(No Model.)

F. ECAUBERT.

DIE FOR MAKING WATCH CASES OR OTHER ARTICLES.

No. 382,517. Patented May 8, 1888.

Fig. 1.

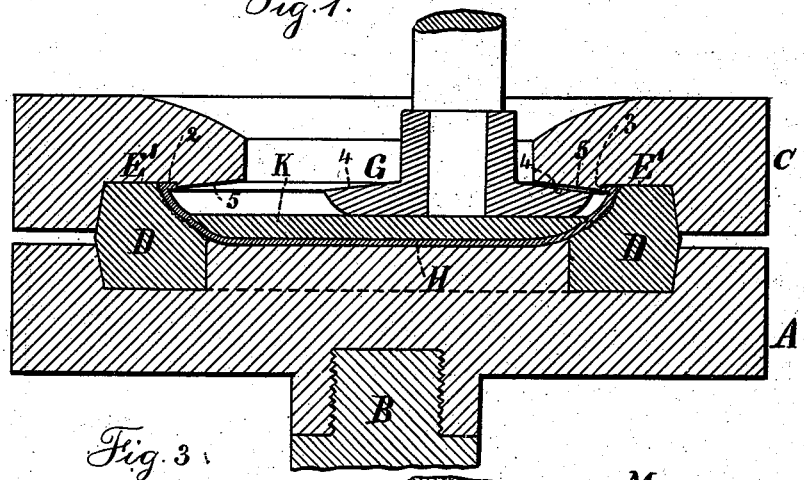


Fig. 3.

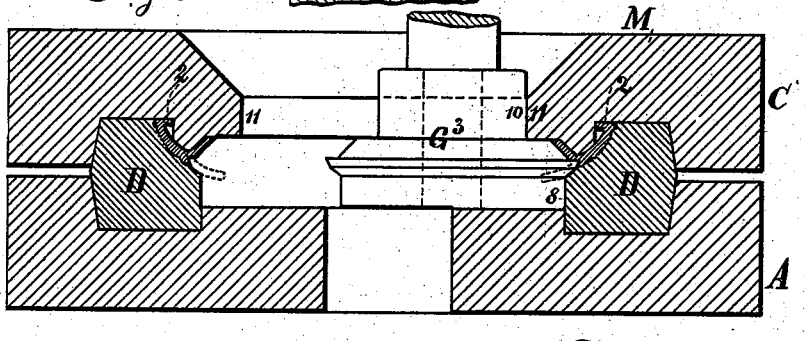


Fig. 5.

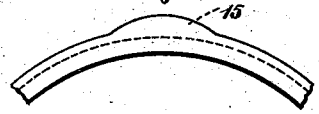


Fig. 2.

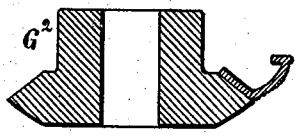
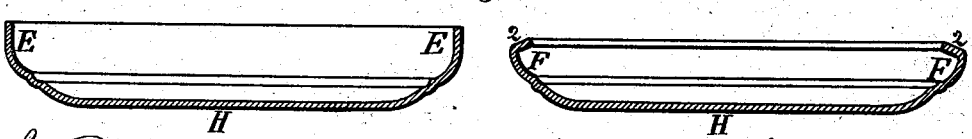


Fig. 6.

Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERIC ECAUBERT, OF BROOKLYN, NEW YORK.

DIE FOR MAKING WATCH-CASES OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 382,517, dated May 8, 1888.

Application filed January 9, 1888. Serial No. 260,173. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC ECAUBERT, of the city of Brooklyn, and State of New York, have invented an Improvement in Dies for Making Watch-Cases or other Articles, of which the following is a specification.

The object of my present invention is to completely shape and ornament the rim portion of a watch-case lid or a bezel for holding the glass. In both instances the gold, silver, or other metal made use of for the watch-case lid or the bezel is pressed into the die by the action of a roller, and thereby the surface of the article is made to conform exactly to the interior of the die.

In the drawings, Figure 1 is a section of the die and roller made use of in shaping and ornamenting the lid or back of the watch case. Fig. 2 represents the roller that gives the first bend in forming the bezel. Fig. 3 is a section showing the dies and the roller for completing the shape of the bezel. Fig. 4 shows sections of the metal blanks. Fig. 5 shows the thumb-piece and part of the lid, and Fig. 6 represents part of a corrugated lid.

In Letters Patent No. 253,355, granted to me February 7, 1882, dies for making watch-case centers are represented, and the chuck for clamping the dies in my present improvements corresponds generally to that represented in the said patent, and a reference is hereby made to the same for a description of the manner in which the roller can be brought into action within the ring or lid. The shell A is fastened upon a revolving mandrel, B, and the clamping-chuck C is either screwed upon the same, as in aforesaid patent, or secured by clamping-bolts. The die D is of an external shape, to be received by and held within the recesses in the shell A and chuck C, and the interior shape of the die corresponds to the exterior shape of the lid or back of the watch-case around the edge portions or rim of the same, and this interior shape of the die also corresponds to the exterior shape of the bezel holding the glass in open-face watch-cases.

In the manufacture of watch-cases and bezels it is usual to stamp up the sheet-metal disk into a shape approximating that illustrated at E, Fig. 4, and then the edges of the sheet metal are bent inwardly by the action of the die, so as to approximate that shown sectionally at F, Fig. 4. This blank is then placed into the die D with the edge 2 of the sheet metal coinciding, or nearly so, with the annular shoulder E′ upon the clamping-chuck C, and the blank is held in this position while being acted upon by the roller G. The exterior shape of this roller G corresponds to the interior shape of the rim of the lid or bezel when completed, and the portion 4 is slightly conical, corresponding, or nearly so, to the slightly conical portion 5 within the clamping-chuck C, so that these two surfaces may set against each other while the roller G is being moved outwardly to roll against the interior of the blank H, and this rolling operation is continued as the die is revolved until the sheet metal is pressed into the die D and receives from that die its perfected external shape.

It will be apparent that any desired ornamentation may be placed upon the exterior rim of the lid or bezel, according to the character of the interior surface of the die D, and various designs, letters, names, or ornamentation can be put upon the surface of the lid or bezel by having the die D properly engraved, because the metal is rolled into the design, and in cases where the design is such that the case will not lift out from the die after being completed such die D may be split at one place, so that it can be sprung open to liberate the case, or it may be made in two or more parts, so as to be taken off the case or ring for liberating the same.

In the ornamentation and completion of the watch-case lid or back by my improvement the central portion of such case is liable to be injured or sprung out of shape by the action of the roller G in giving the final shape to the rim of such lid or back. To prevent this, I make use of a shield, K, one side of which is preferably flat and the other side corresponds to the interior shape that is given to the lid or back H by the dies that are made use of in the ordinary manner of stamping up such case, and the flat side of the shield K comes into contact with the flat end portion of the roller G, and said roller G holds the shield into place. The result of this is that the central portion of the lid or back is held sufficiently firmly to

prevent it becoming sprung or misshaped, and the roller G cannot be brought into contact with the nearly-flat interior portion of the lid or back by any carelessness on the part of the workman in bringing the roller G into its place for operation upon the rim of the lid, and the parts are reliably formed and completed without the gold or silver surface being in any manner injured.

It will be observed that the annular offset 3 confines the edge 2 of the ring or lid, and the pressure upon the inside by the roller G causes the metal to fill up tightly the interior of the die D, and the surfaces 4 and 5 coming together with a slight wedging action to insure proper pressure of the roller G against the shield K for holding all the parts of the metal in the most firm and reliable manner.

In the manufacture of bezels for watch-cases the operation corresponds to that before described, but there is an opening cut through the sheet metal, so as to form the ring, and the recess for receiving the edge of the watch-glass may be made around the inside of the opening in any ordinary manner; but my present improvements enable me to make what is known as a "reflector-bezel" with great facility, because after the rim of the bezel has been made in the manner before described I introduce a roller, G^2, (shown in Fig. 2,) the periphery of which is conical, and it acts against the edge of the sheet metal to bend it over toward the surface 5 of the die. I then remove the roller G^2 and introduce the backing-die M, which passes within the bezel-ring and has a conical interior surface corresponding to the conical form to be given to the reflector portion of the bezel, and I use the roller G^3, the surface of which is shaped to correspond to the interior surface of the bezel, so that by rolling the same in contact with the inner surface of the bezel the inclined reflector-surface is pressed up to shape against the backing-die M, and the V-shaped groove for the edge of the glass is also rolled into the metal, and this is done with perfect uniformity, because the portion 8 of the roller G^3 comes against the interior surface of the die D and forms a stop, or the surface 10 of the roller G^3 may come against the interior 11 of the backing-die M to form a stop, or both these stops may be made use of.

It will be apparent that in cases where there is not any reflector portion of the bezel it is not necessary to use the backing-die M, and the roller G^3 can be used to roll into the edge of the sheet metal the groove for the edge of the watch-glass.

By this improvement the ring or bezel is shaped with the greatest accuracy and the surface is not scratched or removed; hence the lid or bezel can be made of rolled plate in which the surface is of gold and is comparatively thin upon the sheet of brass or similar inferior metal, and the gold surface will remain perfect and the interior plate of brass will only be visible at the edges, one of which sets against the face of the watch and the other snaps upon the shoulder of the watch-case center, these parts usually being turned off in a lathe to insure the proper fit against the respective parts.

I find that the projecting thumb-piece 15 (see Fig. 5) is formed upon the edge of the lid, back, or bezel by the metal being spread into the corresponding recess of the die by the action of the roller, although the interior is circular and not indented at the thumb-piece.

In cases where the edge of the lid, back, or bezel is made with a series of corrugations, as indicated in Fig. 6, the die is shaped to correspond and the roller G should be corrugated similar to that shown in my patent No. 362,615, but corresponding to the interior of the corrugations of the rim, so as to maintain the metal of nearly uniform thickness and to give to the rim of the lid, back, or bezel the desired corrugated shape by pressing the metal into the die.

I claim as my invention—

1. The combination, with the holding-shells A and C, of the ring-die D, having an interior surface corresponding to the exterior rim of the watch-case lid or bezel, in combination with the roller G, having an exterior surface corresponding to the interior of the rim, and the shield K, for holding the central portion of the lid, substantially as specified.

2. The combination, with the roller G, for forming the interior of the rim, of the die D, for forming the exterior of such rim, and the shell C, having a shoulder at 3 for the inner edge of the rim, and the inclined surface 5, with which the inclined portion 4 of the roller G comes in contact, substantially as set forth.

3. The combination, with the ring-die D, of the interchangeable rollers G G^2 G^3, roller G, for shaping the interior of the rim of the lid or bezel, the roller G^2, for bending up the inner edge of the metallic ring, and the roller G^3, for shaping the reflector portion of the bezel, substantially as set forth.

4. The combination, with the ring-die D, for the exterior of the bezel, of the backing-die M, within the bezel, and the roller G^3, for shaping the interior of the reflector portion of the bezel, substantially as set forth.

5. A die having an interior shape corresponding to the exterior shape of the rim of the watch-case bezel, in combination with a roller for forcing the metal ring into such die, a roller for bending up the inner edge of the sheet metal and giving to the same the shape of the finished article, and simultaneously forming the groove for the watch-glass, substantially as specified.

Signed by me this 5th day of January, 1888.

F. ECAUBERT.

Witnesses:

GEO. T. PINCKNEY,

HAROLD SERRELL.