

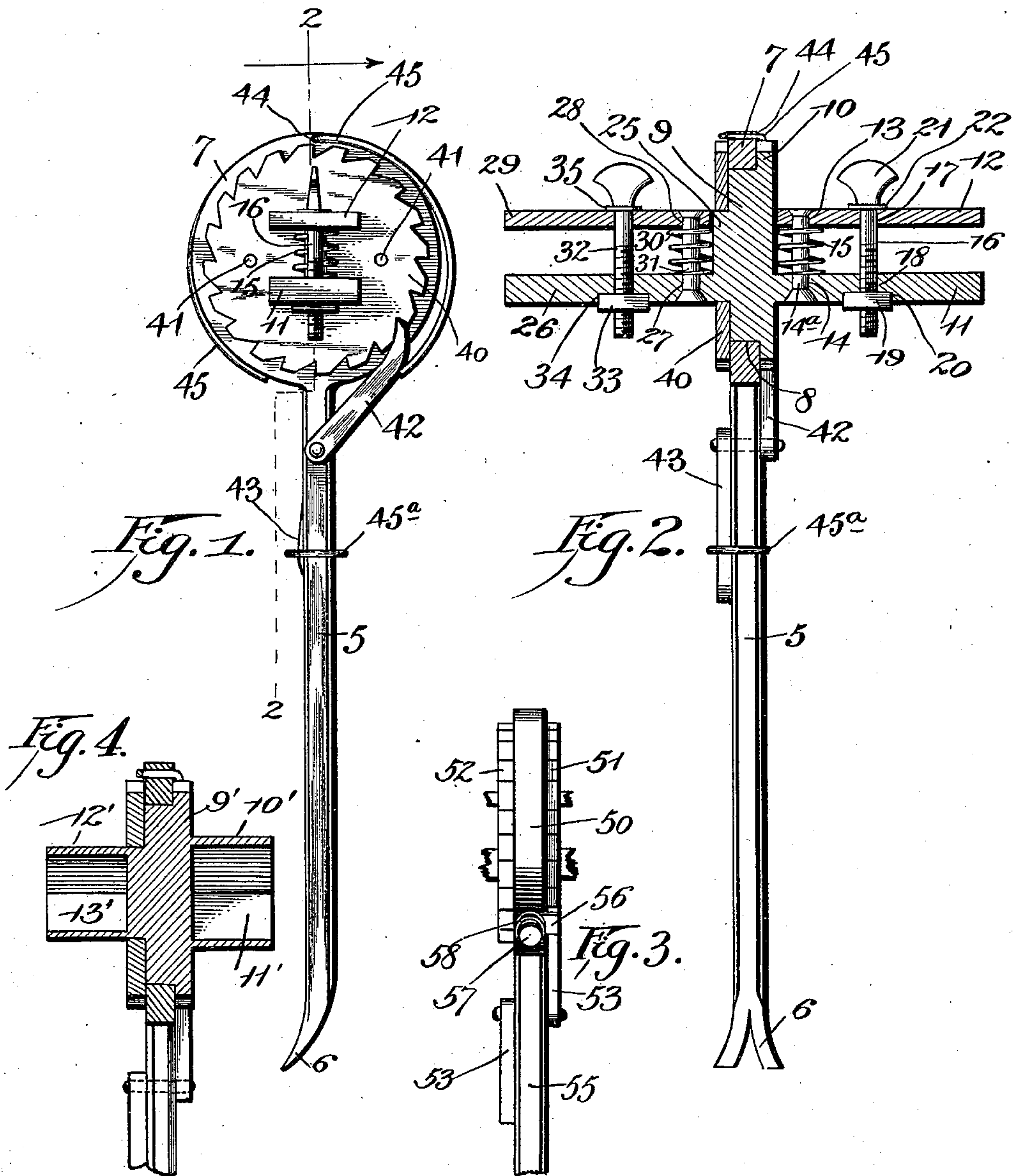
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Patented Dec. 26, 1899.

J. ASBURY.
RATCHET WRENCH.

(Application filed June 3, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

JEREMIAH ASBURY, OF LEXINGTON, OKLAHOMA TERRITORY.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 639,700, dated December 26, 1899.

Application filed June 3, 1899. Serial No. 719,261. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH ASBURY, a citizen of the United States, residing at Lexington, in the county of Cleveland, Oklahoma Territory, have invented a new and useful Ratchet-Wrench, of which the following is a specification.

This invention relates to wrenches in general, and more particularly to that class known as "ratchet-wrenches" and which are adapted for adjustment for the manipulation of nuts, bolts, lag-screws, and other threaded bodies having heads.

The object of the invention is to provide a simple and efficient construction comprising a handle having a journal therein, in which is arranged a ratchet-wheel carrying adjustable jaws, said ratchet-wheel having secured thereto an oppositely-disposed ratchet-wheel and the handle having pivotally connected therewith pawls adapted to engage the ratchet-wheels alternately to move them in opposite directions when the handle is correspondingly manipulated.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate corresponding parts in the several views, Figure 1 is a side view of my wrench. Fig. 2 is a section on line 2 2 of Fig. 1, showing the oppositely-extending jaws and their adjusting means. Fig. 3 is a detailed edge view showing a modified form and arrangement of ratchet-holding spring. Fig. 4 is a vertical section similar to Fig. 3, with the lower portion of the handle of the wrench omitted and showing a modification in which nut-receiving recesses of different sizes are formed in oppositely-disposed projections on the faces of one of the ratchets.

Referring now to the drawings, 5 is a handle, at the lower end of which are preferably formed outwardly-curved claws 6, the opposite end of the handle being broadened into the form of a disk 7, having a central annular opening 8. In this opening 8 is journaled the laterally-extending hub 9 of a ratchet-wheel 10, which wheel has extending from its opposite face and formed integral therewith a fixed clamping-jaw 11. Disposed above the jaw 11 is a movable jaw 12, the rear end of which has a vertically-arranged perforation 13 in

alinement with a similar perforation 14 in the jaw 11, and through these perforations is passed a guide-pin 14^a, having an encircling helical spring 15, whose ends bear upon the inner faces of the jaws and hold the jaw 12 at the outer limit of its movement. In order to vary said outer limit of movement of the jaw 12—i. e., to move the jaw toward or away from the jaw 11—I pass a bolt 16 through alining perforations 17 and 18 in the upper and lower jaws, respectively, which bolt has upon its lower end a nut 19, seated in a corresponding countersink 20 in the lower face of the jaw 11, and which countersink prevents rotation of the nut with the bolt when the latter is rotated through the medium of its upwardly-extending web 21. Hence as the bolt 16 is rotated it will draw the jaw 12 toward the jaw 11 with a clamping action, direct pressure of the bolt against the outer face of the jaw 12 being secured through the medium of an integral collar 22 upon the bolt.

From the face of the hub 9 and centrally thereof projects a square boss 25, from which and integral therewith extends a lower clamping-jaw 26, having likewise a perforation 27 in alinement with a perforation 28 in a movable jaw 29, arranged above and in alinement with the jaw 26. The jaw 29 is held at the limit of its outward movement through the medium of a helical spring 30, encircling a pin 31, connected with the jaw 26 through the medium of perforations 27 and slidable in the perforation 28 of the jaw 29. The jaw 29 is adjusted with respect to the jaw 26 through the medium of an adjusting-bolt 32, passed through alining perforations in the jaws, said bolt passing also through a nut 33 in a countersink 34 in the lower face of the jaw 26. A collar 35 upon screw 32 engages directly with the jaw 29 to receive pressure of the screw when the latter is rotated to bring the jaws together. Thus it will be seen that by manipulation of the bolts 16 and 32 the jaws at either side of the disk 7 may be mutually adjusted.

A second ratchet-wheel 40, having a central squared opening, is fitted upon the boss 25 concentric with the ratchet 10, said ratchet 40 being secured to the hub 9 through the medium of screws 41 or in any other desired

manner, the adjacent faces of the ratchets lying closely upon the faces of the disk 7, with respect to which they are rotatable.

The teeth of ratchets 10 and 40 are disposed in opposite directions in order that the jaws of the implement may be rotated in either direction alternately by holding either ratchet fixedly with respect to the handle 5. This fixed connection between the ratchets and the handle is secured through the medium of pawls 42 and 43, pivoted to the handle 5, and which pawls are adapted for engagement with the teeth of their respective ratchets, said pawls being rotatable upon their pivots in the planes of said ratchets.

In order to hold either pawl in engagement with its ratchet, I pass through a perforation 44, adjacent the upper edge of the disk 7, a spring-wire 45, which wire is curved in opposite directions and normally lies concentric with the disk 7 and in the shape of a split ring. The ends of the wire 45 are adapted to slidably engage the outer surfaces of the pawls 42 and 43 and hold them in engagement with their respective ratchets. The connection between the wire 45 and either pawl may be readily destroyed by lifting the wire from the pawl, after which the pawl may be folded rearwardly against the face of the handle, when the ring 45, slidably arranged upon the handle, may be slid over the pawl to hold it in that position. The other pawl may be then moved into engagement with its ratchet, and the wire 45 may be engaged therewith to hold it in this position.

In the construction of my wrench I may form a handle, with its disk, of a malleable or other casting, or I may work it from a straight bar, or may form it in any other desired manner. Also the other parts of my device may be constructed as desired and from whatever material I may deem proper at the time.

In Fig. 3 of the drawings I have shown a handle 55, having a disk 50 at one end, carrying ratchets 51 and 52, provided with jaws, as in the construction shown in Figs. 1 and 2 of the drawings. Pivoted to the handle 55 and at each side thereof is a pawl 53, adapted to engage their respective ratchets. In this form I have shown means for holding the pawls in engagement with their ratchets, which means consists of a plate 56, pivotally mounted upon a pin 57, carried by the disk 50, intermediate the head of which pin and the plate 56 is a helical spring 58, bearing at one end upon said plate and at the other upon the head of the pin. The plate 56 is adapted for rotation with respect to the pin 57, and thus may be moved into or out of engagement with its respective pawl, and when in engagement will permit riding of the pawl over its ratchet.

It will be seen that when desired both pawls may be engaged with their ratchets to form a rigid wrench.

In Fig. 4 of the drawings I have shown a

construction in which the ratchet-wheel 9' is provided with an integral projection 10' on one face thereof, which projection has an angular recess 11' therein to act as a fixed wrench. Upon the opposite face of the ratchet 9' is a second projection 12' of lesser diameter, having a smaller recess 13' therein, adapted to receive a smaller nut. This adapts the wrench for use on machinery in which only two sizes of nuts or bolt-heads are employed, making a much firmer construction and eliminating the necessity for the adjustment of the wrench-jaws of the other constructions. The pawl mechanisms in this form are the same as those shown in Figs. 1 and 2.

Having thus described the invention, what is claimed is—

1. A ratchet-wrench comprising a handle having a bearing therein, a ratchet-wheel provided with a hub journaled in said bearing, a second ratchet-wheel mounted upon said hub, a jaw at each side of the first-named ratchet and fixed with respect thereto, a second jaw adjustable with respect to each of the first-named jaws, and a pawl for each ratchet pivotally connected with the handle and adapted for engagement with its respective ratchets.

2. A ratchet-wrench comprising a handle having a bearing therein, a ratchet provided with a hub journaled in said bearing, a second ratchet mounted upon said hub and upon the opposite side of the handle from the first-named ratchet, jaws in fixed relation to said ratchets, and a movable jaw for each fixed jaw having means for moving it in the direction of its fixed jaw and for holding it at the limit of its outward movement.

3. A ratchet-wrench comprising a handle having a bearing therein, a ratchet provided with a hub journaled in said bearing, a separate ratchet mounted on said hub and movable therewith, a fixed jaw secured to and extending from each side of the first-named ratchet, a movable jaw for each fixed jaw, a guide-pin carried by each fixed jaw and adapted to play in a corresponding perforation in the movable jaw, a helical spring surrounding each pin, and engaging the inner faces of its respective jaws, clamping-bolts passed through alining perforations in the jaws and adapted to move them against the action of said springs, pawls adapted for engagement with the ratchets, means for holding said pawls in engagement with the ratchets and a slide carried by the handle and adapted to receive and hold the pawls alternately in inoperative positions.

4. A ratchet-wrench comprising a handle having a bearing therein a ratchet provided with a hub journaled in said bearing, a second ratchet mounted upon and movable with the hub, fixed jaws carried by the first-named ratchet, movable jaws adapted to cooperate with the fixed jaws, guides carried by the fixed

5 jaws and passed through openings in the movable jaws, springs surrounding said guides and engaging the jaws to hold them normally separated, clamping means carried by the jaws, pawls pivoted to the handle and having means for holding them in inoperative positions, and a spring passed through a perforation in the handle and having its opposite ends encircling the jaws and adapted for en-

gagement with the pawls to hold them in contact with their respective ratchets. 10

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JEREMIAH ASBURY.

Witnesses:

A. HUTCHIN,
GEO. R. WILSON.