(Model.)

E. HUNZIKER.

FASTENING HAIR SPRINGS TO COLLETS.

No. 359,390. Patented Mar. 15, 1887.

Fig: 1.

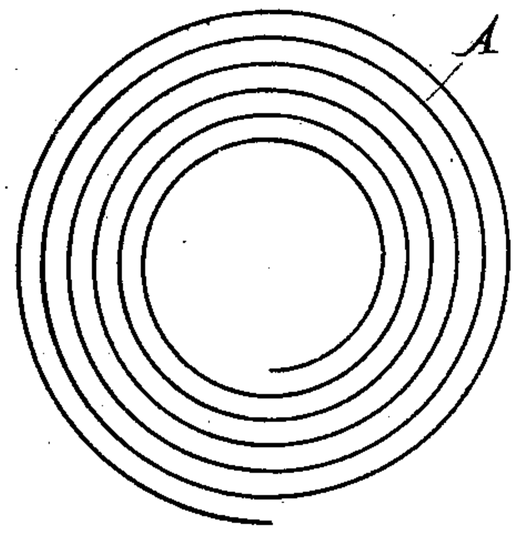


Fig: 3.

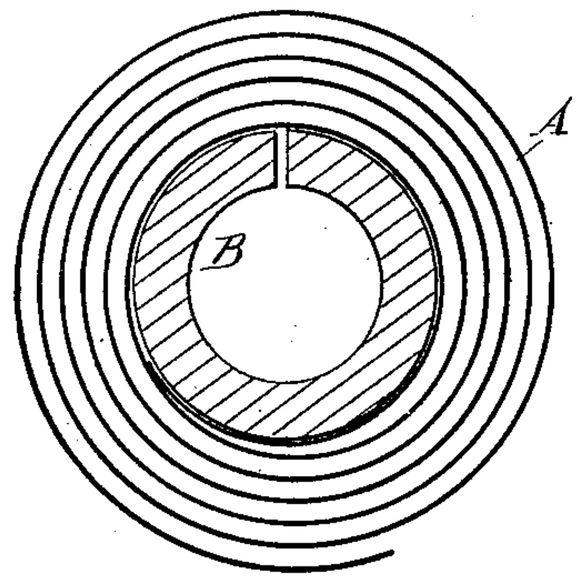


Fig: 4

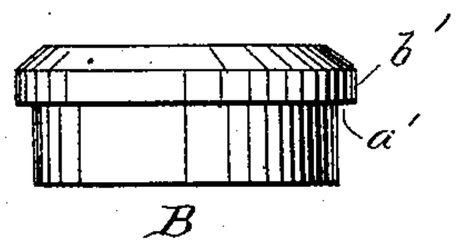
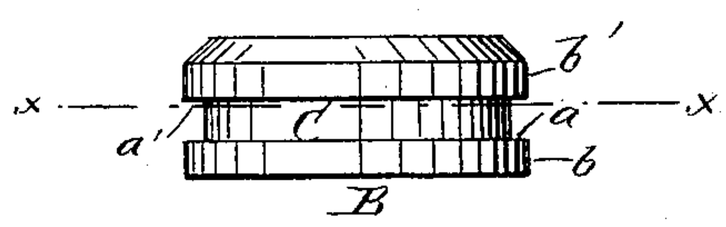


Fig: 2.



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UNITED STATES PATENT OFFICE.

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FASTENING HAIR-SPRINGS TO COLLETS.

SPECIFICATION forming part of Letters Patent No. 359,390, dated March 15, 1887.

Application filed September 13, 1886. Serial No. 213,431. (Model.)

To all whom it may concern:

Be it known that I, EDWARD HUNZIKER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Fastening Hair-Springs to Collets, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of an ordinary hair-spring. Fig. 2 is a side elevation of a collet. Fig. 3 is a sectional plan view of the same, taken through the line *x x*, Fig. 2, and showing the hair-spring in place thereon; and Fig. 4 shows a modification in the collet.

This invention relates to an improved method of securing hair-springs to collets, and is an improvement upon my application, Serial No. 195,771, filed March 18, 1886, for securing hair-springs to collets, wherein the collets are provided with an annular groove to receive the inner coil of the spring and with a perforation to receive the inner bent end of the said coil.

The invention consists in the method of fastening hair-springs to collets, and in the construction of the collets, as will be hereinafter fully described.

A represents an ordinary hair-spring. B is a collet, which is made in the form of an open sleeve or collar, so that it will be securely held in place upon its post by friction in the ordinary manner. Around the middle part of the collet B, and exactly at right angles with its axis, is formed an annular groove, C, to receive the inner coil of the hair-spring A. The faces *a a'* of the flanges *b b'* thus formed will be at right angles with the axis of the collet.

In mounting the hair-spring upon the collet the inner coil of the spring is sprung into the groove C, and the spring automatically takes a perfectly true position upon the collet, and will be held against slipping by the contracting action of the inner coil of the spring upon the collet, caused by the tension of the spring.

The collet may be formed with the annular flange *b'* only, as shown in Fig. 4. In this case the spring, after the inner coil is sprung over the reduced portion of the collet, will be pressed solidly against the face of the flange, and will be positioned and held on the collet, as in the case of the collet having the two flanges *b b'*.

In all cases the spring A will take automatically the correct position, and will not require to be trued or pinned, so that much labor and annoyance will be saved to the workman and an increased elasticity will be given to the spring.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of fastening hair-springs to collets, which consists in placing the inner coil of the spring upon a reduced portion of the peripheral face of the collet, as set forth.

2. The method of fastening hair-springs to collets, which consists in placing the inner coil of the spring upon a reduced portion of the peripheral face of the collet and against a flange on the collet, having a face at a right angle to the axis of the collet, as set forth, whereby the spring will be automatically trued upon the collet, and will be held against slipping by the contracting action of the inner coil of the spring upon the face of the collet, due to tension of the spring.

3. The method of fastening hair-springs to collets herein shown and set forth, which consists in placing the inner coil of the spring in an annular groove formed in the peripheral face of the collet, as set forth.

4. A collet having a hair-spring held thereon by the contracting force of the inner coil of the spring, substantially as set forth.

5. The combination, with a collet having an annular peripheral groove, of a hair-spring having its inner coil placed in said groove, as set forth.

6. A collet constructed with a reduced peripheral portion and with one or more shoulders at right angles to its axis, substantially as set forth.

7. A watch-spring collet constructed with an annular peripheral groove, substantially as set forth.

EDWARD HUNZIKER.

Witnesses:
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