(No Model.) 3 Sheets—Sheet 1.

W. H. FITZ GERALD.

DIE FOR MAKING WATCH CASE STEMS.

No. 338,501. Patented Mar. 23, 1886.

Fig. 1.

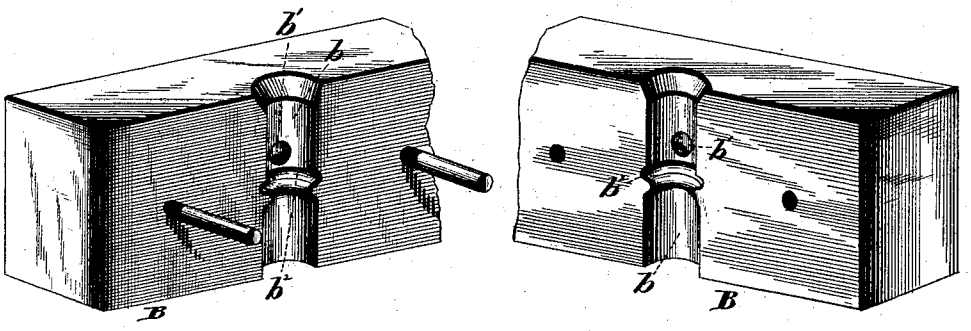
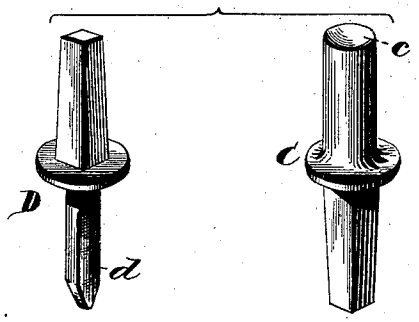


Fig. 2.



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Fig. 3.

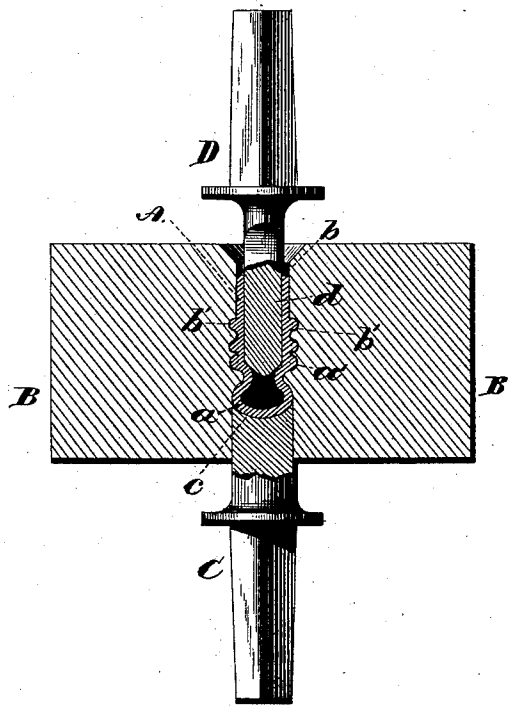


Fig. 4.

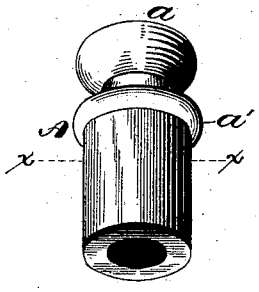
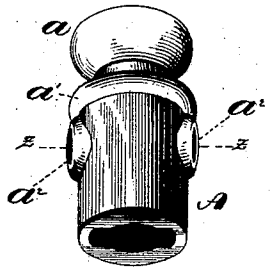


Fig. 5.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 6.

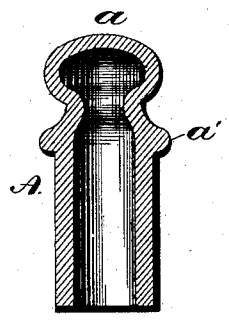


Fig. 7.

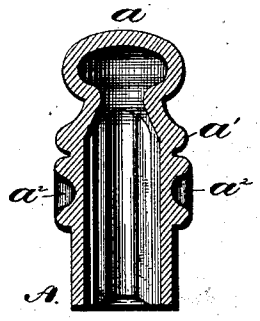


Fig. 8.

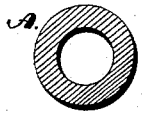
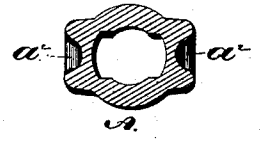


Fig. 9.



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UNITED STATES PATENT OFFICE.

WALTER H. FITZ GERALD, OF BROOKLYN, NEW YORK.

DIE FOR MAKING WATCH-CASE STEMS.

SPECIFICATION forming part of Letters Patent No. 338,501, dated March 23, 1886.

Application filed October 3, 1885. Serial No. 178,931. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. FITZ GERALD, of Brooklyn, in the county of Kings, and in the State of New York, have invented certain new and useful Improvements in the Manufacture of Watch-Case Stems; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the dies employed by me in the construction of watch-case stems. Fig. 2 is a like view of the plungers used with said dies. Fig. 3 is a cross-section of the dies and a central longitudinal section of the plungers, as combined for operation upon a case-stem. Fig. 4 is a perspective view of the stem before being operated upon by said dies and plungers. Fig. 5 is a like view of the same after such operation. Figs. 6 and 7 are respectively central longitudinal sections of the stems shown in Figs 4 and 5; and Figs. 8 and 9 are cross-sections upon lines *x x* and *z z*, respectively, of Figs. 4 and 5.

Letters of like name and kind refer to like parts in each of the figures.

My invention has for its object the construction of watch-case stems from sheet metal with ring-sockets which form part of and are integral with the same; and to this end said invention consists in the construction of the dies and plungers employed, substantially as and for the purpose hereinafter specified.

In the practical use of my invention a stem-blank having the general form of a stem is produce by drawing a disk of sheet metal into the form of an elongated cup with a semi-spherical closed end, *a*, then necking the same by means of grooving-rollers, and, lastly, expanding said blank radially and compressing it longitudinally within dies, the result of which operations is the blank A. (Shown in Fig. 4.) The blank A is now placed between two die-blocks, B and B, that are provided within and across their contiguous faces with half-round coinciding recesses *b*, which together have the shape and size of said blank, and, in addition thereto, are each provided with an annular groove, *b'*, that is located near the circumferential groove b^2, which is provided for the reception of the bead *a'* of said blank. The die-blocks B, being closed together, a plunger, C, having a cup-shaped inner end, *c*, is placed against the closed end *a* of the stem A, where it operates as an anvil, and a second plunger, D, having a flattened pointed body, *d*, as seen in Fig. 2, is forced into the open end of said stem, the largest transverse dimensions of said plunger D being in a line with the centers of the annular grooves *b'* of the said die-blocks.

The operation of the plunger D is to force the metal upon or within the sides of the stem A, adjacent to the annular grooves *b'*, outward into and cause the same to fill said grooves, by which means ring-sockets a^2 are formed upon opposite sides of said stem, which are a part of and integral with its body.

While the operation described is preferably performed upon a blank stem which is constructed from sheet metal in the manner hereinbefore described, it may be successfully performed upon a cast-metal blank which is constructed from metal having sufficient ductility.

Having thus described my invention, what I claim is—

As an improvement in devices for the construction of watch-case stems, die-blocks provided within and across their contiguous faces with coinciding recesses which correspond in shape to the exterior of a case-stem having ring-sockets, in combination with an anvil-plunger for sustaining the closed end of said stem, and a flattened pointed plunger, which is adapted to enter into the open end of said stem and to force the metal thereof laterally into the ring-socket recesses of said die-blocks, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of September, A. D. 1885.

WALTER H. FITZ GERALD.

Witnesses:

STEDMAN H. HALE,

A. M. CROMMELIN.