No. 894,641. PATENTED JULY 28, 1908.

A. J. HIGBEE.

RATCHET WRENCH.

APPLICATION FILED MAR. 25, 1908.

Fig. 1.

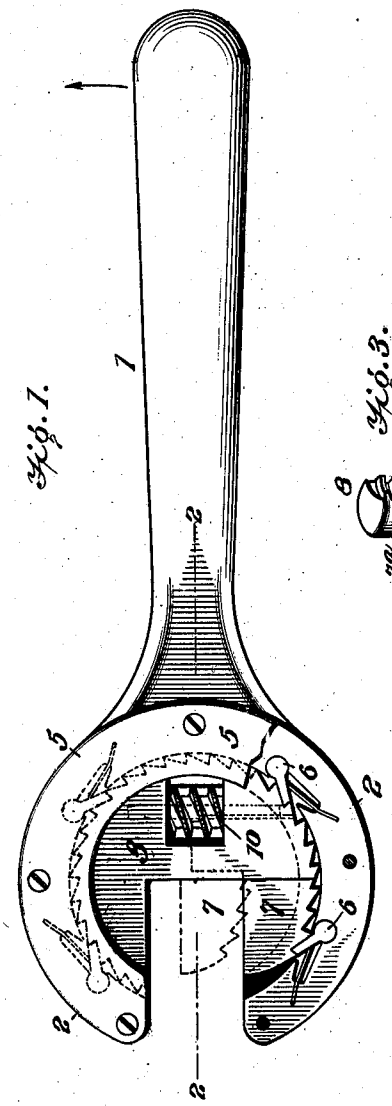


Fig. 4.

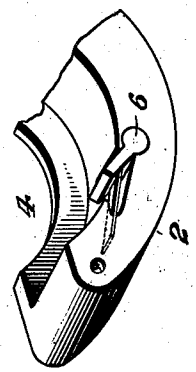


Fig. 3.

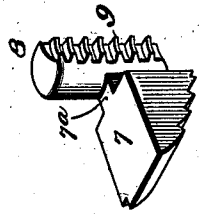
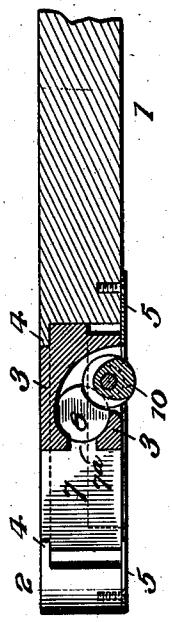


Fig. 2.



Witnesses

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RATCHET-WRENCH.

No. 894,641. Specification of Letters Patent. Patented July 28, 1908.

Application filed March 25, 1908. Serial No. 423,132.

To all whom it may concern:

Be it known that I, ARTHUR JAMES HIGBEE, a citizen of the United States, and a resident of Callaway, in the county of Custer and State of Nebraska, have invented an Improvement in Ratchet-Wrenches, of which the following is a specification.

My invention is an improvement in that class of ratchet wrenches in which a handle is provided with an enlarged head having a circular cavity which receives a rotating block provided with a recess adapted to receive a nut and also a movable jaw forming one side of such recess.

The details of construction, arrangement, and combination of parts are as hereinafter described, and illustrated in the accompanying drawing, in which

Figure 1 is a plan view of my improved wrench, a portion being broken away to show the interior construction. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the movable jaw and its toothed shank that in practice engages a worm for adjusting the jaw. Fig. 4 is an inner perspective view of a portion of the circular head of the wrench.

1 indicates the handle, and 2 the horns of the head of the wrench, which are curved upon the arc of a circle. A rotatable block 3 is arranged in the circular opening in the head. Both the block and head are cut out on one side to form a recess adapted to receive a nut. The portion cut out of the block leaves a right angular notch, one side of which forms a jaw and the other has a groove as hereinafter described. The circular cavity in the head 2 is provided on one side with a flange or shoulder 4, as shown in Figs. 2 and 4, and the block 3 is rabbeted to fit against such flange or shoulder. A curved plate 5 is secured by screws to the face of the head and overlaps the edge of the block 3. Thus the latter is held rotatably between the integral flange or shoulder 4 of the head and the detachable plate 5 secured thereto. The block and also the movable jaw 7 are provided with ratchet teeth running in one direction and these teeth are engaged on opposite sides of the head 2 by four spring pawls 6. By this construction the block 3 is prevented from rotating backward, but may be rotated forward or in the opposite direction. The pawls are so located or spaced with reference to each other and the teeth of the block 3 that three of them will be engaged simultaneously. The pawls are so pivoted that they are practically tangential to the ratchet block and thus pressure upon them does not tend so much to spread the horns of the head as would be the case if they were set or arranged more nearly radial in position. The plate 5 holds the block 3 and pawls 6 in place, but is adapted to be readily detached so that access may be had to the underlying parts when necessary.

The movable jaw 7—see Figs. 1 and 3—is provided with a shank 8 which is arranged at right angles to its face and provided on one side with teeth 9 adapted to engage a worm 10 which is journaled in a recess in the block and which projects from the face thereof. The edges of the spiral rib of the worm are milled, or roughened, so that the worm may be easily rotated by contact with the thumb or other finger of the hand. The cylindrical shank 8 is adapted to slide in the corresponding groove formed parallel to the straight edge of the block on which the jaw 7 may be adjusted toward or from the opposite and fixed jaw of the block, so as to clamp a nut or other rotatable object between the jaws. The jaw proper 7, and the shank 8 are connected by a narrow portion or neck 7^a—see Figs. 2 and 3—and since the shank 8 is of greater diameter, it holds the jaw rigidly in required position while the same is adapted to slide in the groove formed in the straight edge of the block. In other words, by rotating the worm 10 in one direction or the other, the movable jaw may be advanced from a position shown by full lines, Fig. 1, or it may be moved back from the advanced position shown by dotted lines in said figure. When the tool has been applied to a nut, that is to say, when the movable jaw has been advanced to clamp the nut between it and the opposite side of the block 3, the wrench is operated by turning the handle in the direction indicated by the arrow, Fig. 1, whereby the head 2 of the wrench is carried part way round the block 3, and then, upon bringing the handle back, the block is rotated and with it the nut to which the wrench has been applied. In other words, by applying the wrench to the nut and then oscillating the handle 1, the nut may be rotated intermittently, until it has been screwed home.

What I claim is:

In a wrench of the class indicated, the combination with the head having horns curved upon the arc of a circle, and a ratchet

block having a notch whose longer edge is at a right angle to the shorter side or edge constituting a jaw, and is provided with a groove, of a sliding jaw having a toothed shank adapted to slide in said groove and also provided exteriorly with ratchet teeth, a worm arranged rotatably in the block and engaging the toothed shank, and spring pawls engaging the toothed block, as shown and described.

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Witnesses:
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