

June 19, 1923.

1,459,583

O. E. EDSTROM

ADJUSTABLE WRENCH

Filed April 27, 1921

2 Sheets-Sheet 1

FIG. 1

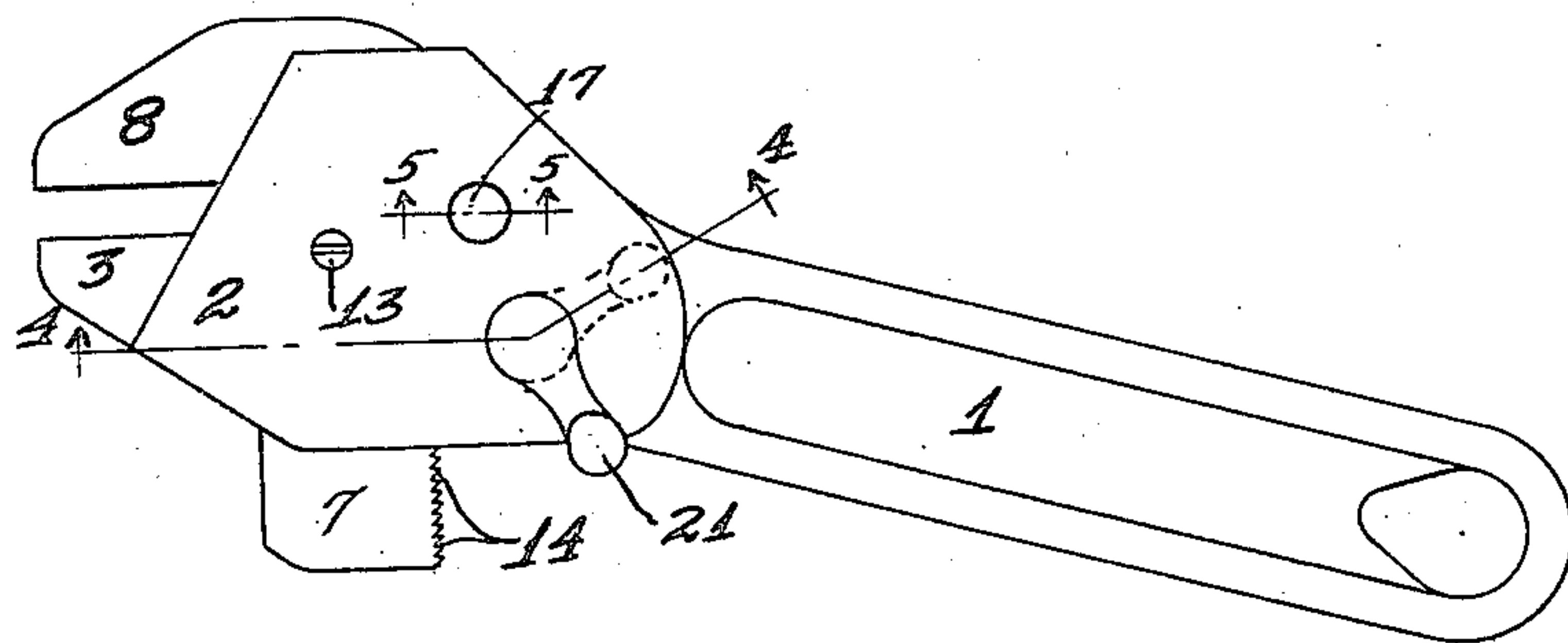


FIG. 2

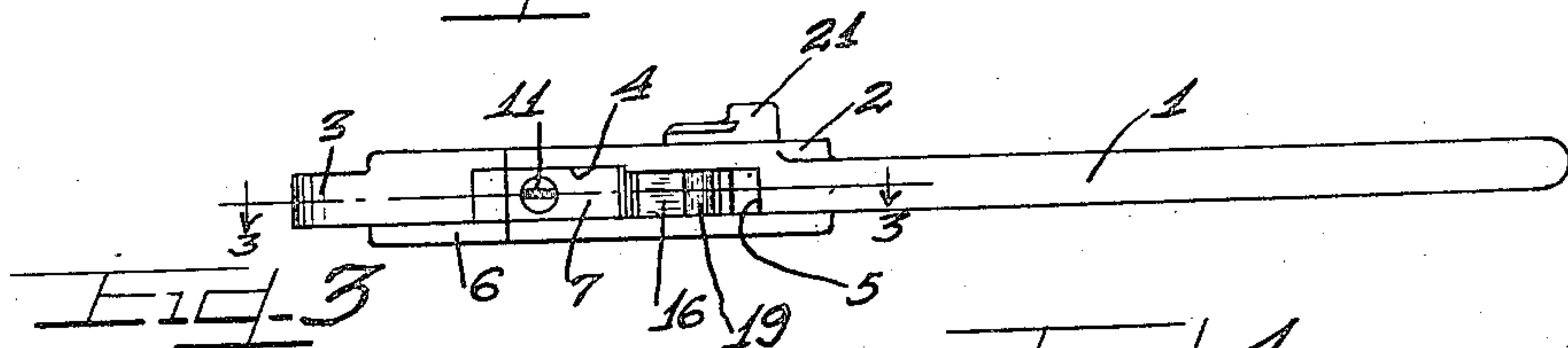


FIG. 3

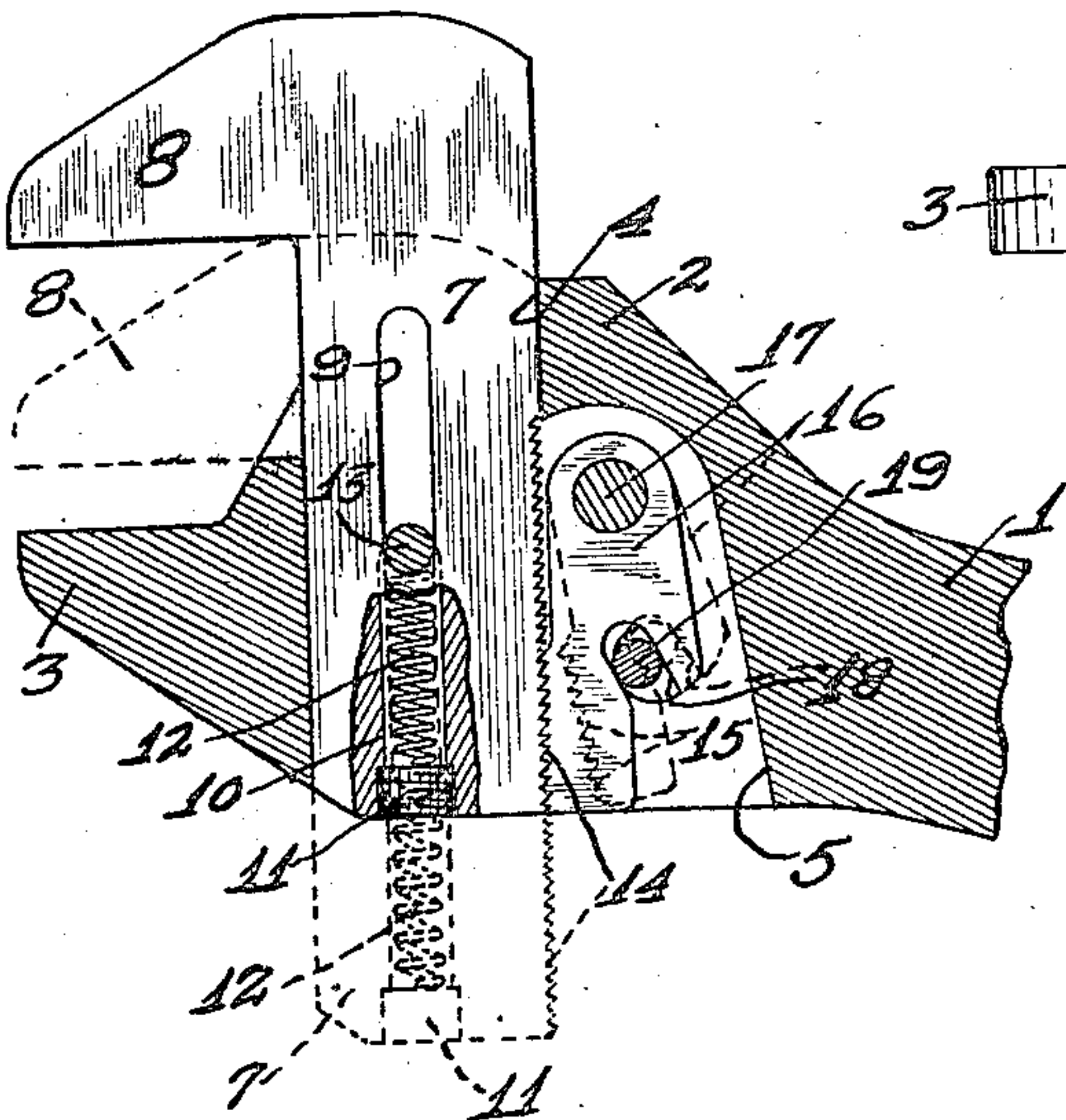


FIG. 4

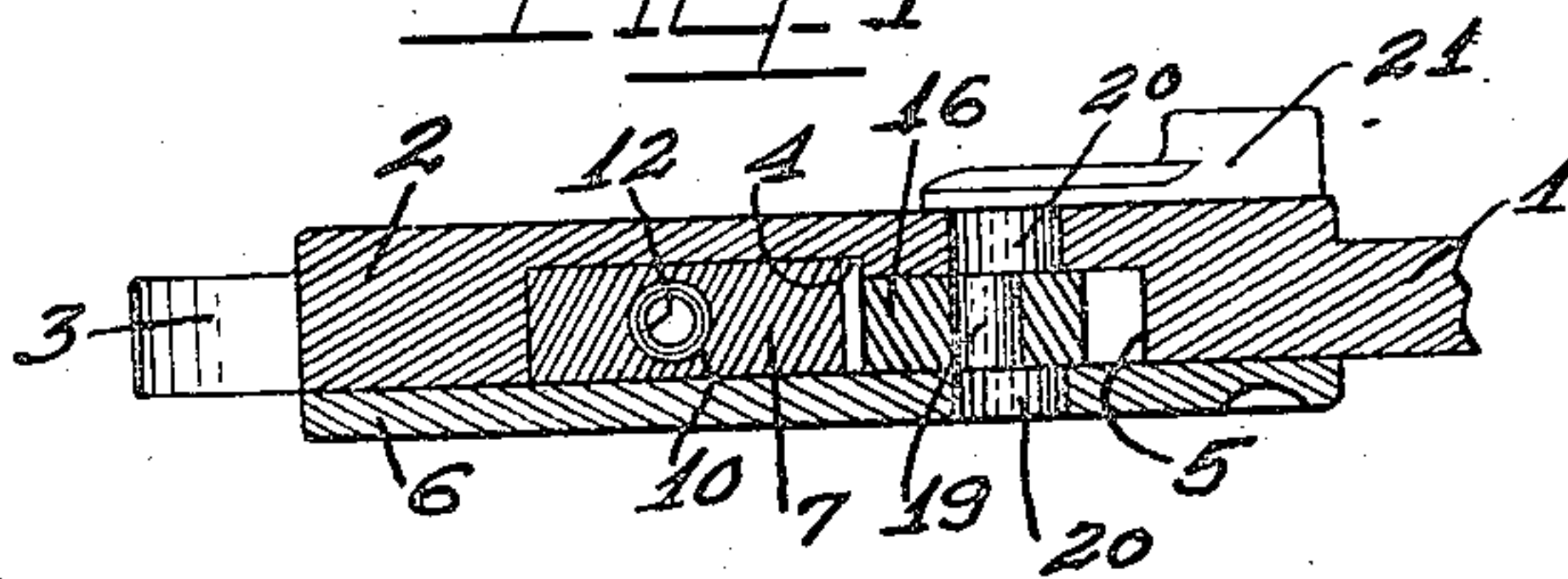


FIG. 5

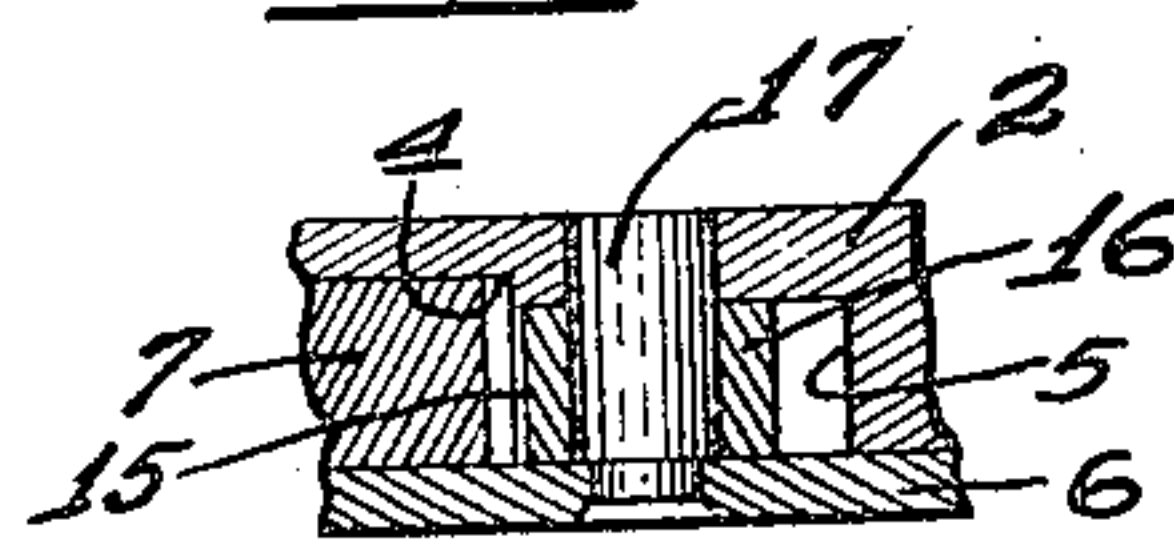
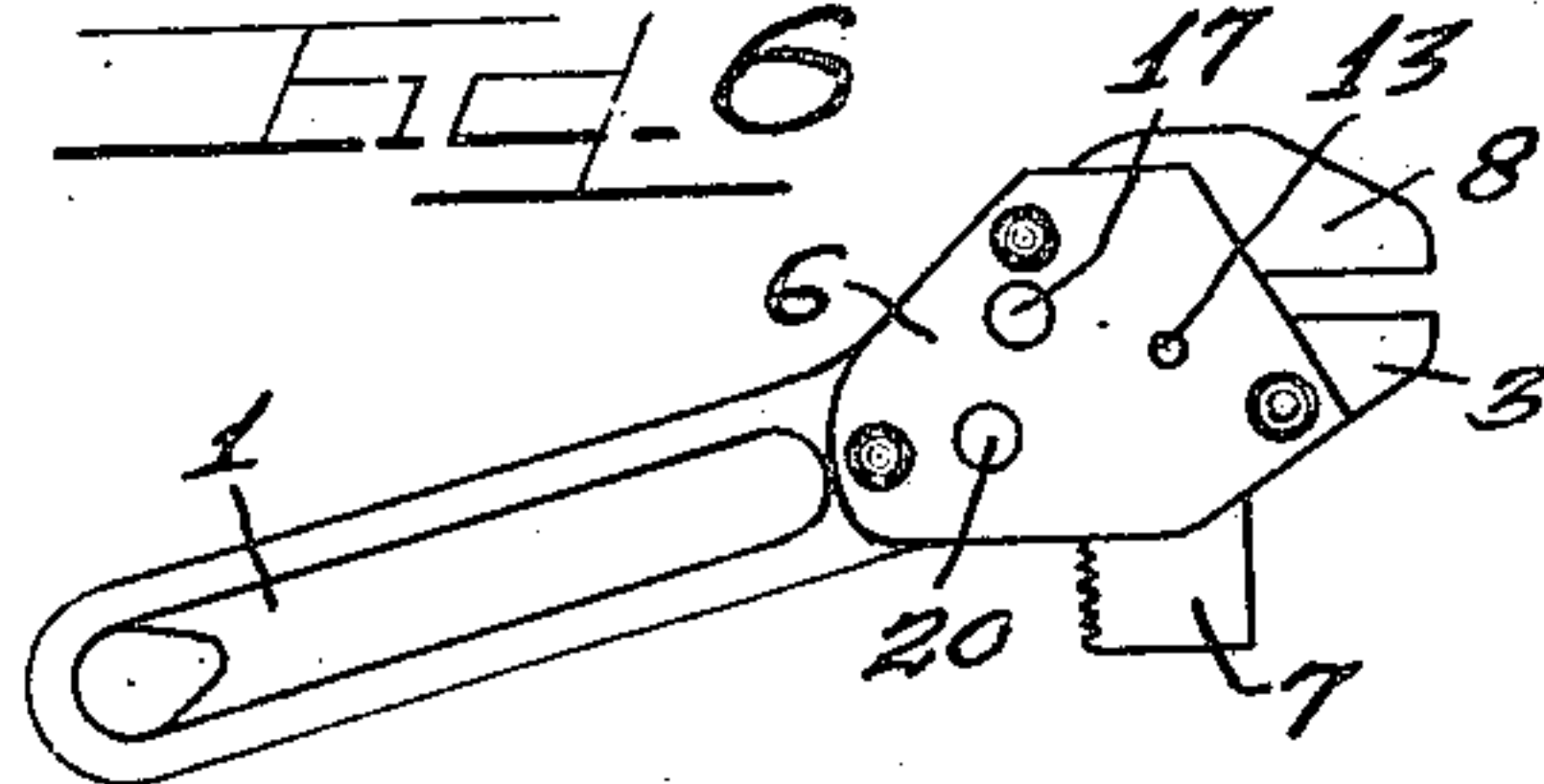


FIG. 6



WITNESSES

Rudolph J. Berg.
Charles W. Hill

By

INVENTOR
OTTO E. EDSTROM.

Charles W. Hill
Atty.

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O. E. EDSTROM

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2 Sheets-Sheet 2

Fig. 7

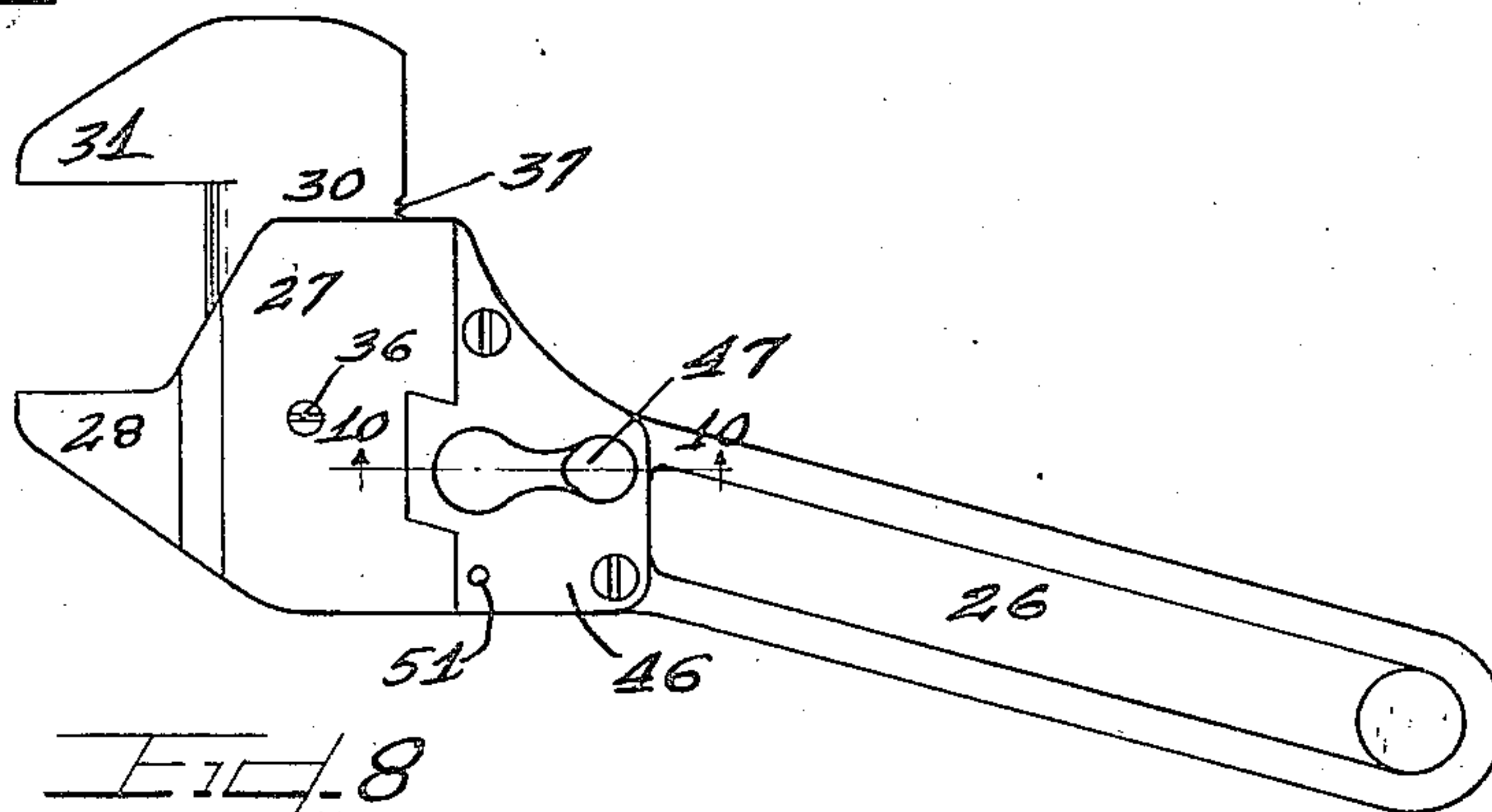


Fig. 8

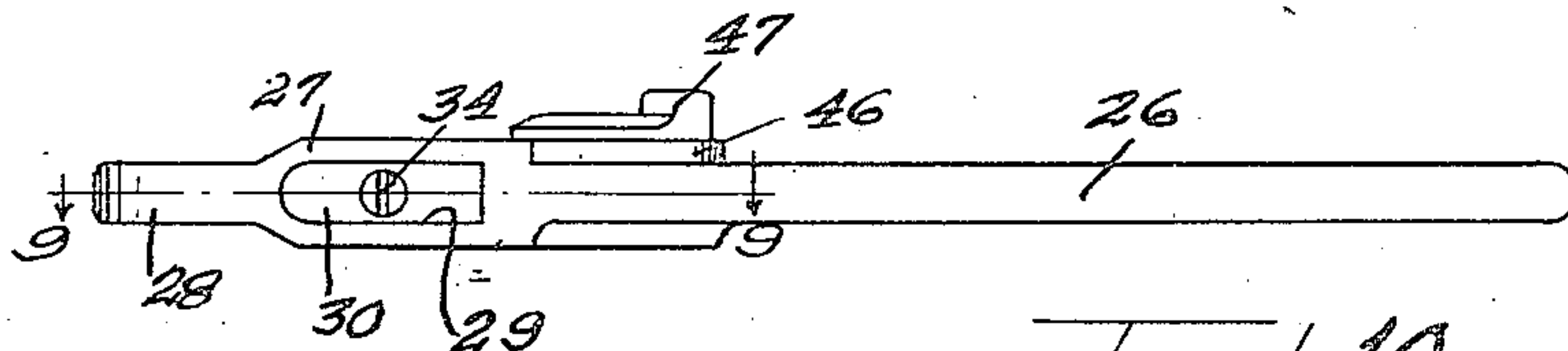


Fig. 9

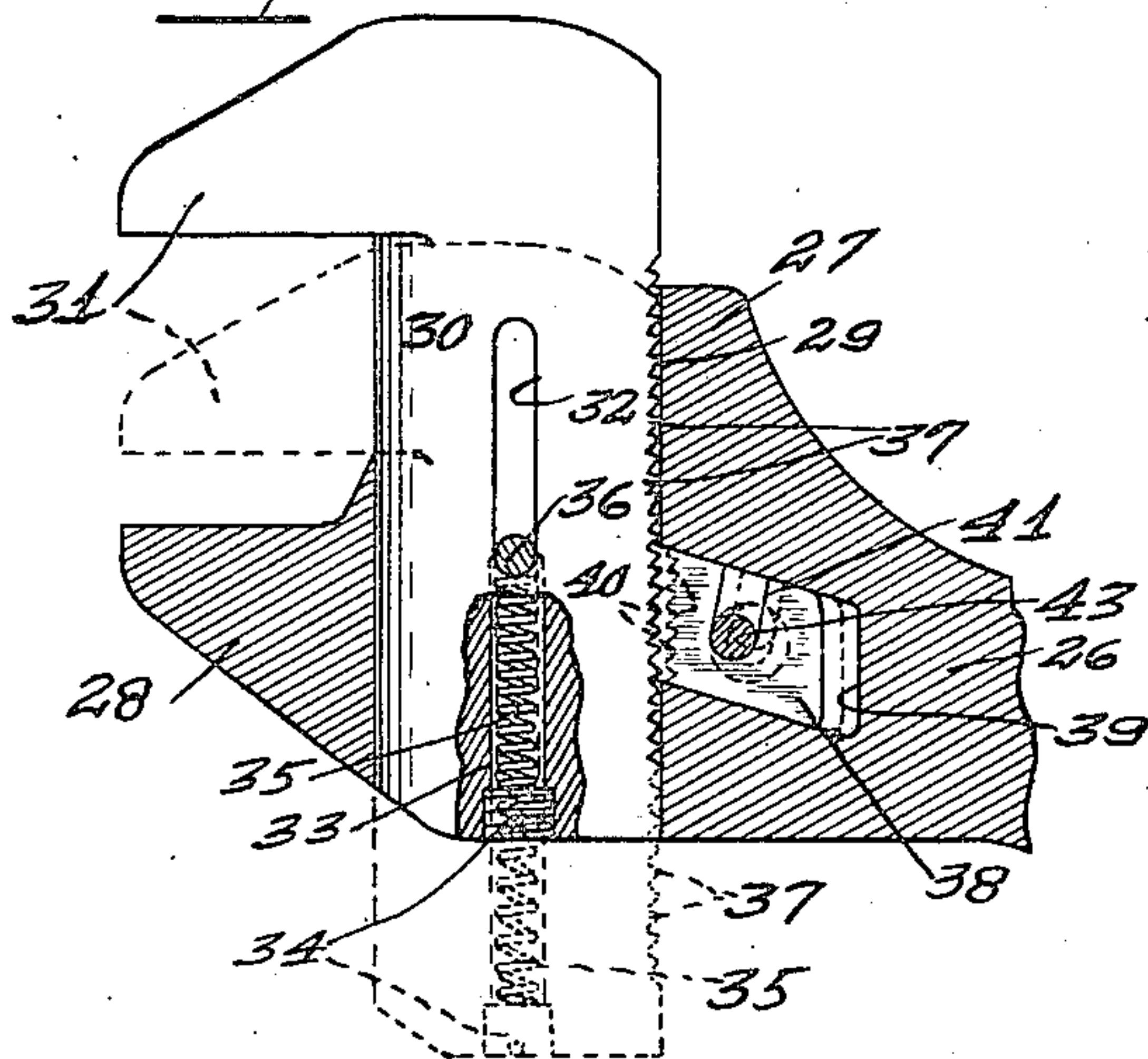


Fig. 10

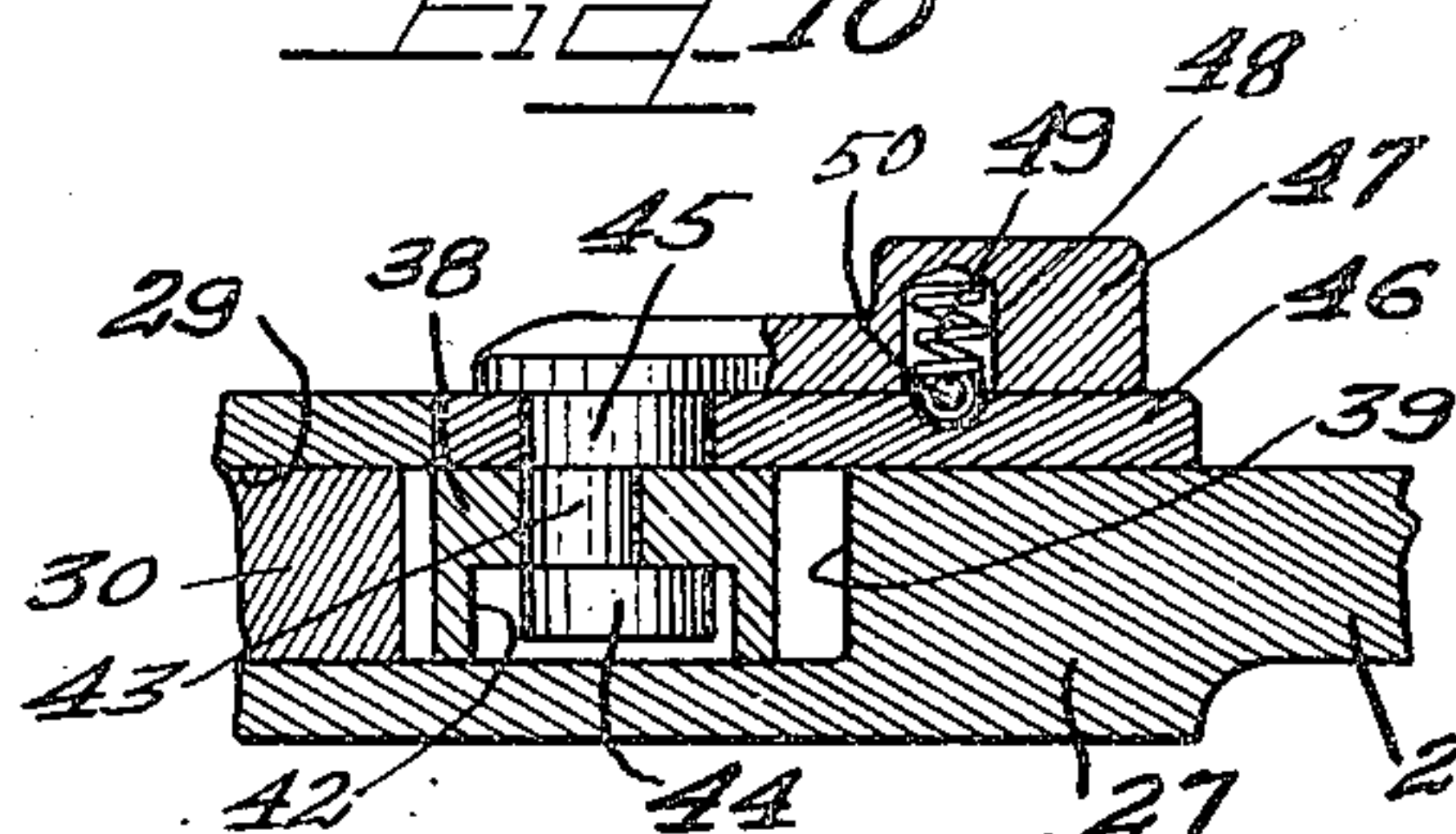
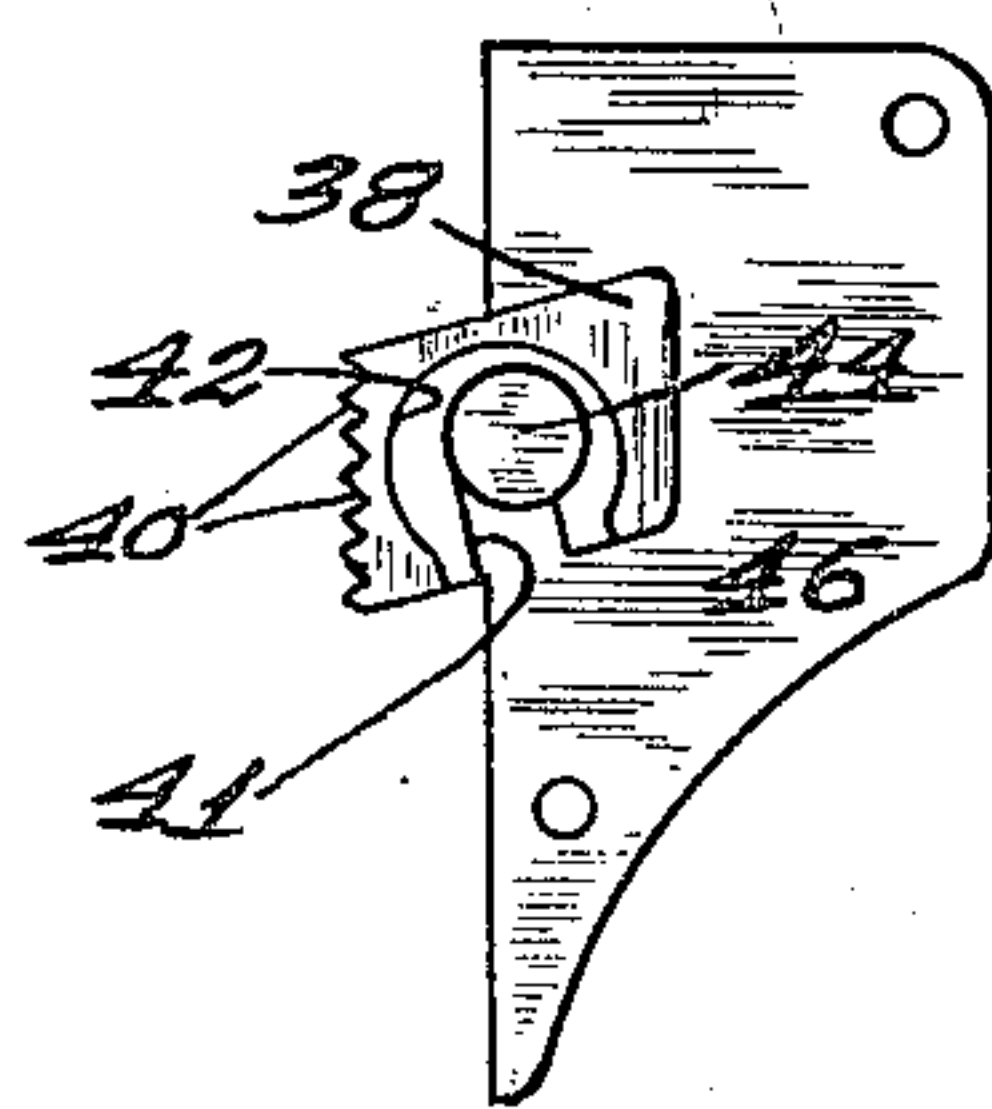


Fig. 11



WITNESSES

Rudolph J. Berg,
Charles W. Hill, Jr.

INVENTOR

OTTO E. EDSTROM.

By

Charles W. Hill, Jr. Att'y.

UNITED STATES PATENT OFFICE.

OTTO E. EDSTROM, OF CHICAGO, ILLINOIS.

ADJUSTABLE WRENCH.

Application filed April 27, 1921. Serial No. 464,863.

To all whom it may concern:

Be it known that I, OTTO E. EDSTROM, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in an Adjustable Wrench; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

The invention pertains to an adjustable wrench of improved construction wherein a spring impelled slidable clamping jaw is adapted to be removably locked in an adjusted position by an eccentrically operated toothed pawl.

It is an object of this invention to provide a wrench the adjustable jaw of which is adapted to be locked in a set position with respect to a stationary jaw.

It is also an object of the invention to construct an adjustable wrench wherein a locking pawl is adapted to be actuated by means of an eccentric.

A further object of the invention is the construction of a wrench the slidable jaw of which is adapted to be automatically moved into clamping position by a compressed spring disposed axially therein.

Another object of this invention is to provide a wrench wherein a spring controlled adjustable jaw is adapted to be locked in an adjusted position by a toothed pawl which is adapted to be moved into position by means of a lever operated eccentric to lock with teeth formed on the adjustable jaw.

It is an important object of this invention to provide a wrench of simple, inexpensive and effective construction wherein a lever operated eccentric is adapted to be operated to cause release of an adjustable jaw having a spring therein for automatically moving and holding the adjustable jaw in contact with a stationary jaw integrally formed on the wrench handle.

Other and further important objects of this invention will be apparent from the disclosures in the specification and drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of a wrench embodying the principles of this invention.

Figure 2 is a bottom plan view thereof.

Figure 3 is an enlarged fragmentary detail section taken on line 3—3 of Figure 2 showing parts in elevation.

Figure 4 is an enlarged detail section taken on line 4—4 of Figure 1.

Figure 5 is an enlarged detail section taken on line 5—5 of Figure 1 showing parts in elevation.

Figure 6 is a reduced elevation of the opposite side of the wrench.

Figure 7 is a side elevation of a modified form of an adjustable wrench.

Figure 8 is a bottom plan view thereof.

Figure 9 is an enlarged sectional view taken on line 9—9 of Figure 8 and showing the operation of the adjustable jaw in dotted lines.

Figure 10 is an enlarged fragmentary detail section taken on line 10—10 of Figure 7 showing parts in elevation.

Figure 11 is an inner elevation of the radiator plate showing the eccentric and latching pawl associated therewith.

As shown on the drawings:

The reference numeral 1 indicates a wrench lever or handle having integrally formed on one end thereof an enlarged head 2 on the outer end of which a main or stationary jaw 3 is integrally formed. One side of the head 2 to the inside of the stationary jaw 3 is milled to provide a slot 4. Also cut in the head 2 and communicating with the slot 4 is a latch or pawl recess 5. Spot welded or otherwise rigidly secured to the open side of the wrench head 2 is a metal plate 6, which closes the slots or openings 4 and 5.

Slidably projecting through the slot 4 of the wrench head 2 is the shank or stem 7 of a movable wrench jaw 8, which is adapted to coact with the stationary wrench jaw 3. The jaw shank 7 is provided with a longitudinal slot 9, one end of which communicates with the inner end of a passage 10 provided in the wrench shank 7 in alignment with the slot 9. The outer end of the passage 10 is enlarged and is closed by means of a screw plug 11. Engaged in the passage 10 is a coiled spring 12, the outer end of which rests on the screw plug 14, while

the inner end contacts a stationary screw pin 13 which projects through the shank slot 9 and has the ends thereof engaged in the wrench head 2 and in the plate 6. The
5 spring 12 acts to move the adjustable jaw 8 toward the stationary jaw 3. The jaws are shown parallel to one another but they need not necessarily be so. Integrally formed along the inner edge of the shank 7
10 is a rack comprising a plurality of teeth 14.

To hold the adjustable jaw 8 set in a desired position the rack teeth 14 are adapted to be engaged by teeth 15 formed along one edge of a locking latch or pawl 16. The
15 locking pawl 16 is pivotally mounted within the wrench head recess 5 on a stud 17 which projects transversely through the wrench head and is held in place by having one end riveted or otherwise secured to the
20 plate 6, as shown in Figure 5. The pivoted locking pawl 16 is provided with a notch 18 to permit the pawl to engage over an eccentric pin 19, the ends of which are secured eccentrically to a pair of circular disks or
25 plates 20. The plates 20 are rotatable in openings provided in the wrench head 2 and in the plate 6. Integral with one of the plates 20 is a locking lever or crank 21 which lies adjacent the outer surface of the
30 wrench head 2.

Figures 7 to 11 illustrate a modified form of an adjustable wrench embracing a lever or handle 26 having a head 27 integrally formed on one end thereof. The head 27 is
35 provided with an integral jaw 28. A slot 29 is provided in the wrench head 27. Slidably projecting through the slot 29 is a shank or stem 30 of an adjustable wrench jaw 31 which is adapted for coaction with
40 the stationary wrench jaw 28. The jaw shank 30 is provided with a longitudinal slot 32, one end of which communicates with the inner end of a passage 33 provided in the wrench shank 30 in alignment with the
45 slot 32. The outer end of the passage 33 is enlarged and is closed by a screw plug 34. Engaged in the passage 33 is a coiled spring 35, the outer end of which rests on the screw plug 34 while the inner end contacts a sta-
50 tionary screw pin 36 which projects through the shank slot 32 and has the ends thereof engaged in the wrench head 27. The spring 35 acts to move the adjustable jaw 31 toward the stationary jaw 28. Integrally formed
55 along the inner longitudinal edge of the jaw shank 30 is a rack comprising teeth 37.

The adjustable jaw 31 is held locked in an adjusted position by means of a locking
60 latch 38. The latch 38 is slidably engaged in an inclined recess 39 provided in the wrench head 27 to the inside of the jaw shank slot or opening 29 with which it communicates. Teeth 40 are formed at one end of the slidable latch 38 and are adapted to
65 engage the rack teeth 37 to hold the jaw 31

locked in a predetermined position of adjustment. The latch 38 is provided with a transverse notch or opening 41 and with an enlarged recess 42 in one side of the latch. Rotatably engaged in the latch notch 41 is
70 an eccentric pin 43 having circular heads or plates 44 and 45 integrally formed on the ends thereof. The head 44 is engaged in the latch recess 42, while the head 45 is rotatable in an opening provided in a closure plate 46
75 which is secured by means of screws to one side of the wrench head 27 to close the recess 39. Integral with the head 45 is one end of a lever or crank 47 for operating the eccentric to cause movement of the locking latch
80 38 into and out of locking engagement with the rack 37 of the adjustable jaw shank 30. The lever 47 is provided with a recess 48 in which a coiled spring 49 is engaged. The outer end of the spring 49 rests on a ball 50
85 which is adapted to be forced by the spring 49 to seat in a spherical recess 51, provided in the outer surface of the closure plate 46, when the lever 47 is moved to force the latch
90 38 into locking position.

The operation is as follows:

In the type of adjustable wrench illustrated in Figures 1 to 6 inclusive the spring 12 normally acts to hold the movable jaw 8
95 in the dotted line position of Figure 3. To engage a nut the wrench is held by the handle 1 and the thumb of the hand holding the wrench is pressed against the end of the shank 7 to slide the same through the wrench head 2, thereby moving the jaw 8 away from
100 the stationary jaw 3 against the action of the spring 12. During the above operation the locking pawl 16 is in its retracted position indicated in dotted lines in Figure 3. The jaw 8 is moved outwardly a distance
105 sufficient to permit the two jaws to engage a nut. When this has been accomplished the thumb is removed from the end of the shank 7. The spring 12 acts automatically to move the jaw 8 inwardly, thereby causing
110 the nut to be clamped between the wrench jaws. The lever 21 is now operated, thereby causing rotation of the eccentric 19 which forces the pawl 16 to swing on its pivot 17 into locking position with the teeth
115 15 thereof lockingly engaging the rack teeth 14 on the jaw shank 7, as shown in full lines in Figure 3. The wrench may now be operated to turn the nut engaged between the wrench jaws. The improved wrench is a
120 one hand wrench and may be used conveniently without the use of both hands of an operator.

After the nut has been tightened or loosened, as the case may be, the lever 21
125 is moved back into normal release position. When this is done the pawl is swung out of locking engagement with the shank rack 14 by the action of the eccentric 19. As soon as the pawl is retracted the wrench jaws
130

are removed from engagement with the nut and the spring 12 acts automatically to draw the adjustable jaw 8 back into its normal position, as shown in dotted lines in Figure 3.

In the modified form of wrench illustrated in Figures 7 to 11 inclusive the one hand wrench is adapted to be operated substantially the same as the wrench disclosed in Figure 1. In this case, however, the eccentric 43 when rotated is adapted to slidably move the tooth latch 38 into locking engagement with the rack 37 of the adjustable jaw shank 30 to hold the jaw 31 locked in an adjusted position. The jaw 31 is unlocked by operation of the lever 47, which actuates the eccentric 43 to cause release of the locking latch 38. The spring 49 in the lever 47 acts to hold the ball 50 seated in one of the recesses 51 when the locking position of the latch is reached to prevent accidental release of said latch 38 from a set position.

If desired, the lever 21, illustrated in Figures 1 to 3, may be provided with a spring and ball similar to the arrangement disclosed in Figure 10.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A wrench comprising a handle, a slotted head integrally formed thereon, a jaw integrally formed thereon, a spring controlled movable jaw, a shank integral therewith and slidably engaged in said head, a rack formed on said shank, a toothed member adjustably mounted in said head, an eccentric in said head engaged by said member, and means for rotating said eccentric to cause the same to move said toothed member into locking engagement with said rack

to hold the movable jaw locked in a predetermined position.

2. A wrench comprising a handle, a slotted head thereon, a jaw on said head, a spring controlled adjustable jaw member slidably engaged with said head, a notched locking member in said head, an eccentric engaged in said notched locking member, and a lever connected with said eccentric to operate the same to cause movement of said locking member into locking engagement with said adjustable jaw member.

3. A wrench comprising a handle, a slotted head formed thereon, a stationary jaw on said head, said head having a recess therein, an adjustable jaw slidably engaged in said slotted head, a rack formed thereon, a notched pawl pivotally engaged in said recess, teeth formed on said pawl, an eccentric in said recess engaging said notched pawl, a lever connected with said eccentric for operating the same, and spring impelled means in said lever for holding the lever in a set position.

4. A wrench comprising a handle, a head formed thereon having openings in one side thereof, a plate secured to one side of said head to close said openings, a jaw formed on said head, an adjustable jaw slidably engaged in said head behind said plate, a rack formed on said adjustable jaw, a notched pawl pivotally engaged in said head behind said plate, teeth formed on said pawl, an eccentric in said head engaging said notched pawl, and a lever connected with said eccentric for operating the same.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

OTTO E. EDSTROM.

Witnesses:

FRED E. PAESLER,
JAMES M. O'BRIEN.