July 1, 1952 R. E. GARWOOD 2,601,799

PREDETERMINED TORQUE RELEASE WRENCH

Filed Jan. 18, 1951

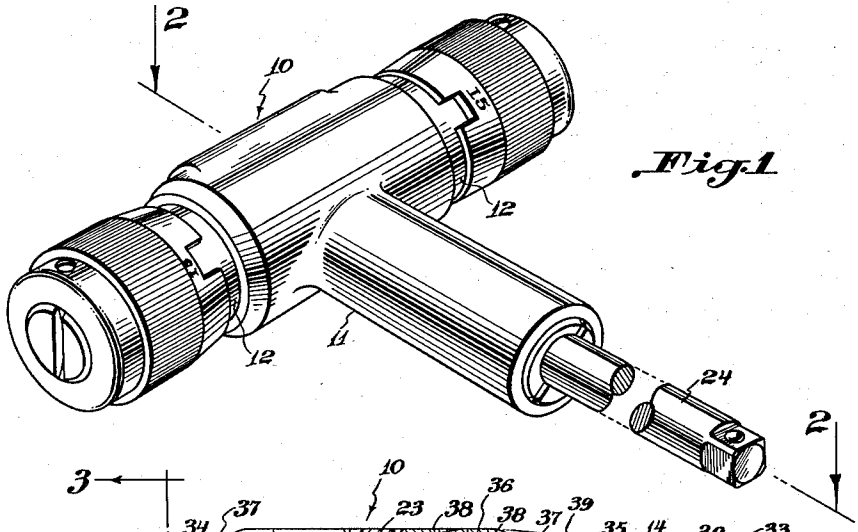


Fig. 1

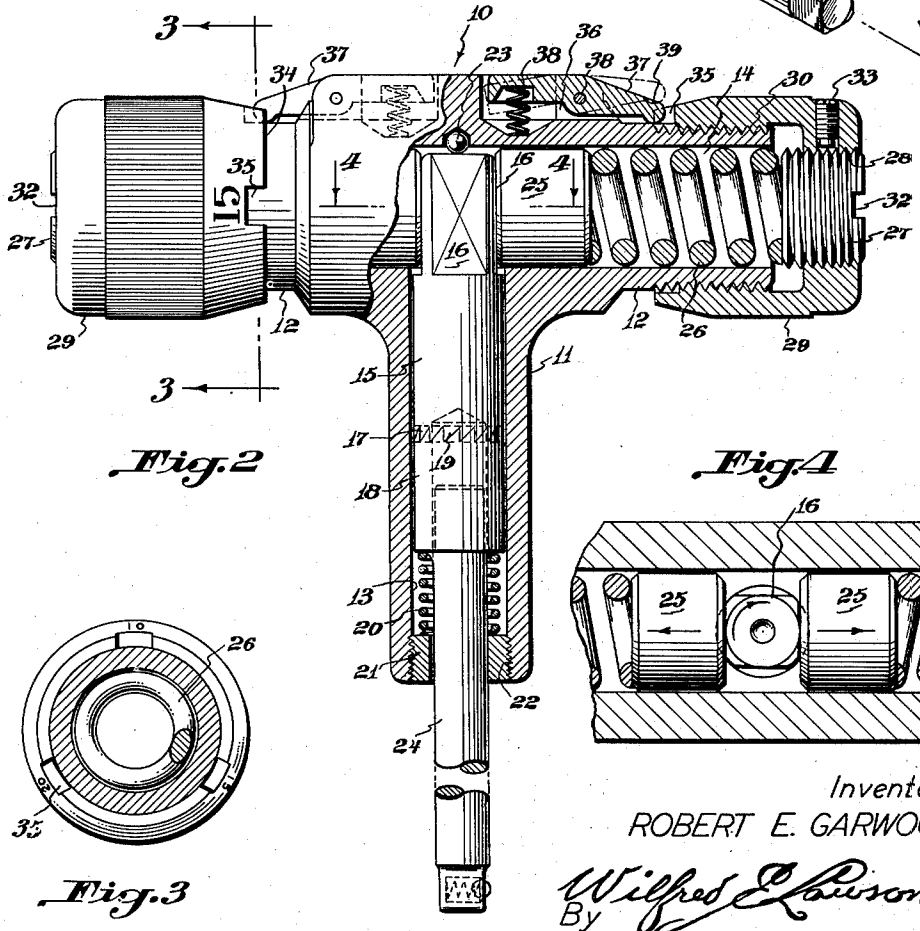


Fig. 2

Fig. 3

Fig. 4

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PREDETERMINED TORQUE RELEASE WRENCH

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1 Claim. (Cl. 81—52.4)

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This invention relates to mechanics' tools and more especially to a T handle adjustable torque wrench.

An object of the invention is to provide novel improvements in an adjustable torque wrench having T handle features.

Another object of the invention is to provide an improved T handle torque wrench having adjustable torque features wherein the amount of effective torque may be readily indicated and determined.

Another object of the invention is to provide a novel adjustable torque T handle wrench wherein the torque setting after being made is secured against shifting.

Other objects and advantages will appear and will be brought out more fully in the following specification, reference being had to the accompanying drawing.

In the drawing:

Figure 1 is a perspective view of an embodiment of the invention.

Figure 2 is a side view of the same, partly in section, the section being taken along the line 2—2 of Figure 1.

Figure 3 is a sectional view taken along the line 3—3 of Figure 2.

Figure 4 is a partial sectional view taken along the line 4—4 of Figure 2.

The numeral 10 indicates generally the adjustable torque wrench of the present invention and comprises a tubular body 11 and a pair of radially extending handle portions 12, body 11 having a bore 13 and portions 12 each having a bore 14.

A shaft element 15 is rotatable in bore 13 and has a plurality of flat side faces 16 and a ratchet tooth formation 17 at its lower end. A socket wrench element 18 having a ratchet tooth formation 19 for engagement with ratchet teeth 17 is rotatable in bore 13 and is urged upwardly by coiled spring 20 which seats on a threaded sleeve 21 secured in the lower threaded end portion 22 of bore 13. A ball 23 or equivalent thrust bearing element is provided at the upper end of bore 13 for shaft element 15. Socket element 18 has a socket for a wrench tool shank 24 of conventional type.

A piston 25 is positioned in each handle bore 14 and is urged against the flat side faces 16 of shaft element 15 by a coiled spring 26, which is seated on a plug 27 which has a threaded engagement 28 in the end of a cap element 29 which has a threaded engagement 30 with the end of its respective handle portion 12 of the wrench body.

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Plugs 27 each have a screw driver slot 32 and may be locked in any adjusted position by a set screw 33 extending radially in cap 29.

Each cap member 29 is formed with an annular shoulder 34 having a plurality of notches 35 and body 11 is formed with a pair of recesses 36 in each of which is positioned a lever member 37 having a pivot mounting 38 in the body of the tool. One end of each lever 37 has a spring seat 38 and the other end 39 of each lever is adapted to interfit in one of the notches 35 of the associated cap member 29. By this construction each lever 37 may have its end 39 retracted from the notches of the associated cap by downward movement of its inner end against the pressure of spring 38. When thus retracted lever 37 permits its associated cap member to be turned to thereby increase or decrease the pressure of the associated spring 26 against the adjacent piston 25 in engagement with the flat side faces 16 of shaft element 15. Cap elements 29 are shown as having three notches 35 and identification marks such as 10, 15 and 20 may be placed adjacent the several notches to indicate the torque limit of the wrench when the respective notches are engaged by the ends 39 of levers 37.

The operation of the invention should be clear from the foregoing description. A specific torque limit, such as represented by the numeral 15 may be provided for the wrench by associating the notches bearing the indicia 15 with levers 37 and, upon the rotation of the wrench which turns the shaft 24, a torque represented by the numeral 15 will be applied to the nut or other element being tightened. When the tightening resistance increases above the numerically designated torque 15 the body 11 of the wrench will rotate and pistons 25 will be retracted against springs 26 and will not cause a turning movement of shaft element 15. Plugs 27 may be shifted to adjust the normal pressure of springs 26 to provide the torque indicated by the indicia associated with notches 35.

While in the foregoing there has been shown and described the preferred form of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

I claim:

In a predetermined torque release wrench, a tubular body of T-form, a wrench spindle within the bore of the leg of said body, a socket element within the said bore below said spindle, cooper-

ative ratchet teeth on the adjacent ends of said socket element and the spindle, a coil spring within the said bore below said socket element urging the latter upward to maintain the ratchet teeth engaged, an annular element threaded into the lower end of the said bore to adjust the tension of said spring, the upper end of said spindle being squared, a piston slidably mounted within each of the opposite arms of said body to be alternately abutted against the adjacent of the flat faces of the said squared end, a coil spring within each of the said arms and bearing against the outer end of the complemental of said pistons, a cap member threaded on the outer end of each of the said arms to adjust the tensioning effort of the associated spring on the adjacent of said pistons, each of said arms having an elongated recess formed in the same adjacent the inner ends thereof, a lever pivoted in each of the said recesses, each of the cap members having spaced notches formed in the inner end edge thereof, and a coil spring within each of said recesses and cooperative with the respective

of said levers, to maintain an end of the same selectively engaged in the said notches to retain said caps against displacement from their positions of adjustment.

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