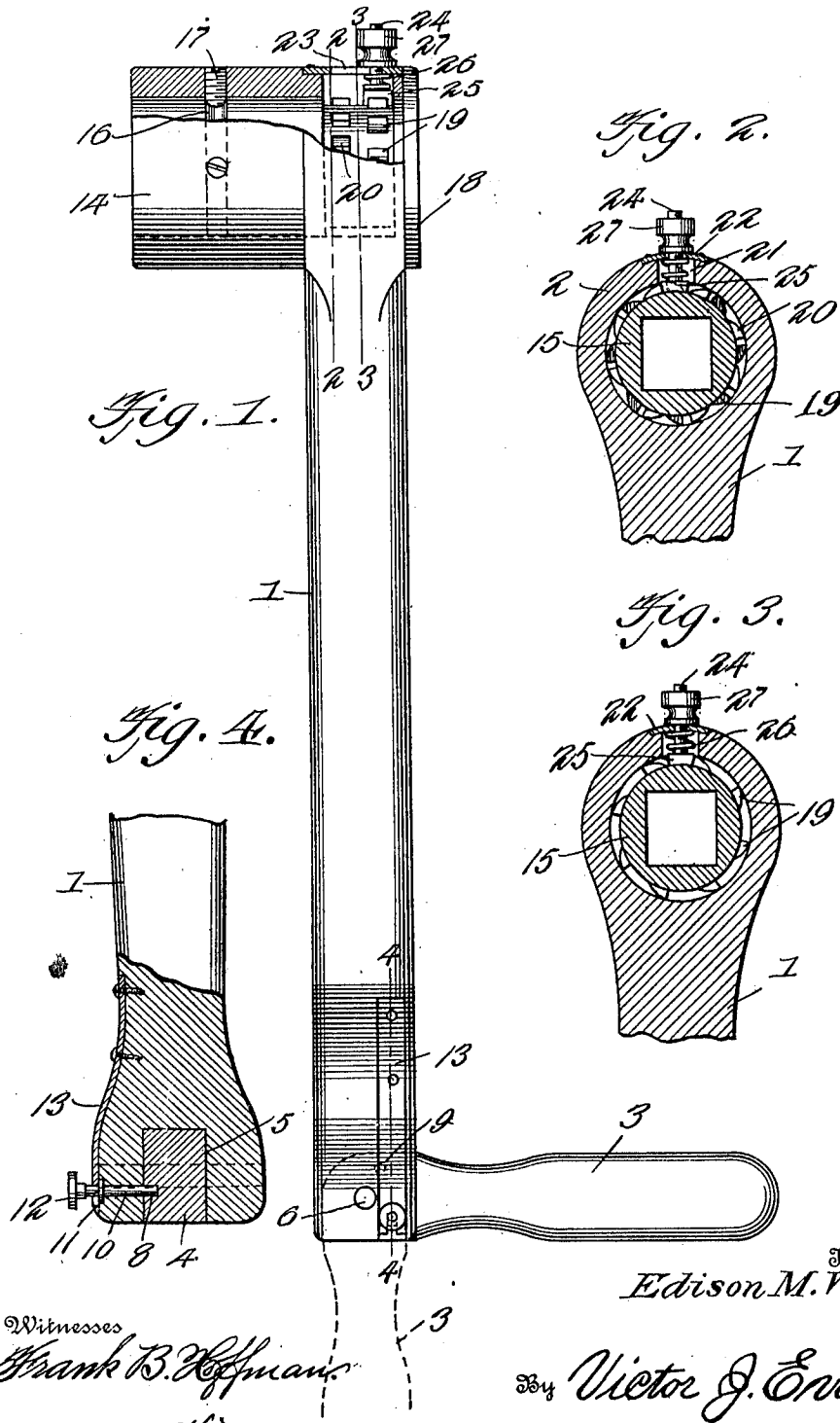


E. M. WICKER.  
 RATCHET WRENCH.  
 APPLICATION FILED OCT. 1, 1909.

984,333.

Patented Feb. 14, 1911.



Inventor  
 Edison M. Wicker

By Victor J. Evans  
 Attorney

# UNITED STATES PATENT OFFICE.

EDISON M. WICKER, OF CAMBRIDGE, MASSACHUSETTS.

## RATCHET-WRENCH.

984,333.

Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed October 1, 1909. Serial No. 520,481.

*To all whom it may concern:*

Be it known that I, EDISON M. WICKER, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to ratchet wrenches, the object of the invention being to provide a wrench which may be operated to turn a nut or other object in either direction, and which embodies a novel construction of operating handle which may be arranged in longitudinal alinement with or at an angle to the bar or shank of the wrench.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing in which:—

Figure 1 is a plan view, partially in section, of a ratchet wrench embodying my invention. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring to the drawing, my improved wrench comprises an operating shank or bar 1, provided at its outer end with a circular head or bearing sleeve 2 and at its inner or rear end with an actuating crank or handle 3. The said handle 3 is provided with a tongue or reduced end 4 which fits within a slot 5 in the end of the bar 1 and is pivotally mounted therein on a pivot pin or connection 6, so that it may be swung to a position at right angles to the bar as shown in full lines in Fig. 1, or in alinement with the longitudinal axis of the bar, as shown in dotted lines in said figure, thus disposing it for convenient use under different conditions of service. Formed in the tongue 4 are spaced seats or recesses 8 and 9 adapted to be engaged by a locking pin 10 slidably movable upon the bar and provided with a shoulder 11 and a finger piece 12. Secured to the bar is a spring strip 13 having a forked free end engaging the pin between said shoulder and finger piece and normally serving to hold the pin in locking position. By means of this locking device the handle 3 may be fixed in either of its operative positions, as will be readily understood.

A socket 14 is fixed to and extends laterally from the bearing head 2 and receives a

circular jaw or chuck 15 provided with an annular groove 16 receiving the inner ends of retaining pins or screws 17 mounted on the socket, whereby the chuck is held against longitudinal displacement, while permitted to have rotary motion, the groove being wide enough, however, to permit the chuck to have a limited longitudinal sliding motion. One end of the chuck extends through the head 2 and is provided with an annular stop flange 18 bearing against the side of the head opposite the socket 14, and on the portion of the chuck inclosed within the head are two annular sets of ratchet teeth 19 and 20, having their acting faces projecting in reverse directions.

The forward portion of the head 2 is formed with a transverse slot 21 covered by a guide plate 22 in which is a slot 23. Through the slot 23 projects a screw stem 24 carrying at its inner end a dog or pawl 25 to engage the sets of ratchet teeth. A spring 26 surrounds the stem between the dog and the plate to permit the dog to have resilient movement to slide over the curved faces of the ratchet teeth with which it is engaged. A nut 27 engages the outer end of the stem and forms a finger piece by which the dog may be adjusted and the tension of the spring regulated. The chuck or jaw 15 is provided with an angular socket or passage to receive a nut or other object to be turned.

From the foregoing description, it will be understood that the actuating handle 3 may be arranged in either operative position disclosed as circumstances may require and that by means thereof the bar 1 may be oscillated to transmit intermittent rotary motion through the pawl and ratchet connection to the chuck 15. By means of the sliding engagement of the pawl with the guide plate 22, it will be apparent that the pawl may be adjusted across the surface of the toothed portion of the jaw into position for coöperation with either set of ratchet teeth. Hence, as the faces of these teeth incline in reverse directions, the pawl may be adjusted for coöperation therewith to turn the jaw or chuck in either direction when oscillatory motion is imparted to the bar 1. A simple and convenient construction of reversible ratchet wrench is thus provided which may be manufactured and sold at a low cost.

I claim:—

A ratchet wrench comprising a bar hav-

ing a laterally extending bearing portion at one end thereof, a slotted guide plate upon said bearing portion, a chuck detachably and rotatably mounted in said bearing portion  
5 and provided with sets of ratchet teeth inclined in reverse directions, a stem slidably mounted in the slotted guide plate, a dog carried by the stem and adjustable thereby for coöperation with either set of ratchet  
10 teeth, a spring surrounding the stem between

the plate and dog for yieldingly holding the dog in adjusted position, and a nut upon the stem for adjusting the same and regulating the tension of said spring.

In testimony whereof I affix my signature 15  
in presence of two witnesses.

EDISON M. WICKER.

Witnesses:

CLARENCE D. BULLERWELL,  
GEORGE E. CLARKE.