

(No Model.)

M. L. SHEEHAN.  
WATCH MAKER'S ROLLER REMOVER.

No. 453,920.

Patented June 9, 1891.

Fig. 1.

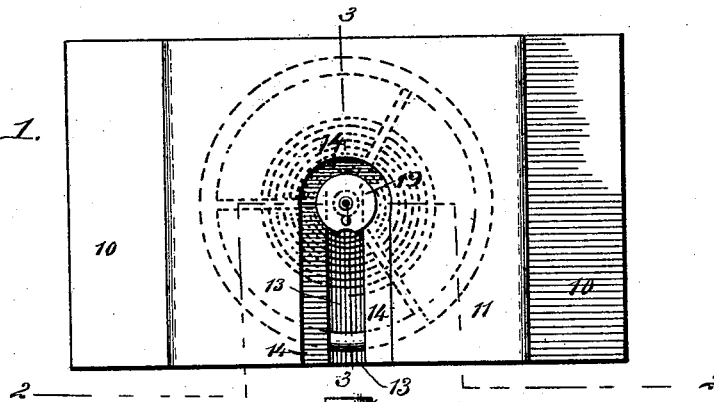


Fig. 2.

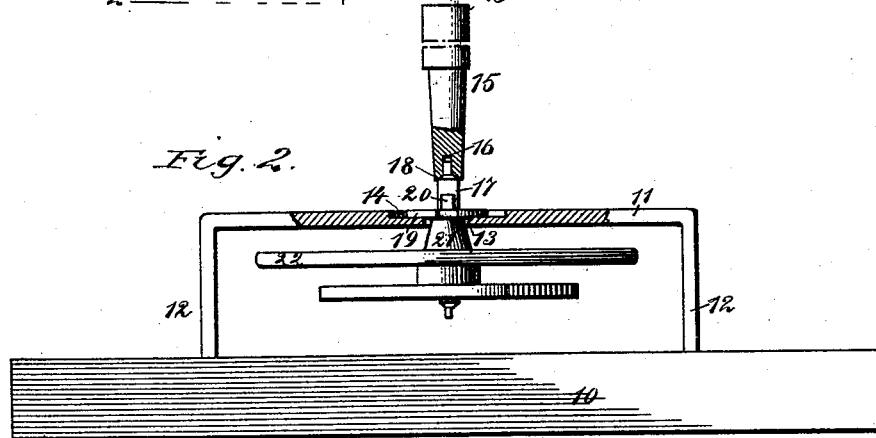
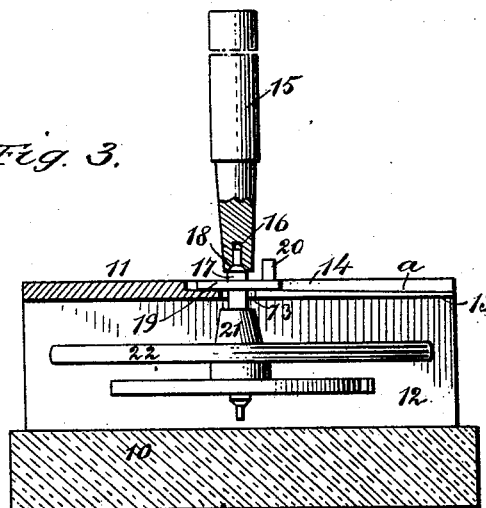


Fig. 3.



WITNESSES:

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MICHAEL L. SHEEHAN, OF NEW YORK, N. Y.

## WATCH-MAKER'S ROLLER-REMOVER.

SPECIFICATION forming part of Letters Patent No. 453,920, dated June 9, 1891.

Application filed March 3, 1891. Serial No. 383,611. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL L. SHEEHAN, of New York city, in the county and State of New York, have invented a new and Improved Device for Removing and Replacing the Rollers of Balance-Wheels, of which the following is a full, clear, and exact description.

My invention relates to an improved device for removing and replacing the rollers constituting a portion of watch balance-wheel staffs or pivots, and has for its object to provide a device of simple and durable construction whereby rollers may be disengaged from the staffs or pivots of balance-wheels employed in time-keeping instruments in an expeditious and convenient manner and without disturbing the hair-spring or injuring the pivots or ruby-pin.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully described, and pointed out in the claims.

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

Figure 1 is a plan view of the device, illustrating its application. Fig. 2 is a transverse section, taken practically on the line 2 2 of Fig. 1, illustrating the method employed for separating the roller from the staff; and Fig. 3 is a section on the line 3 3 of Fig. 1, illustrating the roller as partially disengaged from the staff of the balance-wheel.

The base 10 of the device is preferably made of a soft metal, such as lead, and may be given any desired contour. The body is usually made of a hard metal, such as steel or iron, and consists of a plate 11, having its edges bent downward at opposite sides to form legs or supports 12, the latter being attached to the base in any approved manner. A slot 13 is produced in one edge of the body-plate, terminating at or near the center thereof, and said slot is surrounded by a recess 14, produced in the upper face of the plate, the base-walls of which recess are beveled from their inner ends outward, forming inclined surfaces *a*, as shown in Fig. 3. Thus the walls of the slot 13 are considerably thicker at their inner than at their outer ends.

I desire it to be understood that the device may be made of any suitable material and that the body may be integral with the base or supported thereon in any well-known manner. The bevel is imparted to the base-walls of the recess 14 in order to accommodate rollers spaced different distances from the balance-wheel.

In connection with the device a punch 15 is employed, provided in its lower end with a bore 16 of greater diameter than the pivot-point of the balance-wheel staff 17, and a rabbet is also produced in the lower end of the punch, whereby a shoulder 18 is formed adapted to rest upon the shoulder of the staff.

What is known as the "roller" of a balance-wheel of time-keeping instruments is the disk 19, carrying the ruby-pin 20 and constituting a portion of the escapement of the movement.

In the manipulation of the device the balance-wheel is passed beneath the body-plate in such a manner that the hub 21 of the balance-wheel 22 or the staff below the roller will enter the slot 13, which will bring the roller over the surface *a* of the recess 14. The wheel is then pushed inward until the roller rests firmly upon the surface *a*, the ruby-pin preferably facing the mouth of the slot. The punch is fitted over the pivot of the balance-wheel staff upon the shoulder of the latter, as shown in Fig. 2, and the punch is struck with a hammer or other instrument, whereby the staff is driven downward, as shown in Fig. 3, leaving the roller with its ruby-pin undisturbed upon the recessed surface, from which surface it may be readily removed and the ruby-pin replaced or other repairs made, or a new roller may be placed upon the staff. In placing the roller upon the staff it is slid over the staff, and the roller, with its ruby-pin facing downward, is placed upon the beveled surface *a* of the device and the punch is applied to the opposite end of the staff and a hammer or other instrument used, the staff being thereby driven to place in the opening of the roller. It will be understood that the ruby-pin at this operation is located in the slot 13.

It will be observed that the rollers may be readily and conveniently removed from the staffs or balance-wheels by means of the above device and without disturbing the hair-spring

or injuring in the slightest degree the pivot-points of the staff or the ruby-pin, and that the device may be used in connection with the balance-wheel of any time-keeping instrument.

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

1. A device for removing the roller from a balance-staff of time-keeping instruments, consisting of a base and a plate supported above the base, said plate being provided with a slot in one edge and having a recess in its upper face surrounding the slot, the base-wall of which recess is downwardly and outwardly beveled, as and for the purpose set forth.

2. A device for removing the rollers from the balance staff of time-keeping instruments, consisting of a base of soft material and a body of hard material, said body comprising an angle-plate supported by and above the base and provided with a slot extending forward through one edge, the said plate having a recess in its upper face surrounding the slot, the base-wall of which recess is gradually downwardly and outwardly inclined, as and for the purpose set forth.

MICHAEL L. SHEEHAN.

Witnesses:

S. N. SIMONSON,  
GEORGE L. DAVIS.