

E. N. PARKER.
WATCH ROLLER REMOVER.

(Application filed Dec. 24, 1898.)

(No Model.)

Fig. 1.

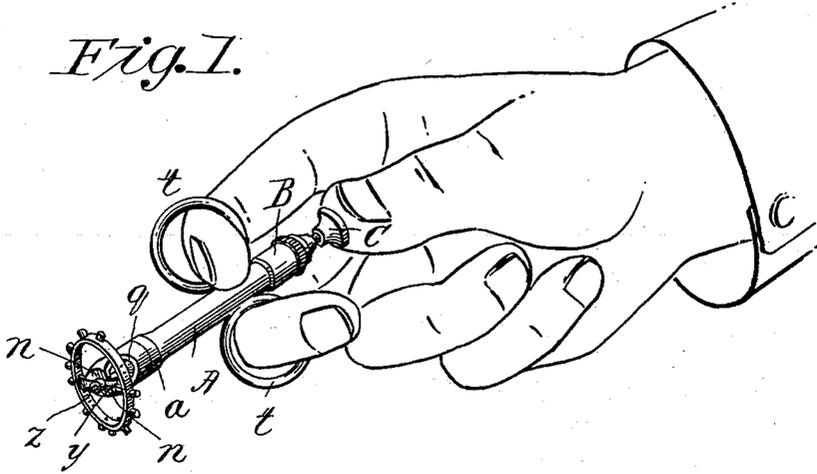


Fig. 7.

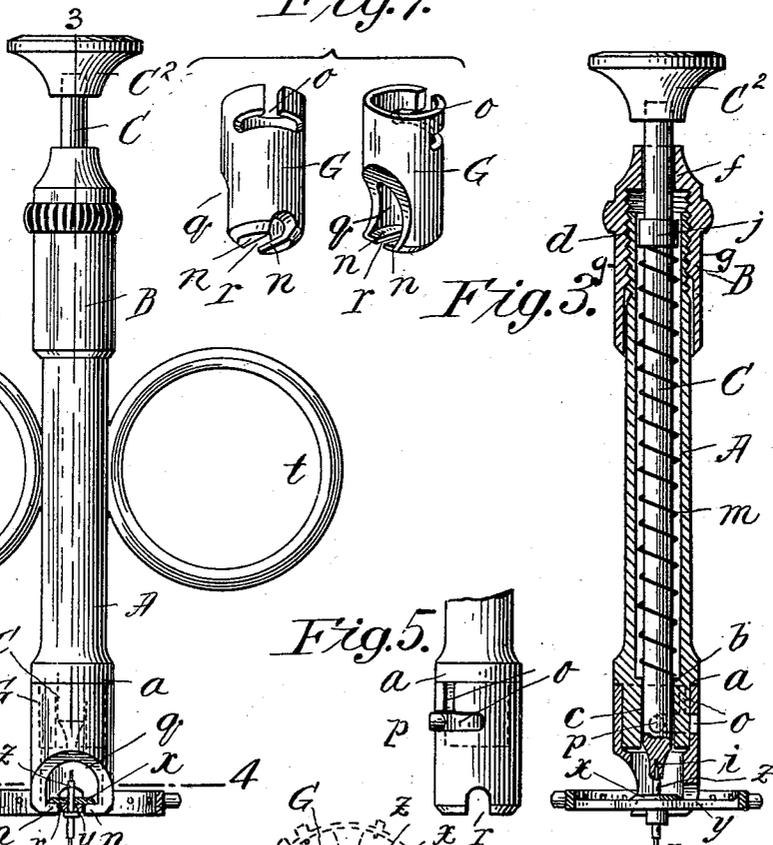


Fig. 2.

Fig. 3.

Fig. 5.

Fig. 6.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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WATCH-ROLLER REMOVER.

SPECIFICATION forming part of Letters Patent No. 624,242, dated May 2, 1899.

Application filed December 24, 1898. Serial No. 700,211. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS N. PARKER, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Roller-Removers, of which the following is a full, clear, and exact description.

This invention relates to roller-removers for watch makers and repairers.

The present invention relates to improvements in the device or tool whereby the same becomes susceptible of more convenient use than have many of the devices formerly employed for the corresponding purpose for forcing or prying the roller or disk from the staff of the balance-wheel.

The special object of this invention is to so construct the roller-removing device that it possesses the following advantages: the capability of being very conveniently handled and quickly used; the capability of providing an adjustable stop for the forcing-plunger, so that the roller may be started gradually by successive impulses of the plunger, each because of the changing of the position of the adjustable stop crowding the roller a little farther relative to the length of the staff of the balance-wheel and insuring in some cases, where the parts have become rusted or very firmly set, that the removal of the roller may be done without springing or distorting the balance-wheel, and also the capability of employing on the tool interchangeable jaws or rests for rollers of different sizes, the substitution of one of these rests for another being most quickly performed.

The invention consists in the construction and combination of parts, all substantially as hereinafter fully and particularly described, and set forth in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view showing in a general way the improved roller-remover as being manipulated in the performance of its work. Fig. 2 is a side view of the device, drawn on a larger than natural scale and illustrating the manner in which the balance-wheel is placed to be subject to the action of the tool. Fig. 3 is a central section as taken on line 3 3, Fig. 2. Fig. 4 is a cross-section on line 4 4, Fig. 2. Figs. 5 and 6 are views

at right angles to each other, showing the lower portion of the tubular stock or barrel of the device and also the interchangeable and detachably-connected rest for the roller of the balance-wheel. Fig. 7 shows in perspective the detachable and interchangeable rest, particularly illustrating the double bayonet-joint.

Similar characters of reference indicate corresponding parts in all of the views.

The base of the device is constituted by the barrel or tubular stock A, having an external shoulder *a* above its lower end, and also having an internal shoulder or spring-seat *b* above its lower end, and the barrel has the external screw-thread *d* at its upper end portion.

B indicates a thimble-like part which has the opening endwise through it, the upper portion *f*, of smaller diameter, constituting a guide for the plunger C; while the lower portion *g*, which is of the larger internal diameter and which is internally screw-threaded, engages the threads *d* of the barrel, thereby forming the connection of the one part on the other and rendering the thimble adjustable to limit the play of the plunger or to permit it to have its full axial movement. The lower end portion of the plunger has a guiding fit closely but freely through the contracted lower part *c* of its bore, and the extremity of the plunger is contracted and has the usual small axial socket *i* in its end to receive therein the pivot of the balance-wheel staff, so that the end of the plunger may bear firmly against the end of the staff at the base of the pivot. The plunger is provided with the shoulder *j*, between which and the barrel-shoulder *b* is applied the spring *m*, which is compressed on the downward or forward thrust of the plunger and on its reaction upwardly retracting the plunger.

C² represents the knob or enlarged head for the plunger, the same in practice being made separately from the plunger with a socket for receiving with a driving fit the upper end of the plunger.

The interchangeable and detachably-connected parts which comprise the rests *n* for the roller *x* of the balance-wheel are each constituted by sleeve G, having at its upper end the T-slot *o* to constitute a double bayonet-joint form of connection to engage the

stud *p*, laterally extended from the side of the barrel near its lower end, the said sleeve being slipped in place over the lower end of the barrel until the upper end thereof reaches the shoulder *a*, the longitudinal portion of the slot being in line with the stud, and then the sleeve is turned to have either one of the horizontal slot extensions by its boundary edge engage the stud, preventing accidental endwise displacement of the sleeve. The sleeve has its side recessed, as at *q*, and its lower end has the opposite lugs or flanges which constitute the rests *n n* for the roller, with the separating-slot *r* to accommodate the cross-spoke *y* of the balance-wheel.

As shown in Fig. 2, the roller *x* is placed upon the top of the rests *n*, the spoke *y* thereunder lying within the space between the rests, and the balance-staff *z* is in the axial line of the plunger. The downward or forward movement of the plunger bearing on the upper end of the balance-wheel staff forces the latter endwise out through the roller, which remains on the rests.

The barrel is provided on opposite sides with the finger-rests *t t*, which, as shown, are in the form of rings, although partially-circular rests would serve the purpose fairly well; but where the rests are constituted by the rings, as shown, there is greatly lessened liability of the user accidentally dropping the tool.

In some cases it may be more convenient to have the recessed side *q* of the part *G* facing at right angles to the plane of the finger-rests *t t*, and this may be done by turning the sleeve a quarter way around, as permitted by the second slot extension. (Seen in Figs. 5, 6, and 7.)

The roller-moving device is to be supplied in the trade usually with two or more of the sleeve-like rests, which may have the openings therein larger or smaller for the accommodation of rollers of varying diameters, and balance-wheel cross-spokes of different widths, and, furthermore, one of these detachable parts *G*, having its parts *n* quite thin, may be temporarily attached on the barrel to improve a means for the removal of the watch-hand, as will be found advantageous and convenient for taking off the hands, more especially in watches having double-sunk dials. By the use of this device for the last-named purpose the hands may be removed in an expeditious manner without danger of cracking or defacing the enamel of the dial.

By screwing down the thimble *B* on the barrel the plunger may have its full throw. By adjusting the thimble nearer the lower end of the plunger-head *C* the plunger may then only have a slight extent of movement.

It may in some cases be desirable to so limit the movement of the plunger that on its first thumb-impelled thrust against the end of the

staff it will only force the staff slightly through the roller, just enough to start it, and then by lowering the position of the thimble the plunger may on the succeeding impulse have a more extended thrust, and in this way the separation of the parts may be performed more carefully and gradually, guarding against springing or distorting the balance-wheel.

I claim—

1. In a device of the character described, the barrel *A* provided with the finger-rests extending from opposite sides thereof, and both in a common plane, the opposite separated rests comprised in a part supported at the lower end of the barrel which is adjustable to bring the opening between the rests in the plane of the finger-rests, or angular thereto, the plunger having a free sliding movement in the barrel, and the retracting-spring for the plunger, substantially as and for the purposes set forth.

2. In a roller-remover or analogous device, the combination with the barrel having at its lower end separated rests for the roller and provided at its upper end exteriorly with a screw-thread, of the plunger having a head or enlargement at its upper end and the thimble *B* screw-threading on the upper end of the barrel and constituting both a guide for the plunger and an adjustable stop for limiting the thrust thereof.

3. In a roller-remover, the combination with the barrel or tubular stock provided near its lower end with an outwardly-projecting stud, and the plunger, of the sleeve-like part *G* provided with the opposing separated roller-rests, and with the sidewise opening, and constructed at its upper part which is adapted for a sliding fit over the said lower end portion of the barrel with the T-shaped slot, substantially as shown and for the purpose set forth.

4. In a roller-remover, the combination with the barrel *A* exteriorly screw-threaded at its upper end and having the external and internal shoulders *a* and *b* at its lower portion and provided with the stud *p*, the plunger *C* having the shoulder *j*, the spring surrounding the plunger, inclosed within the barrel and having endwise rests against said shoulders *b* and *j*, of the thimble *B* internally screw-threaded, and adjustably screw-engaging over the upper end of the barrel, and provided with the upper end portion *f* of contracted diameter, and the sleeve-like part *G*, having the opposite separated roller-rests, and the sidewise opening *q*, and having at its upper portion the T-shaped slot *o*, all substantially as and for the purposes set forth.

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