E. H. BREWER.

DIES FOR COMPRESSING AND ORNAMENTING LEATHER.

No. 182,408. Patented Sept. 19, 1876.

Fig 3

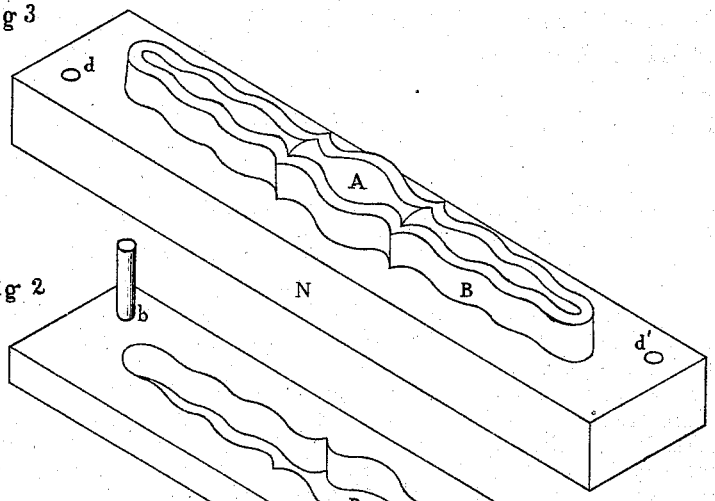


Fig 2

Fig 1

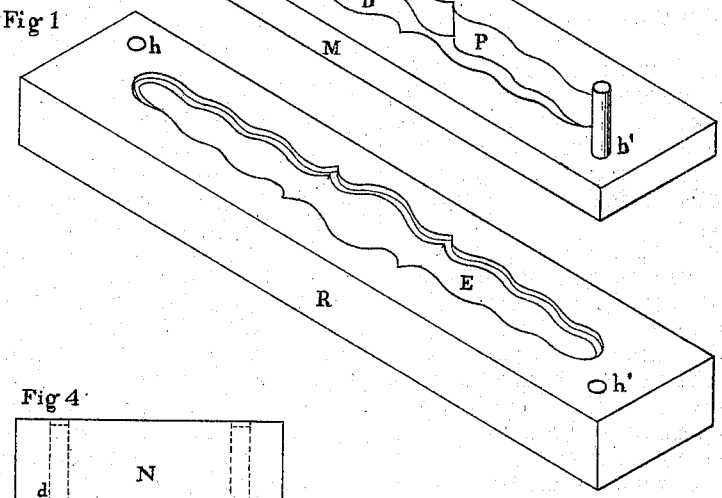


Fig 4

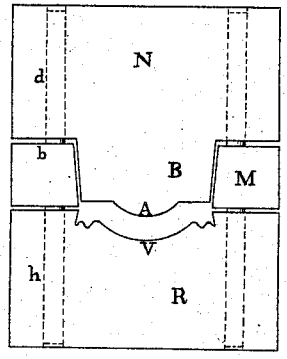
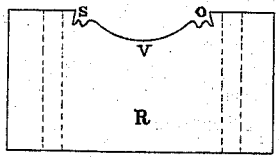


Fig 5



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD HILL BREWER, OF CORTLAND, NEW YORK, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO M. STANLEY BIERCE, OF SAME PLACE.

IMPROVEMENT IN DIES FOR COMPRESSING AND ORNAMENTING LEATHER.

Specification forming part of Letters Patent No. **182,408**, dated September 19, 1876; application filed June 6, 1876.

To all whom it may concern:

Be it known that I, EDWARD H. BREWER, of Cortland, county of Cortland, and State of New York, have invented a new and useful Improvement in Apparatus for Compressing and Shaping Leather into Various Ornamental Designs and Patterns, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to compress and shape leather into various ornamental designs, forms, and patterns for harnesses, and other purposes wherein ornamentation and forms composed of leather are used, by means of an apparatus which I will now proceed to describe and explain.

In the accompanying drawings, Figure 1 represents and shows a rectangular or other suitable shaped piece or plate of metal, or of other suitable substance, of dimensions adapted to the size of the leather to be compressed and shaped, and of sufficient strength to withstand the pressure to which it will be subjected. On the upper side of this plate R, Fig. 1, is made a cavity, matrix, or mold, of a shape exactly the reverse of what its impressed form will appear in the leather, after the leather has been compressed therein. The depth of the said cavity is regulated by the thickness of the leather after it has been operated upon, as hereinafter set forth. The object of having the depth of this cavity so regulated will appear more fully hereinafter. The external edges of this cavity or mold (which external edges are more fully shown at *s* and *o*, Fig. 5, which represents a cross-section of the plate R, the bottom of the cavity or mold being shown at *v*) are so made as to converge slightly as they approach the upper surface of the plate, thus forming a dovetail-shaped cavity or mold, as shown in Fig. 5. The object of this dovetail-shaped cavity will appear more fully hereinafter.

Fig. 2 represents and shows the second and middle plate M of the apparatus, corresponding, in general dimensions and outlines, to the plate R, Fig. 1. Through this plate an opening, D, is formed, the general outline of which opening is made to conform to and follow the outline of the cavity E in the plate R before mentioned, so that when the plate M is placed upon the plate R in the proper manner, hereinafter to be shown and described, the inner surface P of the said opening D forms a continuous and unbroken surface with the said edges *s* and *o* of the cavity or mold E. The opposite sides of the inner surface P of the said opening D diverge slightly, or recede from each other, as they approach the upper surface of the plate M. The object of thus making the said opening D larger at the said upper surface of the plate M will appear more fully hereinafter.

Fig. 3 represents and shows the third and last plate, N, of my apparatus, corresponding, in general outline and dimensions, to the plate R, Fig. 1, hereinbefore mentioned. On the upper side or surface of this plate N is made a raised projection or relief, B, of a height equal to about the thickness of the middle plate M, Fig. 2, and the general shape of this projection or relief B is made to conform to and follow the shape of the opening D in the plate M, Fig. 2, into which opening it is intended to fit. The upper surface A of the said projection or relief B is made to correspond with, and conform to, the cavity or mold E, Fig. 1, the object of which will appear more fully hereinafter.

In plate M, Fig. 2, *b* and *b'* are two upright rods, extending through the said plate, so as to project from both sides of the same, and, upon the plate N being turned over, (for it is represented in Fig. 3 in exactly the reverse position to that in which it will be used,) the said upright rods *b* and *b'* fit into the holes *d* and *d'* in the plate N, and the holes *h* and *h'* in the plate R, thus combining and securing the said three plates together when used and operated.

Fig. 4 represents and shows a cross-section of the said three plates combined in the manner last described, and for the purpose of being used and operated, reference for explanation being had to the corresponding letters attached to Figs. 1, 2, and 3.

Having explained the form and construction of the various parts of the said apparatus, I will now proceed to explain the operation and

use of the said parts when used together for the purpose of producing the desired result upon leather. The piece of leather to be used and operated upon is cut of a shape corresponding to the opening D in the plate M, Fig. 2, and of such a size as will permit of its being easily placed in the upper or enlarged portion of the said opening before described, fitting the same accurately. The plate M is placed upon the plate R, the two upright rods *b* and *b'* fitting into the respective holes *h* and *h'*, and the opening D corresponding to, and fitting upon, the cavity or matrix E, as before described. The piece of leather, having been cut in the form as described, is moistened, so as to become pliable in the usual manner, and is placed in the opening D, and, after it has been placed therein, the plate N, Fig. 3, with the relief or projection B, is so placed that the said relief or projection presses upon said leather in said opening D, the two upright rods *b* and *b'* fitting into the holes *d* and *d'*, as above described.

It is not necessary that this order of placing the plates be observed, but the plate N may be first placed upon the plate M, and then both together placed upon the plate R at the option of the operator, thus accomplishing the same object. After the plates have been so placed, and the said piece of leather is in the opening D, pressure is applied to the whole apparatus by means of a press, lever, or other device which will give the necessary pressure, and the piece of leather in the opening D is pressed into the matrix or mold E by the relief or projection B, the said opening D answering the purpose of a guide for the leather into the matrix or mold E, the surface A of the said relief or projection B, by means of its peculiar conformation corresponding in general to the conformation of the said matrix or mold E, as hereinbefore shown and described, pressing equally upon said leather, and, by reason of the pliability and flexibility of leather, forcing it to assume the shape of the matrix or mold E, thus receiving the desired impression and ornamentation.

The object of having the opening D in the plate M larger at the upper surface of the said plate, as before described and shown, is that the said piece of leather may be cut of sufficient size to fill the matrix or mold E, after it has been compressed therein, as above described, and also to fill the peculiar configuration of the surface of the said matrix or mold necessary to produce the desired ornamentation or form upon the leather.

The plate N is then removed, and also the middle plate M, the piece of leather by reason of the peculiar conformation of the edges *s* and *o* of the cavity or matrix E, as hereinbefore shown and described, being firmly retained, held, and fastened in the said matrix or mold for the purpose of being operated upon in the manner I will proceed to explain.

The object of having the depth of the cavity or or mold E regulated by the thickness desired for the leather, and also of having the said depth supplemented or increased by the addition of the second and movable plate M, as has been fully shown, described, and set forth, is that the said plate M may be removed after the pressure has been applied, as before described, thus permitting the superfluous portion of the leather, which is not intended to be used, to remain exposed above the plane of the surface of the plate R, that the same may be readily cut, shaved, or pared off by means of knives or other suitable apparatus, leaving the said leather of uniform and suitable thickness to be applied to the purpose for which it is intended. The said leather may then be removed.

The method of shaping leather, and ornamenting leather, by means of compressing it in an apparatus composed of a mold or matrix, and a stamp made to fit therein, I believe to be old; but my apparatus, consisting of the three plates R, M, and N, with the peculiar conformation of the edges *s* and *o* of the cavity E, retaining and fastening the leather therein, to permit of its being cut, shaved, and pared, and the depth of said cavity so regulated, and also the said depth supplemented and increased by the addition of a second or movable plate, M, with the opening D, for the purpose of leaving the superfluous leather exposed upon the removal of the plate M, so that it may be readily cut, pared, or shaved off, and the combination of the said three plates, all made, used, and operated substantially as and for the purpose hereinbefore shown, described, and set forth, (reference being always had to the drawings accompanying this specification,) I believe to be new.

I claim—

The plate or die R, having the matrix E and perforations *h h'*, in combination with the plate M, having the opening D and studs *b b'*, and the plate N, having the projection or relief B and perforations *d d'*, all constructed and operating in the manner and for the purpose specified.

EDWARD HILL BREWER.

Witnesses:
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