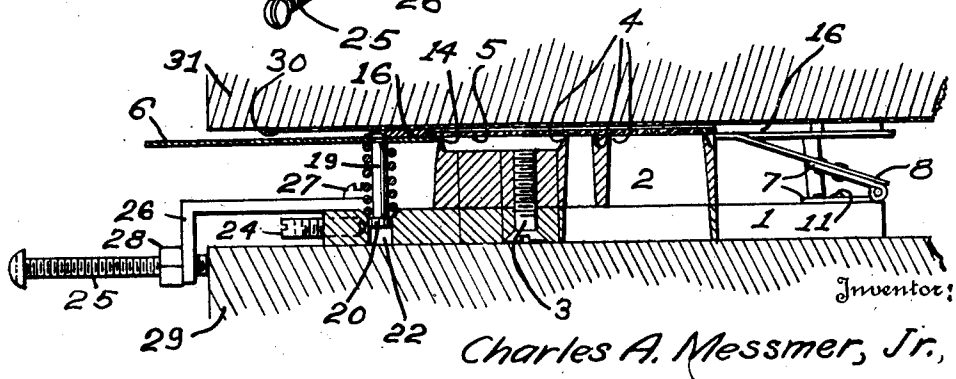


Fig. 3.

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UNITED STATES PATENT OFFICE.

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This invention relates generally to dies, and more particularly to dies for cutting paper, cloth, fabrics of all kinds, and especially leather. The principal purpose of the invention is to provide a die which can be quickly adjusted or modified so that it may be used efficiently on either a Knight press or a clicking machine or as a hand mallet die to cut out blanks for the various parts of boots and shoes and the like.

Another object is to provide a die which, when assembled as a Knight machine die, will weigh much less than the types of Knight machine dies hitherto in use, while at the same time the cutting or forming part of the die will be heavier in material and detachable from the other parts of the die, so that it will be rugged and substantial enough and may be easily detached for use in a clicking press.

Other objects and advantages will appear in the course of the following description of a preferred embodiment of the invention.

In the accompanying drawing forming part of this specification, in which like numbers of reference denote like parts wherever they occur,

Figure 1 is a plan view of the complete die in closed position;

Figure 2 is a perspective view of the same die in open position, but having a different form of hinged connection between the base plate and the stripper plate; and

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 1, showing the die in a Knight press, with a leather blank in position to be operated on by the die.

A rigid base plate 1 of preferably rectangular formation has secured to the upper side thereof a forming die 2, that is secured to the base 1 by means of screws 3, that screw into tapped holes therefor in the die 2 and that pass in unthreaded relation through holes therefor in the base 1. For the purpose of illustration, the die 2 is shown as a blanking-out die for cutting fancy overlay and straps in the manufacture of shoes. The upwardly projecting forming portion 2 could be formed integral with the base portion 1 as a single block, but the die 2 is preferably detachable so that it may be used alone in a clicker press. The base 1 and die 2 can be apertured to permit the descent therethrough of scrap that is formed when the cutting edges 4 perforate the blank 5 that is being formed by the die 2.

A substantially rectangular stripper plate 6 has its rear end secured to the rear end of base plate 1 by means of hinges 7, there being preferably one hinge at each side. In the form shown in Figures 1 and 3, the hinges 7 are riveted to the inclined ears 8, formed by slitting the plate 6 at 9 and bending it at 10. The ears 8 space the rear end of the base plate 1 from the rear end of the stripper plate 6. The hinges 7 are secured to the upper side of the plate 1 by means of screws 11. In the form shown in Figure 2, S-shaped resilient members 12 are interposed between the hinges 7 and the plate 6, so as to maintain the plates 1 and 6 in resiliently spaced apart relation to one another. The S-shaped springs 12 of Figure 2 permit vertical motion of the plate 6 without any accompanying forward or backward motion, while the ear springs 8 of Figures 1 and 3 necessitate a slight forward or backward displacement of the plate 6 for every vertical movement of the rear end of the said plate because of the inclined position of the ears 8.

The plate 6 is apertured at 13 to permit the passage therethrough of the marginal cutting edges 14 of the die 2, which cutting edges are intimately followed by the outline 15 of the opening 13. The upper side of the stripper 6 is provided with means for positioning thereon in proper relation to the die 2 the blank that is to be operated on by the die 2. The said means preferably comprises a strip 16, preferably fiber or the like, secured to the plate 6 by means of rivets 17, and presenting an outline 18, that is preferably disposed slightly without and follows the outline 15. Studs 19 are riveted or otherwise suitably secured to the underside of the plate 6, and enlarge at their lower or outer ends into heads 20. Compression springs 21 encompass the studs 19 and bear at one end against the plate 6 and at the other end against the respective heads 20. When the plate 6 is swung down into closed position, as shown in Figures 1 and 3, the heads 20 enter cylindrical sockets 22 that are formed in the upper side of the base plate 1, and preferably have a close sliding fit therein. The sockets 22 flare or enlarge conically at their upper ends to form seats 23, against which the outer ends of the springs 21 impinge when the parts assume the position shown in Figure 3. The forward end of the base 1 may have screwed thereinto adjust-

ing screw 24; and adjusting screw 25 may be screwed into bracket 26, secured to the upper side of plate 1 by screws 27. Lock-nut 28 secures screw 25 in position after it has been adjusted. Screws 24 and 25 form stops that determine the location of the die on the anvil of a Knight press or punch press, as will be understood by those skilled in the art.

Fancy overlay and straps for shoes are preferably cut from portions of the leather stock that are selected as being of the same color or shade throughout or of a color or shade to match other parts of a shoe. It is difficult and impractical to place such stock on the wooden anvil of a clicker press and place the die correctly in the selected position thereon, and for such match marking the blanks are preferably first cut out roughly by hand slightly larger than the required size, usually using a form or pattern as a guide. The die is placed in a Knight press, in closed position and with the base 1 resting on the anvil 29 thereof, and the roughly cut blank 5 is placed within the confines of the flange 16 over the cutting edges 4 and 14, and the press is operated, the paper or other soft material 30 being fed over the die, and the head 31 of the press descending thereon, causing the plate 6 to descend with the cutting of the blank 5 and the compression of the springs 21 as the heads 20 descend further into the sockets 22. When the hammer 31 of the press ascends, springs 21 cause plate 6 to return to its normal position, elevating the blank 5 above the cutting edges of the die 2, whereupon the finished blank can be removed and another rough blank inserted in its place, when the cutting operation of the press may be repeated. To use the die 2, cutting edges downward, on a clicker press for cutting blanks from stock indiscriminately as to color or quality of the stock, the plate 6 is lifted and the screws 3 removed, and the die 2 detached for use in the clicker press.

It will be observed that the conical seats 23 guide the descending heads 20 into the sockets 22, should they have become slightly displaced laterally on account of any distortion of the thin plate 6, so that the plate 6 need not be heavy enough to prevent such distortion, thereby materially reducing the weight of the die, so that its handling is facilitated and production increased. It will, also, be noted that the springs 21 do not fall off when the plate 6 is lifted, and that the studs 19 do not permanently connect the base 1 and stripper 6, thereby facilitating the removal of the die 2 from the base 1 for use in the clicker press or as a mallet die. Also, a lighter base plate may be used because the pins 19 need not be fastened thereto. Furthermore, when using the die in a Knight press, the plate 6 need not be disturbed during the operation thereof, since the blanks are easily placed in and removed from within the confines of the flange 16 on the top side of the plate 6.

Having thus fully described this invention, I hereby reserve the benefit of all changes in form, arrangement, order, or use of parts, as it is evident that many minor changes may be made therein without departing from the spirit of this invention or the scope of the following claims.

I claim:

1. A die comprising a block member presenting a projecting forming portion adapted to operate on a blank of stock placed thereover, a stripper member for the forming portion and hinged at one end to the block member, and means borne by one of said members for resiliently spacing the other end of the stripper from the block.

2. A die comprising a block having a base portion and a forming portion projecting therefrom and adapted to operate on a blank of stock placed thereover and a hinged stripper plate for the forming portion, the said stripper plate bearing projections that space the stripper plate from the block.

3. A die comprising a block having a base portion and a forming portion projecting therefrom and adapted to operate on a blank of stock placed thereover, the said base portion being provided with a plurality of sockets, a hinged stripper plate for the forming portion, and a plurality of studs secured to stripper plate and adapted to engage the said sockets to prevent lateral movement of the stripper plate with relation to the block.

4. A die comprising a block having a base portion and a forming portion projecting therefrom and adapted to operate on a blank of stock placed thereover, the said base portion being provided with a plurality of sockets, a stripper plate hingedly carried by the forming portion, a plurality of studs secured to the stripper plate and adapted to enter the said sockets, and resilient means encompassing the said studs and adapted to bear resiliently on the base portion when said studs enter said sockets.

5. A die comprising a block having a base portion and a forming portion projecting therefrom and adapted to operate on a blank of stock placed thereover, the said base portion being provided with a plurality of sockets, a stripper plate hingedly carried by the forming portion, a plurality of studs secured to the stripper plate and provided with heads that are adapted to enter the said sockets, and resilient means wider than the said heads and encompassing the studs intermediary of the stripper plate and the said heads.

6. A die comprising a block having a base portion and a forming portion projecting

therefrom that is adapted to operate on a blank of stock placed thereover, the said base portion being provided on the side that bears the forming portion with a plurality of cylindrical sockets that enlarge conically at the said side, a stripper plate hingedly carried by the forming portion, a plurality of studs secured to the stripper plate and provided with heads that fit slidably in the said sockets, and resilient means borne by the studs intermediary of the stripper plate and the said heads and projecting laterally beyond the said heads so that the said means may bear resiliently on the conically enlarged portions of said sockets.

7. A die comprising a base, a forming die detachably secured to a side thereof, a stripper for the forming die pivotally connected to the base so that it may be swung toward the forming die in operable relation thereto, or away therefrom to provide access thereto for the purpose of detaching the forming die from the base, and means projecting from the outer side of the stripper for locating a blank to be operated on in proper relation to the forming die.

8. A die comprising a rigid base plate, a forming die detachably secured to a side thereof, a light stripper plate for the forming die that is hinged to the base plate at one end thereof so that it may be swung toward the forming die in operable relation thereto or away therefrom to provide access thereto for the purpose of detaching the forming die from the base plate, and means projecting from the inner side of the stripper plate near the free end thereof and adapted to engage the base plate to maintain the stripper plate in suitable spaced relation thereto.

9. A die comprising a member bearing forming means, a second member having provisions for locating a blank with relation to the forming means, and a hinge having each of its flaps connected to a respective one of said members, at least one of the said connections tending to maintain the members in resiliently spaced-apart relation at the said hinge.

In testimony whereof I hereunto affix my signature.

CHARLES A. MESSMER, JR.