(No Model.)

P. H. MEERLENDER.

MANUFACTURE OF MAINSPRINGS.

No. 352,767. Patented Nov. 16, 1886.

Fig. 1.

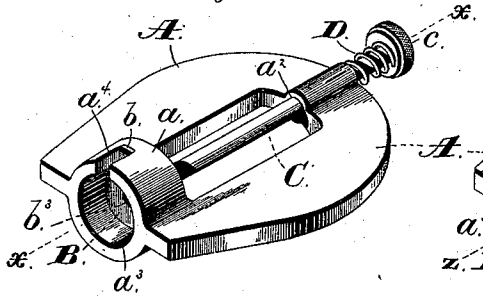


Fig. 2.

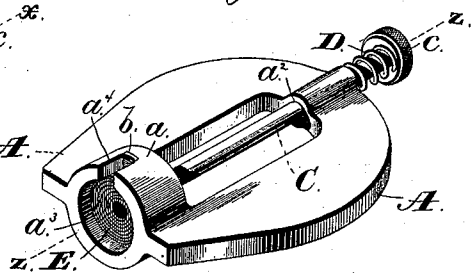


Fig. 3.

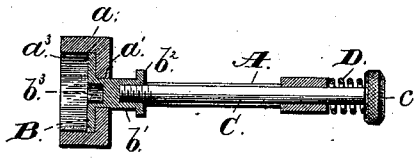


Fig. 4.

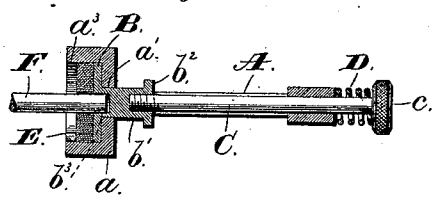
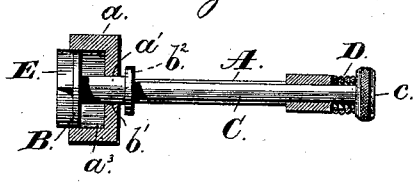


Fig. 5.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard.

Inventor.
Paul H. Meerlender, by
Pindle & Russell, his Attys.

—N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

PAUL H. MEERLENDER, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY WATCH COMPANY, OF SAME PLACE.

MANUFACTURE OF MAINSPRINGS.

SPECIFICATION forming part of Letters Patent No. 352,767, dated November 16, 1886.

Application filed July 22, 1886. Serial No. 208,755. (No model.)

To all whom it may concern:

Be it known that I, PAUL H. MEERLENDER, of Waterbury, in the county of New Haven, and in the State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Mainsprings; 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 my device before receiving a mainspring. Fig. 2 is a like view of the same after a spring has been coiled therein. Fig. 3 is a section upon line *x x* of Fig. 1. Fig. 4 is a like view upon the line *z z* of Fig. 2; and Fig. 5 is a section of said device as in Fig. 4, but with the follower in position when ejecting a spring.

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

In the manufacture of mainsprings it has heretofore been the practice to coil them upon an ordinary winding-arbor, the inner end of the spring being attached to said arbor, and its outer portion being held in the hand until said spring was coiled. This operation required to be repeated several times before a spring was thought to be correctly shaped and properly tested, and even where the greatest skill was exercised it was found that the coils of the spring would frequently lack uniformity of curvature.

The design of my invention is to enable mainsprings to be easily, quickly, and accurately coiled; and to this end said invention consists in the method of and tools for effecting such object, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A represents the body or frame of my device, which has the general shape of a horseshoe, with a cylindrical part, *a*, at and between its ends. The axis of said cylindrical part *a* is in a line with the longest axis of said frame, and through such axis is provided a round opening, *a'*, which coincides with a similar smaller opening, a^2, that is formed at or within the opposite end of said frame.

Within the front end of the part *a* is provided a cylindrical recess, a^3, which has a depth deeper than the width of a mainspring, and a diameter slightly greater than the diameter of such spring when coiled, and at one side has cut a right-angled notch, a^4, that extends from the front end of said part rearward to the bottom of said recess,

Fitted loosely to or within the recess a^3 is a plate, B, that corresponds therewith radially in size and shape, and is provided with a peripheral lug, *b*, that extends into the notch a^4 and prevents said plate from turning within said recess. To the rear side of said plate is secured a round block, *b'*, which loosely fills the opening *a'* and extends a short distance through the same, and at its rear end has a peripheral flange, b^2, that prevents said block from moving forward farther than to permit the outer face of said plate B to be flush with the outer end of the part *a*.

A rod, C, having at one end a head, *c*, and fitted loosely into and through the hole *a'*, with its inner end screwed into the rear end of the block, and a spiral spring, D, placed around said rod, between said head *c* and the rear end of the frame A, completes the device, the use of which is as follows: The spring D operates to hold the plate or follower D with a yielding pressure at the rear end of the recess a^3, so as to leave in front of said follower sufficient space within said recess for the reception of a mainspring, E, which spring has its inner end hooked upon an ordinary winding-arbor, F, after which the center of said follower, which is provided at such point with a suitable socket or bearing, b^3, is placed upon said arbor, with said spring passing from the latter outward through the notch a^4, when by rotating said winding-arbor said spring will be coiled around the same and drawn into said recess a^3. When the spring E has been entirely coiled within the recess a^3, a backward turn upon the winding-arbor F will release the latter from engagement with said spring, after which, by forward pressure upon the push-rod C, said spring will be instantly ejected from said recess. A spring thus coiled has a perfectly uniform curvature from its outer end to its inner end, and requires to be coiled but once to give to it its proper shape, while when

ejected from the holder its coils are simultaneously and instantaneously expanded, and defects, if any exist, instantly shown.

Having thus described my invention, what I claim, is—

1. As an improvement in the manufacture of mainsprings, the method of coiling and testing the same, consisting, first, in coiling a spring within a holder, and then ejecting said spring thus coiled bodily out of said holder, substantially as and for the purpose specified.

2. As an improvement in mechanism for coiling and testing mainsprings, a holder having a recess within which a spring may be coiled, and provided with a follower by means of which a coiled spring may be instantly ejected, substantially as and for the purpose shown.

3. As an improvement in mechanism for coiling and testing mainsprings, the spring-holder A, provided with the recess a^3, the follower B, and the push-rod C, in combination with a winding-arbor, F, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of April, A. D. 1886.

P. H. MEERLENDER.

Witnesses:
GEO. S. PRINDLE,
CHARLES S. CHAPMAN.