T. MUELLER.

Manufacture of Bezels of Watch-Cases.

No. 219,593. **Patented Sept. 16, 1879.**

Fig. 1.

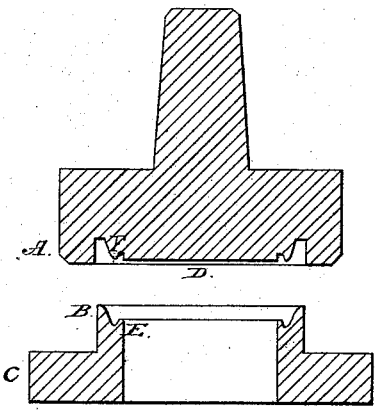


Fig. 2.

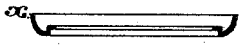


Fig. 3.

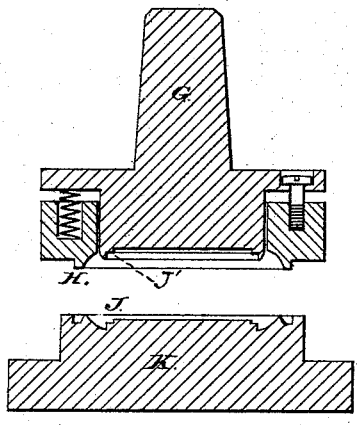


Fig. 4.

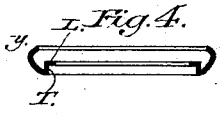


Fig. 5.

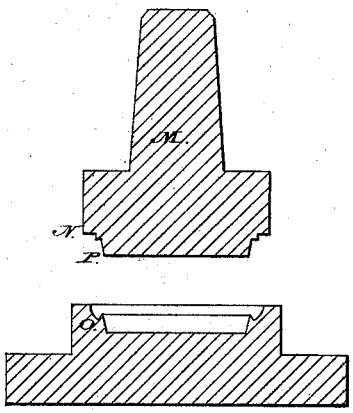
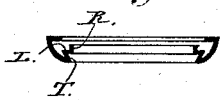


Fig. 6.

Fig. 7.



WITNESSES

John A. Ellis.

D. P. Lowl

Theodore Mueller,

INVENTOR. by

Geo. A. Sawyer.

ATTORNEY.

UNITED STATES PATENT OFFICE.

THEODORE MUELLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THOMAS B. HAGSTOZ AND CHARLES N. THORPE, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF BEZELS OF WATCH-CASES.

Specification forming part of Letters Patent No. **219,593**, dated September 16, 1879; application filed April 17, 1879.

To all whom it may concern:

Be it known that I, THEODORE MUELLER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of the Bezels of Watch-Cases; and do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention, reference being had to the accompanying drawings, which form a component part of this specification.

The object of my invention is to produce bezels from plate metal by drawing and compression without cutting away or otherwise removing the surface of the metal, and of such accuracy of form as to fit properly on the watch-case, and also to hold and safely retain the glass or crystal. A saving in labor and material is thus effected, and when plated metal is used the bezels so produced retain the full thickness of the precious metal in the finished article.

The nature of my invention may be briefly stated to consist in cutting out and drawing up, with a single-action press, a blank ring in one pair of dies, and by a further drawing and partial contraction in a second set of dies, presenting the blank in such a shape that compression in a third set of dies imparts the required finished form and dimensions.

All of the figures shown in the drawings are in sections.

Figure 1 shows the first pair of dies, and Fig. 2 the form of blank produced by their action; Fig. 3, the second pair of dies, and Fig. 4 the blank resulting from their action on the blank shown in Fig. 2; Fig. 5, the third or finishing pair of dies, and Fig. 6 the finished bezel produced by compressing the blank shown in Fig. 4 in the dies shown in Fig. 5.

The bezel shown in Fig. 6 is adapted to hunting-cases. When used for open-faced cases the bezel has a collar or rim, R, projecting downward, as shown in Fig. 7. A single-action press is used throughout.

The first pair of dies (shown in Fig. 1) consists of a cutting-collar, A, cutting against the rim B of the lower die, C, and a punch, D, cutting out the center plate against the cutting-edge E. The collar F and die C are of such form in the annular space between the punch D and collar A as to impart, when firmly pressed toward each other upon the ring of metal severed from a plate by the cutting just mentioned the shape shown in Fig. 2.

The punch G (shown in Fig. 3) has a cuffed rim, H, which contracts the outer rim, *x*, of the blank Fig. 2 into the form shown at *y*, Fig. 4, and at the same time the projection J, formed in the die K, and the recess formed in the punch G give a more decided shape to the rim T, which has a cylindric surface, and the flat, inwardly-projecting rim L, now at right angles thereto, thus producing the blank shown in Fig. 4.

The punch M, (shown in Fig. 5,) by means of a flat surface, N, presses the conically-contracted rim T of the blank shown in Fig. 4 flat, while the die O confines the portion immediately below it, and prevents any spreading or expansion thereof. Thus the "snap" is finished, and at the same time the tapering end P of the punch M passes into the opening in the blank and presses and stretches the rim L and cylindric rim T, so that the angle formed by the rim T and flat rim L becomes an acute angle, the cylindric rim T assuming a conical form, with its greater diameter toward the rim L, and the crystal-setting is thus perfectly formed.

It will be seen that in the operations above described the metal is not subjected to any abrading or cutting excepting the severance of the blank from the plate, but is simply drawn and compressed, thus allowing of the use of plated stock, and the glass-setting is so accurately formed as to require no turning to produce the acute angle, as has heretofore been necessary.

I am aware that locket-cases have been heretofore made of sheet metal by the action of punches and dies, and that such cases have been produced of the full thickness of metal used; but, so far as I have knowledge, no one before myself has yet succeeded in producing a bezel of uniform thickness and with an accurately-finished glass-setting produced solely by the action of dies and requiring no hand-work to adapt it to receive the crystal.

Having described my invention, what I claim therein is—

1. The combination of the dies shown in Fig. 1, provided with inner and outer cutting-edges, and the die or matrix C, having a depressed annular groove, and the die A, having a corresponding annular ridge, said dies being adapted to produce the form shown in Fig. 2, substantially as described.

2. The combination of the die and matrix shown in Fig. 3, the die G provided with the sloping, flat, and cylindrical surfaces shown at J′, and surrounded by the movable ring H, having an inward-sloping face, adapted to reduce the blank shown in Fig. 2 to the form shown in Fig. 4, substantially as described.

3. The combination of the dies shown in Fig. 5, consisting of the punch M, provided with the flat surface N and conical part P, and the matrix O, substantially as described.

4. As an improvement in the art of making bezels for watch-cases from sheet metal, the method, substantially as herein described, of making the same by means of a series of dies or stamps that impart to the blank the proper contour, and also the particular sharp undercut seat for the glass, by bending the metal simply in contradistinction to upsetting, swaging, or turning the same, in virtue of which I am enabled to use plated metal without fear of destroying the continuity of the superior metal.

TH. MUELLER.

Witnesses:
EDMUND Q. BOWMAN,
B. H. LOWRY.