No. 734,211. PATENTED JULY 21, 1903.

O. O. AUNE.

WATCH ROLLER AND HANDS REMOVER.

APPLICATION FILED OCT. 9, 1902.

NO MODEL.

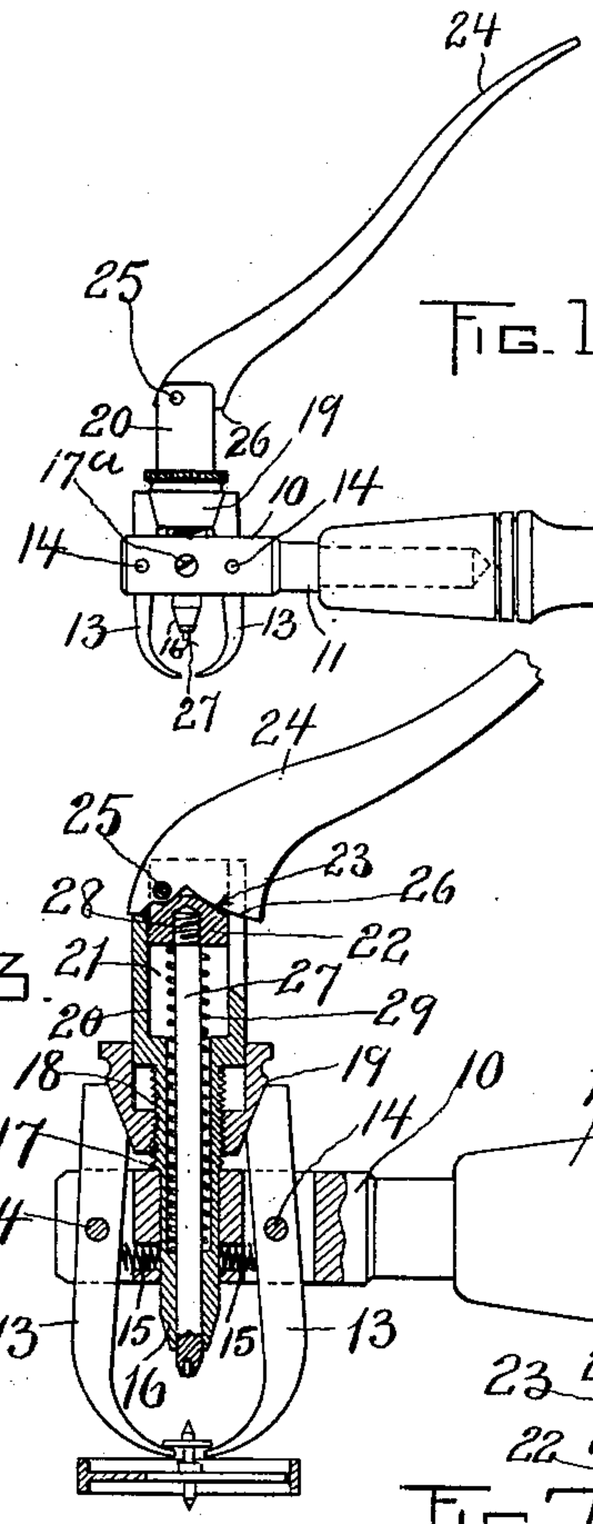

FIG. 1.

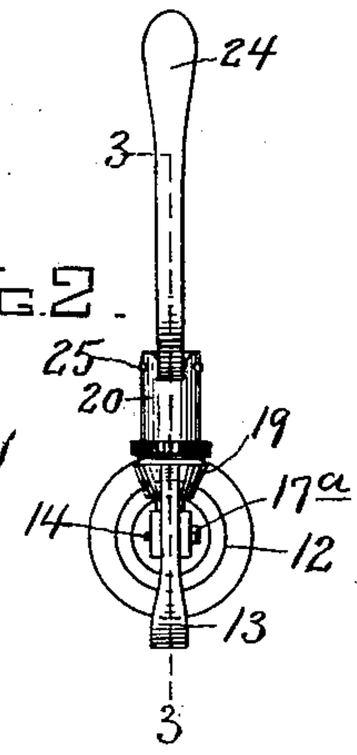

FIG. 2.

FIG. 3.

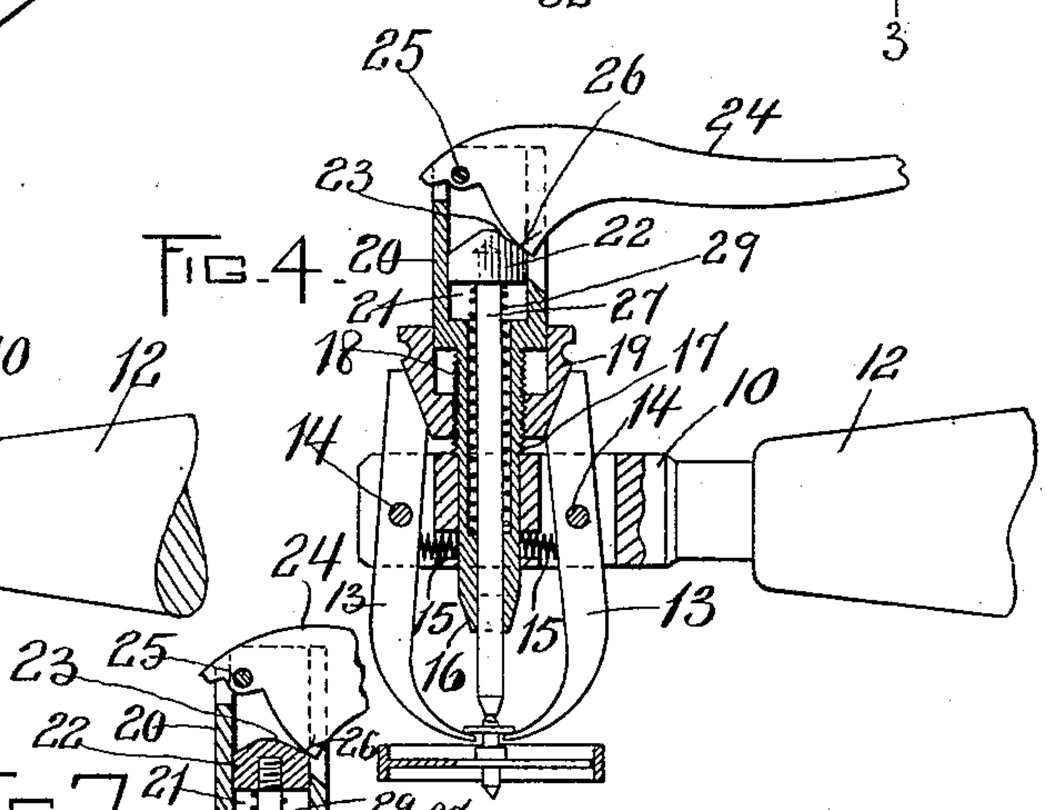

FIG. 4.

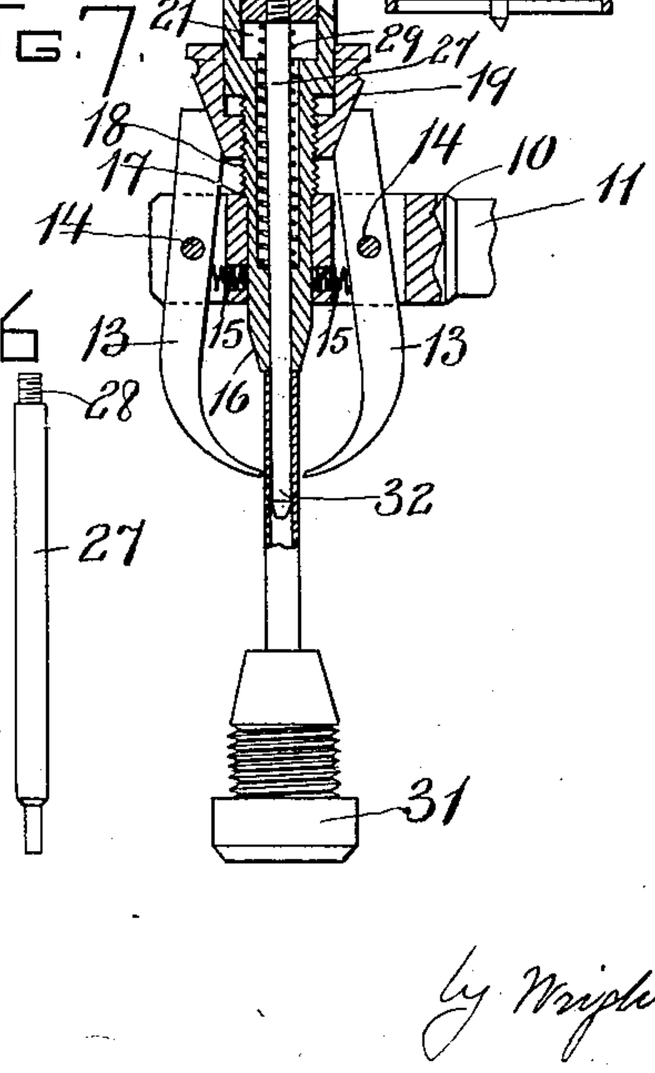

FIG. 7.

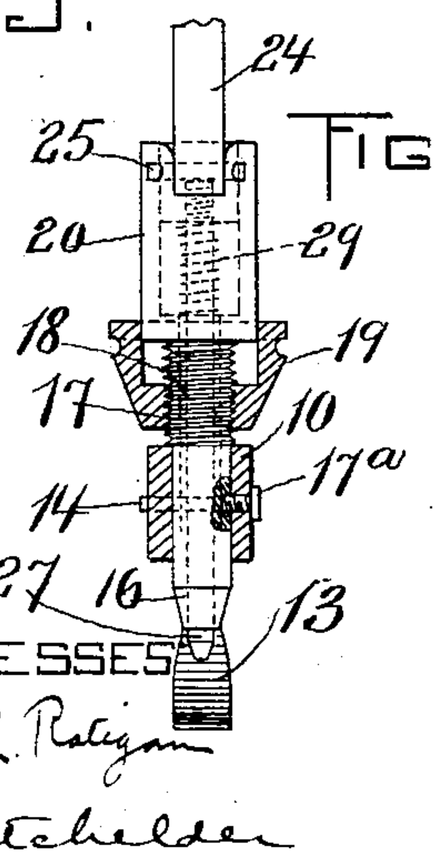

FIG. 5.

FIG. 6.

WITNESSES

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No. 734,211. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

OLE O. AUNE, OF WALTHAM, MASSACHUSETTS.

WATCH ROLLER AND HANDS REMOVER.

SPECIFICATION forming part of Letters Patent No. 734,211, dated July 21, 1903.

Application filed October 9, 1902. Serial No. 126,493. (No model.)

To all whom it may concern:

Be it known that I, OLE O. AUNE, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Watch Roller and Hands Removers, of which the following is a specification.

This invention relates to tools for separating parts of watches, and has for its object to provide a convenient tool of this character which may be used to remove the hands from the parts of a watch-movement or with a slight change for removing that part of a balance-wheel known as the "roller."

To these ends the invention consists in the construction and relative arrangement of parts substantially as hereinafter described and claimed.

Of the accompanying drawings, Figure 1 represents a side elevation of a tool embodying my improvements. Fig. 2 represents an end view from the left of Fig. 1. Fig. 3 represents an enlarged section on line 3 3 of Fig. 2 with the jaws engaging the roller of a balance-wheel. Fig. 4 is a view similar to Fig. 3 with the parts in different positions. Fig. 5 represents an elevation from the left of Fig. 3, the head and cone-nut being in section. Fig. 6 represents an elevation of another form of pin that may be inserted in the tool. Fig. 7 represents a section similar to Fig. 4 during the operation of substituting one pin for another.

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

In the drawings a head 10 is shown as formed with a shank 11, suitably secured in a handle 12. Passing through suitable openings in the head 10 are jaws 13, mounted on pivot-pins 14 and normally having their lower ends pressed apart by springs 15. Mounted centrally in the head—that is, substantially midway between the pivots of the jaws 13—is a barrel or sleeve 16, which serves as the guide for the pin hereinafter described, which pin coöperates with the tips of the jaws in grasping the object to be removed. The sleeve 16 is shown as formed with a shoulder 17, bearing upon the upper surface of the head 10. Preferably the sleeve fits tightly in the opening formed therefor in the head; but it may be additionally secured therein by means of a screw, such as shown at 17^a in Fig. 5. Above the shoulder 17 the sleeve is externally screw-threaded, as at 18, and fitted on said screw-threaded portion is the tapered or cone nut 19, which bears against the upper ends of the jaws 13 to contract the tips of the jaws toward each other. The springs 15 preserve contact of the upper ends of the jaws 13 with the cone-nut.

Above the screw-threaded portion 18 the sleeve is enlarged, as shown at 20, and within said enlarged portion is a chamber 21, which receives the sliding block or pin-carrier 22, the latter having an inclined upper face, as at 23. A lever 24 is mounted on a pin 25, extending through the enlarged upper portion of the sleeve, and said lever is formed with a cam-toe 26, adapted to ride upon the inclined face 23 of the pin-carrier 22, so as to depress the said carrier in the chamber 21.

The pin which coacts with the lower ends of the jaws in grasping a part of a watch-movement is represented at 27, said pin having a threaded upper end adapted to engage a threaded socket formed in the block or carrier 22. A spring 29 surrounds the pin 27 and bears against the under face of the block or carrier 22, the lower end of said spring bearing against an internal shoulder of the sleeve. It will be noticed that the sleeve 16 has an opening or passage-way for the greater portion of its length that is in excess of the diameter of the pin 27. This forms an annular chamber which will receive the spring 29, and thus enable a spring to be employed that is longer than would be the case if the lower end of said spring were to bear against the bottom of the chamber 21.

It will be seen that the screw-threaded connection between the pin and its carrier or block enables one pin to be readily interchanged for another. For instance, the pin represented in the tool, as shown in Fig. 3, has a tapered lower end, with a minute central vertical recess or socket adapted to receive the pointed arbor of the balance-wheel while the jaws engage the under side of the roller, as shown in said figure. When the

lever 24 is depressed to the position shown in Fig. 4, the toe 26 thereof depresses the block or carrier 22 and carries the pin 27 downward with the latter, causing the lower end of the pin to project considerably from the sleeve or guide 16, said depression continuing until engagement is made with the pointed end of the arbor. Further movement of the lever will cause the arbor to be pushed through the roller or cause the jaws to lift the roller off from the arbor in a manner that will be readily understood. To facilitate the substitution of one pin for another, so as to enable a pin to be employed that may be better adapted for removing other parts, such as the hands of a watch, I may employ a friction-sleeve device adapted to engage the pin 27 when projected, as shown in Fig. 7, with sufficient grasp to enable the pin to be unscrewed from the block or carrier 22. For convenience of preserving such tool or clamp and also such substitute pins as are to be used in the remover I preferably form the handle 12 with a cavity 30, as represented by dotted lines in Fig. 1. Said cavity will be of a size and depth sufficient to receive as many of the different pins as are likely to be needed for various purposes. Such pins will be retained in the cavity by a plug 31. In Fig. 7 I have shown this plug 31 as screw-threaded to fit the correspondingly-threaded outer end of the cavity 30, and said plug also carries a hollow split sleeve 32 to receive and frictionally clamp the outer end of a pin 27.

The pin 27 (shown in Fig. 3) is not well adapted for removing watch-hands. For the latter purpose a pin having a blunt lower end is preferable, such as shown in Fig. 6. When it is desired to substitute one of these pins for another, the lever 24 will be actuated to project the pin 27 that is in the tool preferably beyond the tips of the jaws, as indicated in Fig. 7. Then the friction clamp or sleeve 32 is slipped onto the pin and the latter rotated to unscrew it from the carrier 22. While still holding the lever 24 in the position indicated in Fig. 7, so as to avoid liability of the spring 29 slipping out of place, the pin to be inserted in the carrier will be first slipped into the friction-clamp 32 and then inserted through the sleeve and screwed into the block or carrier in a manner that will be readily understood without further description.

It will be seen that I have provided a watchmaker's tool that may be readily and quickly altered to suit different purposes instead of requiring a number of different tools.

I claim—

1. A tool of the character described comprising a head having a handle, a sleeve extending through the head and fixed therein and having its upper portion externally threaded, jaws located on opposite sides of the sleeve and pivotally mounted in the head, a tapered nut on the threaded portion of the sleeve and adapted to spread the upper ends of the jaws, a pin mounted to slide freely in the sleeve and having its lower end adapted to coact with the lower ends of the jaws in grasping an object, and means for reciprocating said pin.

2. A tool of the character described comprising a head having a handle, a sleeve having an enlarged upper end and extending through the head and fixed therein and externally threaded above the head, jaws located on opposite sides of the sleeve and pivotally mounted in the head, a tapered nut on the threaded portion of the sleeve and adapted to spread the upper ends of the jaws, a carrier mounted to reciprocate in the enlarged portion of the sleeve, a pin removably connected with said carrier and extending through the sleeve and having its lower end adapted to coact with the lower ends of the jaws in grasping an object, and means for reciprocating said pin.

3. A tool of the character described comprising a head having a handle, a sleeve having an enlarged upper end and extending through the head and fixed therein and externally threaded above the head, jaws located on opposite sides of the sleeve and pivotally mounted in the head, a tapered nut on the threaded portion of the sleeve and adapted to spread the upper ends of the jaws, a carrier mounted to reciprocate in the enlarged portion of the sleeve, a pin removably connected with said carrier and extending through the sleeve and having its lower end adapted to coact with the lower ends of the jaws in grasping an object, a spring surrounding the pin and pressing upward against the pin-carrier, said carrier having an inclined upper end, and a lever pivotally connected with the sleeve and having a portion bearing on the carrier to depress the same and the pin against the action of said spring.

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

OLE O. AUNE.

Witnesses:
A. W. HARRISON,
C. F. BROWN.