

(No Model.)

J. LOGAN, Dec'd.

E. LOGAN, Administratrix.

COMBINED WATCH BALANCE SPRING AND COLLET.

No. 507,549.

Patented Oct. 31, 1893.

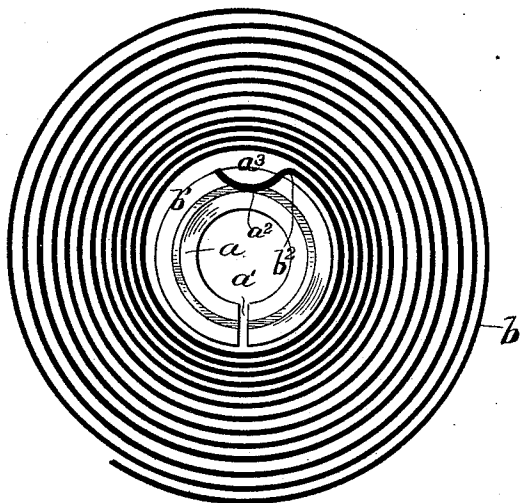


Fig. 1.

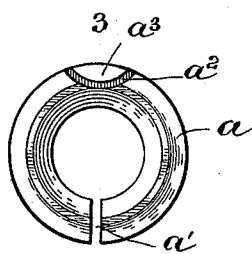


Fig. 2.

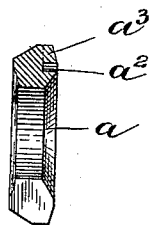


Fig. 3.

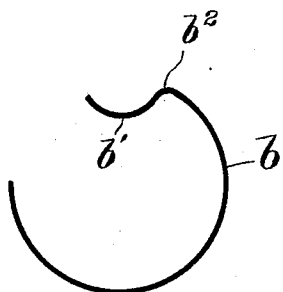


Fig. 4.

WITNESSES.

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JOHN LOGAN, OF WALTHAM, MASSACHUSETTS; ESTHER LOGAN ADMINIS-
TRATRIX OF SAID JOHN LOGAN, DECEASED.

COMBINED WATCH BALANCE-SPRING AND COLLET.

SPECIFICATION forming part of Letters Patent No. 507,549, dated October 31, 1893.

Application filed November 26, 1892. Serial No. 453,206. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOGAN, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and
5 useful Improvements in Watch Hair-Springs and Collets Therefor, of which the following is a specification.

This invention has for its object to enable
10 a watch hair spring to be firmly attached to the collet which supports it, without the necessity of employing pins to secure the spring to the collet.

The invention consists, first, in a collet having a curved slot, intersecting the periphery
15 of the collet at two points, and reversely curved with respect thereto, and forming a spring-retaining lip, adapted to be pressed inwardly to secure the hair spring to the collet.

The invention consists, secondly, in a hair
20 spring, the inner end of which has a curved loop, formed to enter a curved slot in the collet, the portion of the spring which comprises said loop being bent inwardly from the arc of the inner convolution of the spring, so that,
25 when the spring is attached to the collet by the insertion of the loop in the slot in the collet, the inner convolution of the spring will occupy the proper relative position to the periphery of the collet, and will have the requisite freedom of lateral movement caused by
30 the ordinary action of the spring.

Of the accompanying drawings, forming part of this specification: Figure 1 represents a top view of a hair spring and its collet, constructed in accordance with my invention.
35 Fig. 2 represents a top view of the collet alone. Fig. 3 represents a section on line 3—3 of Fig. 2. Fig. 4 represents a view of the inner portion of the spring.

40 The same letters of reference indicate the same parts in all the figures.

In the drawings, a represents a hair spring collet, which, as usual, is composed of a metal ring, cut through at one side, as at a' , to give
45 it the desired elasticity, and enable it to be engaged in the usual way with the balance staff.

In carrying out my invention, I form in one side of the collet a semicircular slot or
50 groove a^2 the ends of which intersect the pe-

riphery of the collet at two points, as shown in Figs. 1 and 2, said slot converting the portion of the collet between it and the periphery of the collet into a lip a^3 , adapted to be pressed inwardly to decrease the width of the slot and
55 clamp a hair spring previously inserted in the slot firmly between the walls of the slot.

b represents the hair spring, the only novel feature of which is the curved loop b' , which I form at the inner end of the spring, the
60 curvature of said loop being such as to enable it to fit the curved slot a^2 in the collet. The portion of the hair spring which comprises said loop is bent inwardly at b^2 from the arc of the inner convolution of the spring,
65 in such manner as to cause the said inner convolution, when the loop b' is inserted and secured in the slot a^2 , to occupy the proper relation to the periphery of the collet, and stand out from said periphery far enough to have
70 the necessary freedom to oscillate as the spring expands and contracts in its ordinary action. The loop b' is inserted in the slot a^2 while the latter is in its original condition, and then the
75 lip a^3 is pressed inwardly and clamps the loop b' firmly against the inner side of the slot a^2 , thus securing the hair spring firmly to the collet.

It will be seen that the curved form of the slot a^2 and loop b' enables said slot and loop
80 to be interlocked, and thus prevents lateral displacement of the spring, such as might be caused by the endwise movement of that part of the wire that is inserted in the slot, if the said slot were straight. It will also be seen
85 that the curved form of the slot makes the lip a^3 compact in form and reduces its length to the minimum.

What I claim—

1. A hair spring collet having a curved slot
90 intersecting the periphery of the collet at two points and reversely curved with respect thereto and forming a spring-retaining lip adapted to be pressed inwardly to secure the hair spring to the collet, as set forth. 95

2. A hair spring, having at its inner end a curved loop comprising a portion of the inner convolution of the spring and bent inwardly from the arc of said convolution, and extending on a curve reverse thereto as set forth. 100

3. The combination of a hair spring collet
having a curved slot intersecting the periph-
ery of the collet at two points, and reversely
curved with respect thereto and a hair spring
5 having at the end of its inner convolution a
curved loop formed to fit said slot and com-
prising a part of the spring that is bent in-
wardly from the arc of the inner convolution
thereof, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of November, A. D. 1892.

JOHN LOGAN.

Witnesses:

C. F. BROWN,
A. D. HARRISON.