

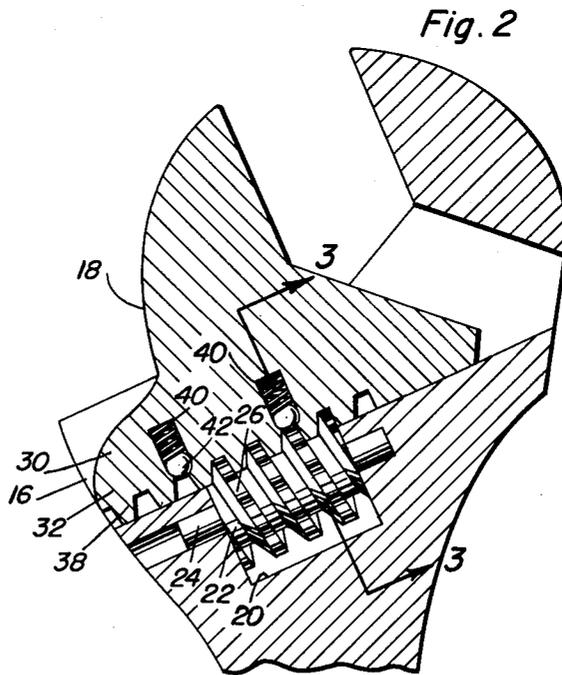
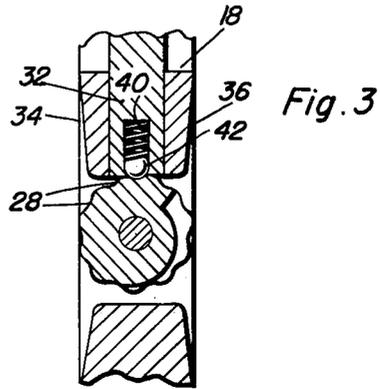
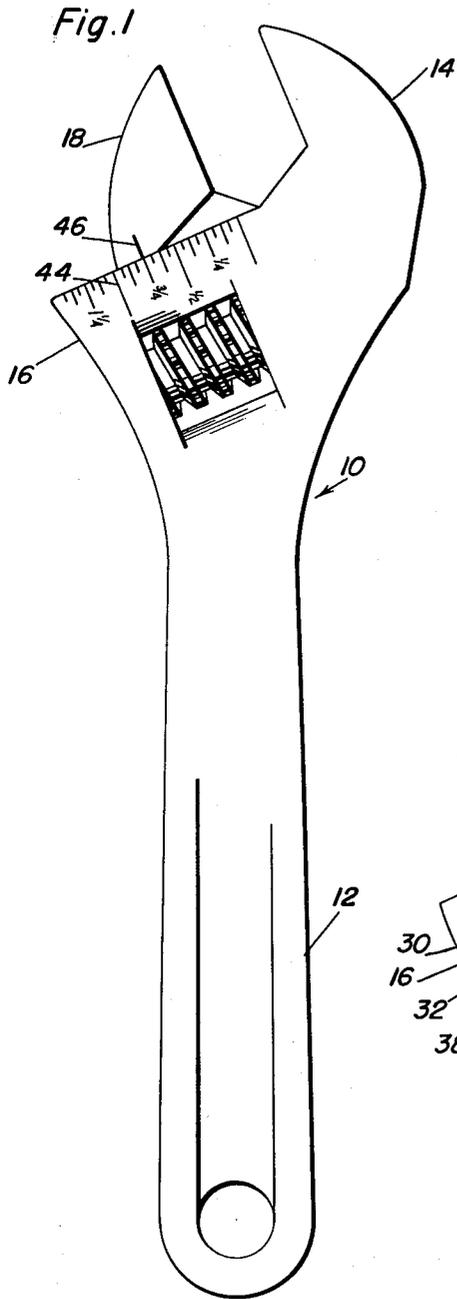
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SELF-LOCKING SLIDABLE SIDE JAW WRENCH

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SELF-LOCKING SLIDABLE SIDE JAW WRENCH

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1 Claim. (Cl. 81—165)

This invention relates in general to hand tools and more specifically to new and useful improvements of an adjustable end wrench.

The everpresent problem in using adjustable end wrenches has been one of keeping the adjustable jaw at a preset point while in operation. This makes it necessary for the operator to maintain a constant pressure on the adjusting screw, which is very unhandy, or adjust the jaw after each turn of the wrench. The adjustable jaw also tends to close in or open up every time the operator lays it down.

Therefore, the primary object of this invention is to provide an improved method of locking the adjustable jaw in any desired position necessary.

Another object of this invention is to provide a method of locking the adjustable jaw in any desired position without the necessity of the operator making any movements or adjustments other than those used in the operation of other adjustable wrenches.

Still another object of this invention is to provide an easily read scale or marking on the jaw and frame so, at a glance, the operator may set the adjustable jaw to a required size without first trying it on a nut or bolt head, as the case may be.

These, together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a vertical view of the self-locking adjustable wrench, showing the movable jaw set for a three-quarter inch nut or bolt head;

Figure 2 is an enlarged, fragmentary sectional view of the jaws and adjusting screw of the wrench; and

Figure 3 is an enlarged, fragmentary sectional view taken substantially along section line 3—3 of Figure 2 showing the engagement of one of the steel balls in one of the grooves of the adjusting screw.

Referring now to the drawings in detail, the wrench is referred to in general by the reference numeral 10 having a suitable handle 12 at its lower end and a fixed jaw 14 at its upper end. Disposed at an intermediate portion and nearer the fixed jaw 14 there is an enlarged portion 16 which is suitably grooved, dove-tailed or the like to slidably receive an adjustable jaw 18.

As is best seen in Figure 2, the enlarged portion 16 has an appropriate sized aperture 20 extending therethrough in order to receive an adjusting screw 22 which is rotatably attached and its axis centrally located within the aperture 20 by means of pin 24, the pin 24 being parallel to the groove or dove-tail in the enlarged portion 16. The adjusting screw 22 has on its outer surface a helical raised portion 26 having along its outer surface, as is best seen in Figure 3, a plurality of grooves 28 which are parallel to the axis of the adjusting screw 22.

As is best seen in Figure 3, the adjustable jaw 18 has formed along the lower portion 30 thereof, a tongue 32

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which is slidably received and retained in position by ears 34 and 36 of the groove or dove-tail located in the enlarged portion 16. The tongue 32 has disposed along the lower edge thereof a plurality of thread segments 38 that slidably engage the helical portion 26 of the adjusting screw 22. Located at the root of two of the thread segments 38 are two holes 40 that house two spring loaded balls 42 so spaced as to have one or the other in constant engagement with one of the grooves 28 on the helical portion 26.

As is best seen in Figure 3, the spring loaded ball 42 acts in one of the grooves 28 as a stop for the screw 22, thereby making the upper jaw 18, thru the thread segments 38, immovable unless definite rotatable thumb or finger pressure is applied to the screw 22.

As is best seen in Figure 1, the enlarged portion 16 has clearly stamped, engraved or otherwise suitably formed on one side thereof a scale 44 which is divided into fractional or decimal parts of an inch as preferred by the buyer. The movable jaw 18 has also suitably formed on the same side, a reference mark 46 which will designate, within reasonable limits, when aligned with the scale 44, the size of the jaw opening of the wrench. As an example, when the reference mark 46 is aligned with the one-half inch line on the scale 44, the jaws will then be open one-half inch.

In operation, the adjusting screw 22 is rotated by thumb or finger pressure until the reference mark 46 is aligned with the desired dimension line on the scale 44. One of the spring loaded balls 42 will then engage one of the grooves 28, located upon the outer surface of the helical raised portion 26, thus offering a resistance to any further rotation of the screw 22 while the wrench is being used to remove or tighten a nut or bolt. It should be noted from Figure 2, that the spring loaded balls 42 are so located, with relation to the adjusting screw 22, that either one or the other is in constant contact with the raised portion 26, thus insuring immobility of the movable jaw 18 until the operator desires to move it.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

An adjustable wrench comprising a handle, a fixed jaw on said handle, a movable jaw slidably mounted on said handle in interengaging relation in opposition to the fixed jaw, a plurality of thread segments on said movable jaw, said handle having an aperture therein adjacent the fixed jaw, a rotatable adjusting screw mounted in said aperture, said aperture providing communication to the thread segments, a spiral raised portion on said adjusting screw in engagement with said thread segments for moving the movable jaw when the adjusting screw is rotated, and independent means on said movable jaw for frictionally engaging said adjusting screw and releasably retaining the adjusting screw and movable jaw in any adjusted position, said retaining means including a plurality of spring urged ball members positioned between said thread segments for engaging the periphery of said raised portion, said raised portion having a plurality of grooves in the periphery thereof for engagement by said ball members, said ball members being spaced apart a distance less than the length of the adjusting screw for continuous contact therewith, said movable jaw having a blind bore movably receiving each of said ball member, and a compression coil spring positioned between the ball member and the bottom of the bore for urging the ball member

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against the periphery of the raised portion of the adjusting screw thereby causing the movable jaw to be urged away from the adjusting screw thus increasing the friction between the interengaging surfaces of the movable jaw and the handle for retaining the movable jaw in alignment with the stationary jaw.

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