May 7, 1957 B. M. BROWNELL 2,791,273

CLICKER DIES

Filed Feb. 11, 1955

Fig. 1.

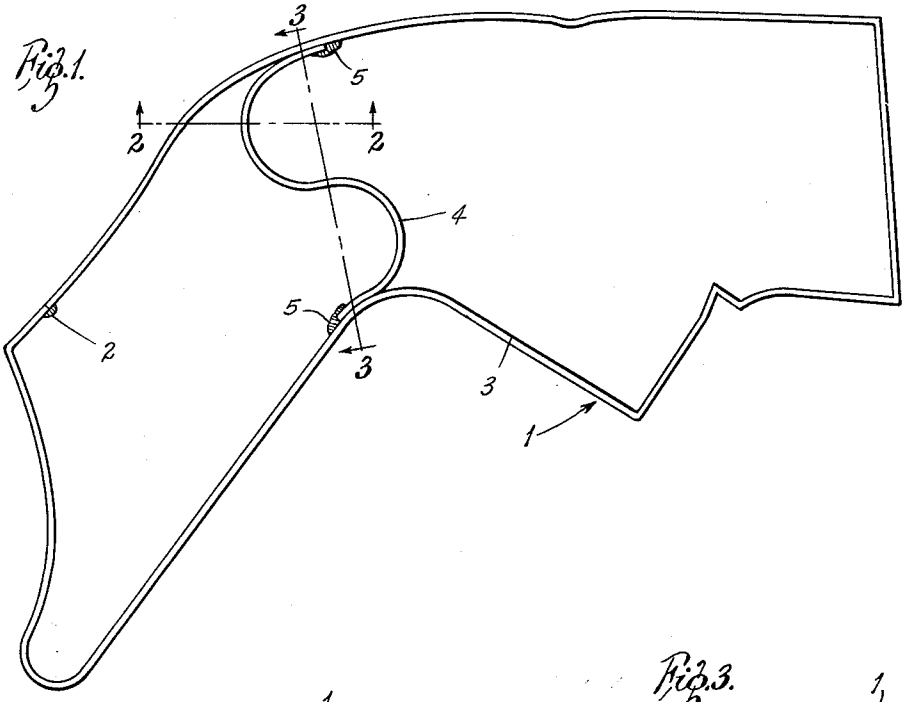


Fig. 2.

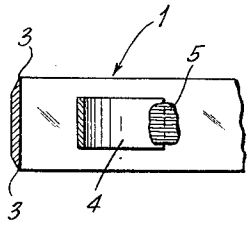


Fig. 3.

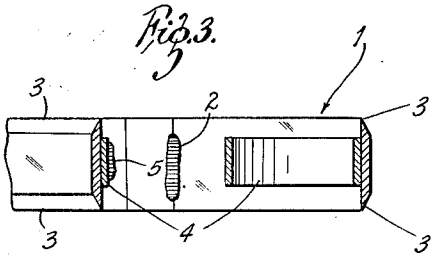


Fig. 4.

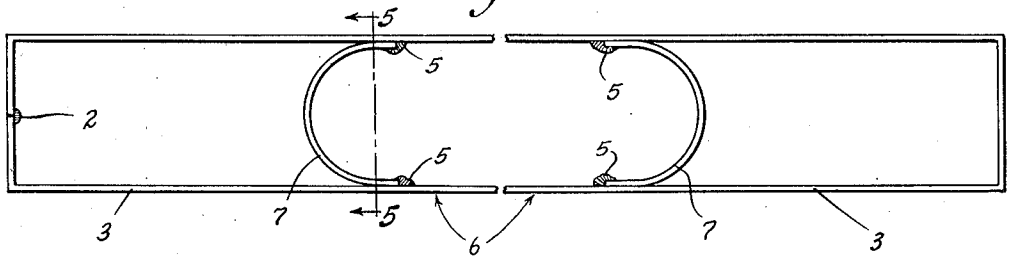
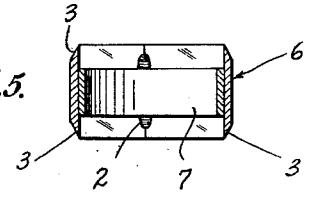


Fig. 5.



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CLICKER DIES

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3 Claims. (Cl. 164—29)

This invention relates to improvements in clicker dies for cutting out blanks from material to form boot and shoe parts and similar articles.

The clicker die, as is well known, is a tool of the shoe making industry which has been used for a long period of time to blank out the boot and shoe parts from leather or other similar material. As these different parts are of irregular and widely different designs, the clicker die operation readily adapts itself for economical cutting of the shoe making material.

It has been the experience of those using this type of die that, because of the relatively light weight of the construction when it is placed over the material carried on the base of the clicker press and the head or presser member is reciprocated against the die, there is a strong tendency of the die to flex out of shape because of the stresses and strains resulting from the rapid hammer blows of the clicker die head against the upper edge of the dies. Since these dies are made in skeleton form with the cutting edge accurately conforming with the blank to be cut out, it has been found necessary in most instances to cross brace the dies. This is usually done by welding a straight rod or plate to the inner part of the die ordinarily at the narrowest point and intermediate the ends of the die. The rapid hammer blows of the head against the top edge of the die during the cutting operation have the tendency after relatively short periods of use to fracture the die frame at the terminal points of the braces where they are welded to the frame and, also, the frame may fracture at other points because of the rigidity of the cross bracing.

A primary object of the invention is to so construct a die of this type that it will have sufficient rigidity to resist the strains and stresses and remain in true conformation, while at the same time the tendency to fracture is greatly reduced as the novel construction of bracing permits enough flexibility to relieve the strain at the points where the fracture usually occurs.

Specifically, an object of the invention is to provide a die construction of the clicker type by cross bracing the frame of the die with a plate or plates formed with one or more bow sections, that is to say, preferably in the form of an S- or U-shaped brace piece.

It has been found in practice that by use of braces of the form indicated the tendency of any part of the die to fracture in use has been substantially obviated.

The construction embodying the invention will be readily understood from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a plan view of a vamp cutting die embodying the S-shaped cross brace;

Figure 2 is a vertical section taken substantially on the line 2—2 of Figure 1;

Figure 3 is a vertical section taken substantially on the line 3—3 of Figure 1;

Figure 4 is a plan view of a substantially rectangular die incorporating the U-shaped cross braces; and

Figure 5 is a vertical section taken substantially on the line 5—5 of Figure 4.

In the embodiment of the invention particularly illustrated in Figures 1 to 3, inclusive, the die frame is in an

irregular form such as is required for cutting out shoe vamps from the material. It will be understood that the frame 1 is hand or machine bent from a longitudinal strip of steel usually 1/16 to 1/8 of an inch in thickness and approximately of a width of 1 inch. This frame member at the abutting ends is welded as at 2. The frame may be ground to a knife edge both at the top and bottom, as indicated at 3, or may have only one cutting edge. The brace member for a die of this conformation is in the form of an S-shaped plate 4 of substantially one-half the width of the walls of the die frame, and is welded in position as a cross member substantially intermediate of the length of the frame, the welding points being indicated by 5 in Figure 1. It is preferable that the brace have the double bow formation where the width of the die is of the order of 3 or 4 inches at its narrowest point.

However, many parts cut for boots or shoes have a narrow cross dimension as in the die illustrated in Figure 4, which comprises a substantially rectangular frame 6 having a relatively narrow width but a substantial length. In dies of this formation, it has been found that the bracing is more satisfactorily accomplished by using at least a pair of cross braces 7 in the form of plates having U-shaped conformation. These cross tie plates are preferably equally spaced longitudinally of the frame member.

Extensive comparative tests have been made with dies including the specifically formed cross members of the invention with the standard form of bracing where the braces are rigid straight members, and it has been found that the dies including the bracing of the invention have greatly increased the useful life of the dies in operation.

While the primary use of dies of this type is in the boot and shoe manufacture, it should be understood, however, that it is adapted for cutting out parts for other goods made of leather or similar materials, such for example as baseball gloves. It is to be understood, therefore, that the particular use for the die is not a limitation, but that the invention resides in the novel means of bracing dies of this type for all uses.

What is claimed is:

1. In a clicker die for cutting parts for boots and shoes and similar articles, the combination of a knife-edged frame conforming with the part to be cut, and a cross bracing interior of the frame secured to the inner part thereof at opposite sides of the frame, said cross bracing having a slightly flexible bowed section between said opposite sides for limited flexing of said sides.

2. In a clicker die for cutting material parts for boots and shoes, the combination of a knife-edged frame conforming with the part to be cut, and a cross bracing interior of the frame secured to the inner part thereof at opposite sides of the frame, said cross bracing having a slightly flexible bowed section between said opposite sides for limited flexing of said sides, said bowed section being in S-shaped formation.

3. In a clicker die for cutting material parts for boots and shoes, the combination of a knife-edged frame conforming with the part to be cut, and a cross bracing interior of the frame secured to the inner part thereof at opposite sides of the frame, said cross bracing having a slightly flexible bowed section between said opposite sides for limited flexing of said sides, said cross brace having a U-shaped formation.

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