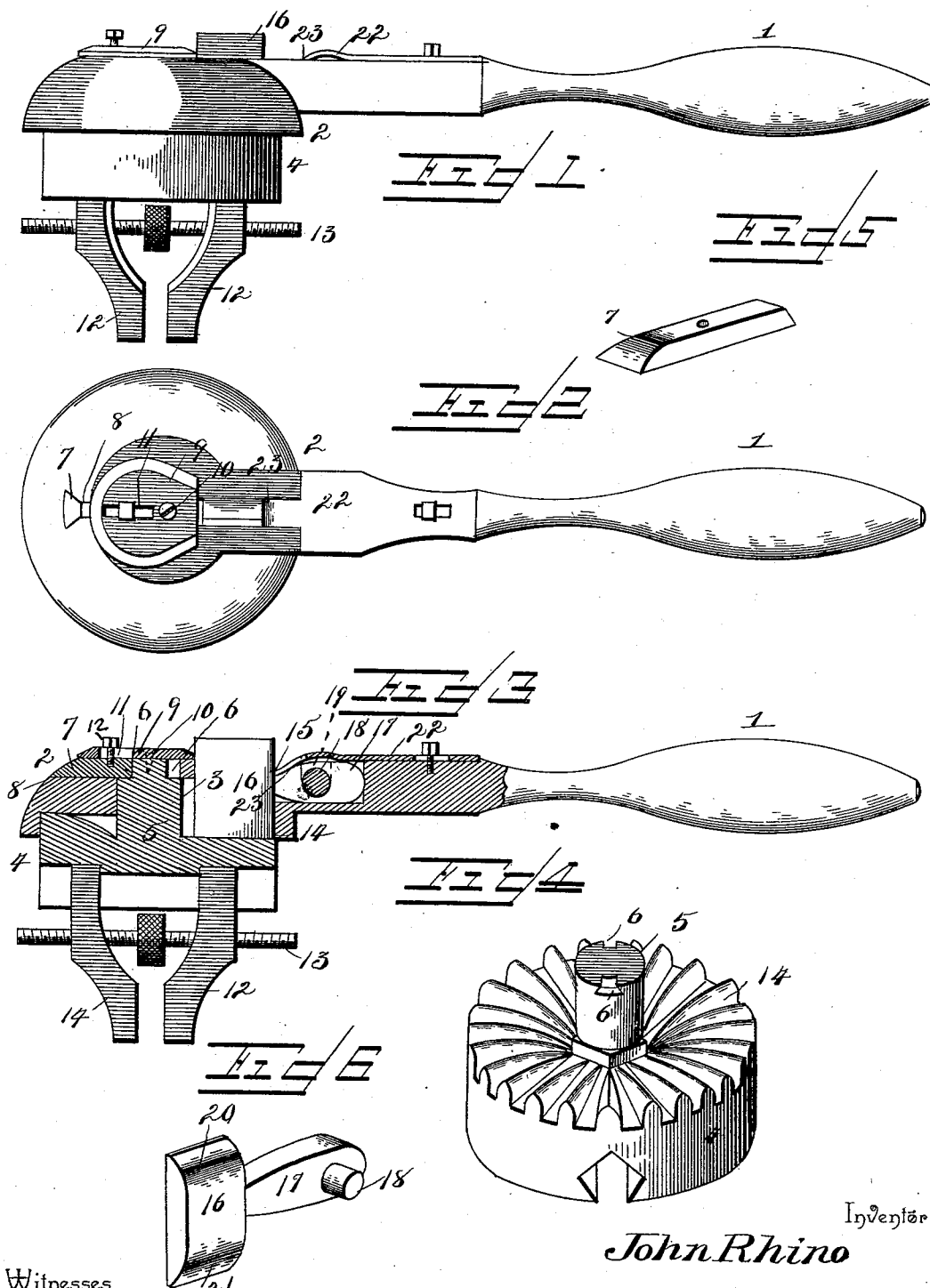


(No Model.)

J. RHINO.
RATCHET WRENCH.

No. 507,041.

Patented Oct. 17, 1893.



Inventor

John Rhino

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN RHINO, OF HECLA, MONTANA.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 507,041, dated October 17, 1893.

Application filed June 13, 1893. Serial No. 477,478. (No model.)

To all whom it may concern:

Be it known that I, JOHN RHINO, a citizen of the United States, residing at Hecla, in the county of Beaver Head and State of Montana, have invented a new and useful Ratchet-Wrench, of which the following is a specification.

My invention relates to improvements in ratchet wrenches, and it has for its objects to provide a simple, inexpensive and efficient device, which may be used to turn either right or left hand screws, or turn a right hand nut either on or off as may be desired, the adjustment being accomplished by simple and easily manipulated means; and to provide a construction whereby the rotary jaws may be locked to form a rigid or "fixed-jaw" wrench.

Further objects and advantages of my invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a side view of a wrench embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a central longitudinal sectional view. Fig. 4 is a perspective view of the rotary jaw, detached. Fig. 5 is a detail perspective view of the locking slide, detached. Fig. 6 is a similar view of the reversible pawl.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the handle to which is connected the fixed or upper jaw, 2, which is of inverted cup shape and is provided with a central bearing, 3; and 4 designates the rotary jaw which is provided with a central integral spindle, 5, mounted in said bearing, 3. The spindle is provided at its upper end with diametrically opposite notches, 6, to receive the reduced terminal of the locking slide, 7, which is fitted in a channel or way, 8, in the upper side of the fixed jaw. The cap-plate, 9, is secured to the upper end of the spindle by means of a screw, 10, and, bearing upon the upper surface of the jaw, serves to hold the spindle, and hence the rotary jaw, in place. This cap-plate is provided with a longitudinal slot, 11, through which extends a set-screw, 12, carried by the locking-slide. By means of this set-screw said slide may be

locked in any desired position, to either lock the rotary jaw or release the same. The rotary jaw carries the adjustable parts, 12—12, 55 which are slidably mounted thereon and are connected for simultaneous adjustment in opposite direction by the right and left threaded bolt, 13.

The rotary jaw is provided with a toothed 60 upper side, within the cavity of the fixed jaw, the teeth, 14, being symmetrical in cross section, or correspondingly shaped upon both sides, as shown in Fig. 4, and arranged in a recess, 15, in the fixed jaw, is the reversible 65 pawl, 16, having an arm or stem, 17, provided with lateral trunnions, 18, which fit in sockets, 19, in the sides of said recess. This pawl is provided with oppositely beveled noses, 20 and 21, either of which may be brought into 70 operative relation with the teeth of the rotary jaw by the reversal of the pawl, in order to cause the latter to rotate in either direction, as will be readily understood. Bearing upon the arm or stem of the pawl is an actuating 75 spring, 22, which is provided with a tongue, 23, extending within the recess, 15.

This being the construction of my improved wrench, the operation thereof will be readily seen by those skilled in the art. The pawl 80 may be reversed by elevating the free end of the actuating spring sufficiently to enable it to be removed from the recess 15, said spring normally holding it in place and in operative position. To lock the rotary jaw 85 against movement in order to form a rigid jaw wrench, the locking slide is moved backward until its reduced terminal engages one of the notches in the upper end of the spindle, when the slide is secured by means of 90 the set screw.

The simplicity, and hence cheapness and durability of the tool will be apparent without further description, and it will be obvious that various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a ratchet wrench, the combination with a fixed jaw of inverted cup shape, of a rotary

jaw provided on its upper side with radial teeth which are arranged within the cavity of the fixed jaw, and a reversible pawl pivotally connected to the fixed jaw to swing in a vertical plane embracing the axis of the rotary jaw and provided with oppositely beveled noses to engage said teeth, the nose of the pawl resting, in operation, upon the toothed surface of the rotary jaw, substantially as specified.

2. In a ratchet wrench, the combination of an inverted cup-shaped fixed jaw, a toothed rotary jaw provided with a central spindle fitted in a central bearing in the fixed jaw, a cap-plate fixed to the upper end of said spindle and provided with a slot, a locking-slide mounted in a guide or way in the fixed jaw and adapted to engage a notch in said spindle, a set-screw carried by said slide and fitting in the slot in the cap-plate, and a pawl carried by the fixed jaw to engage the teeth of the rotary jaw, substantially as specified.

3. In a ratchet wrench, the combination of a fixed jaw, a toothed rotary jaw mounted thereupon, said fixed jaw being provided in its upper side with a recess, a reversible pawl provided with oppositely beveled noses to rest upon and engage the teeth of the ro-

tary jaw and having an arm or stem the trunnions of which fit in sockets at opposite sides of said recess whereby the pawl swings in a vertical plane embracing the axis of the rotary jaw, and an actuating spring fixed to the handle and provided with a tongue extending into said recess and bearing upon the arm or stem of the pawl to hold the trunnions in the sockets and the free end of the pawl in operative relation with the toothed jaw, substantially as specified.

4. In a ratchet-wrench, the combination of an inverted cup-shaped fixed jaw, a toothed rotary jaw provided with a central spindle fitted in a central bearing in the fixed jaw, a cap-plate fixed to the upper end of said spindle, a locking slide mounted in a guide or way of the fixed jaw and adapted to engage said spindle, and a pawl carried by the fixed jaw to engage the teeth of the rotary jaw, substantially as specified.

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

JOHN RHINO.

Witnesses:

D. W. FAUSHE,
GEO. B. CONWAY.