

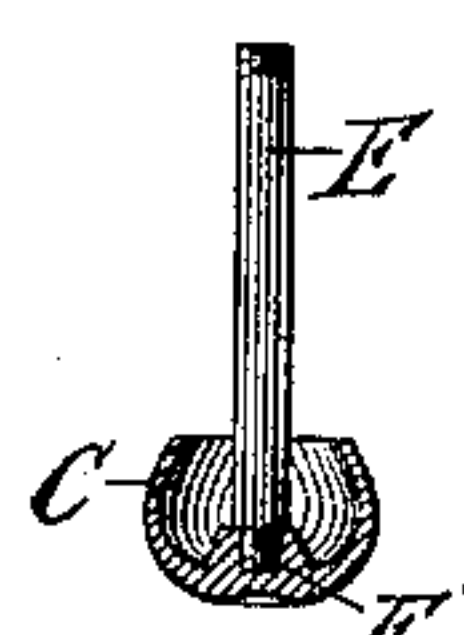
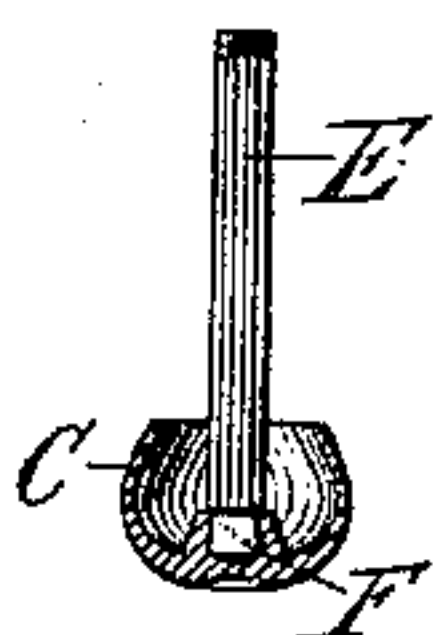
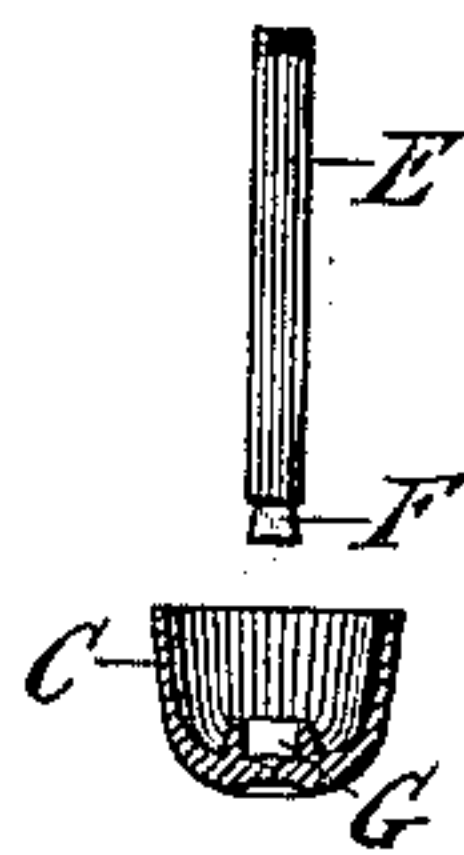
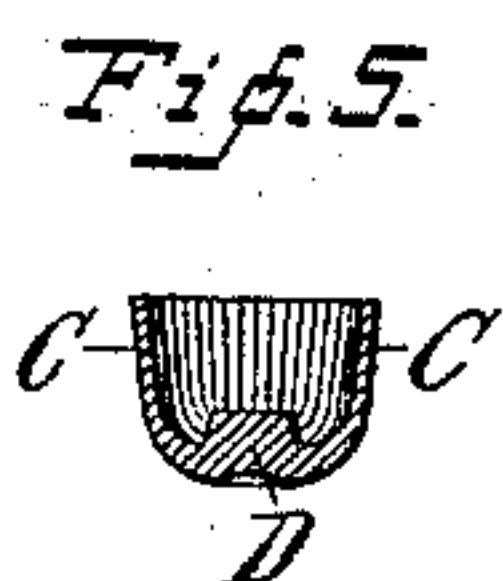
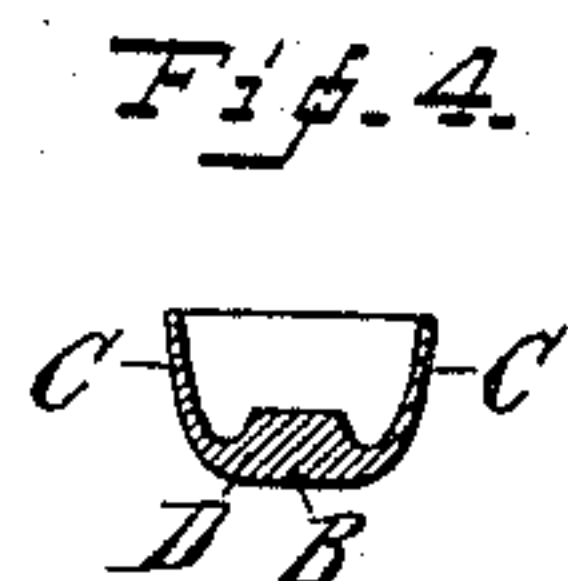
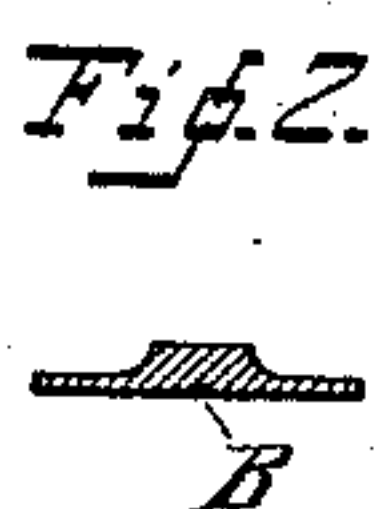
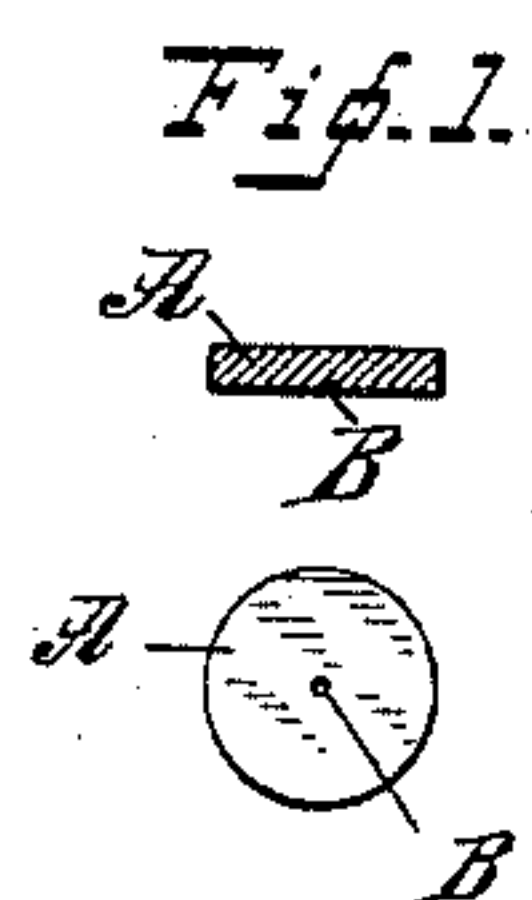
(No Model.)

E. L. SMITH & E. A. HITCHCOCK.

MANUFACTURE OF WATCH CROWNS.

No. 335,846.

Patented Feb. 9, 1886.



Witnesses,

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By A. M. Wooster
Att'y.

UNITED STATES PATENT OFFICE.

EVELYN L. SMITH, OF NEW HAVEN, AND EDWARD A. HITCHCOCK, OF
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MANUFACTURE OF WATCH-CROWNS.

SPECIFICATION forming part of Letters Patent No. 335,846, dated February 9, 1886.

Application filed July 2, 1885. Serial No. 170,445. (No model.)

To all whom it may concern:

Be it known that we, EVELYN L. SMITH and EDWARD A. HITCHCOCK, citizens of the United States, residing, respectively, at New Haven and Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Watch-Crowns; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to the manufacture of watch-crowns; and it consists in an integral corrugated crown drawn and formed from a single piece of metal, and in the method of making the same.

Heretofore watch-crowns have been formed in various ways which it is not necessary to specify at this time; but no perfect crown has ever heretofore been formed from a single piece of metal, nor have crowns been formed by the method which I will now describe in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 shows the blank from which the crown is formed, both in reversed plan and in section, and illustrates the first two steps in the method of forming the crown. Fig. 2 illustrates the third step in the method, it being a section of the blank after it has been acted on by the second die. Fig. 3 illustrates the fourth step, it being a section of the partly-formed crown as it is left by the third die. Fig. 4 is a similar section after a fourth die has drawn out the metal at the sides of the crown; Fig. 5, a section after a fifth die has corrugated the partly-formed crown, both internally and externally, that being the sixth step in the method. Fig. 6 illustrates the seventh and eighth steps in the method, which are, seventh, to form a tenon at the end of the winding-arbor, and, eighth, to drill a hole in the base of the crown to receive said tenon. Fig. 7 illustrates the ninth and tenth steps in the method, which are, ninth, the closing of the metal at the base of the crown about the tenon at the end of the winding-arbor, and at the same time curving the edges inward somewhat toward the shank of the arbor, and, tenth, milling the edge to

the proper size to fit the stem of the watch. Fig. 8 is a plan view of the completed crown, and Fig. 9 is a sectional view corresponding with Fig. 7 and illustrating a modification.

A is the blank; B, an indentation at its center on the under side; C, the sides of the crown; D, the base of the crown; E, the winding-arbor; F, the tenon on the winding-arbor, and G the hole in the base of the crown to receive the tenon on the winding-arbor.

Beginning now with Fig. 1, the first step consists in blanking out a disk of metal of suitable size and thickness, the exact size being indicated in the figure. The second step consists in pricking or indenting the under side of the blank at its center, as at B, the indentation being for the purpose of centering the blank in the different steps of forming the crown. In the third step the edges of the blank are reduced in a die, leaving the base D at its center, as shown in Fig. 2. In the fourth step the edges are somewhat drawn out and curved upward, forming the sides of a cup, as shown in Fig. 3. In the fifth step the sides are still further drawn out and are slightly closed in, as shown in Fig. 4. The sixth step consists in corrugating the sides in a die, both internally and externally, as shown in Figs. 5, 6, 7, and 8. The seventh step consists in forming a tenon at the end of the ordinary winding-arbor. This tenon is preferably formed as shown in Fig. 6—that is, with two flat sides, and with the rounded sides beveled inward for a short distance, as clearly shown. The object of the flat sides is to prevent it from turning, and the object of the inward bevel or incline of the other sides is to prevent the possibility of the crown being drawn off after the metal of the base has once been closed about it. It will of course be understood that the exact shape of the tenon is not of the essence of our invention, it being essential simply that the crown shall be prevented from turning or from being drawn off from the shank. The eighth step consists in drilling the hole G in the base of the crown to receive the tenon. The ninth step consists in closing the metal of the base firmly about the tenon, whereby the crown is held in place, and at the same time closing the edge of the crown inward; and the

tenth step consists in milling the edge to the proper size to fit the watch-stem, all of which is clearly indicated in Fig. 7.

In the modification illustrated in Fig. 9 a screw-thread, F', is made at the end of the winding-arbor, instead of tenon F, as in the other form.

The mechanism by which the different steps of the method are accomplished of course forms no part of our present invention, which consists both in the method and in its product, as hereinbefore described.

We claim—

1. The improvement in the art of making watch - crowns, which consists, first, in reducing the edges of a circular blank, leaving the center the full thickness of the blank to form a base at the center of the crown; secondly, in drawing out said edges and curving them upward to form the sides of the crown; thirdly, in corrugating the sides of the crown; fourthly, in drilling a hole in the base to receive a tenon on the winding-arbor; and, fifthly, in closing the metal of the base about the tenon, whereby the crown is firmly secured upon the arbor.

2. The improvement in the art of making watch - crowns, which consists in blanking out a disk of metal of suitable size, pricking or indenting it upon its under side, whereby it is centered in the dies, reducing said blank at its edges, leaving the center to form a base, then drawing said edges, curving them up-

ward, and corrugating them, then drilling the base to receive a tenon on the winding-arbor, and, finally, closing the metal of the base upon the tenon, whereby the crown is secured upon the arbor.

3. The method of making watch - crowns, which consists in reducing the edge of a metallic disk in dies, leaving the center to form a base, drawing, curving, and corrugating said edge, drilling the base to receive a tenon on the winding-arbor, closing the metal of the base upon the tenon, and at the same time closing the edge inward and milling out the center to fit the watch-stem.

4. The method of making watch - crowns, which consists in pricking or indenting a suitable disk of metal as a means of centering it, then drawing, curving, and corrugating the edge to form the crown, leaving the center of the blank as a base, then drilling the base to receive a tenon on the winding - arbor, and closing the metal of the base upon the tenon and the metal of the edge inward and milling the center to complete the crown.

In testimony whereof we affix our signatures in presence of witnesses.

EVELYN L. SMITH.

EDWARD A. HITCHCOCK.

Witnesses:

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JAMES A. WOOD.