July 16, 1957 T. R. COUGHTRIE 2,799,195

TOGGLE RELEASE MEANS FOR A PIVOTED JAW WRENCH

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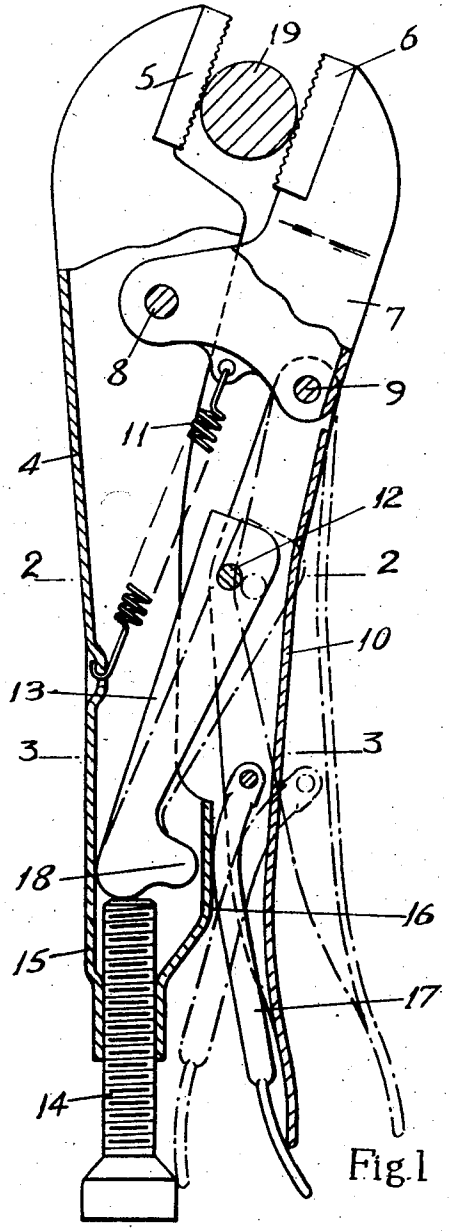


Fig.1

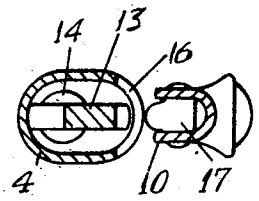


Fig.2

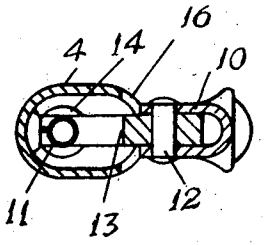


Fig.3

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TOGGLE RELEASE MEANS FOR A PIVOTED JAW WRENCH

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1 Claim. (Cl. 81—370)

This invention relates to wrenches of the kind comprising a handle having at one end a fixed jaw, a movable jaw pivoted on the handle, a hand lever pivoted at one end on the movable jaw, a toggle link interconnecting the said lever and handle and supported at one end on an adjustable abutment in the handle, and a release trigger pivoted on the hand lever.

The object of the invention is to provide an improved construction of a wrench of the kind aforesaid.

A wrench in accordance with the invention includes a socket on the handle for accommodating the adjustable toggle link abutment, which socket is shaped to provide a continuous surface at the side adjacent to the hand lever, a release trigger having formed thereon a bowed part adapted to roll along the said surface when actuated for release of the wrench, and a toggle link having at the end which is supported on the abutment an extension adapted to occupy the associated end of the socket and of such size and shape as will provide the required range of adjustability.

One example of wrench in accordance with the invention is illustrated in the accompanying drawings in which Figure 1 is a part-sectional side view and Figures 2 and 3 are sections on the lines 2—2 and 3—3 respectively of Figure 1.

For the greater part, the illustrated wrench is of known construction, in that it includes a hollow handle 4 made by folding a metal sheet to a trough like cross section which is open along the inner edge of the handle, the fixed jaw 5 being secured to one end of the handle. The movable jaw 6 is secured to another and relatively small part 7 made from a folded piece of sheet metal. This part 7 is pivotally attached to the handle 4 at 8, and has pivotally attached to it at 9 one end of a hand lever 10 which extends along the open side of the handle. The part 7 is also connected to the handle 4 by a spring 11 which is accommodated within the handle. The hand lever 10 has pivotally attached to it at 12 one end of a toggle link 13, the other end of which is supported on the inner end of an abutment provided by a stem 14 in screw threaded and adjustable engagement with a part of a socket 15 on the end of the handle 4 remote from the fixed jaw.

According to the invention, the socket 15 is made to a substantially elliptical or flat-sided cross section and is formed by so shaping parts of the edges of the sheet metal blank used in the production of the handle, that when the edges of these parts are brought together and secured by brazing or otherwise the said parts provide an uninterrupted surface 16 with which the release trigger 17 can co-operate as hereinafter described.

The toggle link 13 is made from a flat piece of metal of uniform thickness, and at one end has formed on it a lateral projection 18 of such size and shape that it can be accommodated on the inner end of the socket, and can remain in the socket throughout the whole of the normal range of adjustment of the screw threaded stem 14 on which the toggle link is supported.

When the wrench is in use, the abutment is so adjusted

that on gripping a work piece or other object 19 of a given size, the toggle link 13 is moved sufficiently past its dead-centre position to hold the jaws 5 and 6 in action when the hand grip is relaxed, this being a characteristic feature of wrenches of the kind to which the invention relates. To release the object 19, the effort required to move the handle and hand lever apart may be considerable, and to facilitate this action it is already known to provide a release trigger on the hand lever.

According to my invention the release trigger 17 consists of a short lever which is pivotally attached at one end to the hand lever 10 and which lies along the inner side of this hand lever. At a position between its ends the trigger 17 is bowed, and the bowed part is so located that it can abut against and roll on the adjacent surface 16 of the socket above described.

To release the object 19 gripped by the wrench the free end of the trigger 17 (which extends a short distance beyond the free end of the hand lever 10) is moved inwardly towards the handle 4. This causes the bowed part of the trigger to press against and rock or roll on the surface 16, and thereupon exert on the hand lever a sufficient force to return the toggle link 13 to the other side of its dead-centre position.

Hitherto there has been formed along the inner side of the socket a longitudinal slot to receive one end of the toggle link, and on the latter has been formed a head to prevent its dislodgement from the socket. Also the release trigger has been arranged to act on the end of the toggle link which is pivoted to the hand lever. By my invention two desirable advantages are obtained. In the first place, manufacture of the toggle link 13 is simplified, and economy of material is effected in its production. In the second place the release trigger 17 is so shaped and positioned that it affords a superior mechanical advantage and consequently an easier release action than the trigger hitherto used.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

A wrench comprising in combination a handle provided at one end with a fixed jaw and at the other end with a socket, a screw engaging the outer end of and extending into said socket, a movable jaw pivoted to said handle, a hand lever pivoted at one end to said movable jaw, a toggle link having one end pivoted to said hand lever and the other end supported in said socket by the inner end of said screw which forms an adjustable abutment for the adjacent end of said toggle link, and a trigger pivoted to said hand lever and adapted to co-operate with said handle for moving said hand lever and toggle link into positions in which the grip of the jaws is released, said socket being provided at the side adjacent to said hand lever with an uninterrupted wall which serves to retain the adjacent end of said toggle link within said socket, and said trigger being provided with a bowed part which rolls along the outer surface of said wall when said trigger is actuated.

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