Oct. 1, 1929. C. VALLONE 1,729,640

WRENCH

Filed Aug. 11, 1925

Fig. 1.

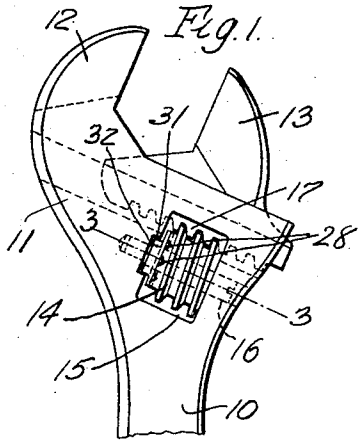


Fig. 2.

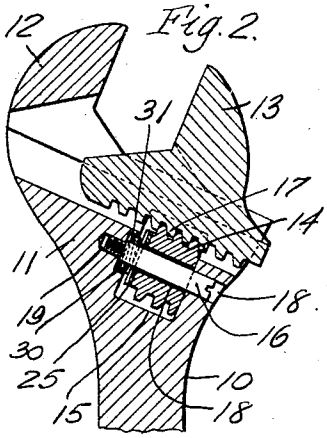


Fig. 4.

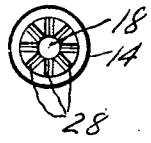


Fig. 5.

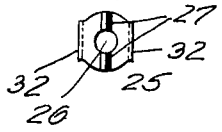


Fig. 6.

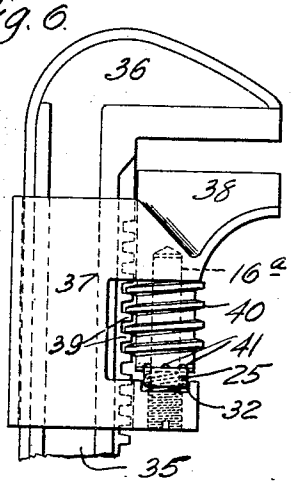
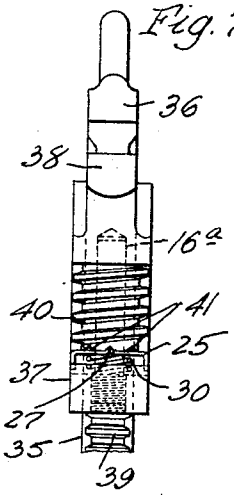


Fig. 7.



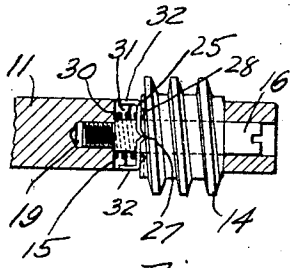


Fig. 3.

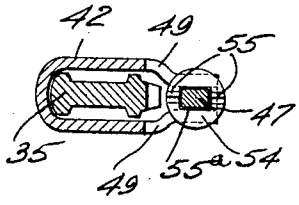


Fig. 10.

Fig. 8.

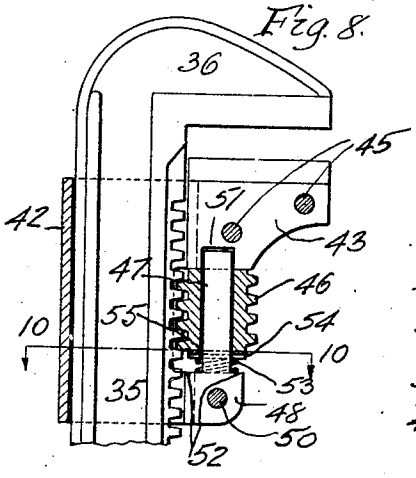
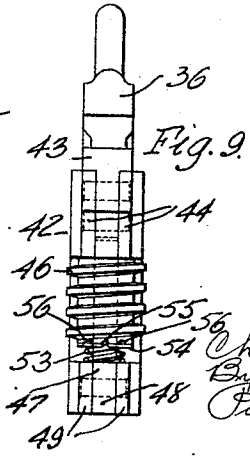


Fig. 9.



INVENTOR.
Charles Vallone
By Parker & Prochnow
ATTORNEYS.

Patented Oct. 1, 1929 1,729,640

UNITED STATES PATENT OFFICE

CHARLES VALLONE, OF BUFFALO, NEW YORK, ASSIGNOR TO BARCALO MANUFACTURING COMPANY, OF BUFFALO, NEW YORK

WRENCH

Application filed August 11, 1925. Serial No. 49,581.

This invention relates to wrenches of that sort having a fixed jaw and a movable jaw adjustable towards the fixed jaw by the rotation of a worm, and more particularly the invention relates to improvements in holding or locking means or devices whereby the worm is yieldingly held from rotation for the purpose of preventing the movable jaw from changing its position relatively to the fixed jaw after having been adjusted to fit a particular nut or piece of work.

Locking devices have heretofore been provided including a ratchet of some sort adapted to yieldingly engage the worm for preventing unintentional turning thereof, but these devices have been unsatisfactory for one reason or another, mainly due to the relatively large number of parts, the cost incurred in their manufacture, and the relatively large number of operations necessary for their production.

The objects of the present invention are to improve and simplify locking or holding means or devices for wrenches of the character described; also to improve the construction of locking means of this kind in other respects hereinafter specified.

In the drawings:

Fig. 1 is a face view of a wrench having an adjustable jaw operable by means of a worm, and showing, by way of example, one embodiment of my improved locking or holding means for said worm.

Fig. 2 is a sectional elevation thereof, taken in a plane parallel with the face of the wrench.

Fig. 3 is a transverse section of the wrench on line 3—3 Fig. 1.

Fig. 4 is an end view of the worm which is specially formed to be engaged and held by the locking means of this invention.

Fig. 5 is a face view of the movable locking member.

Fig. 6 is a face view, and Fig. 7 is an edge view of an adjustable monkey wrench provided with the improved locking or holding means.

Fig. 8 is an elevation, partly in section, of a monkey wrench of another construction, and Fig. 9 is an edge view thereof, the same being also provided with the improved locking means.

Fig. 10 is a transverse, horizontal section thereof, on line 10—10, Fig. 8.

The adjustable wrench shown in Figs. 1 to 3 comprises, as usual, a handle 10, a portion of which is broken away in the drawings, an integral head 11 provided with a fixed jaw 12, and a movable jaw 13 slidably mounted in the head 11, and adapted to be adjusted towards and from the fixed jaw 12 by means of a worm 14 positioned in an aperture 15 in which it is journalled on a pin or screw 16 secured in the head 11, said worm meshing with teeth 17 on the adjustable jaw 13 for actuating the same. The worm has a bearing hole 18 for the pin 16, and said pin is threaded at its inner end and is screwed into a tapped hole 19 in the head in the usual way. These parts are well known in the art, and of themselves form no part of the present invention.

In the embodiment of the invention shown in the drawings, the locking or holding means for yieldingly holding the worm 14 in its adjusted positions includes a movable locking member 25 in the form of a sheet metal stamping and which is provided with a central aperture 26, and one or more projections, preferably in the form of a pair of transverse, diametrically disposed, V-shaped ratchet teeth 27. One end of the worm 14, as shown in Fig. 4, is provided with a plurality of depressions, preferably in the form of one or more pairs of diametrically opposed radial slots 28, which are complementary to the ratchet teeth 27 of the locking member 25, and said member 25 is so positioned that said ratchet teeth 27 may be yieldingly pressed into the depressions or notches 28 of the worm 14. This is effected by loosely arranging the locking member 25 on the pin 16 in operative relation to said worm, by passing the pin through the hole 26 in said member, and arranging a yielding member, such as the coil spring 30 behind said member 25.

The coil spring 30 surrounds the pin 16 and may be disposed in a slot or notch 31 extending transversely through the head 11 at one side of and opening into the aperture 15, and, to prevent the locking member from

rotating with the worm, said member is provided with one or more, preferably two, offset lugs or parts 32 as shown in Figs. 3 and 5, and which are adapted to extend into opposite ends of the notch 31.

The depressions 28 may be easily and quickly formed in the end of the worm 14, and the locking member 25 and spring 30 are also readily and inexpensively produced, and are adapted to be easily and quickly assembled by merely slipping them on the pin 16 at the time the worm 14 is arranged thereon. By this construction, a worm locking means is produced which consists of the minimum number of parts, as no additional pins or other retaining means are needed to secure the locking device in position on the wrench.

The lugs 32 of the locking member serve the purpose of preventing the locking member from turning and consequently by interposing the locking member between the spring 30 and the worm, the spring will not be subjected to friction or twist as the worm is turned about its bearing pin. The lugs 32 serve the further purpose of partially closing the ends of the slot or notch 31 and thus protecting the spring 30.

The monkey wrench shown in Figs. 6 and 7 comprises the usual forged shank 35, integral fixed jaw 36 and a movable sleeve 37 slidable on the shank 35 and having a jaw 38. The movable jaw 38 is movable towards and from the fixed jaw 36 by a worm 40 engaging in teeth 39 on the shank 35. The worm is provided with ratchet slots 41, and a locking member 25 and spring 30 are arranged about the journal pin 16^a as described in connection with the wrench shown in Figs. 1–5. The spring 30 is adapted to yieldingly engage the locking member 25 with the worm 40 to permit the ratchet teeth 27 of the member to snap into and out of said slots 41.

The wrench shown in Figs. 8–10 is of the type shown in Figs. 6 and 7, but the movable sleeve thereof is of slightly different construction. In this case the movable sleeve 42 is formed of sheet metal having a movable jaw 43 secured thereon between spaced lugs 44, as by rivets 45. A worm 46 is journalled on a pin or member 47 formed of a flat sheet metal stamping and having an enlarged end 48 which is adapted to be inserted between and engage with the flat faces of lugs 49 on the sleeve 42, and is secured in place by a rivet or the like 50. The other end of the pin is received in a seat 51 in the jaw 43. The enlarged end 48 of the pin form shoulders 52, and a spring or resilient member 53 surrounding the pin bears on these shoulders and yieldingly engages a locking member 54, having ratchet teeth 55 adapted to seat in the ratchet slots 56 in the end of the worm 46, as before. In this case, however, the pin, being in the form of a sheet metal stamping, is rectangular in cross section throughout the length and the locking member is provided with a corresponding rectangular aperture 55^a for said pin, so that it is unnecessary to provide a recess corresponding to the recess 31 shown in Figs. 1–5, or the lugs 32 for the locking member, to keep this member from turning, as in the other constructions described, as the locking member 54 cannot turn on the pin 47. The worm 46 has the usual hole of circular cross section through which the pin 47 extends, so that the worm can turn freely on the latter.

The locking means shown in Figs. 8–10, however, has the essential features of the other described form, in that the locking member and the spring are loosely mounted on and maintained in position by the worm journal pin.

Obviously, the interfitting parts on the worm and the locking member could be reversed, the depressions being formed on the locking member, and the projections being formed on the worm, if desired, without departing from the scope of the invention.

I claim as my invention:—

In an adjustable wrench having a fixed jaw and a jaw movable towards and from said fixed jaw, a pin secured in said wrench and extending across a recess therein, a worm journalled on said pin and disposed in said recess, and which, when turned actuates said movable jaw, locking means for yieldingly holding said worm in adjusted position and comprising a locking member having parts engageable with complementary parts on an end of said worm, a coil spring encircling said pin at the side of said locking member remote from said worm and bearing against said member to yieldingly hold the same against said worm, said spring being disposed in a notch at one side of said recess, and said locking member having projections extending along opposite sides of said spring to protect and conceal the same and which enter said notch, to prevent said member from turning with said worm.

CHARLES VALLONE.