

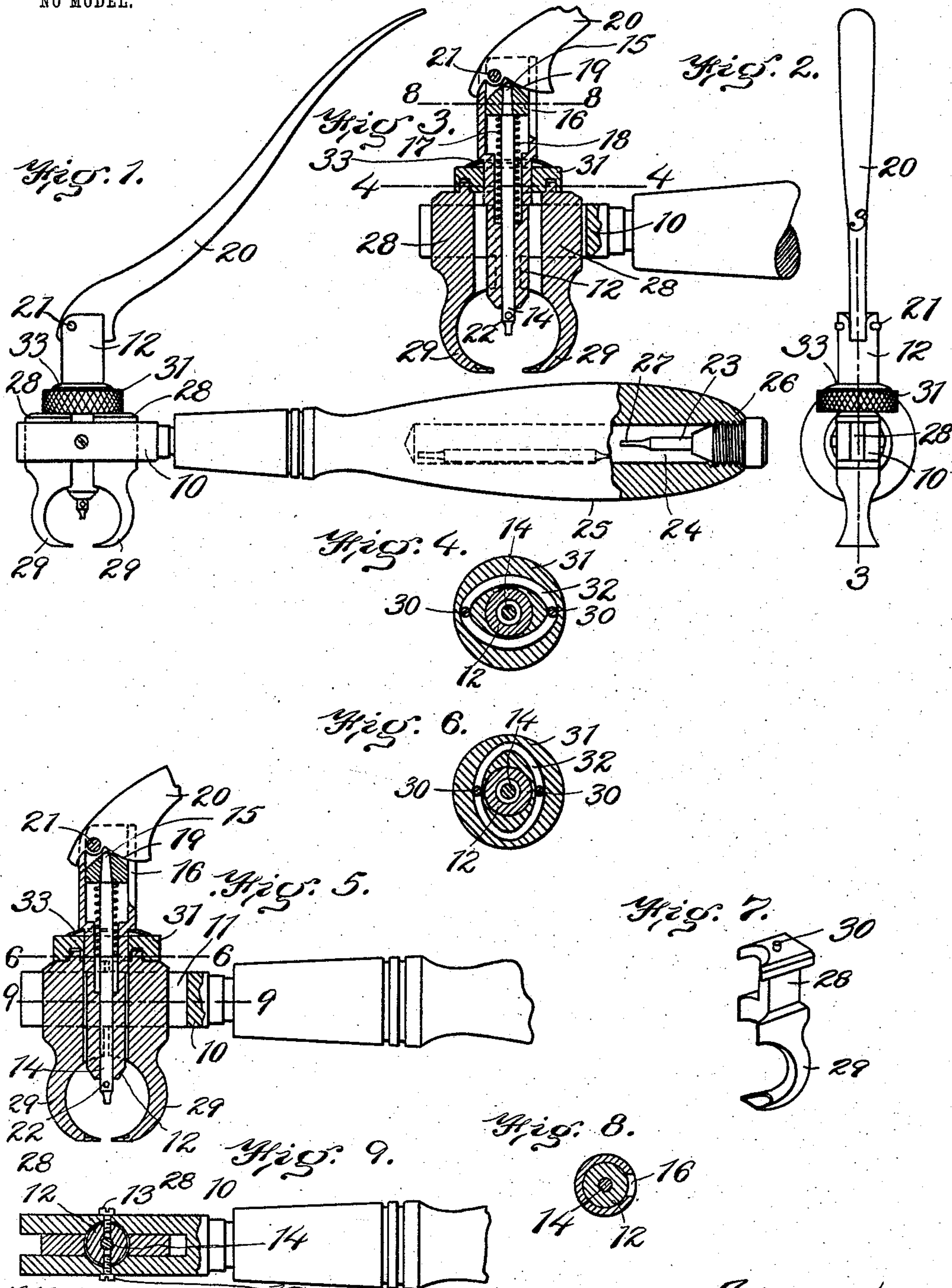
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O. O. AUNE.
WATCH ROLLER AND HAND REMOVER.

APPLICATION FILED FEB. 8, 1904.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

OLE O. AUNE, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO F. B. KENDRICK AND W. F. DAVIS, OF LEBANON, NEW HAMPSHIRE.

WATCH ROLLER AND HAND REMOVER.

SPECIFICATION forming part of Letters Patent No. 772,325, dated October 11, 1904.

Application filed February 8, 1904. Serial No. 192,528. (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 Rollers and Hands Removers, of which the following is a specification.

This invention relates to tools used by watch-makers for performing such operations as removing the hands of a watch-movement from the parts that carry the same and for removing that part of a balance-wheel of a watch known as the "roller."

The invention has for its object to provide a tool of this character comprising a pair of jaws movable toward each other to grasp the part or parts to be removed and a pin which is movable in a plane at right angles to the movements of the jaws and adapted to cooperate with the jaws in removing a pair of hands or a balance-roller and of such construction that the jaws shall have a rectilinear movement toward and from each other, the construction being, moreover, such that the tool may be made of compact form and of a relatively small number of parts.

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 an end view of the same. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a section on line 4 4 of Fig. 3. Fig. 5 represents a view similar to Fig. 3, showing the jaws closed. Fig. 6 represents a section on line 6 6 of Fig. 5. Fig. 7 represents a perspective view of one of the jaw-carrying slides and the jaw formed thereon. Fig. 8 represents a section on line 8 8 of Fig. 3. Fig. 9 represents a section on line 9 9 of Fig. 5.

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

In the drawings, 10 represents a head which is bifurcated or provided with a longitudinal slot 11, located between two parallel arms.

12 represents a tubular sleeve which extends through the slot 11 and is affixed to the arms at opposite sides of the slots by means of screws 13 13, the said arms being recessed at their inner sides to receive portions of the sleeve 12, as shown in Fig. 9.

14 represents a pin which is movable longitudinally in the bore of the sleeve 12, the upper end of said pin having a tapered portion 15, which is inserted in a collar 16, fitted to slide in a chamber 17, formed in an enlargement of the upper portion of the sleeve 12. The pin 14 is normally raised or retracted in the sleeve 12 by means of a spring 18, one end of which bears on the sleeve 12 and the other end on the collar 16. The pin may be projected from the sleeve 12 by means of a cam-face 19, formed on a lever 20, which is pivoted at 21 to the upper portion of the sleeve 12, said cam-face bearing on the upper portion of the collar 16. The pin 14 has a frictional engagement with the collar 16, its tapered portion 15 having a frictional fit in a correspondingly-formed orifice in said collar, so that the pin 14 may be withdrawn from the sleeve and from the collar 16 and another pin of different shape at its lower end substituted for it, the pin having an orifice 22 in its lower portion for the reception of a withdrawing-tool 23. For convenience said withdrawing-tool is contained in a chamber 24, contained in a handle 25, affixed to the head 10, said tool having an enlarged screw-threaded shank 26 engaged with an internal thread at the outer portion of said chamber. The acting portion 27 of the tool 23 is reduced, so that it can be inserted in the orifice 22 of the pin 14.

28 28 represent slides which are located in the slot 11 at opposite sides of the sleeve 12 and are movable in said slot toward and from the sleeve. Each slide is provided with an extension formed as a jaw 29, the said jaws being formed to cooperate in engaging the hub portion of a watch-hand or the roller of a balance-wheel. The slides 28 have recesses in their opposite sides to engage the inner sides and the top and bottom edges of the arms of

the head 10, and each slide has a stud 30 projecting from its upper portion.

31 represents a disk which is mounted to rotate on the sleeve 12, above the head 10, and is provided with an elliptical groove 32, into which the studs 30 on the slides 28 project. When the disk 31 is adjusted as shown in Figs. 1, 3, and 4, the studs 30 are held by the groove 32 at the maximum distance from each other. Hence the jaws are opened to their fullest extent. When the disk is adjusted as shown in Figs. 5 and 6, the groove 32 causes the studs 30 to move inwardly, thus closing the jaws. The jaws are therefore moved simultaneously toward and from each other by rotary movements of the disk, and the jaws are adapted to be held either in the fully-opened position (shown in Figs. 1 and 3) or the closed position (shown in Fig. 5) or at various intermediate positions. The jaws are frictionally held and prevented from loose movement or displacement in any position to which they may be adjusted by means of a frictional device 33, interposed between the upper side of the disk 31 and a shoulder formed on the sleeve 12, said device being preferably a cupped resilient washer of steel or other suitable material. Provision is thus made for holding the jaws against accidental displacement in any position to which they may be adjusted.

It will be seen that the movement of the jaws is rectilinear, both the jaws moving in the same plane, so that they are adapted to be more effectively operated than would be the case if the jaws were pivoted and each were to swing in the arc of a circle. It will also be seen that by supporting the jaws upon slides which are movable in guides on the supporting-head 10 the construction is materially simplified as compared with that of similar devices in which the jaws are pivoted and are opened by springs and closed by a tapering nut interposed between the upper ends of the jaws. Moreover, the construction is reduced to one of minimum compactness.

The pin 14 is formed to coöperate with the jaws in a manner which is common to tools of this character, so that no detailed description of the operation is required.

I claim—

1. A tool of the character described, comprising a head, a tubular sleeve affixed thereto, a pin movable longitudinally in the sleeve and normally retracted therein, means for projecting the pin, slides located at opposite sides of the sleeve and fitted to slide on the head, jaws carried by said slides, and means for moving the slides simultaneously in opposite directions to close and open the jaws.

2. A tool of the character described, comprising a head, a tubular sleeve affixed thereto, a pin movable longitudinally in the sleeve and normally retracted therein, means for projecting the pin, slides located at opposite sides of the sleeve and fitted to slide on the head, jaws carried by said slides, and a disk rotatable on the sleeve and provided with an elliptical groove engaged with studs on the slides.

3. A tool of the character described, comprising a head, a tubular sleeve affixed thereto, a pin movable longitudinally in the sleeve and normally retracted therein, means for projecting the pin, slides located at opposite sides of the sleeve and fitted to slide on the head, jaws carried by said slides, a disk rotatable on the sleeve and provided with an elliptical groove engaged with studs on the slide, and a friction device interposed between the disk and a shoulder on the sleeve to prevent loose rotation of the disk.

4. A tool of the character described, comprising a longitudinally-slotted or bifurcated head, a tubular sleeve extending through the slot in the head and secured to the arms of the head, a pin movable longitudinally in the sleeve and normally retracted therein, means for projecting the pin, slides located in said slot at opposite sides of the sleeve provided with jaws, and means for moving the slides and jaws simultaneously in opposite directions.

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

OLE O. AUNE.

Witnesses:

C. F. BROWN,
E. BATCHELDER.