Jan. 30, 1951 J. J. McCOY 2,539,852

LEVER AND LINK FEED, WORM-ADJUSTABLE, SLIDING JAW WRENCH

Filed March 2, 1946

FIG 1

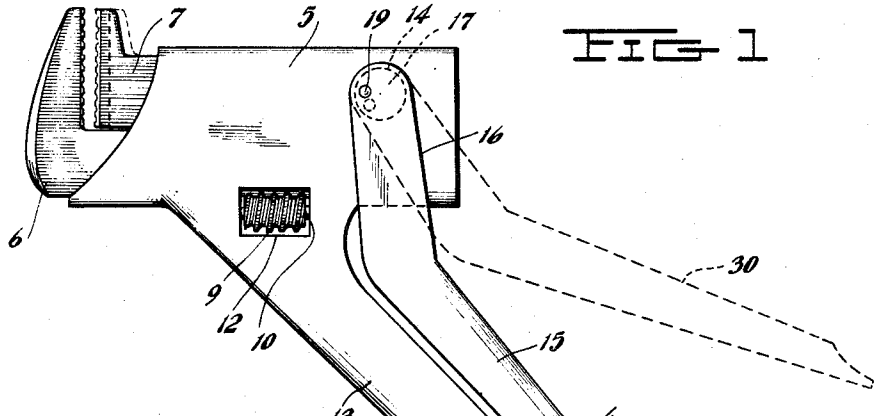


FIG 2

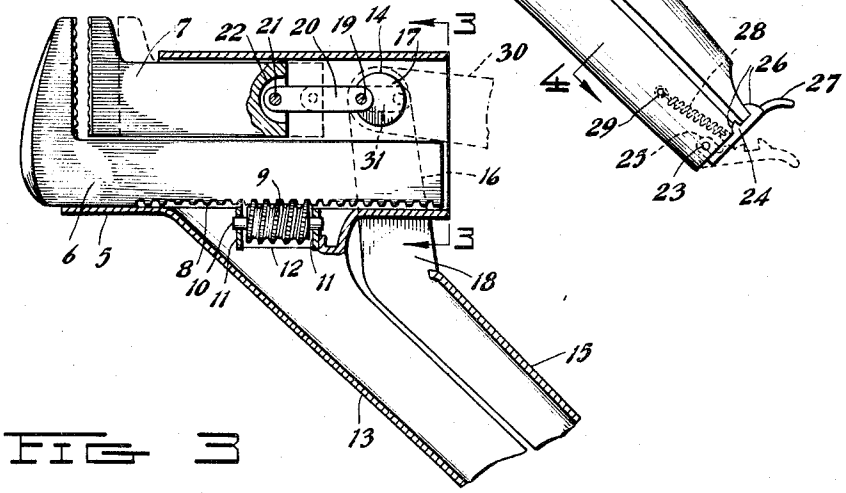


FIG 3

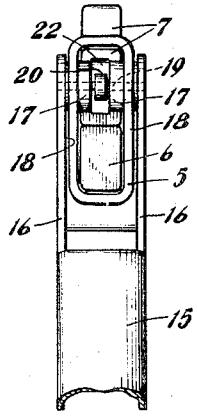
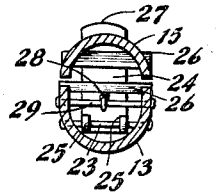


FIG 4



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LEVER AND LINK FEED, WORM-ADJUSTABLE, SLIDING JAW WRENCH

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1 Claim. (Cl. 81—87)

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This invention relates to new and useful improvements and structural refinements in adjustable wrenches and the principal object of the invention is to provide a device of the character herein described, the jaws of which will firmly and securely grip the nut, bolt, pipe or another like object, to which the wrench is applied.

A further object of the invention is to provide a wrench in which the jaws will retain their grip on such object until a catch, associated with the wrench, is released by the operator.

Another object of the invention is to provide a wrench in which the jaws may be readily adjusted for application to various sizes of bolts and different diameters of pipe, etc.

An additional object of the invention is to provide a wrench which is of simple construction, and which will not easily become damaged.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the invention;

Figure 2 is a cross-sectional view of the same;

Figure 3 is an end view, taken in the plane of the line 3—3 in Figure 2, and

Figure 4 is a cross-sectional view, taken in the plane of the line 4—4 in Figure 1.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a guiding sleeve 5, configurated substantially as shown, and adapted to receive a pair of slidable jaw plates 6 and 7. These plates protrude at one end of the sleeve 5 and terminate in the conventional gripping jaws, as will be clearly apparent from the accompanying drawings.

The jaw plate 6 is provided on one side thereof with a toothed rack 8, the latter being in mesh with a worm 9. This worm is positioned on a shaft 10 journalled in suitable brackets 11 provided in the sleeve 5, the surface of the worm partially protruding on both sides of the sleeve through the slots 12.

The sleeve 5 is also formed with an integral handle 13, and with a pair of transversely aligned apertures 14. A lever 15, provided with a forked extremity 16, is formed with a pair of aligned bosses 17 on the inner surfaces 18 of the forked

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arms, these bosses being in turn, rotatably positioned in the apertures 14 of the sleeve 5.

An eccentrically disposed pin 19 connects the bosses 17 and defines a cam for actuating the jaw plate 7. This actuation is accomplished by means of the connecting link 20, one end of which is rotatably positioned on the pin 19 between the bosses 17, while the remaining end thereof is pivoted by means of a pin 21 in a suitable recess 22 formed in the inner end of the jaw plate 7.

It will be noted that the handle 13 and the lever 15 are of substantially semi-circular, cross-sectional configuration, and that they are complementary to one another, as is best illustrated in the accompanying Figure 4.

The free end of the handle 13 carries a pivot pin 23, on which is positioned a tongue 24 formed with a pair of trunnions 25. The free end of the tongue is formed with a pair of spaced fingers 26 and a finger catch 27, whereby the tongue may be easily operated. A coil spring 28 is anchored at one end thereof to the mid-portion of the tongue 24, while its remaining end is secured to a pin 29, extending transversely through the handle 13.

Having thus described the construction of the invention, its method of operation will now be presented.

The jaw plate 6 is adjusted by rotating the worm 9, whereby said plate may be spaced further from or closer to the jaw plate 7. The latter is opened by moving the lever 15 to the position indicated by the phantom lines 30, whereby the bosses 17 and the associated cam pin 19 will be brought into the position shown by the phantom lines 13. Simultaneously, the jaw plate 7 will be drawn by the link 20 from the plate 6 into the sleeve 5, so that the wrench may be applied to a nut, bolt, etc., which is to be tightened.

After applying the wrench, the lever 15 is brought toward the handle 13, while the cam 19 will force the jaw 7 against the object between the jaws, and when the cam reaches a position almost at the "dead center" thereof, the end of the lever 15 will engage the tongue 24 between the fingers 26, thus locking the jaws in gripping position.

The grip of the jaws is released by simply separating the tongue 27 from the end of the lever 15, whereupon the lever may again be moved to the position 30. It will be noted that the spring 28 will automatically lock the jaws, when the lever and the handle are brought together.

While in the foregoing there has been shown

and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

An adjustable wrench comprising in combination, a guiding sleeve, a pair of jaw plates slidable in said sleeve and protruding at one end thereof, a toothed rack on one of said plates, an externally manipulable adjustment worm in said sleeve and in mesh with said rack, a handle secured to said sleeve, said sleeve also being formed with a pair of transversely aligned apertures, a lever, a forked extremity at one end of said lever, a pair of aligned cylindrical bosses on the inner surfaces of the arms of said forked extremity, said bosses being rotatable in said

apertures, an eccentrically disposed pin connecting said bosses and comprising a cam, an inflexible link connecting the remaining one of said jaw plates and said pin, and means for releasably locking said lever on said handle, and said link and pin being within said sleeve.

JAMES J. McCOY.

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