

W. J. STOLZ.

WRENCH.

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990,078.

Patented Apr. 18, 1911.

Fig. 1.

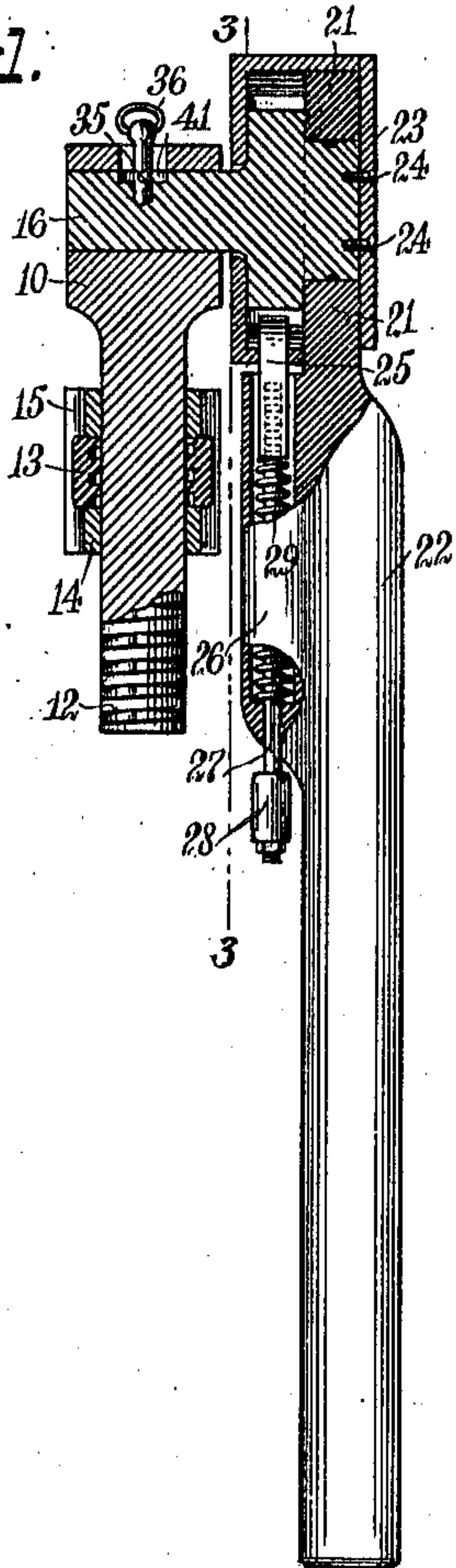


Fig. 2.

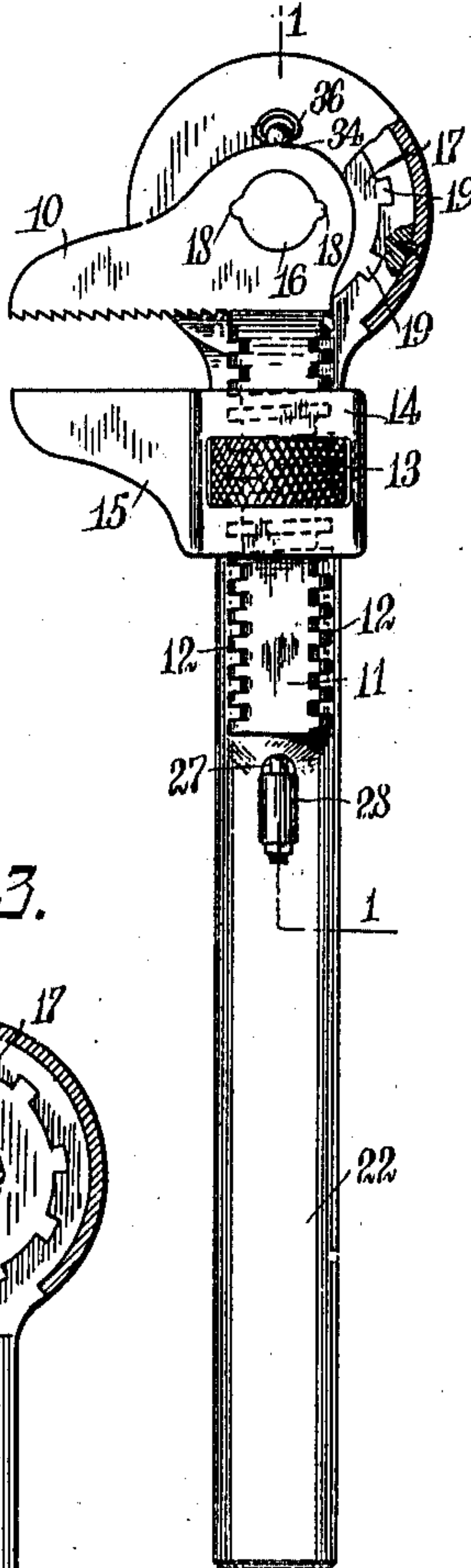


Fig. 3.

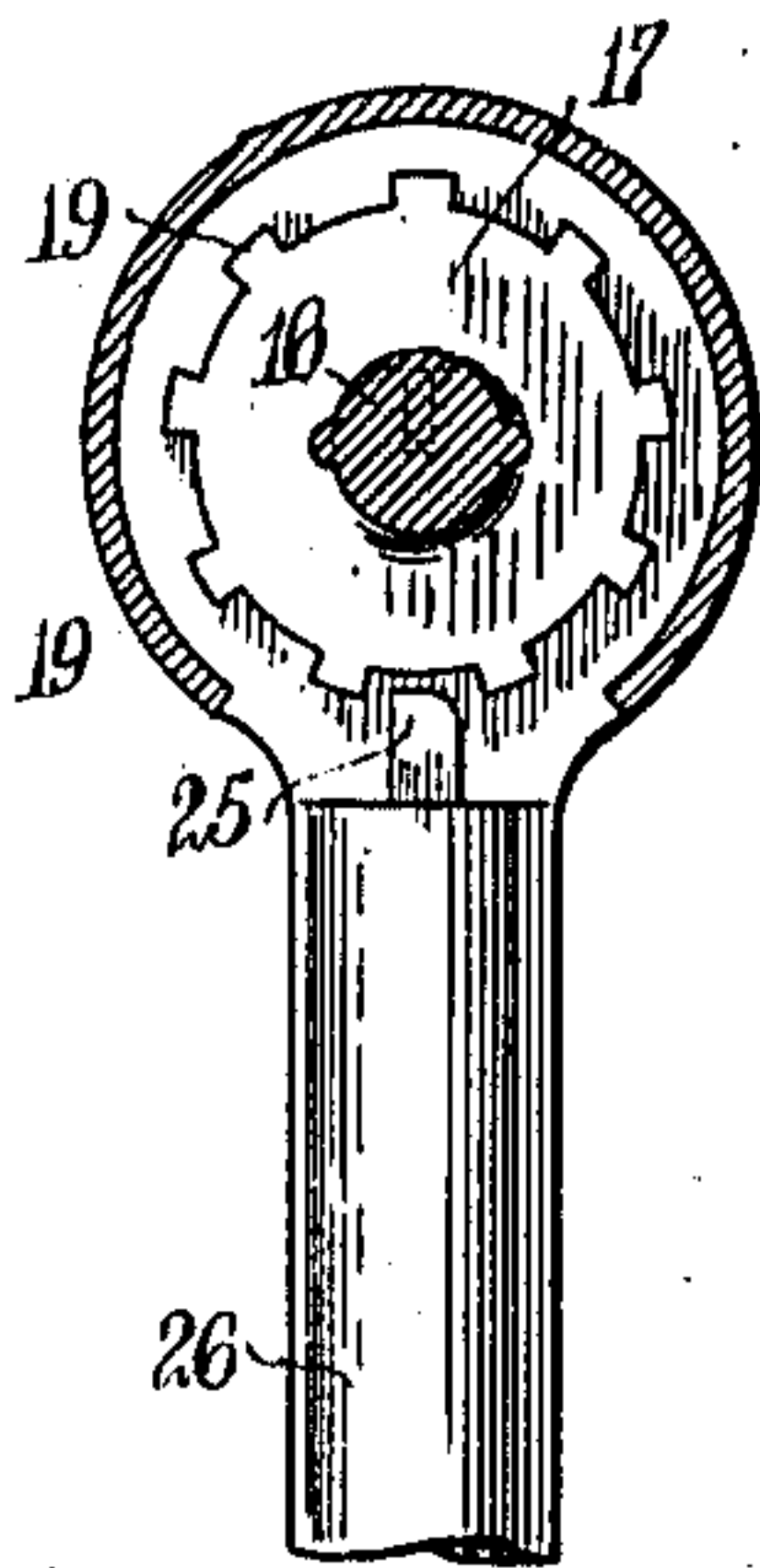


Fig. 4.

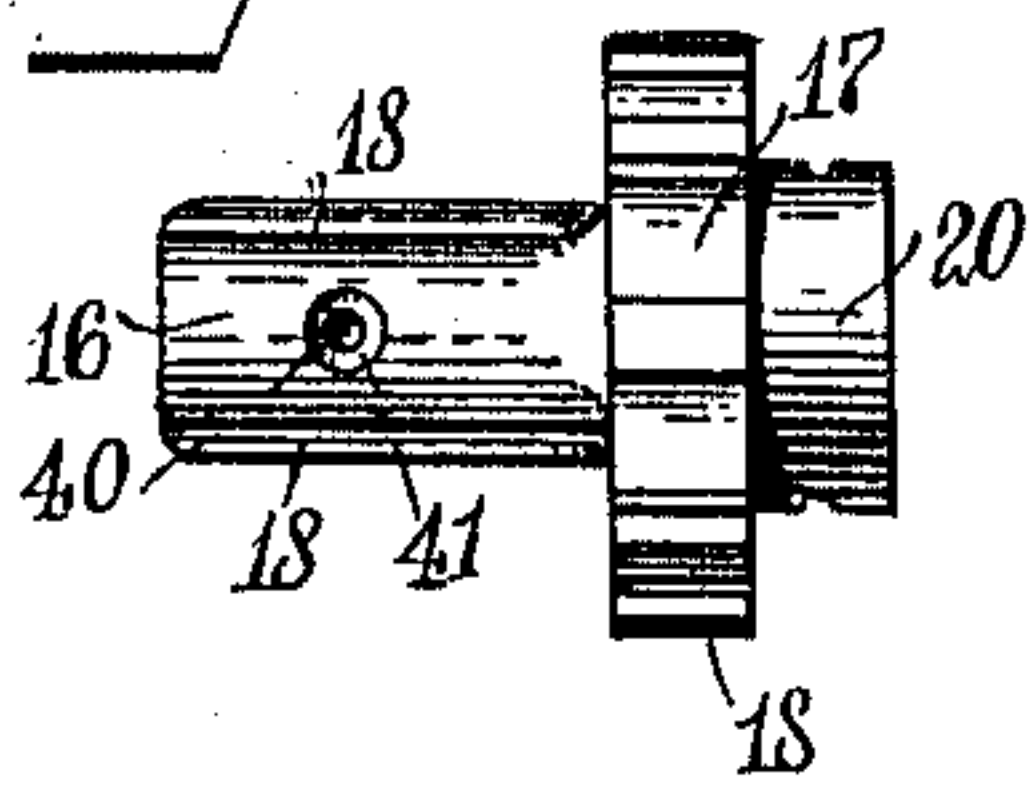
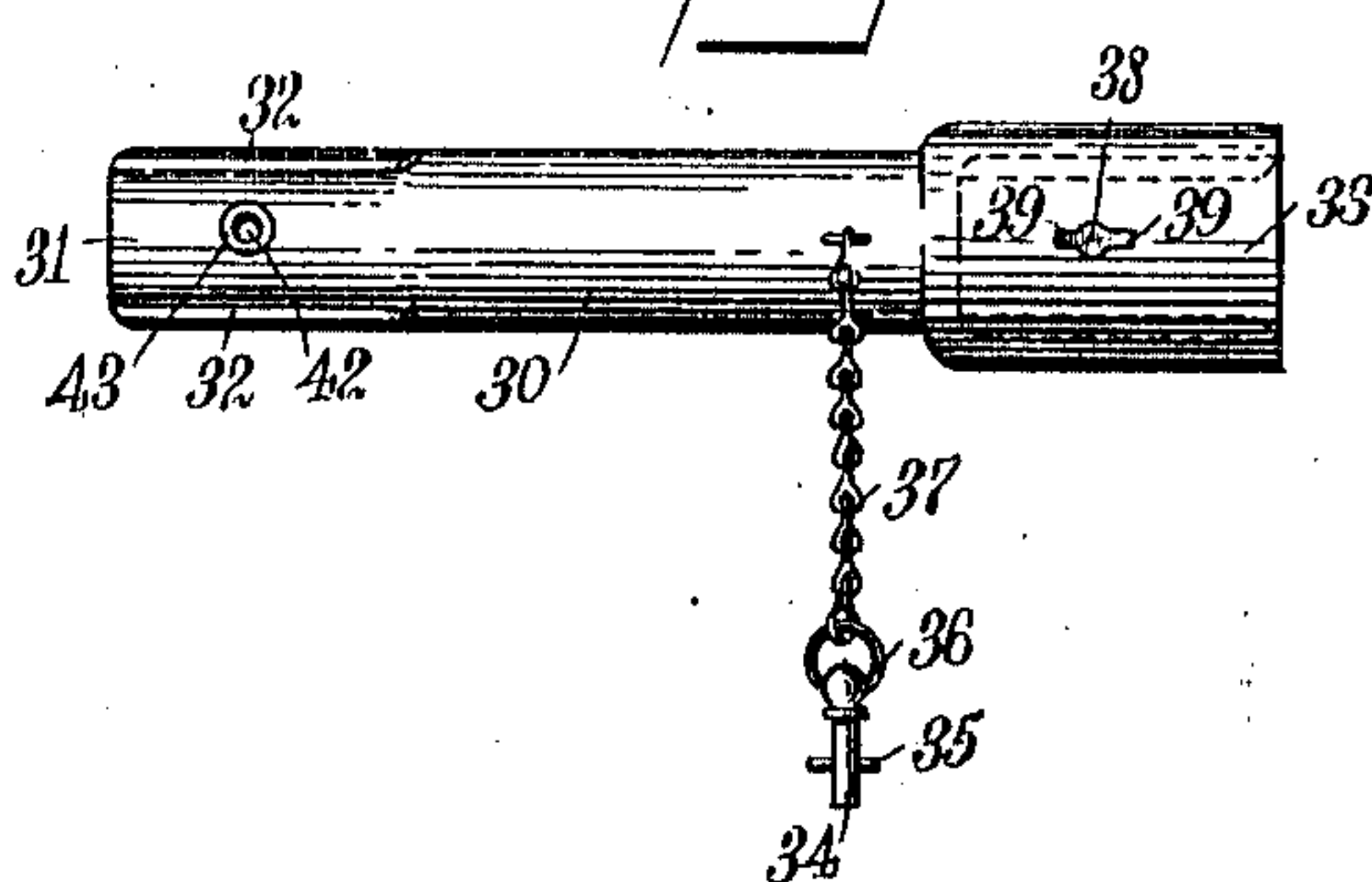


Fig. 5.



WITNESSES:

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WRENCH.

990,078.

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To all whom it may concern:

Be it known that I, WILLIAM J. STOLZ, a citizen of the United States, and a resident of the city of New York, (borough of Bronx,) in the county and State of New York, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide in a wrench means for extending laterally the working position of the head thereof; and to provide a construction for a wrench of the character specified which is simple, economical, efficient and durable.

One embodiment of the present invention is presented in the structure illustrated in the accompanying drawings, in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a section, taken on the line 1—1 in Fig. 2, of a wrench constructed and arranged in accordance with the present invention; Fig. 2 is a side view of a wrench constructed and arranged in accordance with the present invention, a portion of the head being cut away to show the construction thereof; Fig. 3 is a sectional view of the wrench head taken on the line 3—3 in Fig. 1; Fig. 4 is a detailed view in side elevation of a wrench head and extension arm employed in the present invention; and Fig. 5 is a side view of an extension arm employed in conjunction with a wrench constructed and arranged in accordance with the present invention.

The wrench jaw 10 is provided with an extension bar 11. The bar 11 is elliptically shaped in cross section, the outer edges of the short sides thereof being provided with threads 12, 12, circularly disposed to receive the threads of a nut 13. The nut 13 is knurled and extends beyond the sides of the perforated body 14. The body 14 is integrally formed with and extends from the jaw 15. By manipulating the nut 13 to move the same backward and forward over the bar 11, the jaw 15 is slid to and from the jaw 10, thus regulating the grip of the wrench head formed by the two jaws 10 and 15. The jaw 10 is provided with a circular perforation having nicks or recesses formed in the side thereof, as shown best in Fig. 2 of the drawings. The perforation and nicks are thus provided in the head 10 to receive the stud extension 16 which is ad-

justably formed with the ratchet plate 17 employed for manipulating the wrench. The sides of the stud extension 16 are provided with ribs 18, 18, fitting within the nicks provided in the side of the perforation formed in the jaw 10. The plate 17 is provided with a series of truncated teeth 19, as best shown in Figs. 3 and 4 of the drawings. The plate 17 is provided with a head extension 20, which extension is provided to receive in pivotal relation the ring end 21 of the handle 22. The ring end 21 is held in position upon the plate 17 by means of a disk 23. The disk 23 is fixedly secured upon the head 20 by means of suitable fastening devices, the screws 24, 24, shown in the drawings as at Fig. 1 thereof, being by me a preferred form of fastening.

The plate 17 and the stud extension 16 extended therefrom and the jaw 10 thereon are rotated by the handle 22 when the same is engaged with the said plate 17 by means of a pawl 25. The pawl 25 is best shown in Fig. 3 of the drawings. The said pawl extends between the truncated teeth 19 of the plate 17, to impinge upon and engage the same. The pawl 25 is slidably mounted in the chamber of a boss 26. The pawl 25 is preferably connected with a guide rod 27, having mounted rigidly on the end thereof a milled nut 28. Surrounding the rod 27 and arranged to normally extend the said rod of the pawl 25 is a spiral spring 29. By means of the construction, above described, of the pawl 25 and mounting therefor, the pawl may be reversed so that the square face thereof may be disposed with reference to the teeth 19 to impinge in one direction and avoid in the other at will, so that the operator may alternately use the wrench for turning to the right or to the left, as the case may be.

In Fig. 5 of the drawings is shown an extension bar 30. The bar is provided at one end with a stud extension 31 corresponding in all respects with the extension 16, and being provided with ribs 32, 32, similar in shape and size to the ribs 18, 18. At the other extremity of the bar 30 is provided a head 33. The head 33 is provided with a socket corresponding in its internal shape and size to the perforation formed in the head 10, thereby being adapted to extend over and fit the stud extension 16 in the same manner as does the said head or jaw 10.

The wrench may be provided with a num-

ber of extension bars 30, each having a length different from the other. The jaw 10 and parts connected therewith and the bars 30 are each provided with a pin 34, whereby the bars and jaws are held in position. The pins 34 are each provided with cross bars 35 and a link 36 secured to the head of the said pin to receive chains 37 by which said pins are secured to the said bars 30 or the jaw 10. The pins 34 are extended through perforations 38. The perforations 38 are provided with extensions 39, 39, similar to the extensions for the wards of a key in the scutcheon plate of a lock. The extensions 39, 39 are provided in the present instance to pass the bar 35. The lower end of the shank of the pin 34 is extended into the center of a bored hole 40 which is provided with an annular groove 41, the diameter of which exceeds the length of the bar 35 and the depth of which exceeds the thickness of the said bar 35. By means of this arrangement when the pin 34 is extended through the perforation 38 the bar 35 may be turned crosswise of the extensions 39, 39 and the pin 34 be thereby locked in its position whereby it retains the bar 30 or the jaw 10 in position upon the stud 16.

It will be observed that when the rod 30 is employed the head 10 is disposed over the stud extension 31, to which it is locked in a manner similar to that just described with reference to the hole 40 and the pin 34. The stud extension 31 is for this purpose provided with a hole 42 and the groove 43, being in all respects similar to the hole 40 and the groove 41.

It will be understood that if desired a plurality of rods 30 could be used to extend laterally the position of the jaws 10 and 15. This arrangement facilitates the operation for which the present invention is particularly designed, to wit, to tighten the bolts or nuts located at the bottom of the recesses or other structural depressions wherein the handle 22 would not have space to move.

In its operation the nut 13 is manipulated to advance the jaw 15 toward the jaw 10, which is relatively stationary during the adjustment. The jaws having been adjusted to a grip upon the nut or bolt, the same is tightened or screwed up by swinging the handle 22 in a manner similar to ratchet wrenches or other ratchet operated tools.

It will be observed that by turning the ratchet 25, the tooth may be made to engage

the plate 17, to move the same in either the right or the left rotary direction and that at the will of the operator.

When in the course of the operation it is found that the wrench head, formed by the jaws 10 and 15, does not reach to the recess wherein is located the bolt or nut, one or more of the bars 30 are installed by being placed upon the stud 16, or coupled one upon the other. At each coupling the pins 34 are inserted within the perforations 38 and turned, so that the course of the bar 35 on each pin extends transverse of the extensions 39, 39 and are thereby prevented from retracting from their engaged position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A wrench comprising a fixed jaw member having an integrally connected adjusting bar disposed perpendicular to the gripping face of said jaw member, said bar being provided with a screw thread; a movable jaw member slidably mounted on said bar; a screw nut holdingly engaging said movable jaw member and operatively engaging the screw threads of said bar to adjust said movable jaw member on said bar; a removable extension rod adapted to be fixedly connected to one of said jaw members and extended from the side thereof in a line parallel with the gripping face of said jaw member; and a lever handle holdingly engaging said rod and extended at an angle therefrom.

2. In combination, a wrench having expandible jaw members and means for adjusting the same, one of said jaw members being provided with an elongated socket extended in parallel relation with the gripping face of said wrench; a lever handle having a ratchet head; a connecting member attached to said ratchet head adapted for insertion in said socket in said jaw member; a connecting rod shaped at one end for insertion in said socket in said jaw member and provided at the opposite end with a socket to receive said extension on said ratchet head; and locking means for securing said connecting rod to both said jaw member and said ratchet head.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM J. STOLZ.

Witnesses:

FLORENCE STOLZ,
JOSEPH DOEMER.