J. J. THORNTON.

Compound Balance-Staffs for Watches.

No. 168,065. Patented Sept. 21, 1875.

Fig. 1.

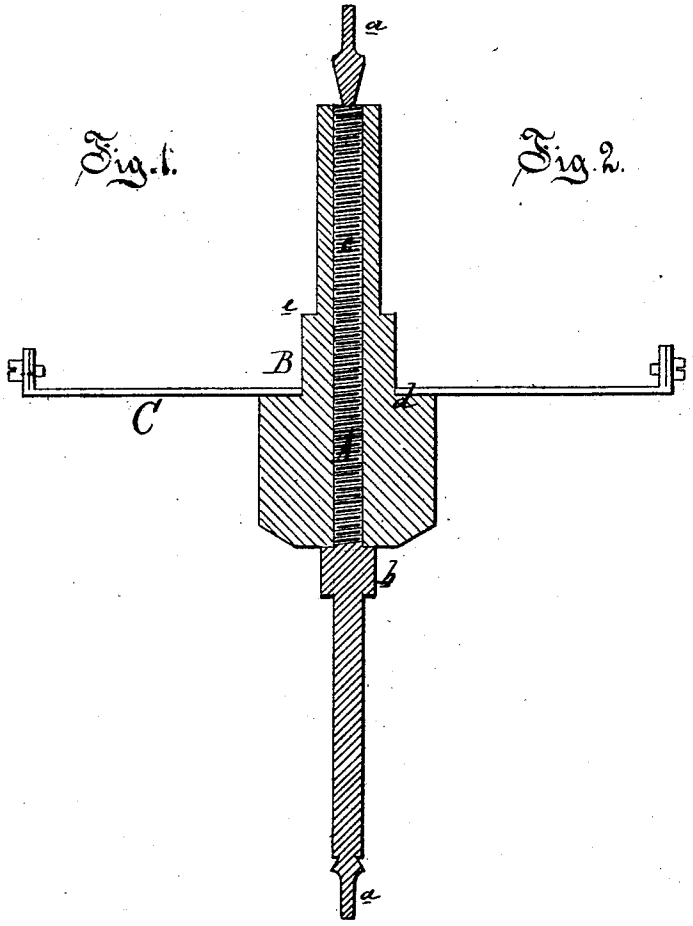
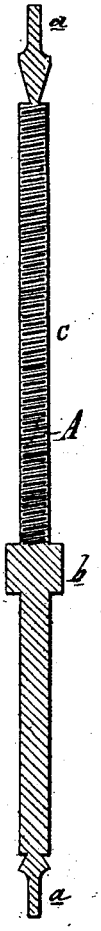


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN J. THORNTON, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO DAN H. RIDGWAY, OF SAME PLACE.

IMPROVEMENT IN COMPOUND BALANCE-STAFFS FOR WATCHES.

Specification forming part of Letters Patent No. **168,065**, dated September 21, 1875; application filed May 18, 1875.

To all whom it may concern:

Be it known that I, JOHN J. THORNTON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented an Improved Compound Balance-Staff for Watches, of which the following is a specification:

Among watch-makers it is recognized as a fine piece of work to put new pivots in a balance-staff without disturbing the adjustment of a fine watch, and a still more difficult undertaking to replace the entire balance-staff without injury to the time-keeping qualities of the watch.

The object of my invention is to overcome this difficulty by making a compound staff—that is to say, a permanent collet for the balance, and a screw-threaded arbor for the same, said arbor or staff having the pivots turned at the ends, so that when a pivot breaks the staff may be unscrewed from the collet and another inserted in its place.

Figure 1 is a vertical section of my compound staff, with the balance-wheel on the collet; and Fig. 2 is an elevation of the staff alone, both figures being greatly enlarged to show the construction.

In the drawings, A represents the staff proper, having the pivots *a* turned at the ends, and a shoulder, *b*, near the middle to carry the roller, above which shoulder the staff is screw-threaded, as at *c*, to the end. B is an internally-threaded sleeve or collet, screwed onto the staff until arrested by the shoulder *b*. The sleeve is turned to three different diameters, forming two shoulders, *d e;* on the former the hub of the balance C rests, the sleeve forming its permanent collet, while the hair-spring collet (not shown) rests upon the shoulder *e*.

If the watch-maker has a watch to repair with the pivots of this compound staff broken, a new staff can be put in about as easily as a new second-hand would be, and with a certainty of not disturbing the adjustment of the balance, it being understood, of course, that he is supplied with spare staffs of this construction.

What I claim as my invention is—

The compound balance-staff for watches described, consisting of the staff proper, A, having the pivots turned on its ends, and a shoulder near its middle, above which it is screw-threaded, and the internally-threaded sleeve or collet B, which screws onto the said staff proper until it abuts against the said shoulder, the said sleeve or collet B being provided with shoulders *d e*, for supporting the hub of the balance C and the hair-spring collet, substantially as described and shown.

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