

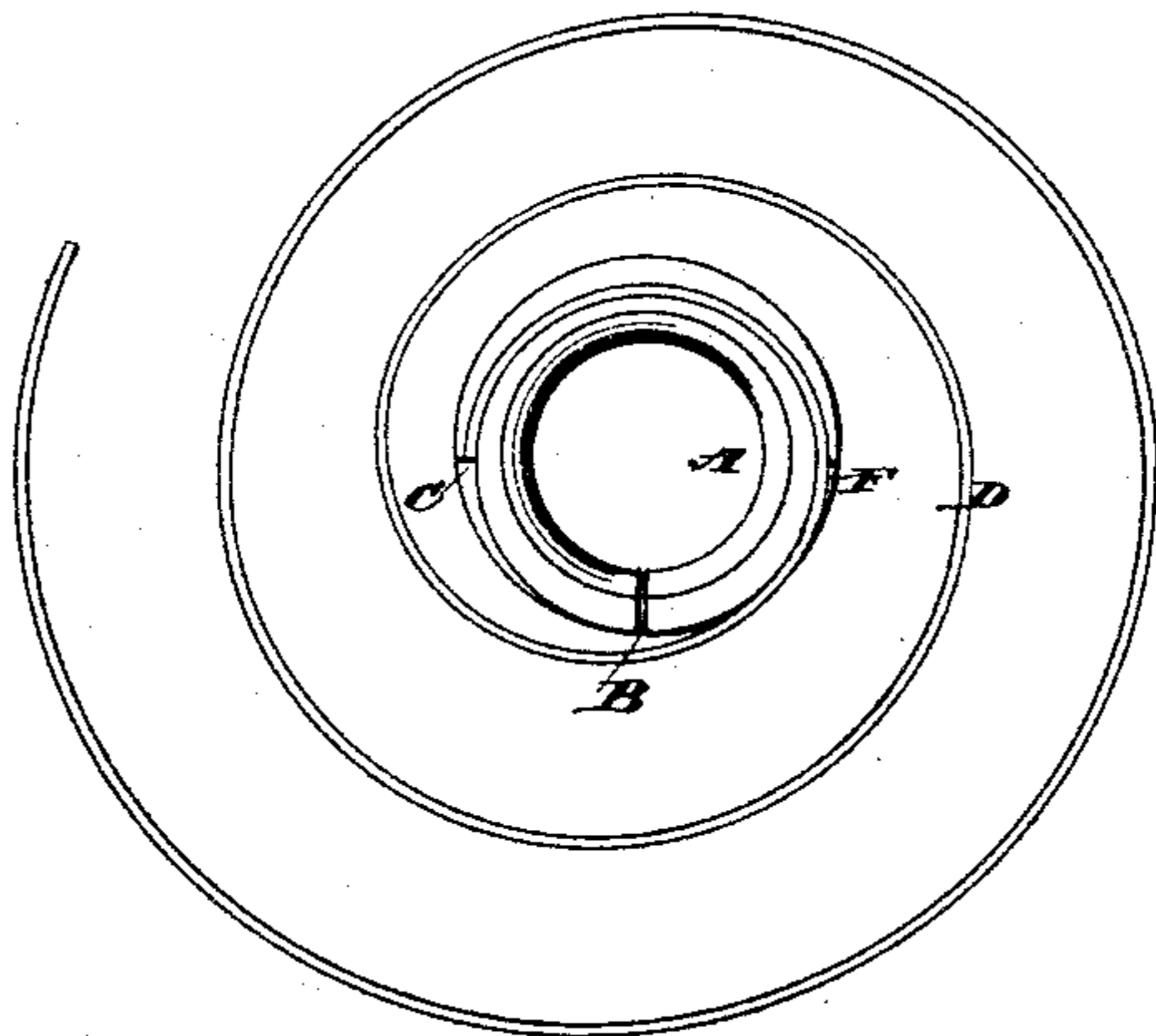
(No Model.)

W. E. BANTA.
HAIR SPRING COLLET FOR WATCHES.

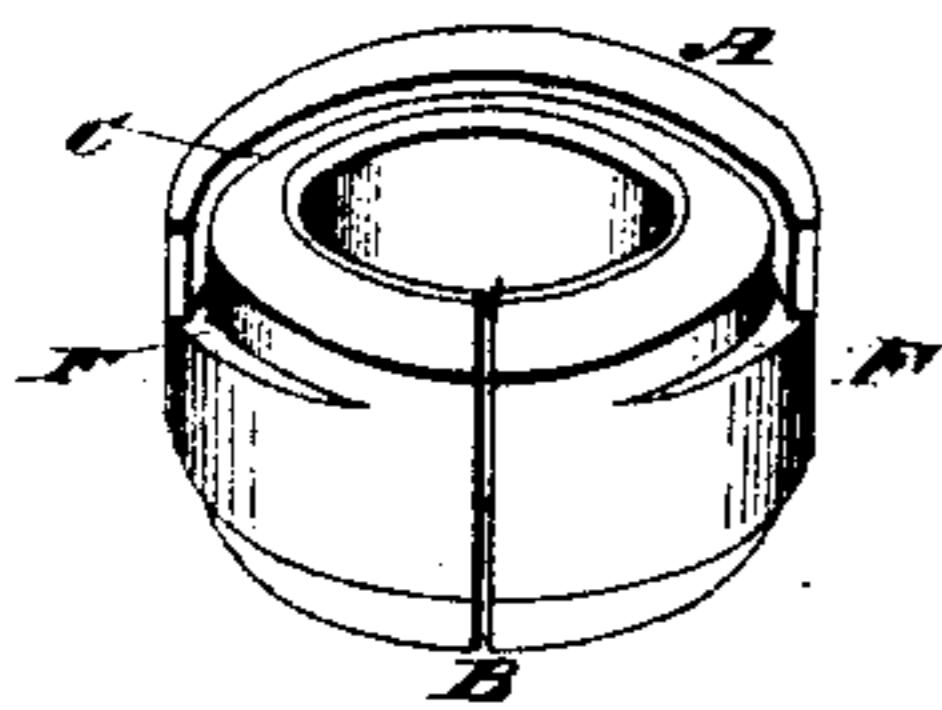
No. 438,672.

Patented Oct. 21, 1890.

E = ϕ . I.



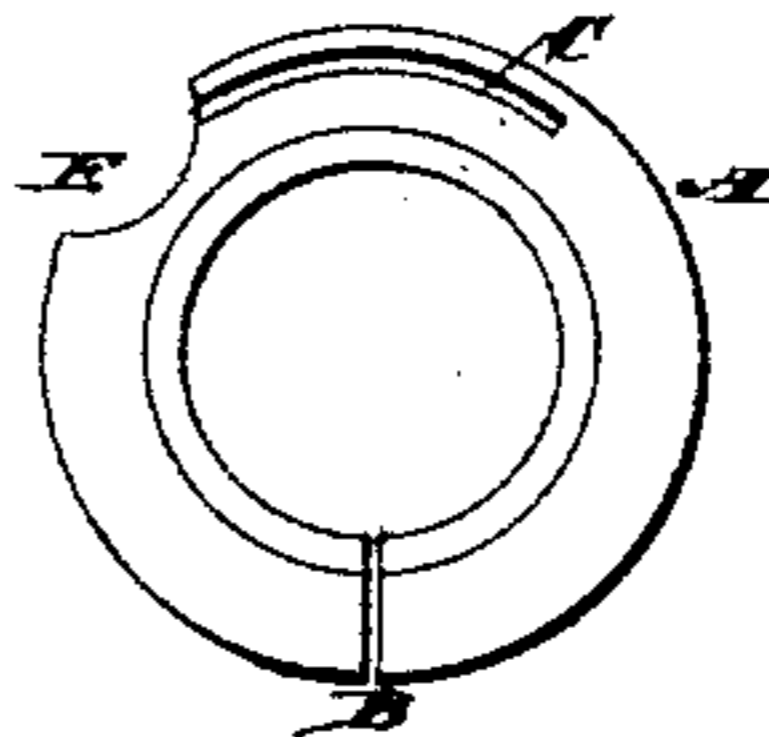
E = ϕ . 2.



E = ϕ . 3.



E = ϕ . 4.



E = ϕ . 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM E. BANTA, OF SPRINGFIELD, OHIO.

HAIR-SPRING COLLET FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 438,672, dated October 21, 1890.

Application filed June 23, 1887. Serial No. 242,226. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. BANTA, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Hair-Springs for Watches, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in watch hair-springs; and the object I have in view is to so construct the collet that the spring may be quickly, cheaply, and strongly secured thereto without bending the spring at sharp angles or forming holes therein.

15 With this end in view my invention consists, essentially, of an annulus forming the collet and having an incision therein into which the spring is fitted, and so fashioned that the spring passes from within it conveniently round the periphery of the collet.

20 The invention further consists of the collet having an incision therein, and the spring in the incision, and held by a part of the collet being compressed against it.

25 In the accompanying drawings, forming a part of this specification, and on which like reference-letters indicate corresponding features, Figure 1 represents an enlarged plan view of my improved collet with a spring secured therein; Fig. 2, a perspective view of the collet alone; Fig. 3, a vertical sectional view of the collet; Fig. 4, a plan view of a collet, showing a modified form of incision; and Fig. 30 5, a sectional view of the collet and spring, showing the former clinched over the latter.

35 The letter A refers to a metallic annulus, either divided, as seen at B, or contiguous throughout, and which forms the hair-spring collet of a watch, the central hole in it serving to receive the shaft that carries the spring. The slot at B enables the collet to be compressed tightly round its shaft, though of course it may be otherwise secured in the absence of the slot. In one end of the collet, 40 preferably the upper, I form in any convenient manner an incision C of sufficient depth to receive the width of one end of the hair-

spring D. The direction of this incision is preferably eccentric to the periphery of the collet, whereby it terminates at one or both ends at the periphery to allow of the spring extending conveniently and without interruption from the incision to and against and round the periphery, substantially in the manner shown in Fig. 1. This is the preferred form; but my invention does not stop with the particular direction of the incision. Therefore I have shown in Fig. 4 the incision concentric to the periphery of the collet, and, 50 have made a depression E therein to allow the spring to readily reach the periphery. The spring may maintain itself in position by the fit between it and the incision; but I prefer to compress the thin wall outside of the incision firmly against the spring, and, 55 more than this, that wall may be somewhat clinched over the edge of the spring, as seen in Fig. 5.

60 It will be seen from Fig. 2 that the incision in entering upon the periphery leaves two tapering shoulders F. The one of these from which the spring projects serves to support still farther round the collet.

65 Among the practical advantages of my collet may be noted its extreme cheapness and conspicuous simplicity of construction, its adaptation not only to firmly hold the hair-spring without in anywise boring, rebending, and changing it, but also the ease and quickness with which the spring can be inserted, and the fact that it can also be removed should occasion require.

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

1. A watch hair-spring collet constructed with an incision in one face thereof which runs eccentric to the periphery and into it and is adapted to receive and hold a hair-spring. 75

2. An annulus which forms a hair-spring collet for a watch, constructed with an incision in one face thereof which runs eccentric to the periphery and into it and leaves a tapering shoulder for the spring. 80 85 90 95

3. A watch hair-spring collet constructed with an incision in one face thereof and near the periphery, so as to leave a wall adapted to be compressed inward to clamp the spring.
- 5 4. A hair-spring collet having an incision in the face thereof, leaving a part between the incision and the periphery which is compressible toward the center, and a hair-spring fitted into said incision and held therein by the compressible part of the collet.
- In testimony whereof I affix my signature in presence of two witnesses.
- WILLIAM E. BANTA.
- Witnesses:
WILBER COLVIN,
C. M. KISSELL.