

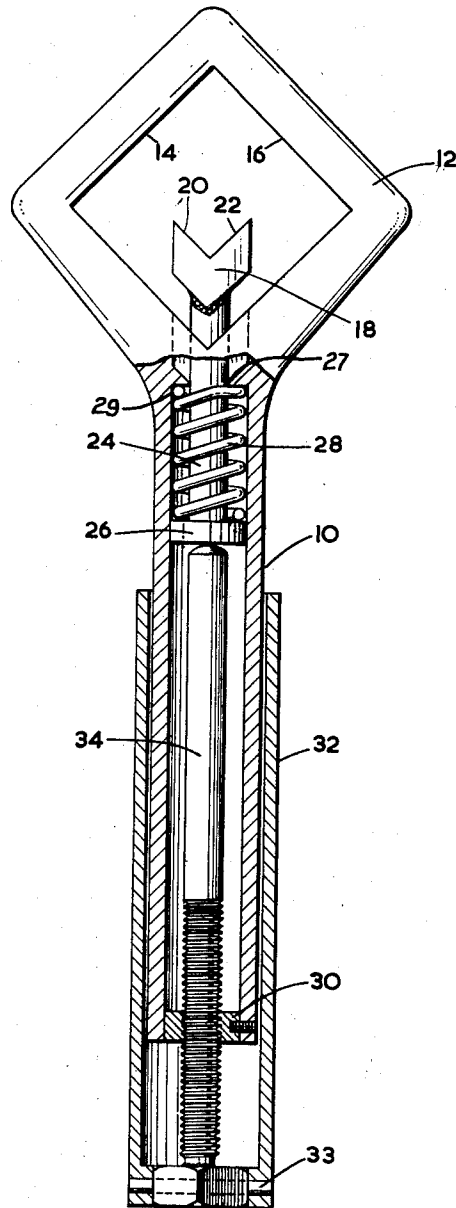
Oct. 7, 1958

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2,854,876

SCREW-ACTUATED, SLIDABLE INNER JAW WRENCH

Filed Oct. 17, 1956



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2,854,876

SCREW-ACTUATED, SLIDABLE INNER JAW WRENCH

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Application October 17, 1956, Serial No. 616,417

1 Claim. (Cl. 81—170)

This invention relates to a wrench adapted to clamp onto objects of varying size.

It is known to provide wrenches with opposed jaws which are adapted to grip an object therebetween, having a handle attached to one of the jaws and means for varying the location of the second jaw relative to the first to suit the size of the object being gripped. In prior wrenches, however, the space varying means, such as the knurled knob on a monkey wrench, is located adjacent the jaws and as far as possible from the portion of the handle where torque is applied. In most applications therefore it has been necessary to use two hands to adjust the wrench, one to hold the handle and the other to rotate the jaw spacing means.

This invention provides a tool having a pair of jaws, one of which is rigidly connected to the handle portion, the other jaw being relatively movable with respect thereto, to grip objects of varying sizes. A rotatable member mounted on the first shank adjacent the torque applying portion of the handle, supplies the actuating means for opening and closing the jaw. Since the means for controlling the spacing of the jaws forms part of torque applying portion of the handle, the wrench may be simultaneously held and adjusted to size with one hand so that the other hand is free to hold any associated part of the equipment to which the wrench is being applied.

A preferred feature of the invention is to provide that the rotatable jaw-adjustment member is a sleeve, telescoping over the shank to form the hand contacting portion of the wrench.

A second preferred feature of the invention provides that the rotatable member is threadedly mounted in that part of the wrench which is rigidly connected to one jaw and is provided with an abutment which contacts a corresponding abutment on the slidably mounted jaw and is adapted to move it toward the other jaw but wherein the slidably mounted jaw is biased away from the other jaw whereby the slidable jaw moves in such direction on rotation of the rotating member to retract its abutment.

The invention is shown in the attached single figure of drawing wherein a shank 10 of tubular construction contiguously extends into a rectangular ring member 12 whose surfaces 14 and 16 facing the shank form one jaw member. For simplicity the end of the wrench adjacent the jaws is known as the "upper" end and the other end as the "lower." It will be seen that the rectangular ring 12 adjacent the shank 10 is provided with a recess to receive a Y-shaped member 18 having surfaces 20 and 22 which form the slidable jaw member and which, when fully seated in the recess conform to the inside contours of rectangular ring 12. Extending downwardly from the surfaces 20 and 22 into the tubular bore of shank 10 is a shank 24 terminating at its lower extremity in a rigidly attached head 26 which fits slidably in the bore of shank 10.

The tubular bore of shank 10 is flanged inwardly at 27 to provide a small circular aperture at its upper end to provide a slidable mounting or bearing for the shank 24. The flange 27 of the bore of shank 10 at the upper end also provides a downwardly facing shoulder 29.

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This shoulder 29 of flange 27 forms a bearing surface for one end of a compression spring 28 which bears at its other end on the head 26 to bias the Y-shaped member 18 into its recess and the jaws to their widest spread position. The lower extremity of the bore of shank 10 is provided preferably with a partial closure by an internal collar 30. The collar 30 is internally threaded. A sleeve 32 slidably telescopes over the outer surface of the tubular shank 10 and forms the hand contacting and torque applying portion of the wrench. Sleeve 32 is rigidly attached as by pin 33, at its lower extremity, to a central shank 34 which shank extends upwardly into the bore of shank 10 toward the head 26, to rotatably slidably contact the lower surface thereof and this shank 34 is threadedly engaged with the internal threads of collar 30.

In operation the rectangular ring is placed over the object to be held or turned, while held in one hand and with the same hand, the sleeve 32 is rotated whereby shank 34 is moved upwardly to carry with it head 26. As the head is moved upwardly against the bias of compression spring 28, the slidable jaw comprising surfaces 20 and 22 is moved toward the fixed jaw comprising surfaces 14 and 16, to clamp the object therebetween. When such clamping is achieved, the hand which adjusted the sleeve 32 may also apply torque to the wrench to turn the object.

It should be noted that provision of a closed ring incorporating the outer jaw is a safety feature since the slipping of the wrench completely off the object is prevented thereby. Thus the person applying torque to the wrench does not risk having his hand injured when the resistance is released by such a slipping.

To release the wrench from the object, the sleeve 32 is rotated in the opposite direction retracting the shank 34 whereby the Y-shaped member is moved toward its recessed position under the bias of spring 28.

It should be noted that if desired the spring 28 need not be used, and the shank 34 of the sleeve 32 and the head 26 of the Y-shaped member may be connected in such a way that while one may rotate relative to the other, they will both translate together.

I claim:

A wrench comprising: a first jaw rigidly connected to and adjacent to one end of a tube, said tube being provided adjacent its other end with internally facing threading; a second jaw slidably mounted in said tube at the same end as said first jaw, said second jaw being provided with a first shank slidably projecting into said tube, a sleeve slidably overlying said tube rigidly connected to a second shank projecting into said tube from the end opposite to said first shank, said second shank being threaded into said tube threading and said first and second shank ends abutting, said second shank being biased away from said first shank, said first shank being constructed to make a sliding fit with said tube near the end thereof adjacent said second jaw member and a sliding fit with said tube adjacent said abutment with said second shank.

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