L. W. MILLSAP, JR.

WRENCH.

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1,110,220.

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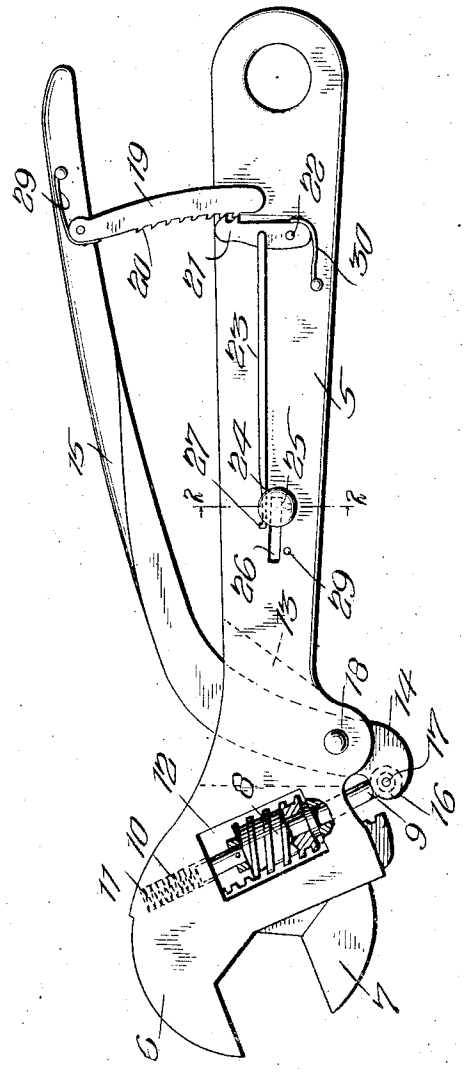


Fig. 1.

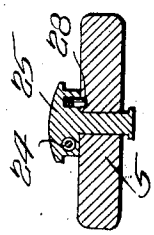


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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WRENCH.

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To all whom it may concern:

Be it known that I, LEANDER W. MILLSAP, Jr., a citizen of the United States, and a resident of Woodland, in the county of Yolo and State of California, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

This invention relates to wrenches, and one of the principal objects thereof is the provision of a wrench having an adjusting screw, whereby the wrench may be loosely adjusted upon a nut, and having a locking lever whereby after loose adjustment of the wrench the jaws thereof may be tightly forced against the nut to prevent slipping of the wrench.

Another object of the invention is to provide a wrench having a locking handle, and means for maintaining the handle in any adjusted position.

A further object of the invention is to provide a wrench having an adjusting screw and locking handle, and having means for maintaining the handle in any locked position, and means for releasing at will the locking means.

Still another object of the invention is to provide a wrench of the class described, which will be extremely simple, durable, efficient in operation and inexpensive to manufacture.

With these and other objects in view which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings in which like characters of reference indicate like parts throughout the several figures, of which—

Figure 1, represents a side elevational view of the wrench, and, Fig. 2 represents a vertical transverse sectional view taken on the plane indicated by the line 2—2 of Fig. 1, looking in the direction of the arrows.

Referring more particularly to the drawing, 5 indicates a wrench handle, having formed at one end thereof a fixed jaw 6, and at 7 is indicated the movable wrench jaw slidable toward and away from jaw 6, and the jaw 7 may be loosely adjusted to fit various size nuts by means of the worm 8 rotatably mounted on the pin 9, which at its upper end extends into a recess 10 formed in the handle to the rear of the fixed jaw 6, and bears against a spring 11 which has a normal tendency to hold the worm and with it the movable jaw 7 at the outer extreme of movement of the latter. The worm 8 is placed in a rectangular opening 12 formed in the handle, and is disposed axially at an inclination with the handle and parallel with the line of movement of the movable jaw. The worm may rotate on pin 9 but is not movable longitudinally thereof.

Rearwardly of the worm and jaw, an opening 13 is formed in the handle, and through said opening extends the forward bent end 14 of the lever 15, said lever having its extreme forward end slightly off-set, as at 16, and to the forward end of the lever is pivoted the lower end of pin 9, as at 17. The lever is pivoted by means of a rivet or pin 18 to the handle, adjacent the pivot point 17, and the lever 15 extends rearwardly substantially the length of handle 5, and it is, therefore, evident that a powerful leverage upon jaw 7 may be obtained by operating lever 15. Enough play is left at the pivot point 17 and within the slot guiding the pin 9 to allow for the pivotal movement of the pin around pivot 18, and the play may be left at both points or at either one of the points, the play being indicated in Fig. 1 at the point 17 by the dotted circle drawn around the pivot point 17.

Pivoted at its upper end to the handle of lever 15 near its rear end, is a rack bar 19 which depends alongside the handle 5 and is provided on its forward edge with rack teeth 20, adapted to co-act with a pair of teeth formed on the upper end of a detent 21, in holding the lever in any adjusted position, said detent being pivoted near its lower end, as at 22, to handle 5, and being connected at a point above pivot point 22, to the rear end of a link 23, whose forward end is somewhat reduced, as at 24, and slidably extends through an opening in a button 25, which may be adjusted longitudinally of a slot 26 formed in the wrench handle, the extreme forward end of link 23 being provided with a lug 27, whereby when the button is pushed forwardly from the position shown in Fig. 1, the detent 21 will be disengaged from the rack bar 19, thereby allowing the lever to be raised, thus disengaging the movable jaw from the nut. The button 25, is provided with a spring actuated lug or pin 28, adapted to co-act with a pair of depressions 29 in the side of

handle 5 adjacent slot 26 so that the button will be held at either end of its movement, against accidental displacement. The rack bar 19 will normally be held in position whereby its teeth will engage the teeth of detent 21 when the latter is in operative position, by means of a leaf spring 29 secured at one end to the upper end of the rack bar and at the other end to the handle of lever 15, and the detent 21 is normally maintained in position to engage the rack bar by means of a spring 30 connected at one end to the lower end of the detent and at its other end to handle 5.

In operation, the movable jaw is loosely adjusted to the nut by means of the worm 8 and the lever 15 is then brought into play, to lock the jaw against the nut, and by means of the rack bar and detent described, the lever will be maintained in any adjusted position so that there will be no danger of the wrench accidentally loosening from the nut. When the work is finished, the button 25 may be pushed forwardly releasing the detent from the rack bar, and the action of spring 11 will be to slightly force the jaw away from the nut so that the wrench may be instantaneously removed. It has been found that a wrench constructed according to my invention, is especially adapted for use on battered nuts, and that when the jaw has been locked in position by means of the lever, the wrench may be whirled around without danger of loss for releasing the nut. A great advantage accruing to the wrench is that it may be manipulated with one hand.

Although I have described the preferred embodiment of my invention, I may desire to make such changes in the construction, combination and arrangement of parts as do not depart from the spirit of the invention and the scope of the appended claims.

I claim:

1. A wrench comprising a handle having a fixed jaw at one end thereof, a movable jaw adjustable with relation to the fixed jaw, a worm for adjusting the movable jaw, a pin on which said worm is journaled, said pin at one end extending into a recess in the handle, a spring in said recess bearing against the pin and adapted to maintain the jaw and worm at the outer end of their movement, a lever having its forward end bent downwardly, said lever at its forwardly bent end extending through an opening in said handle, said lever having its extreme front end slightly off-set and pivoted to the lower end of said pin, said lever near last said pivot point being pivoted to the wrench, a rack bar pivoted to the handle of the lever near the rear end thereof, and depending alongside said wrench handle, a dog pivoted to the wrench handle and adapted to normally engage said rack bar, a link pivoted to said dog, a button adjustable longitudinally of the handle, said link extending through said button at its forward end, and springs for normally maintaining said rack bar and detent in position to engage each other.

2. A wrench comprising a handle having a fixed jaw secured thereon, a movable jaw, a pin, a worm thereon whereby said movable jaw may be adjusted, a spring bearing against said pin for normally holding said worm and movable jaw at the outer extreme of their movement, a lever pivoted to said handle, said pin pivoted at its lower end to said lever, a rack bar carried by the lever, a detent carried by the wrench handle and adapted to normally engage said rack bar, and means for moving said detent out of engagement with said rack bar.

3. A wrench comprising a handle having a fixed jaw formed at one end thereof, a movable jaw, means for loosely adjusting said movable jaw, a lever pivoted to the handle, said lever being connected to said jaw adjusting means, means for normally holding said movable jaw at the outer extreme of its movement, a rack bar pivoted to the lever handle, a dog pivoted to the wrench handle and adapted to engage the rack bar, a link connected to the dog, and means for operating the link at will for releasing the dog.

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Witnesses:
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