G. GRINNEN.

WRENCH.

APPLICATION FILED OCT. 22, 1912.

1,053,986.

Patented Feb. 25, 1913.

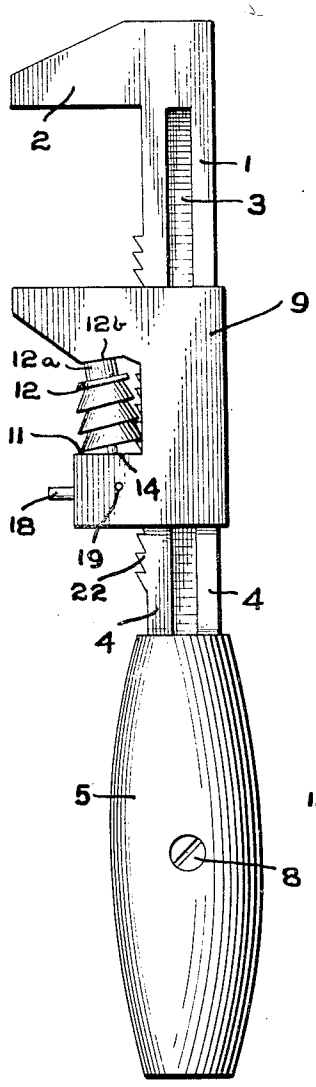

Fig. 1.

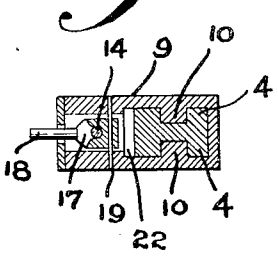

Fig. 3.

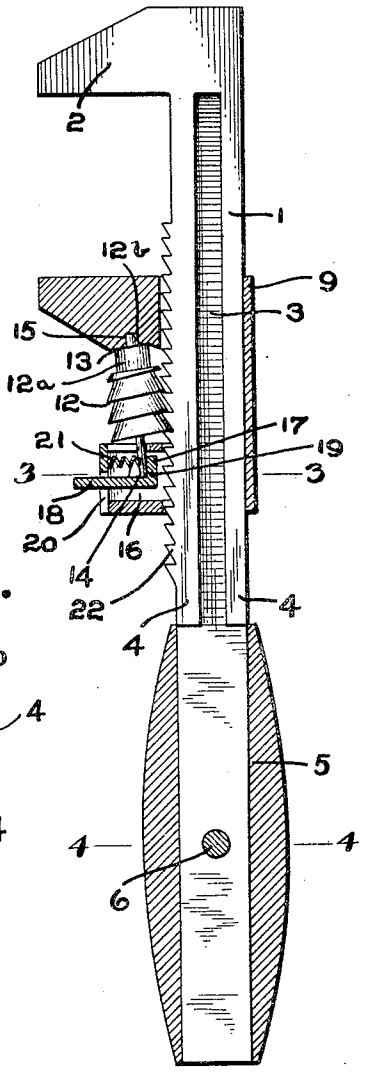

Fig. 2.

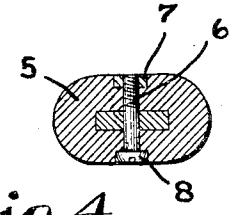

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

GERSH GRINNEN, OF WILMINGTON, DELAWARE.

WRENCH.

1,053,986. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed October 22, 1912. Serial No. 727,027.

To all whom it may concern:

Be it known that I, GERSH GRINNEN, a citizen of the United States, residing at Wilmington, in the county of Newcastle and State of Delaware, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches, the object of the invention being to provide an improved quick adjustable wrench having an improved mounting for a worm carried by the movable jaw and normally in engagement with a longitudinal series of ratchet teeth on the bar of the wrench, so that the movable jaw may be quickly moved toward the fixed jaw by sliding the movable jaw on the bar, the worm riding over the ratchet teeth of the bar.

A further object is to provide improved means for moving the worm out of engagement with the ratchet teeth.

A further object is to provide the movable jaw of the wrench with inwardly projecting ribs at both sides movable in longitudinal grooves in the bar of the wrench to maintain the movable jaw in proper position and prevent a lateral movement which might interfere with the proper engagement of the parts.

A further object is to provide on the bar an improved handle which is secured to the handle and operates to close the ends of the grooves in the bar, limiting the movement of the movable jaw in one direction.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view in side elevation illustrating my improvements. Fig. 2 is a view in longitudinal section through the movable jaw and handle showing the bar of the wrench in elevation. Fig. 3 is a view in cross section on the line 3—3 of Fig. 2, and Fig. 4 is a view in cross section on the line 4—4 of Fig. 2.

1 represents the longitudinal bar of the wrench having a fixed jaw 2 at one end and at opposite sides provided with longitudinal grooves 3. These longitudinal grooves 3 extend from the fixed jaw 2 to a point removed an appreciable distance from the opposite end of the bar, and the bar at this last-mentioned end is of a thickness the same as the thickness of the bar between the inner walls of the grooves. In other words, the parallel enlargements 4, 4, on the sides of the bar 1 which form the grooves 3 terminate at a distance removed from the end of the bar, and on this narrower end of the bar, the handle 5 is located. This handle is secured in place by a bolt 6 which is screwed into a nut 7, and said nut 7 and the head 8 of the bolt are countersunk in opposite sides of the handle.

The movable jaw 9 of my improved wrench is mounted to slide upon the bar 1, and is provided on its inner opposed faces with inwardly projecting ribs 10 which fit the grooves 3, and while they permit the movable jaw to slide freely on the bar, they hold the movable jaw against lateral movement. The jaw 9, in one face, is recessed as shown at 11, and in this recessed portion of the jaw, an adjusting worm 12 is located. The worm 12 has trunnions 13 and 14 at its ends, the outer trunnion located in a recess 15 in the movable jaw.

It will be noted that the cylindrical end 12^a of the adjusting worm 12 bears normally against an inclined surface or wall 12^b so that when the worm is in its holding position, this end will bear flat against the movable jaw and sustain the strain throughout its entire diameter, thus rendering the device strong and durable. Furthermore, it will be noted that when the worm is in locking position, its axis is slightly at an angle to the axis of bar 1, so that the movement of lever 18 swings the threads of the worm entirely out of engagement with the teeth 22 on the bar as will more fully hereinafter appear.

The trunnion 14 projects into a hollow portion or chamber 16 in the movable jaw and rests in a recessed foot 17 on the end of an L-shaped lever 18. This L-shaped lever 18 is pivoted upon a transverse pin 19 and its longer end projects through a slot 20 in the movable jaw, so that the end of this lever may be conveniently moved to move the worm laterally.

A coiled spring 21 is located in the chamber 16 and exerts an inward pressure on the trunnion 14 and the foot 17 to hold the worm in normal engagement with a longitudinal series of ratchet teeth 22 on the bar 1.

It will be noted that the convolutions of the worm 12 have one beveled and one approximately straight wall, conforming approximately in shape in longitudinal sec-

tion to the shape of the ratchet teeth 22, so that the movable jaw may be slid toward the fixed jaw without adjusting or turning the worm, as the worm will ride over the teeth 12 when moved in this direction. The worm will, however, prevent any retrograde movement as the approximately straight walls of the worm will bear against the approximately straight walls of the ratchet teeth 22, and if the quick adjustment does not bring the movable jaw to the exact position desired, the worm may be turned slightly to so position the jaw. When it is desired to move the movable jaw toward the handle, the lever 18 is swung on its pivot 19 to move the worm 12 out of engagement with the teeth 22, and when the lever is so held, the movable jaw may be slid along the bar 1 toward the handle, and when the lever is released, spring 21 will return the worm to locked engagement with the teeth.

By reason of the construction of groove 3, above referred to, it will be noted that the movable jaw 9 may be readily moved into position on the bar 1 by sliding the same onto the handle end of the bar when the handle is removed, but when the handle is secured in position on the bar, the handle operates to close one end of each groove and prevent the movement of the jaw beyond the handle.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. A wrench comprising a bar, a fixed jaw on one end of the bar, a handle on the other end of the bar, a longitudinal series of ratchet teeth on the bar, a movable jaw mounted to slide on the bar, a pivoted lever carried by the movable jaw, a worm normally in engagement with the ratchet teeth, said worm having trunnions at both ends, said jaw having a recess receiving one of said trunnions, said pivoted lever supporting the other of said trunnions, and a spring bearing against said last-mentioned trunnion normally pressing the worm into engagement with the said teeth on the bar, substantially as described.

2. A wrench comprising a bar, a fixed jaw on one end of the bar, a handle on the other end of the bar, a longitudinal series of ratchet teeth on the bar, a movable jaw mounted to slide on the bar, a pivoted lever carried by the movable jaw, a worm normally in engagement with the ratchet teeth, said worm having trunnions at both ends, said jaw having a recess receiving one of said trunnions, said pivoted lever supporting the other of said trunnions, a spring bearing against said last-mentioned trunnion normally pressing the worm into engagement with the said teeth on the bar, said bar having longitudinal grooves in its opposite faces, and longitudinal ribs on the inner face of the movable jaw fitting the grooves in the bar and sliding therein, said bar having a reduced handle receiving end, a handle on said end closing the ends of said grooves, said trunnion supporting lever of general L-shape pivotally supported adjacent the angle of the lever, and the shorter end of said lever having a bearing therein against which the trunnion is pressed by the spring, substantially as described.

3. A wrench comprising a bar, a fixed jaw on one end of the bar, a handle on the other end of the bar, a longitudinal series of ratchet teeth on the bar, a movable jaw mounted to slide on the bar, a pivoted lever carried by the movable jaw, a worm normally in engagement with the ratchet teeth, said worm having trunnions at both ends, said jaw having a recess receiving one of said trunnions, said pivoted lever supporting the other of said trunnions, and a spring bearing against said last-mentioned trunnion normally pressing the worm into engagement with the said teeth on the bar, said worm when in locking position having its axis at an angle to the axis of the bar, and said worm having one end positioned against an inclined surface on the movable jaw, substantially as described.

4. A wrench comprising a bar, a fixed jaw on one end of the bar, a handle on the other end of the bar, a longitudinal series of ratchet teeth on the bar, a movable jaw mounted to slide on the bar, a worm normally in engagement with the ratchet teeth, said worm having trunnions at both ends, said jaw having a recess receiving one of said trunnions, an L-shaped lever fulcrumed at its angle and having its shorter member supporting the other of said trunnions, a spring pressing the worm toward the ratchet teeth, and said worm when in locking position having its axis at an angle to the axis of the bar, substantially as described.

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

GERSH GRINNEN.

Witnesses:
E. G. JERKINS,
ALFRED WHARTENBY.