June 19, 1945. R. H. KERSHAW 2,378,854

LOCK FOR WRENCHES

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Fig. 1

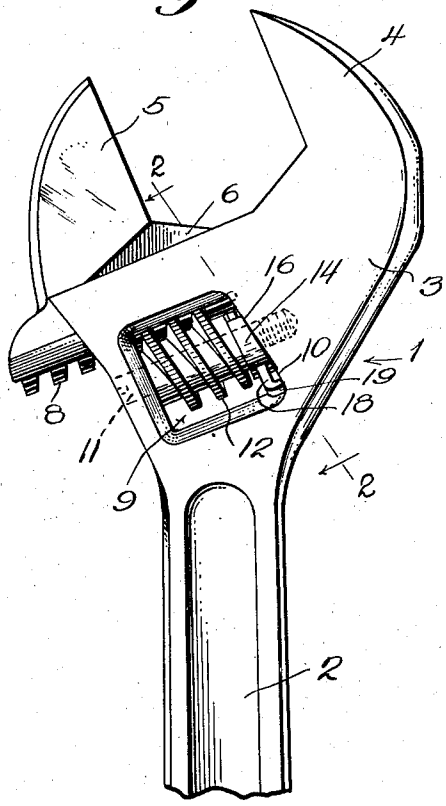


Fig. 2

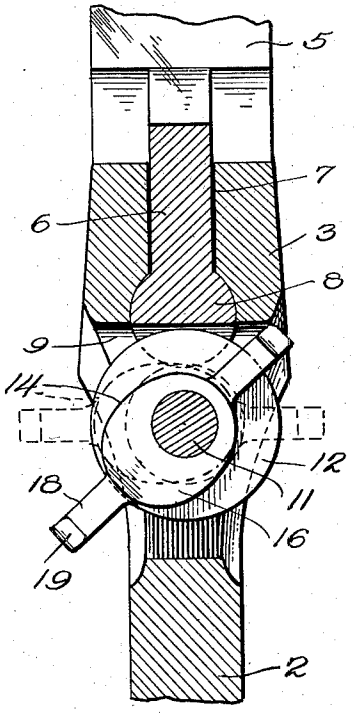
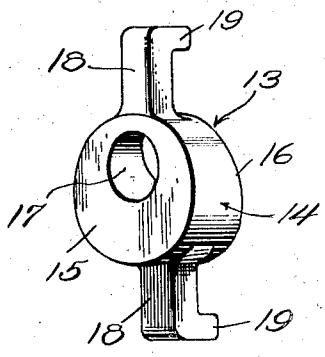


Fig. 3



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LOCK FOR WRENCHES

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5 Claims. (Cl. 81—165)

The present invention relates to improvements in wrenches and more particularly to those wrenches known as adjustable end wrenches, and often called "Crescent" wrenches, in which a movable jaw is operated at an angle to the head of the wrench.

One of the important objects of the present invention is to provide a locking device for holding the jaws of the wrench in their adjusted position, against accidental movement.

A further object is to provide a wrench in which the locking means is readily releasable to permit the rotatable worm to move the movable jaw toward or away from the stationary or fixed jaw.

A still further object is to provide a wrench with a locking device that will at all times be positive and efficient in its operation and yet be inexpensive in its manufacture.

Another important object is to provide a locking means which is operable from opposite sides of the wrench, thereby greatly facilitating its use.

Other objects and advantages will become apparent from the following description when taken in connection with the accompanying drawing.

In the drawing, wherein like references designate corresponding parts throughout the several views:

Figure 1 is a fragmentary side elevation of my improved wrench showing the locking device in its locked position;

Figure 2 is an enlarged sectional view taken approximately on the line 2—2 of Figure 1, looking in the direction of the arrows, and

Figure 3 is a detail perspective view of the locking cam or wedge forming a salient part of the present invention.

In the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates generally an adjustable end wrench, often called a "Crescent" wrench, the same comprising a handle 2 having an enlarged head or body 3 formed on one end thereof.

A fixed or stationary jaw 4 is carried by the head 3 which cooperates with the movable jaw 5, mounted on the web portion 6. This web portion is slidable in the transverse slot 7 formed in the outer face of the head or body 3. A rack 8 is carried by the inner portion of the web 6 and the inner portion of the slot 7 is enlarged to accommodate the rack.

A substantially rectangular shaped opening 9 is formed in the enlarged head 3. The side of this opening nearest the fixed jaw 4 is disposed at an angle with respect to the opposite side of the opening as indicated at 10 to provide a tapered camming face, the purpose of which will be presently described. This opening 9 communicates with the bottom of the slot 7 and the toothed portion of the rack extends into this opening, as clearly shown in the drawing.

A pin or screw 11 extends transversely through the central portion of the opening 9 and journaled for rotation on this pin in the opening 9 is the knurled worm 12. The worm 12 cooperates with the rack 8 for moving the jaw 5 toward or away from the fixed jaw 4, in the manner and for the purpose well known in the art.

Forming a salient part of the present invention is the locking member denoted generally by the numeral 13. This locking member comprises a body portion 14 one side face 15 of which is straight while the opposite side face 16 is tapered. An eccentrically disposed opening 17 extends through the body 14 from one side face to the other and provides means for mounting the locking member rotatably on the pin or screw 11 for disposition between the inner end of the worm 12 and the tapered side wall 10 of the opening 9.

The rotatable locking member is arranged on the pin 11 so that its straight face 15 is disposed against the straight face of the inner end of the worm 12 while the tapered face 16 lies adjacent the tapered face or side wall 10 of the opening 9.

A pair of fingers 18 extends radially from opposite sides of the periphery of the body 14 for facilitating the rotation of the locking member and the outer ends of these fingers terminate in laterally extending portions 19 for the purpose of preventing the outer ends of the fingers from engaging with the teeth of the rack 8.

The operation of my improved wrench may be briefly stated as follows: the locking member 13 is turned to the position shown in the dotted lines in Figure 2, so that the tapered face 16 is not in camming or binding engagement with the tapered face 10 of the opening 9. The knurled worm 12 may then be freely rotated by the fingers of the user to move the jaw 5 toward or away from the stationary jaw 4, until the proper adjustment of the jaws has been attained.

Then the finger elements 18 of the locking member 13 are grasped and the locking member is rotated on the pin 11 until the tapered face 16 sets up a camming or wedging action against the tapered face 10, so that the worm 12 will be secured and locked against rotation, thereby holding the jaws in their properly adjusted position against accidental movement. The position of the locking member when in its operative

locked position is shown in Figure 1 and in the full lines in Figure 2.

The simplicity of the present invention enables the locking device to be used with the "Crescent" type wrenches now on the market, it being only necessary to taper the inner side wall of the rectangular opening formed in the head of the wrench to accommodate the locking wedge.

Further, my improved locking wedge will at all times be positive and efficient in carrying out the purposes for which it is designed and by reason of its construction, can be operated from either side of the wrench with equal facility.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim is:

1. In an adjustable wrench, a body having a fixed jaw thereon, a slidable jaw mounted in said body, a toothed rack carried by the slidable jaw, said body having an enlarged opening formed therein, the inner side wall of said opening being tapered, a pin extending transversely through the opening, a worm positioned in said opening journaled for rotation on said pin and having its outer end engaging the side of the opening opposite to the tapered inner side wall of the opening, said worm cooperating with the toothed rack for moving the slidable jaw with respect to the fixed jaw, and a locking wedge rotatably mounted on said pin and disposed between the inner end of the worm and the adjacent tapered side wall of the opening in said body for cooperation with said tapered side wall for locking the worm against rotation when said locking wedge is disposed in one position.

2. In an adjustable wrench, a body having a fixed jaw thereon, a slidable jaw mounted in said body, a toothed rack carried by the slidable jaw, said body having an enlarged opening formed therein, the inner side wall of said opening being tapered, a pin extending transversely through the opening, a worm positioned in said opening journaled for rotation on said pin and having its outer end engaging the side of the opening opposite to the tapered inner side wall of the opening, said worm cooperating with the toothed rack for moving the slidable jaw with respect to the fixed jaw, and a locking wedge rotatably mounted on said pin disposed between the inner end of the worm and the adjacent tapered side wall of the opening in said head for cooperation with said tapered side wall for locking the worm against rotation when said locking wedge is disposed in one position, and a laterally extending finger carried by the locking wedge for actuating the same.

3. In an adjustable wrench, a body having a fixed jaw thereon, a slidable jaw mounted in said body, a toothed rack carried by the slidable jaw, said body having an enlarged opening formed therein, the inner side wall of said opening being tapered, a pin extending transversely through the opening, a worm positioned in said opening journaled for rotation on said pin and having its outer end engaging the side of the opening opposite to the tapered inner side wall of the opening, said worm cooperating with the toothed rack for moving the slidable jaw with respect to the fixed jaw, a locking wedge rotatably mounted on said pin and disposed between the inner end of the worm and the adjacent tapered side wall of the opening in said head for cooperation with said tapered side wall for locking the worm against rotation when said locking wedge is disposed in one position, a laterally extending finger carried by the locking wedge for actuating the same, and means for preventing the outer end of the finger from engaging with the teeth of the rack on the slidable jaw.

4. In an adjustable wrench, a body having a fixed jaw thereon, a slidable jaw mounted in said body, a toothed rack carried by the slidable jaw, said body having an enlarged opening formed therein, the inner side wall of said opening being tapered, a pin extending transversely through the opening, a worm positioned in said opening journaled for rotation on said pin and having its outer end engaging the side of the opening opposite to the tapered inner side wall of the opening, said worm cooperating with the toothed rack for moving the slidable jaw with respect to the fixed jaw, and a locking member comprising a body eccentrically mounted on said pin for rotation thereon and disposed between the inner end of the worm and the tapered side wall of the opening in the body of the wrench, the side face of the locking member adjacent the inner end of the worm being straight, the opposite side face of the locking member being tapered for cooperation with the tapered side wall of the opening to lock the worm against rotation when the locking member is in one position, said worm being capable of rotation when the locking member is in its inoperative position.

5. In an adjustable wrench, a body having a fixed jaw thereon, a slidable jaw mounted in said body, a toothed rack carried by the slidable jaw, said body having an enlarged opening formed therein, the inner side wall of said opening being tapered, a pin extending transversely through the opening, a worm positioned in said opening journaled for rotation on said pin and having its outer end engaging the side of the opening opposite to the tapered inner side wall of the opening, said worm cooperating with the toothed rack for moving the slidable jaw with respect to the fixed jaw, a locking member comprising a body eccentrically mounted on said pin for rotation thereon and disposed between the inner end of the worm and the tapered side wall of the opening in the body of the wrench, the side face of the locking member adjacent the inner end of the worm being straight, the opposite side face of the locking member being tapered for cooperation with the tapered side wall of the opening to lock the worm against rotation when the locking member is in one position; said worm being capable of rotation when the locking member is in its inoperative position, and finger pieces extending radially from the body of the locking member for actuating the same.

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