

No. 745,369.

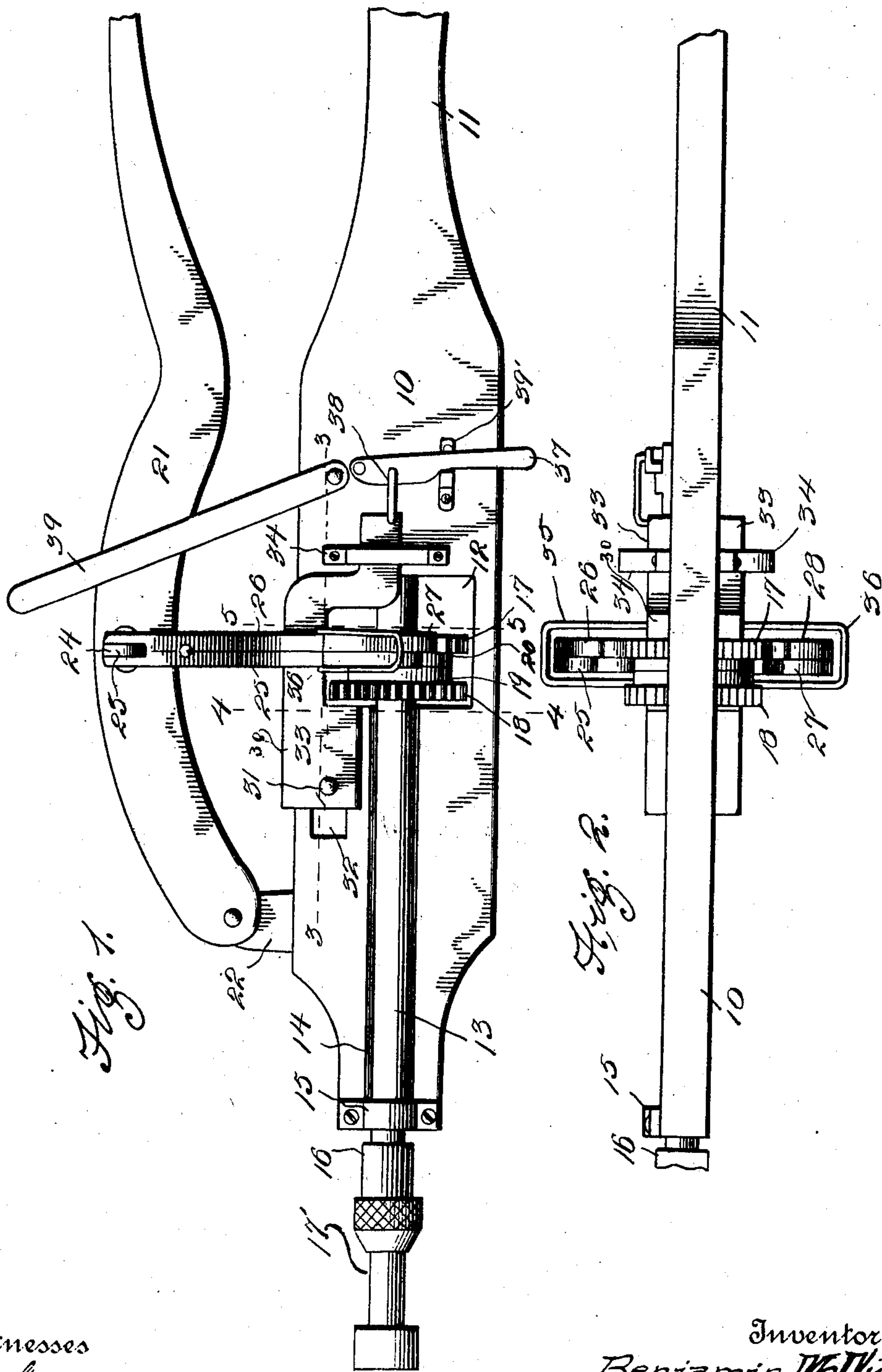
PATENTED DEC. 1, 1903.

B. McNIEL.  
WRENCH.

APPLICATION FILED JULY 17, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
*O. McInneson*  
*E. Leonard*

Inventor  
*Benjamin McNiel*  
*Charles H. Chandler* By  
Attorneys

No. 745,369.

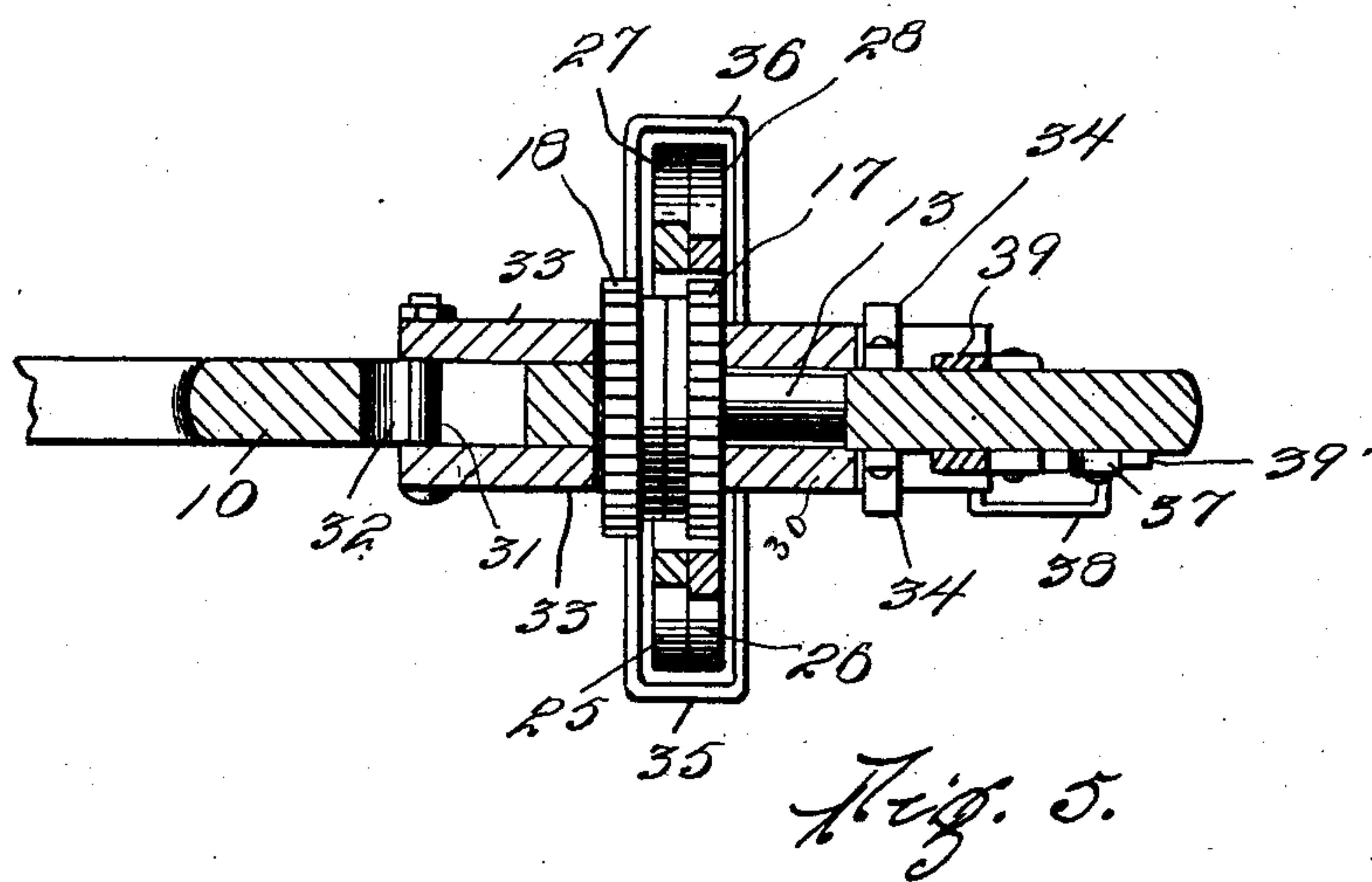
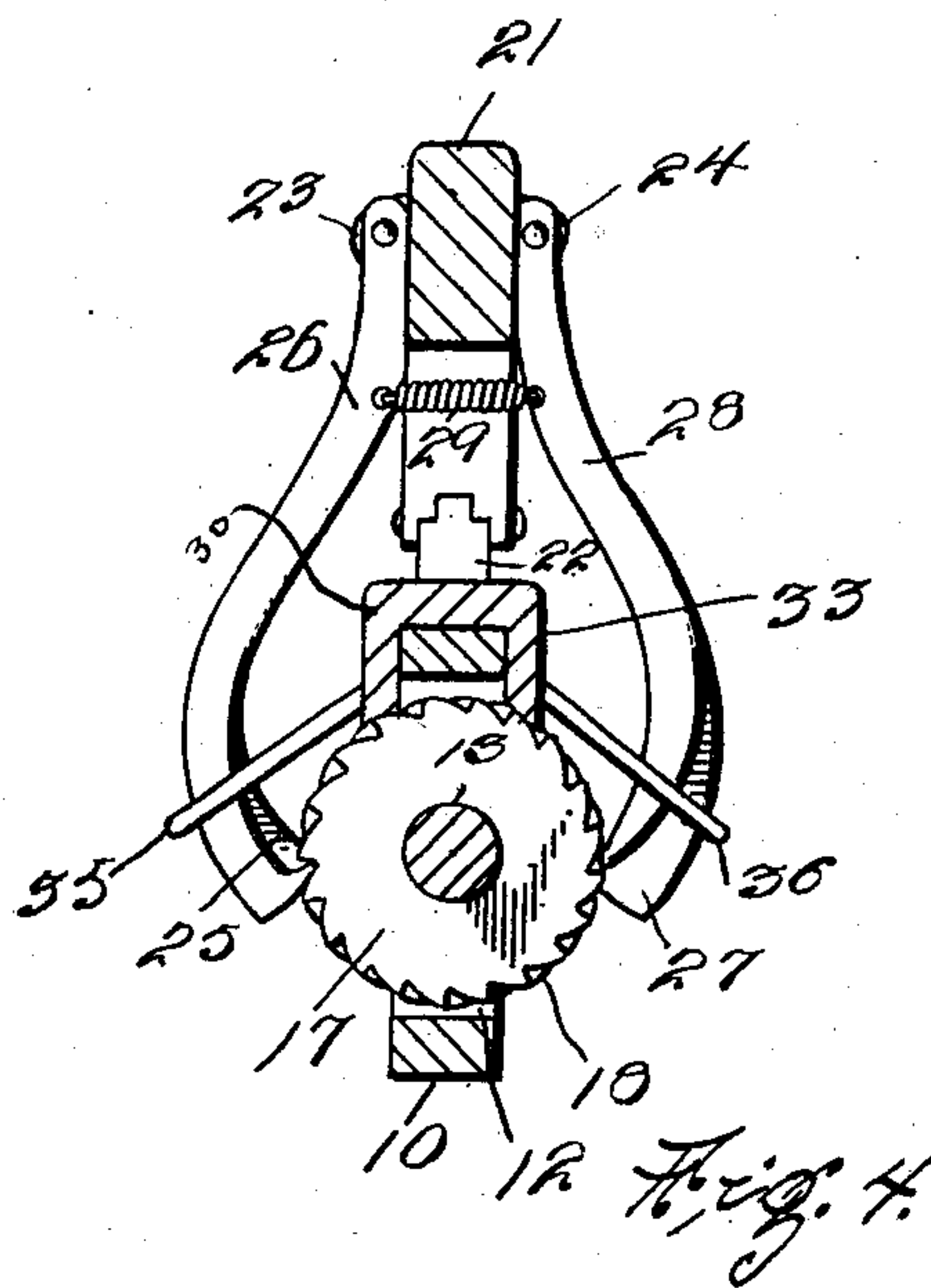
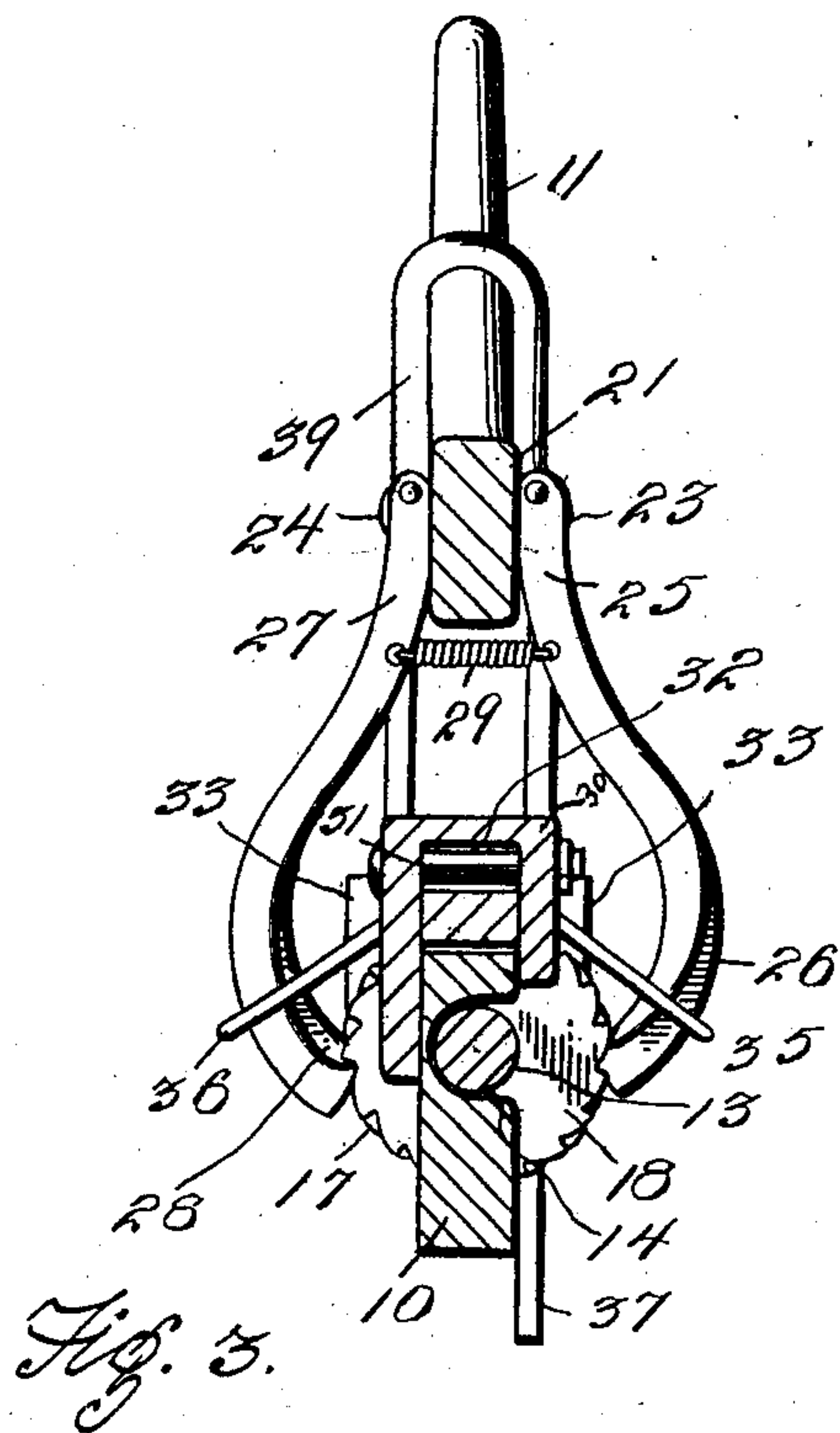
PATENTED DEC. 1, 1903.

B. McNIEL.  
WRENCH.

APPLICATION FILED JULY 17, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses  
*Wm. Simpson*  
*E. Leonard*

Inventor  
*Benjamin McNiel*  
*Charles H. Flanders*  
Attorneys



# UNITED STATES PATENT OFFICE.

BENJAMIN MCNIEL, OF HOOP, TENNESSEE, ASSIGNOR OF ONE-HALF TO  
C. H. FRIAR, OF RALPH, TENNESSEE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 745,369, dated December 1, 1903.

Application filed July 17, 1903. Serial No. 165,946. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN MCNIEL, a citizen of the United States, residing at Hoop, in the county of Claiborne, State of Tennessee, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wrenches in general, and more particularly to the class of ratchet-wrenches, although it will be understood from the following description that the principle involved may be embodied in a tool for a variety of purposes, such as for driving screws, applying and removing nuts, operating drills, and for such similar purposes where rotary motion is to be given to a bit.

The object of the invention is to provide a construction which may be operated with one hand and in which the spindle or shaft may be rotated in either direction.

Further objects and advantages of the invention will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of a tool embodying the present invention. Fig. 2 is a bottom plan view of the tool. Fig. 3 is a section on line 3 3 of Fig. 1 looking downwardly. Fig. 4 is a section on line 4 4 of Fig. 1 looking rearwardly. Fig. 5 is a section on line 5 5 of Fig. 1 looking forwardly.

Referring now to the drawings, the present tool comprises a main body portion 10, from one end of which extends a handle 11, said body portion having a transverse opening 12 therethrough, in the rear wall of which is journaled one end of a shaft 13, which extends longitudinally and forwardly of the body portion 10 and lies in the channel 14 in said body portion. At the front end of the channel 14 is a bearing 15, in which the shaft turns. At the free end of the shaft 13 is a chuck 16, which may be of ordinary form and is designed to receive a bit 17', which in the present instance is shown as a wrench-bit, although it will be of course understood that

any other specific style of bit may be engaged with the chuck, such as a screw-driver bit or a drill-bit.

Fixed upon the shaft 13 and lying in the opening 12 are two reversely-disposed ratchet-wheels 17 and 18, the hubs 19 and 20 of which are extended toward each other, so that the toothed portions of the wheels are held in spaced relation. To rotate the shaft 13 in one direction, one of the ratchet-wheels is operated, and to rotate it in the opposite direction the other ratchet-wheel is operated, there being a set of pawls for each ratchet-wheel connected with a common lever and having means for shifting the sets of pawls interchangeably into operative relation to their respective ratchet-wheels. The lever in question is a hand-lever, (shown at 21,) which is pivoted to the upwardly-directed ear 22 at the front end of the body portion 10. At opposite sides of the lever 21 are ears 23 and 24, to which are connected the pawls. Pivoted to opposite sides of the ear 23 are pawls 25 and 26, which extend downwardly and at their lower ends are curved inwardly toward the ratchet-wheels, the pawl 26 having a hook 27 at its lower end for engagement with the ratchet-wheel 17 to rotate the latter during the upward movement of the pawl, while the lower end of the pawl 25 is straight and is designed to engage the ratchet-wheel 18 during its downward movement to rotate the latter in the opposite direction to the rotation of the ratchet-wheel 17 by the pawl 26, the connection of these pawls to the ear 23 being sufficiently loose to permit of lateral swinging of the lower ends of the pawls 25 and 26 into and out of engagement with their respective ratchet-wheels interchangeably.

Pivoted to the ear 24 are pawls 27 and 28, of which the pawl 27 has a hook at its lower end for engagement with the ratchet-wheel 18 during the upward movement of the pawl, and the pawl 28 has a straight lower end for engagement with the ratchet-wheel 17 during the downward movement of the pawl. To hold the pawls yieldably inwardly to engage their respective ratchet-wheels when they are in proper positions of their lateral adjustments, a helical spring 29 connects the pawls



at one side of the lever with the pawls at the other side. The pawls 27 and 28 have also sufficient lateral movement at their lower ends to permit them to be swung so that when  
 5 one pawl is in engagement with its ratchet the other pawl will be out of engagement with its ratchet. The interspace between the toothed portions of the ratchet-wheels is sufficiently broad to receive the inactive pawls.

10 Mounted upon the body portion 10 is a shifting slide 30, the forward end of which is held to the body portion by means of the transverse bolt 31, which engages in the corresponding slot 32 in said body portion, the rear  
 15 end of the slide having the arms 33 lying at opposite sides of the body portion and extending rearwardly at their extremities through the guides 34 at the sides of the body portion. From opposite sides of the shifting  
 20 slide project loops 35 and 36, which inclose the pawls at the corresponding sides of the body portion, so that when the shifting slide is moved the lower ends of the pawls will be swung laterally therewith. A lever 37 is piv-  
 25 oted to the side of the body portion 10 and is connected, by means of a link 38, with an arm 33 at the same side, so that when the lever is shifted the shifting slide will be operated to swing the pawls 26 and 28 into en-  
 30 gagement with the ratchet 17 or the pawls 25 and 27 into engagement with the ratchet 18.

A guide-loop 39 is provided for the lever 21, and with this construction it will be seen that with one position of the pawls the ratchet-  
 35 wheels 17 will be rotated at both the downward and upward movement of the lever 21 by action of the pawls 26 and 28, and with the pawls in the opposite position the ratchet-wheel 18 will be operated by pawls 25 and 27  
 40 from the lever 21. A stop 39' is provided for

engagement by the shifting lever to hold it in either of its two positions.

In practice modifications of the specific construction shown may be made, and any suitable materials and proportions may be used  
 45 for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A tool comprising a driven shaft, oppositely-disposed ratchet-wheels fixed upon the  
 50 shaft, a pivoted lever, a pair of pawls for each of the ratchet-wheels pivoted one at each side of the lever and adapted for active engagement with their ratchet-wheels alter-  
 55 nately as the lever is operated, and means for shifting the pairs of pawls interchangeably into active relation to their respective ratchet-wheels.

2. A tool comprising a body portion, a driven shaft mounted in the body portion, op-  
 60 positely-disposed ratchet-wheels upon the driven shaft, a pivoted lever, a pair of pawls for each of the ratchet-wheels pivoted one at each side of the lever and adapted for active engagement with their ratchet-wheels alter-  
 65 nately as the lever is operated, a shifting slide mounted upon the body portion and having arms connected with the pawls for shifting the pairs of pawls interchangeably into active relation to their respective ratchet-  
 70 wheels, means for operating the shifting slide, and means for holding the shifting slide in different positions.

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

BEN. MCNIEL.

Witnesses:

J. M. RILEY,  
 J. A. COLEMAN.