

(No Model.)

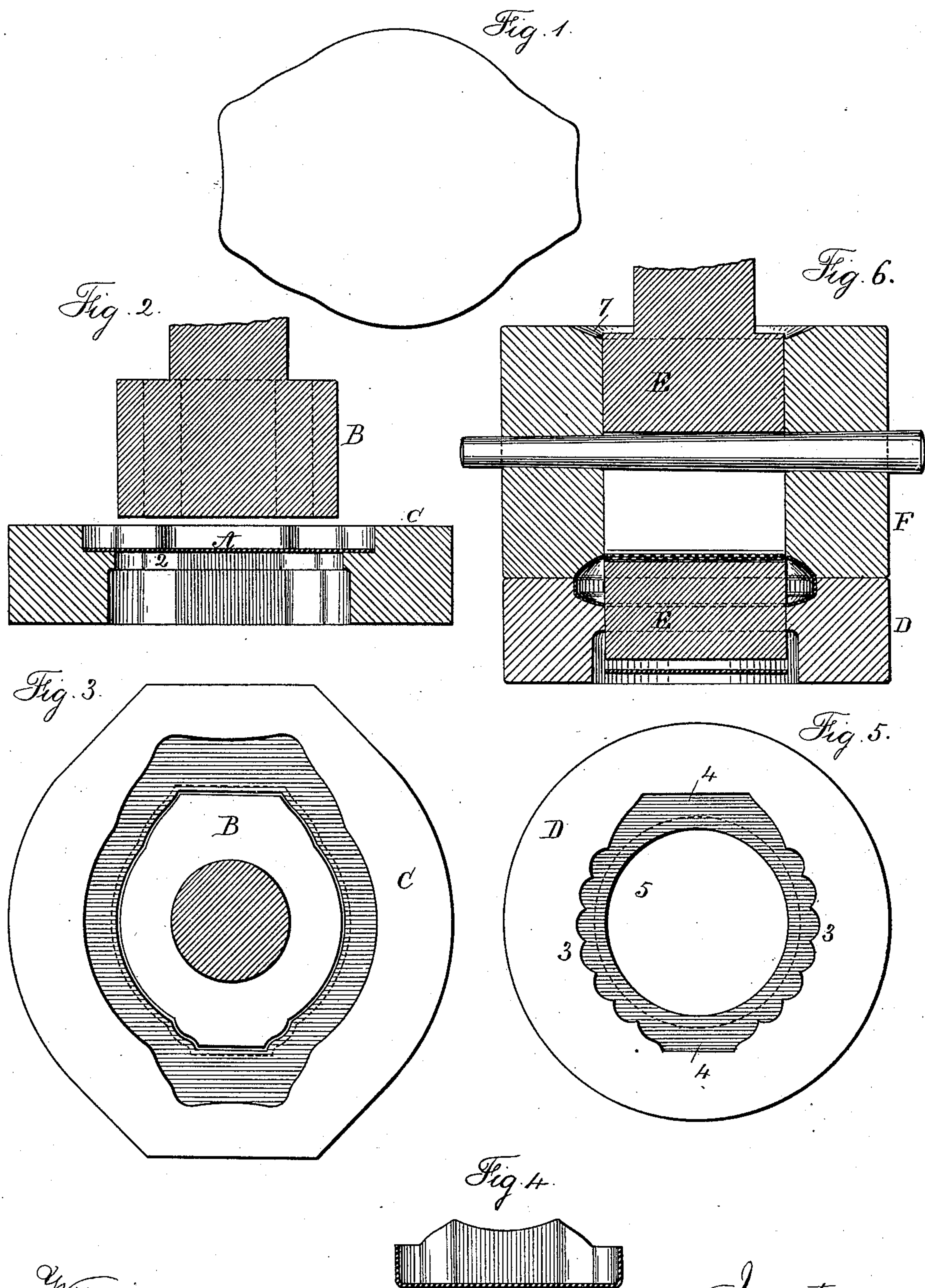
2 Sheets—Sheet 1.

F. ECAUBERT.

MANUFACTURE OF RINGS FOR WATCH CASE CENTERS.

No. 362,615.

Patented May 10, 1887.



Witnesses:
J. Staib
Chas. N. Smith

Inventor:
Frederic Ecaubert
per Lemuel W. Serrell atty

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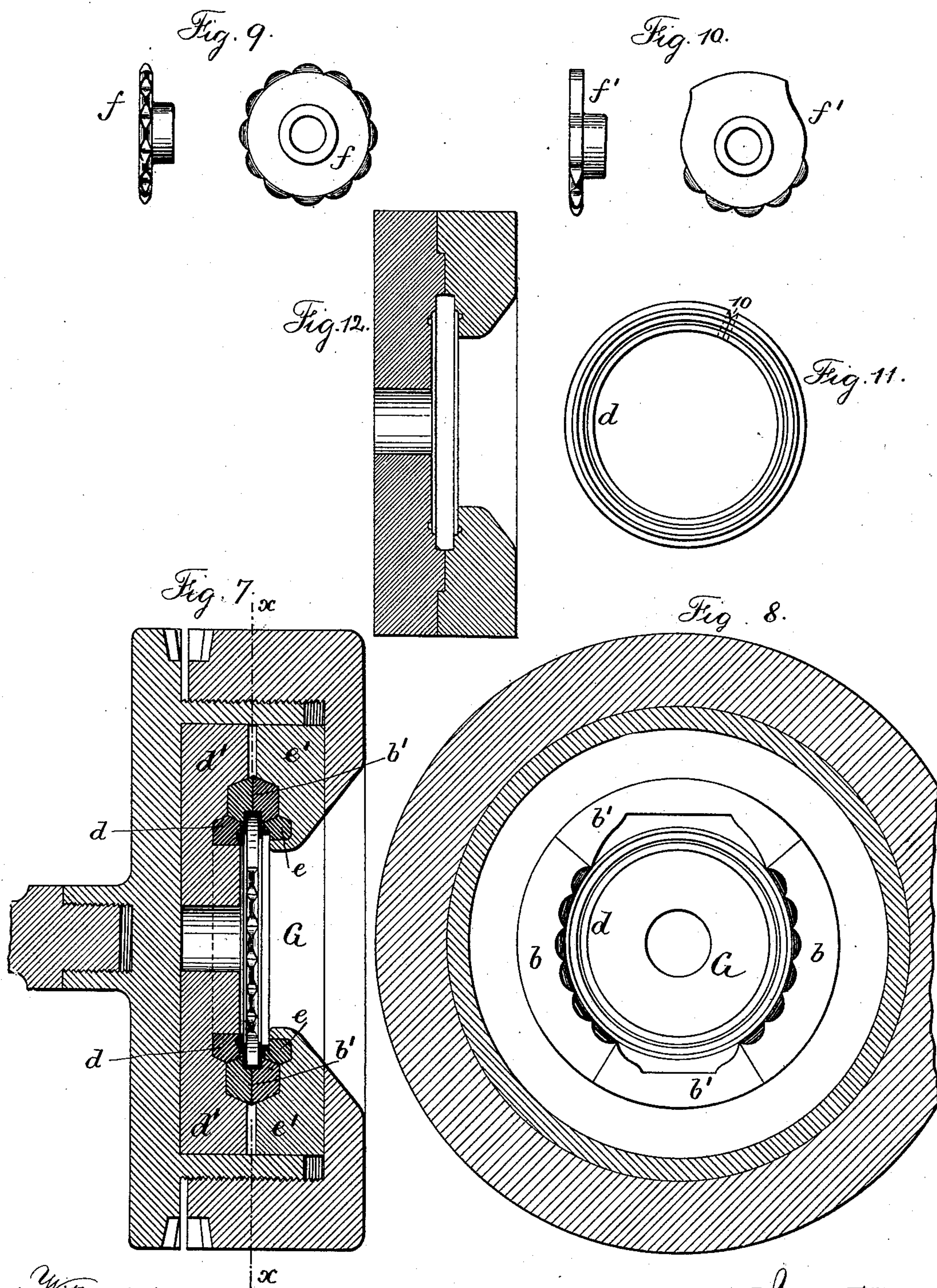
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UNITED STATES PATENT OFFICE.

FREDERIC ECAUBERT, OF BROOKLYN, NEW YORK.

MANUFACTURE OF RINGS FOR WATCH-CASE CENTERS.

SPECIFICATION forming part of Letters Patent No. 362,615, dated May 10, 1887.

Application filed November 18, 1886. Serial No. 219,250. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC ECAUBERT, of Brooklyn, in the State of New York, have invented an Improvement in the Manufacture of Rings for Watch-Case Centers, &c., of which the following is a specification.

In Letters Patent No. 270,644, granted to me January 16, 1883, devices are set forth for the manufacture of watch-case centers with embossed exterior surfaces and smooth concentric interior surfaces, and in connection with this improvement I have manufactured watch-case centers with various external projections and depressions—such, for instance, as designs, figures, letters, &c., in relief or recessed on the bevels upon the edges of the case where the hinges are applied, or the seats for pendants, &c.—the metal varying in thickness in consequence of the roller making the interior of the ring concentric. The embossing action, however, is limited, because if too great the roller will cut through the sheet metal. In addition to projections and depressions of this character, there has arisen a demand for watch-case centers and similar articles with a corrugated or irregular exterior surface; and the object of my present invention is to provide for spinning up metallic rings—such as watch-case centers—with a corrugated, scalloped, or indented edge, and with “box-shaped” projections where the shank and the hinges are applied.

My present improvements relate to the devices for forming such rings or watch-case centers so that the interior of the ring is bent up to a shape corresponding, or nearly so, to the exterior, thereby rendering the metal of nearly uniform thickness; and I have discovered that a corrugated or indented roller of the proper shape brought into action within the sheet-metal ring can be used for forcing outwardly into the die the sheet metal and causing it to assume the proper shape, after which the offsets or snaps for the case-lids or bezels are rolled up in a manner corresponding to that set forth in my Patent No. 253,355, and the die is opened and the completed article removed and finished and polished. By my improvement I am able to make use of sheet metal having one surface covered with gold or silver or other precious metal, and the manner

in which the dies act upon the same is such that the brass or other base-metal foundation is not brought to the surface on the outside of the case, as is frequently done in plated cases manufactured in other modes.

In the drawings, Figure 1 represents the blank of sheet metal made use of by me. Fig. 2 is a section, and Fig. 3 a plan, of the dies or tools employed in the first operation. Fig. 4 is a section of the blank as struck up by the first pair of dies. Fig. 5 is a plan of the die employed in the second operation, and Fig. 6 is a section of the dies and punch made use of in this second operation. Fig. 7 is a section of the dies as put together and with the watch-case center therein. Fig. 8 is a section at the line *xx*, Fig. 7, with the watch-case center removed. Fig. 9 shows by edge view and by side view the corrugated wheel for pressing up the interior of the ring. Fig. 10 shows by similar views the wheel for pressing up the box-shaped portion of the center. Fig. 11 is an elevation of the die or ring that forms the offsets or snaps for the lids and bezels; and Fig. 12 is a section of the dies adapted to a watch-case center of sheet metal that is not plated, such as solid gold or silver.

In making watch-case centers that are circular with a corrugated or scalloped edge the blank of sheet metal is to be circular and stamped up in the manner referred to in my previous patents; but with watch-case centers having the box-shaped projections the blank of sheet metal is in the general form indicated in Fig. 1. This may be cut out by any suitable die, and the blank is received in a die such as shown at A, Fig. 2, and the punch or plunger B, having a shape corresponding generally to the interior of the watch-case center or ring, is pressed down upon the blank as it lies in the die C, so as to fold or draw up the edge of the blank in the act of carrying the same through the opening at 2 in the die C. The partially-formed ring is now placed within the cavity of the die D. This die is formed upon its inner surface with the corrugations or scallops at 3, corresponding generally to the exterior of the watch-case center, and when the center is to be provided with the box-shaped projections this die D is also recessed at 4 to correspond generally to the exterior of the projections, and

there is an opening, 5, in the die D, which is circular, and the panel E is first brought down to cut out a circular opening in the sheet-metal blank, and then the die F is brought down to fold inwardly the upper edges of the sheet-metal blank and to give to the said blank a hollow shape approximating that of the finished watch-case center or similar article. This inwardly-bending action may be performed at one operation; or the die F may have a second recess at 7, so that by turning the same upside down the sheet-metal blank may be further closed in and compressed.

In the act of closing in the top edge of the sheet-metal blank and pressing it down into the form of a hollow ring the folding and compressing of the sheet metal will tend to force the fold or exterior of the blank outwardly into the corrugations in the die D; hence such blank will receive a shape approximating that of the finished center or ring, and these corrugations correspond to the corrugations, scallops, or indentations in the finishing-die G, so that when the sheet-metal blank is transferred to this die G said blank will pass into its proper place and will correspond generally to such finishing-die.

The finishing-die G is made somewhat similar to the die in my aforesaid Patent No. 270,644—that is to say, there are the rings *d* and *e*, with the offsets or shoulders to form the snaps for the case-lid, and between these are the sections *b*, the inner faces of which correspond to the exterior of the finished watch-case center or ring, and these parts are clamped between the portions *d'* and *e'* of the tool.

If the exterior of the watch-case center is a regular scallop or corrugation, the roller *f*, Fig. 9, which is first used within the case, is to be made to correspond to the interior surfaces of the finished corrugations; but the number of corrugations or scallops around the roller *f* is less than the number of corrugations or scallops around the case, in order that the roller may be sufficiently small to pass into the case, and such roller *f* is supported upon an axis or holder, and it is pressed into contact with the interior surface of the watch-case center, as in my aforesaid patent. The sheet metal of the watch-case center, having received partial indentations or corrugations, acts against the roller *f* as the parts are turned in contact with each other, and the edge of the roller *f* finally compresses the sheet metal firmly into the corrugations or scallops within the die G. This operation is performed whether the box-shaped projections are made use of or not; but when such box-shaped projections are to be formed the die is made with the portions *b' b'* of the proper shape, and a second roller, *f'*, is employed (after the roller *f*) to press up the interior of the box-shaped projections and finish the periphery of the case or ring, the action being similar to that before described. After these operations have been performed a third roller is to be made use of for finishing the in-

ner edges of the watch-case center and rolling up the offsets or snaps for the case-lids and bezels, the roller or rollers being similar to those in my Patent No. 270,644.

It will be understood that the details of construction of the dies will have to be varied according to the shape that the watch-case center or other ring is to receive, and that the separate parts composing the dies can be clamped together or otherwise secured in any convenient manner. If the exterior of the watch-case center is made with corrugations slightly beveled in one direction only on their edges, the portion *b* of the dies might be in one piece or ring; but usually they will be divided by a central plane perpendicular to the axis of rotation, or else they will be divided into sections by planes passing radially through the axis of rotation.

In Figs. 7 and 8 the dies are represented as divided centrally in a plane perpendicular to the axis of rotation, the dies in Fig. 8 being adapted also to the subdivision into the sections *b b' b'*, so as to make scallops that are inclined in both directions from the central part of the edge of the ring.

Where the watch-case center is made of gold or silver, the offsets or snaps that receive the lids and bezels are usually undercut by a tool while revolved in a turning-lathe; and with centers of this kind, and in which the corrugations or other forms are inclined on their edges, the dies may be made in two parts, as seen in Fig. 12; but with plated stock, in which the offsets or snaps for the case-lids and bezels are pressed up with the bevel or undercut edge, as in Fig. 7, it is necessary to allow for removing the die from these offsets, and to effect this the parts *d e* are made sufficiently thin to be sprung apart at a notch or separation, 10, (shown in Fig. 11,) and thereby allow for removing the rings from the undercut offsets or snaps.

I claim as my invention—

1. The method herein specified of forming watch-case centers or similar rings in sheet metal, consisting in cutting out the blank, bending the same up into the form of a hollow ring within dies having corrugations or projections approximating the finished article, and then subjecting the blank to the action of an internal roller with peripheral corrugations or projections while the sheet-metal ring is held within a die corresponding to the external shape of the finished ring, substantially as set forth.

2. The method herein specified of forming watch-case centers and similar sheet-metal rings, consisting in cutting out the sheet-metal blank, pressing up the same into a shape approximating that of the finished article within dies having internal recesses corresponding generally to the scallops or box-shaped projections upon the finished article, and then subjecting the sheet-metal ring to the action of a roller acting within the ring to extend the sheet metal into the box-shaped projection and to

one or more other rollers that act within the interior of the ring to finish the same, substantially as set forth.

3. The method herein specified of manufacturing watch-case centers or similar articles having box-shaped projections, consisting in cutting out the sheet-metal blank of an increased width where such projections occur, stamping up the hollow ring from such blank into a shape approximating that of the finished case, folding the edges of the sheet metal inwardly, and then completing the watch-case center by pressure from the inside outwardly while such sheet-metal ring is confined within a die having an internal shape corresponding to the external shape of the watch-case center and box-shaped projections, substantially as set forth.

4. The watch-case center or similar ring of

sheet metal having a corrugated or indented exterior surface and a similarly-indented interior surface, so that the sheet metal is of nearly uniform thickness, substantially as set forth.

5. The method herein specified of making the offsets or snaps in watch-case centers, consisting in pressing up the sheet metal into undercut recesses in split rings by the action of rollers while the split rings are held in dies, then separating the dies and opening the split rings to remove them from the offsets or snaps, substantially as set forth.

Signed by me this 9th day of November, 1886.

F. ECAUBERT.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.