(No Model.)

F. ECAUBERT.

ART OF ORNAMENTING WATCH CASES, &c.

No. 457,150. Patented Aug. 4, 1891.

Fig. 1.

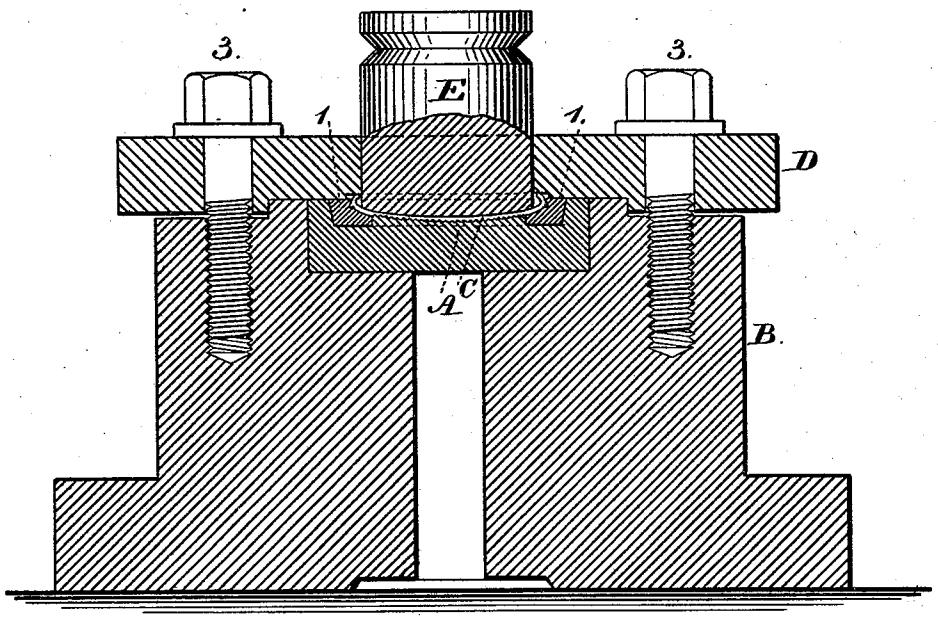


Fig. 2.

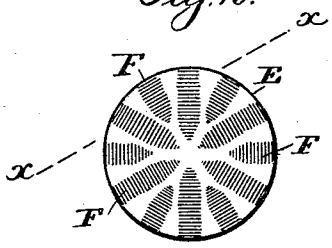
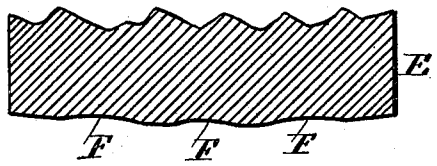


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

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ART OF ORNAMENTING WATCH-CASES, &c.

SPECIFICATION forming part of Letters Patent No. 457,150, dated August 4, 1891.

Application filed July 17, 1890. Serial No. 359,087. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC ECAUBERT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Ornamenting Watch-Cases and Similar Articles, of which the following is a specification.

In ornamenting the lids of watches and similar articles difficulty has heretofore been experienced in making use of dies that are engraved and by which the ornament is transferred to the lid, bezel, or similar article, because a very heavy pressure is required to force the gold or similar metal into the engraved portions of the die, and where the sheet-metal blank may be thicker in one place than another the ornament will be more perfect in the thicker portions of the metal and less perfect in the thinner portions, and it is difficult and almost impossible to spread the metal in such a way as to unify the same and render the ornament equally perfect in all parts.

The present invention is made with reference to stamping up the ornament upon the watch-case lid or similar article with a progressive action that displaces the metal first in one direction and then in the other, so as to work the metal into the engraved die, and thereby make a perfect reproduction, and at the same time any buckling or detrimental action upon the sheet-metal blank is effectually prevented.

In the drawings, Figure 1 is a section of the improved dies made use of by me. Fig. 2 is a face view of the punch, and Fig. 3 is a section at the line $x\,x$ of Fig. 2 in a magnified size to illustrate the peculiar character of the surface of the punch.

The die A is to be of any desired size and shape and its surface is to be ornamented by engraving or otherwise with the patterns, designs, and other ornaments to be reproduced upon the watch-case lid or other article, and this die may be of one piece of steel or of two or more pieces of steel, according to the shape of the article and the character of the ornamentation, and where there is a ring 1, forming a portion of the die, and the interior surface thereof is engraved or ornamented, it is preferable to divide or break the ring at one place, so that it may be sprung open sufficiently for liberating the article that is formed within it.

The die A is to be received into a suitable holder or block B, by which it is supported, and the watch-case lid C or similar article is to be introduced within the die A, and it is to correspond with such die in its general size and configuration, and to support the outer edge of this lid or similar article I apply a counter D, having a central opening and adapted to set upon the edge of the watch-case lid, and this counter is to be secured in place by bolts 3 or other suitable device.

The punch E is adapted to fit within the central hole of the counter D, and its end or operative face corresponds generally in shape to the shape of the interior of the watch-case lid or similar article C—that is to say, such face will usually be convex to fit the concave inner surface of the lid C; but the surface of this punch E, instead of being of a uniform convexity or surface, such surface is ground off or otherwise partially removed and preferably in radial lines, or approximately so, as indicated at F in Fig. 2. This is done in order that the whole of the end of the punch may not simultaneously coincide with and touch the interior of the lid or similar article C.

The mode of operating the present improvements will now be understood to consist in placing the lid or similar article within the die and holding it by the counter and bringing down the punch upon the interior of the lid or similar article, the result of the first stroke being to embed the metal into the engraved portion of the die only at those places where the surface of the die is not removed. Hence the pressure will act upon but a small area at a time, and when the pressure is relieved and the punch is partially rotated in its relation to the die, or the die in its relation to the punch, so that the pressure when applied the second time causes the impression or the partial impression of the ornamental surface at a different place, and so on. The rotary movement and pressure are given alternately in operating upon the interior of the watch-case lid or other article until the whole of the pattern or configuration in the die is filled out and the perfect counterpart

is produced in the lid or similar article. During these successive operations the sheet metal of the lid or similar article cannot become distorted or buckled by the action of the punch, because the portions of the surface of the punch that are removed or ground away are only sufficient to lessen the pressure upon the sheet metal at those places, and the portions of the punch surfaces that act upon sheet metal are more or less rounding, and hence the sheet metal is forced slightly in a lateral direction by the portions of the surface of the punch that project, and as the punch is rotated progressively in its relation to the die and the article being operated upon, or the reverse, the metal is squeezed with great force, first in one direction and then in the other, and partially laterally as well as directly into the ornaments, so that the metal eventually fills the engraving or engraved lines of the dies until the metal is a perfect reproduction or counterpart of the die itself, and this is accomplished with rapidity by successive blows or compressions by the punch without risk of injury to the die or to the punch, and I remark that any suitable mechanism may be made use of in supporting the base of the die or in giving motion to the punch or in rotating the punch or the die in relation to each other, so that the action of the punch may be eventually rendered uniform and all portions of the engraved work reproduced with great accuracy and fidelity in the watch-case lid or similar articles manufactured in these dies.

I claim as my invention—

1. The method herein specified of ornamenting watch-case lids and similar articles, consisting in introducing into the engraved or ornamented die the watch-case lid or similar article and applying pressure successively to the opposite surface of such lid or similar article by a punch having portions of its smooth operative surface slightly recessed or undulating and rotating such punch progressively between one pressing operation and the next, so as to vary the position of the points of greatest pressure, substantially as set forth.

2. The method herein specified of making watch-case lids or similar articles, consisting in pressing successively against the sheet metal while in the die a punch the operative surface of which is smooth and more or less undulating to lessen the area upon which the pressure is applied and turning such punch around in its relation to the die or the die in relation to the punch between one pressing operation and the next to bring the points of greatest pressure progressively over the entire surface of the article being stamped up, substantially as set forth.

3. A die for ornamenting watch-case lids and similar articles having a surface that is engraved or ornamented, the counterpart of the ornament to be produced on the lid or similar sheet-metal article, a base or holder for such die, and a counter for clamping the edges of the watch-case lid or similar article, in combination with a punch passing through the opening in the counter and having an undulating and smooth operative surface that presses only upon portions of the sheet metal each movement, thereby limiting the area of pressure, substantially as set forth.

Signed by me this 2d day of July, 1890.

F. ECAUBERT.

Witnesses:

GEO. T. PINCKNEY,

WILLIAM G. MOTT.