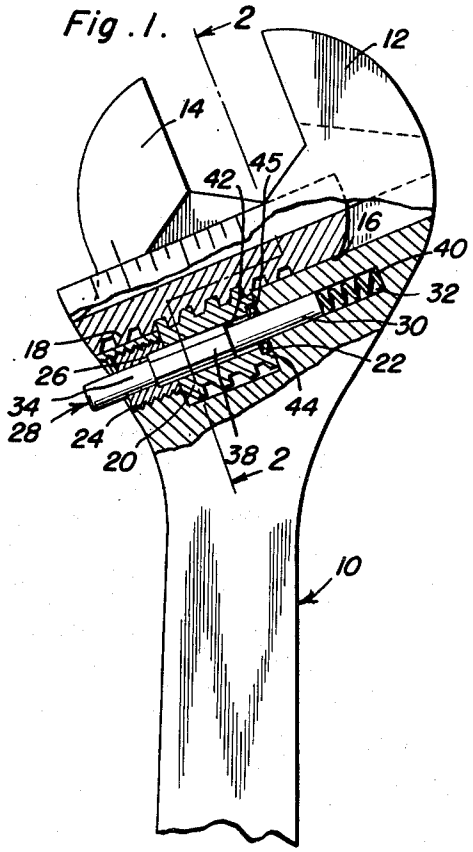
May 13, 1952 W. J. McENROE, JR 2,596,266

SLIDABLE SIDE JAW WRENCH

Filed Dec. 8, 1949

Fig. 1.



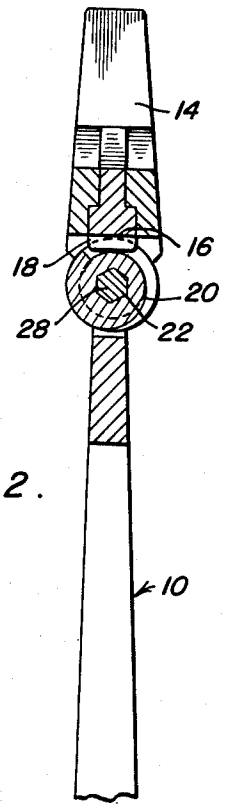


Fig. 2.

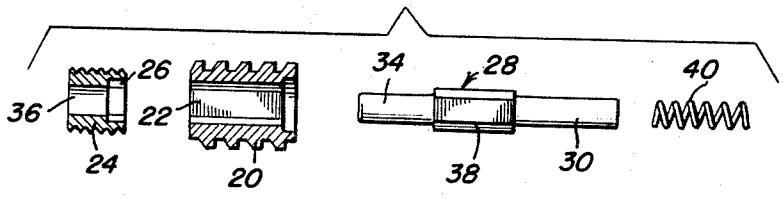


Fig. 3.

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SLIDABLE SIDE JAW WRENCH

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1 Claim. (Cl. 81—165)

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This invention comprises novel and useful improvements in adjustable wrenches, and more particularly pertains to an improved locking means for the type of wrenches having a worm actuated movable jaw.

An important object of this invention is to provide locking means for the movable jaw by locking the actuating worm to the fixed jaw.

Another object of this invention, in accordance with the foregoing object, is to provide a worm shaft for the worm, which shaft is rotatable relative to the fixed jaw so as to prevent freezing or binding of the worm shaft relative to the fixed jaw.

Various important features of this invention reside in the provision for a keyed worm shaft which is receivable in an internally splined worm, which shaft is rotatable upon the application of rotary motion to the worm.

Another important feature of this invention resides in the provision for an internally splined sleeve secured to the fixed jaw, the keyed worm shaft being selectively engageable with the splined sleeve, providing movable jaw locking means.

These, together with various ancillary objects and features, are attained by this invention, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a fragmentary sectionalized elevational view of the device, showing in section the locking means for the movable jaw of the wrench;

Figure 2 is a fragmentary top elevational sectionalized view of the device showing in section the internally splined worm which actuates the movable jaw;

Figure 3 is a view showing the parts of the movable jaw locking means, the internally splined worm and the sleeve, one end of which provides a bearing and the other end of which is internally splined, being shown in section, the keyed shaft and the shaft biasing means being shown in elevation.

Referring now to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, it will be seen that the wrench indicated generally by the numeral 10 is provided with a fixed jaw 12 and a movable jaw 14, the movable jaw 14 being slidably mounted on the fixed jaw 12 as at 16. Attached to, or formed in the lower end of the movable jaw 14 are racked teeth 18. The worm 20 being rotatably attached to the fixed jaw 12 so as to operatively engage rack teeth 18. Thus, it can be readily perceived from the consideration of Figure 1, the movable jaw 14 can be selectively positioned relative to the fixed jaw 12 by suitable rotary motion being applied to the worm 20.

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Inasmuch as a nut which is being tightened by the wrench 10 would tend to separate the fixed jaw 12 from the movable jaw 14 some sort of locking device is obviously necessary. Accordingly, the applicant has provided means for locking the worm 20 relative to the fixed jaw 12, thereby locking the movable jaw 14. For this purpose, the applicant has provided an internally splined bore 22 in the worm 20, together with a sleeve 24 having a similarly internally splined bore 26 at that end of the sleeve that is adjacent with the worm 20, together with a keyed shaft 28, which shaft is rotatably journaled at its inner extremity 30 in a bore 32 in the fixed jaw 12, and is rotatably journaled at its other end 34 in the bore 36 in the external part of the sleeve 24. As can be appreciated from the consideration of Figure 1, the worm shaft 28 is reciprocable within the bores 32 and 36, whereby the keyed section 38 of the shaft 28 may be selectively engaged in the splined portion 26 of the sleeve 24, and since the sleeve 24 is non-rotatably secured with the fixed jaw 12, the worm 20 is non-rotatably locked relative to the fixed jaw 12, when the keyed portion 38 of the shaft 28 is received within the splined end 26 of the sleeve 24. Attached to the end 30 of the worm shaft 28, and within the bore 32, is a means for resiliently biasing the shaft 28 into engagement with the splined sleeve 26, the resilient biasing means preferably consisting of a spring 40 or the like. The other end 34 of the shaft 28 projects externally of the fixed jaw 12, whereby reciprocatory motion may be provided to the shaft 28 so as to selectively disengage the keyed means 38 from the splined sleeve 26.

Obviously, as the end 34 of the shaft is depressed inwardly from the internally splined sleeve 24, the shaft 28 is rotated along with the worm 20, as rotary motion is applied to the latter, and as the shoulder 42 of the shaft 28 and the inner shoulder 44 of the worm 20 would necessarily frictionally engage the fixed jaw 12, a thrust bearing 45, of any desired construction, may be provided, to facilitate smoother operation of the movable jaw. Obviously, as the shaft 28 is rotated, any slight misalignments in the shaft, or any other cause which would tend to result in the sticking or freezing of the shaft 28 in the bearings 30 and 36, is partially alleviated, thereby

permitting reciprocatory motion of the shaft 28.

From the foregoing, it is felt that the manner of operating the invention and the advantages arising therefrom will be readily understood, and accordingly, further explanation is believed to be unnecessary.

However, since numerous modifications will readily occur to those skilled in the art, after a study of the foregoing specification and attached drawings, it is not intended to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to falling within the scope of the appended claim.

Having described the invention, what is claimed as new is:

A wrench comprising a handle, a fixed jaw on said handle, a movable jaw slidably mounted on said fixed jaw and having rack teeth thereon, said fixed jaw having a recess therein and first and second spaced longitudinally aligned bores communicating with said recess, a sleeve mounted in said first bore and having an internally splined inner end portion communicating with said recess, a worm shaft reciprocably and rotatably disposed in said sleeve and second bore, an externally splined portion on said shaft intermediate its ends, a worm disposed in said

recess in engagement with the rack teeth on the movable jaw and having an internally keyed bore therein slidably disposed on the splined portion of said shaft, said shaft having an end thereof projecting outwardly of said sleeve to permit selective reciprocation of said shaft axially of said sleeve and thereby moving the adjacent end of said splined portion of said shaft out of locking engagement with the splined portion of said sleeve, means disposed in said second bore yieldingly urging said shaft into locking engagement with said sleeve.

WILLIAM J. McENROE, JR.

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