(No Model.)

J. V. ZIMMERMAN.

RUBY PIN SETTER AND REMOVER.

No. 347,858. Patented Aug. 24, 1886.

Fig. 1.

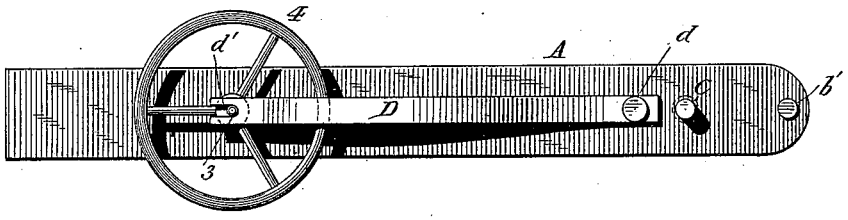


Fig. 2.

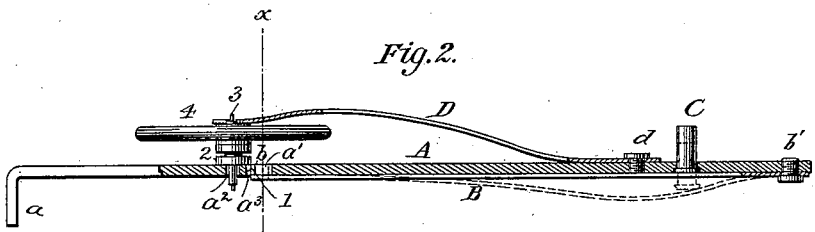


Fig. 3.

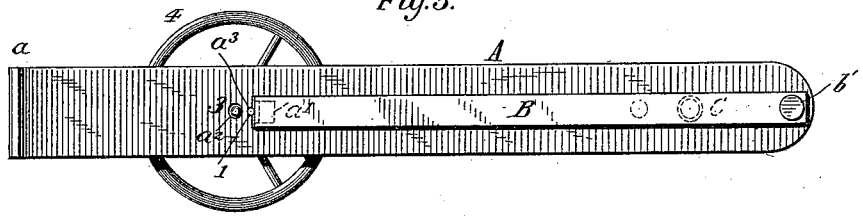
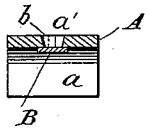


Fig. 4.



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UNITED STATES PATENT OFFICE.

JESSE V. ZIMMERMAN, OF LITTLE ROCK, ARKANSAS.

RUBY-PIN SETTER AND REMOVER.

SPECIFICATION forming part of Letters Patent No. 347,858, dated August 24, 1886.

Application filed May 15, 1886. Serial No. 202,254. (No model.)

To all whom it may concern:

Be it known that I, JESSE V. ZIMMERMAN, a resident of Little Rock, county of Pulaski, and State of Arkansas, have invented certain new and useful Improvements in Ruby-Roller Setters and Removers, of which the following, taken in connection with the accompanying drawings, is a specification.

In the setting of ruby rollers or jewels, as ordinarily practiced, great difficulty has been experienced in securing the proper adjustment of the roller with respect to the balance-staff and the roller-table, by reason of the diminutive character of the roller and the table in which it is secured.

Numerous attempts have heretofore been made to devise means whereby the setting of ruby-rollers might be facilitated and the trouble and annoyances incident thereto obviated, the most prominent of which devices consisted of an elongated metal plate having a longitudinal slot formed in its face parallel to its side and a spring-actuated slide movable in said slot, forming with the end thereof, with which it contacts, a clamp or vise for holding the ruby-roller in an upright position for securement in the roller-table. This device, with the others heretofore in use for this purpose, while facilitating to a certain degree the adjustment and setting of the roller, have been found objectionable in practice, for the reason that in setting the roller therewith it has been found necessary to remove the roller-table from the balance-staff.

The object of my invention is to obviate this and other objections that are found to exist respecting the devices heretofore in use, and also to produce a ruby-roller setter which shall be simple and inexpensive in construction, and which may be employed to both set and remove the ruby-roller without necessitating the removal of the ruby-table from the balance-wheel staff.

To this end my invention consists in a ruby-roller setter and remover, having for its distinguishing characteristics the peculiarly-constructed clamp, by means of which the ruby-roller is properly held, the aperture for the reception of the balance-staff, the extended downturned end, by which to heat the roller setter or remover, and thereby the cement which secures the roller in the table, and in the support for the upper end of the balance-staff, all as will be hereinafter more particularly described.

The nature of my invention and the manner in which it is or may be carried into effect will be best understood by reference to the annexed drawings, in which—

Figures 1 and 3 are top and bottom views, respectively, of my improved setter and remover, showing it as applied to the ruby-roller of a watch. Fig. 2 is a longitudinal sectional view of the same, showing it as being similarly applied; and Fig. 4 is a section detail taken on the line x x of Fig. 2.

In all the figures, A represents a sheet-metal plate, preferably of an elongated rectangular form, having the end portion, a, bent downward, as shown, to form a foot or support, and being provided at suitable distances therefrom with the apertures a' and a^2. The aperture a' is rectangular in form, with its longer sides, which are inwardly inclined slightly from top to bottom, arranged parallel to the edges of the plate A, and is provided in the side adjacent to the aperture a^2 with a small semicircular recess, a^3, as shown more clearly in Fig. 3. Projecting upwardly through this aperture a' is the upturned end b of a slight flat spring, B, which spring is secured at its other end to the under side of the plate A by screws b', or other suitable means. This upturned end b of the spring B is held normally pressed against the end of the aperture a', in which the semicircular recess a^3 is formed, and constitutes therewith and with the said recess a clamp or vise, in and by means of which the ruby-roller may be held, but is capable of being withdrawn from such end by depressing the middle portion of spring B, as shown by dotted lines in Fig. 2. To effect this depression of the spring B when desired, the pin C is provided, which passes through a suitably-formed aperture in the plate A, and impinges at its lower end against the upper surface of said spring.

The aperture a^2 is situated at a suitable distance from the aperture a', to receive the balance staff when the ruby-roller is clamped by the latter, and in order to adapt the setter and remover to set and remove ruby-rollers

having different degrees of eccentricity without removing their tables from the balance-staves this aperture is made somewhat larger than the ordinary balance-staff, to permit of their moving therein laterally to accommodate themselves to the particular degree of eccentricity of their respective roller.

Loosely pivoted to the upper side of the plate A by the screw *d* is a support for the upper end of the balance-staff. This support is formed in the shape of a spring, and extends from its pivot-screw *d* upward and forward over the ruby-roller clamp, and is provided at its free end with an open bearing, *d'*, the axis of which coincides with the axis of the aperture a^2.

1 represents a ruby-roller; 2, the ruby-roller table; 3, the balance-staff, and 4 the balance-wheel, these parts being shown to illustrate more fully the manner of using my invention, which is as follows:

To set a ruby-roller, the roller 1 is first inserted in the roller-table 2, and the shellac or other cement applied thereto. The support D is then swung to one side and the pin C is depressed, drawing back the upturned end *b* of the spring B. The ruby-roller and the balance-staff 3 are then passed into the recess a^3 and aperture a^2, respectively, until the roller-table rests upon the plate A, when the pin C is released and the ruby-roller is firmly clamped. The ruby-roller is now in position for the subsequent operation of setting; but in order to maintain the proper relation of the parts while such operations are taking place the resilient support D is turned back over and into engagement with the upper end of the balance-staff 3, and pressing upon the hub of the balance-wheel 4 forces the roller-table down upon the plate A, and holds it firmly in place thereon. A gentle heat is then applied to the setter and remover, preferably by inserting the downturned end of the same into the flame of a spirit-lamp, and as soon as the cement is fused the setter and remover is allowed to cool, after which the ruby-roller, with the parts connected therewith, is removed, which may be done by turning aside the support D, depressing the pin C, and turning the setter and remover upside down.

To remove a ruby-roller already set from the roller-table, the operations are substantially the same as those for setting, with the exception that in this case the resilient support D is not employed, and the setter and remover is held in an inverted position while being heated, in order that the roller-table, with its balance-staff and balance-wheel, may detach themselves from the roller when the cement that holds such roller in place has been fused.

By the construction thus set forth it will be seen that I have produced a ruby-roller setter and remover which is simple and inexpensive in construction, efficient in operation, and which admits of the setting and removing of ruby-rollers without necessitating the removal of the roller-table from the balance-staff—a result not possible with any of the setters and removers that have heretofore come to my knowledge.

I have shown the end *a* of the plate A turned downward, to form a leg or support by means of which to hold that end of the setter and remover up away from the table or bench when resting thereon, in order to prevent the bending or breaking of the balance-staff held therein; but it is to be understood that I do not limit myself thereto, as it is evident that such leg or support may be dispensed with, or that a leg or support of a different construction may be employed. Neither do I limit myself to the use of a support for the upper end of the balance-staff, as it is obvious that such device may be omitted and the spring B made sufficiently strong to hold the ruby-roller and the parts connected therewith in place without such support.

Having described my invention and one means whereby it is or may be carried into effect, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The ruby-roller setter and remover herein described, consisting of the plate A, having the downturned end *a* and apertures *a'* and a^2, the spring B, provided with the upturned end *b*, the pin C, and the support D, substantially as described.

2. The combination, with the plate A, having the aperture *a'*, of the spring B, provided with the upturned end *b*, projecting upwardly through said aperture, and the pin C, substantially as described.

3. The combination, with the plate A, having the apertures *a'* a^2 and recess a^3, of the spring B, provided with the upturned end *b*, projecting upwardly through the aperture *a'*, and the pin C, by means of which the said spring may be depressed, substantially as described.

4. The combination, with the plate A, having the apertures *a'* a^2 and recess a^3, of the spring B, provided with the upturned end *b*, projecting upwardly through the aperture *a'*, and the pivoted support D, substantially as described.

5. The combination, with the plate A, having the aperture *a'* and recess a^3, of the spring B, provided with the upturned end *b*, projecting upwardly through said aperture, and devices whereby the said spring may be depressed and the upturned end thereof withdrawn from the recess a^3, substantially as described.

JESSE V. ZIMMERMAN.

Witnesses:
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