G. W. BOWERS.

ROLLER REPLACING TOOL FOR WATCHMAKERS.

APPLICATION FILED JAN. 22, 1909.

938,819. Patented Nov. 2, 1909.

Fig. 1

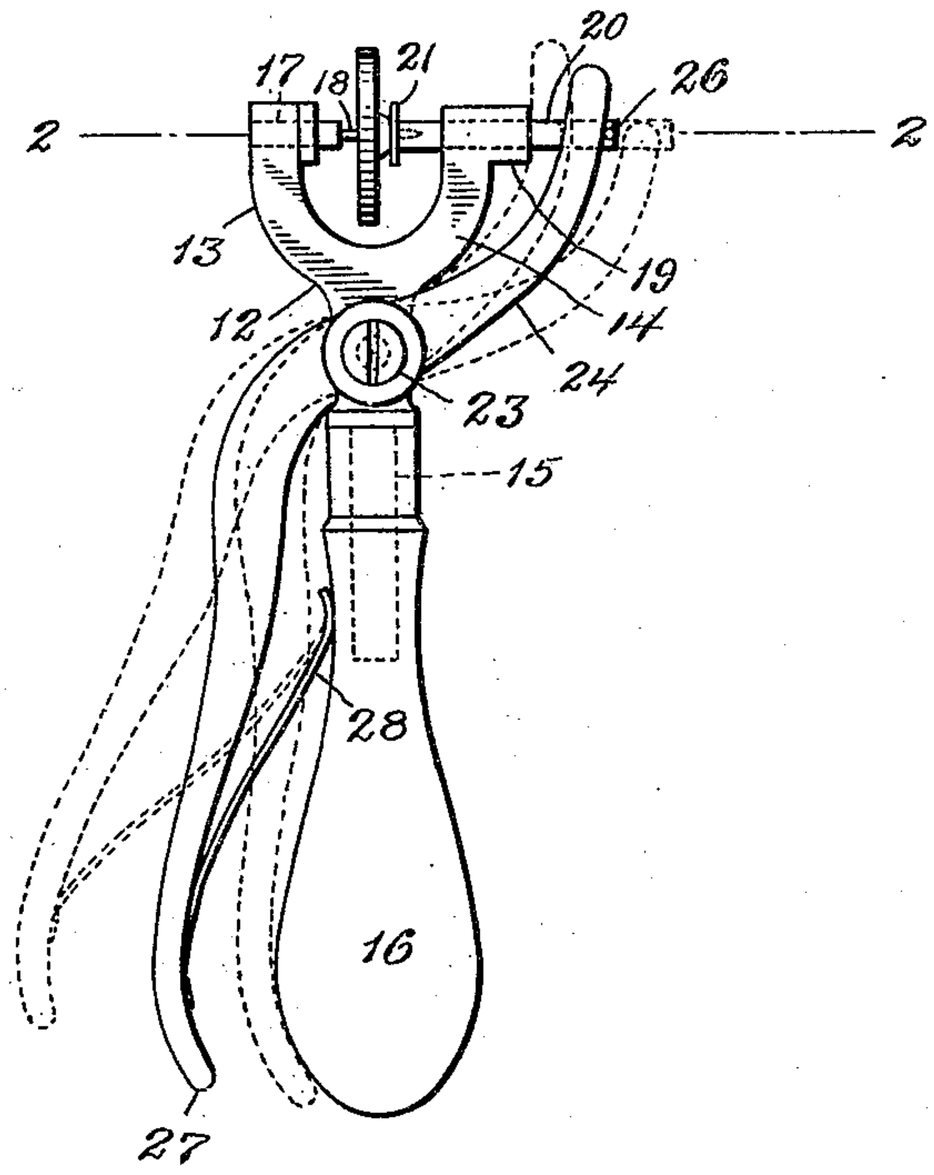
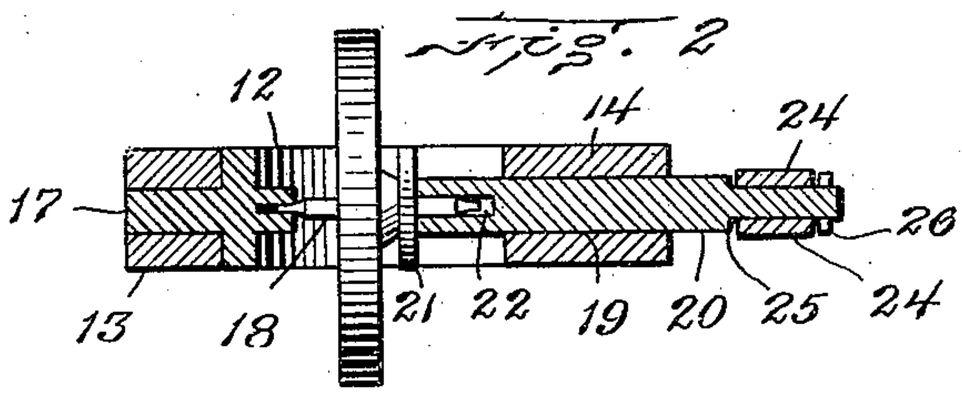


Fig. 2



Witnesses.

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GEORGE W. BOWERS, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HAMMEL, RIGLANDER & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ROLLER-REPLACING TOOL FOR WATCHMAKERS.

938,819. Specification of Letters Patent. Patented Nov. 2, 1909.

Application filed January 22, 1909. Serial No. 473,727.

To all whom it may concern:

Be it known that I, GEORGE W. BOWERS, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Roller-Replacing Tools for Watchmakers, of which the following is a specification.

This invention relates to tools for applying to the staff of a watch balance the disk known as the roller, said disk having an orifice which has a tight frictional fit on one end portion of the balance staff, so that a considerable pressure is required to force it to place on the staff.

The invention has for its object to provide a simple, convenient, and efficient tool adapted to perform this operation without subjecting the staff and roller to injurious strain or pressure.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a tool embodying my invention. Fig. 2 represents a section on line 2—2 of Fig. 1.

The same reference characters indicate the same parts in both figures.

In the drawings, 12 represents a forked holder having two arms 13 and 14, and a shank 15 to which a handle or hand grip 16 is attached. To the arm 13 is affixed a stud 17 which projects into the space between the arms, and has a small center socket or cavity in its end adapted to engage the corresponding end of a balance staff 18. The arm 14 is provided with a guiding socket 19, the bore of which is in alinement with the stud 17.

20 represents a plunger which is movable in the socket 19 toward and from the stud 17. The end of the plunger which projects into the space between the arms 13 and 14 is provided with a cavity 22 adapted to receive the end portion of the balance staff to which the roller 21 is applied, as shown in Fig. 2, the end of the plunger surrounding said cavity being flat and adapted to bear squarely against the roller 21, and press the same to place on the balance staff, the rectilinear movement of the plunger causing this operation to be performed without injurious or twisting strain on the balance staff or on the roller.

An operating lever is mounted on a fulcrum pin 23 engaged with the forked holder 12, said lever having a curved shorter arm 24 which is slidingly engaged with the plunger 20 by suitable means, such as a shoulder 25 and a pin 26 on said plunger, said shoulder and pin bearing loosely on opposite sides of the curved arm 24. The operating lever has a longer arm 27 which is located beside the handle 16, said longer arm and handle being so arranged that both can be grasped by the operator's hand, the closing of which forces the longer arm of the lever toward the handle and causes the shorter arm to project the plunger 20. A spring 28 affixed to the longer arm 27 and bearing against the handle, normally holds the lever in the position indicated by dotted lines in Fig. 1, and thus retracts the plunger.

It will be seen by reference to the full and dotted line positions of the lever shown in Fig. 1, that the shorter arm of the lever is engaged with the shoulders 25 and 26 of the plunger 20 in all positions which the lever is capable of assuming, while its spring 28 is in contact with the handle 16. When the lever is in the extreme retracted position, its outer arm being in the left-hand dotted line position indicated in Fig. 1, its shorter arm is nearly but not quite disengaged from the shoulders on the plunger, so that while the lever is adapted to again project the plunger when its longer arm is forced inwardly toward the handle, it is also adapted to be entirely disengaged from the plunger by a further outward movement of its longer arm from the outer dotted line position shown in Fig. 1, this movement causing the shorter arm to be entirely withdrawn from engagement with the plunger 20, thus releasing the plunger and permitting it to be withdrawn from the socket 19, so that a plunger may be conveniently withdrawn from the socket and another substituted for it. It will be noted that the plunger is entirely independent of the spring which retracts it, the spring being attached to the lever, so that it is not removable from the device with the plunger.

From the foregoing, it will be seen that the described tool is of simple construction, the number of parts being relatively small, and that the tool is adapted to replace a roller without injury either to the roller or the balance staff.

I claim:

A tool of the character stated, comprising a two-armed holder, an inwardly projecting stud affixed to one arm of the holder, and formed at its inner end to engage one end of a balance staff, the other arm being provided with a guide socket in alinement with said stud, a plunger movable endwise in said socket and having in one end an elongated cavity to receive the other end portion of a balance staff, and lever-engaging shoulders at its other end, the end of the plunger surrounding said cavity being formed to press a roller upon the staff, a handle affixed to the holder and extending substantially at a right angle with the plunger, a lever pivoted to the holder between the handle and plunger, and having a curved shorter arm slidingly engaged with the shoulders on the plunger, and a longer operating arm located beside the handle, and a spring attached at one end to the longer arm of the lever, its other end being in sliding contact with the handle, the lever being normally held by the spring in engagement with the shoulders of the plunger to prevent the withdrawal of the plunger from the socket, and adapted to be retracted beyond the point to which it is normally retracted by the spring, to disengage the shorter arm of the lever from the plunger, and permit the removal of the latter.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GEORGE W. BOWERS.

Witnesses:

C. F. Brown,

P. W. Pezzetti.