Dec. 13, 1927. 1,652,977

J. M. DE VILBISS

WRENCH

Filed Dec. 19, 1925

Fig. 1.

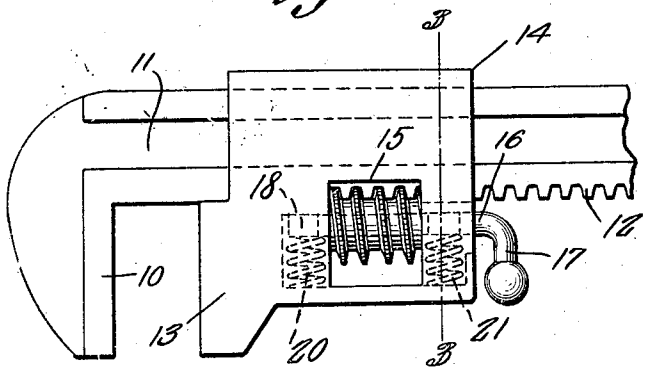


Fig. 2.

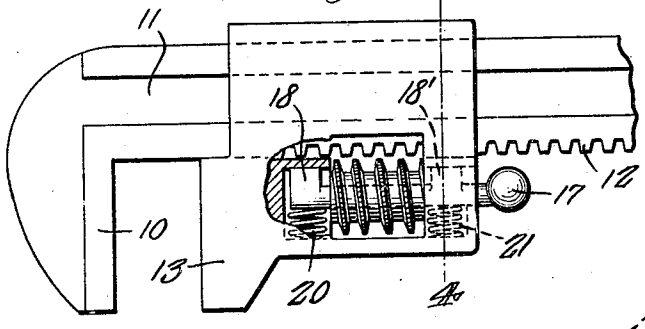


Fig. 5.

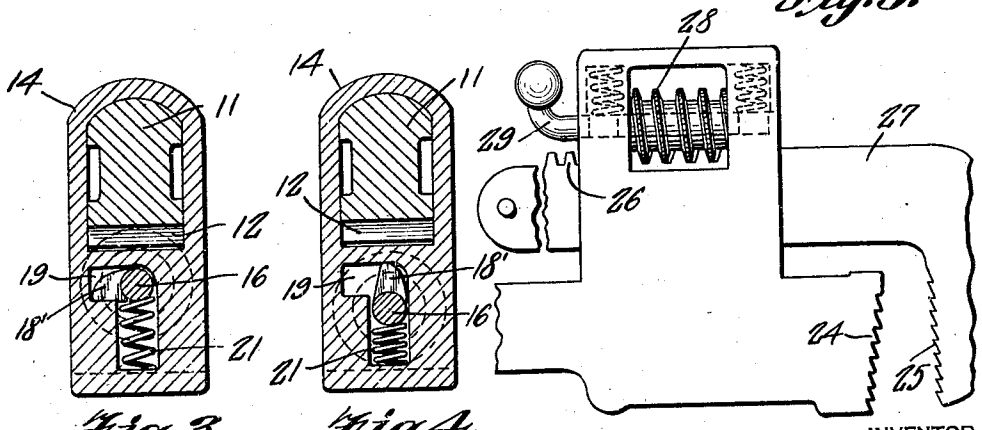


Fig. 3. Fig. 4.

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UNITED STATES PATENT OFFICE.

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WRENCH.

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The object of this invention is to provide a wrench including a stationary jaw formed with a rack portion, and a slidable jaw mounting a worm member, the worm being movable toward and away from the wrench, and an axial element being provided carrying a locking member, by means of which the worm may be retained in an inoperative position.

A further object is to provide a device comprising a plurality of relatively movable jaws, one of which carries a rack portion, the other mounting a worm, and the latter being carried by an axial element having a handle portion and a cam portion, the latter retaining the worm in an inoperative position, when desired.

A further object is to provide a construction which may be employed in either a wrench designed for turning a nut, or may be applied to a pipe wrench.

With the foregoing and other objects in view, the invention consists in the novel construction and arrangement of elements described, illustrated and claimed, it being understood that modifications may be made within the scope of the claim, without departing from the spirit of the invention.

In the drawings forming a part of this application,

Figure 1 is a view in elevation, showing a portion of a wrench, and showing in dotted line the resilient mounting of the worm element.

Figure 2 is a similar view, the worm element having been thrown out of operative position, by the rotation of the axial member thereof, this member carrying a cam end portion.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a fragmentary view in elevation, showing the worm element as employed, in connection with a pipe wrench.

The stationary jaw of a wrench is designated 10, and is formed on a shank 11, one edge of the latter being provided with teeth constituting a rack 12.

A movable jaw 13 includes a box member or sleeve 14 thru which the shank 11 passes, and an opening is provided at 15 for the accommodation of a worm adapted for cooperation with the rack 12.

The worm is loose with reference to an axial element 16, and the latter is provided with an offset portion 17 constituting a handle or thumb member, the opposite end of the element 16 carrying an offset portion 18 constituting a device for retaining the worm out of engagement with the wrench 12. In this position the movable jaw may be rapidly positioned with reference to the stationary jaw. The axial element 16 is further provided with an offset portion 18′, and said element 16 operating in openings, such as 19, acts under the influence of coiled springs 20 and 21, when the latter are free to act for retaining the worm in engagement with the rack. When it is desired to retain the worm temporarily out of engagement with the rack, the element 17 is operated, in order to throw the offset members 18 and 18′ to the position of Figures 2 and 4.

The wrench thus constructed may be held and adjusted by one hand, while the other is free for use in other connections, and in employing the tool in this manner, the thumb engages the element 17, for controlling the position thereof, it being understood that the palm of the hand and the fingers engage the handle, not shown, in the usual manner.

In Figure 5 the manner of applying the improvement to a pipe wrench is illustrated, the jaws of which are designated 24 and 25, their serrated surfaces diverging, in the usual manner. The rack 26 on the shank 27 or jaw 25, is engaged by a worm 28 carried loosely by a shaft or stem 29 constituting the axial element. This member 29 is designed to carry offset portions, such as 18 and 18′ previously described, the view however, illustrating the worm in engagement with the rack, so that the offset portions extend toward the observer, or project on the other side, as the case may be. The operation of this worm will be clear, when the device is considered in connection with the form first described.

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

A device of the class described, comprising a plurality of relatively movable jaws, a rack member, rigid with reference to one of the jaws, a worm adapted to engage the rack, and being rotatable with reference to the other jaw, an axial member loosely mounting the worm, and offset means carried by

the axial member for throwing and retaining the worm out of engagement with the rack, upon partial rotation of the axial member, resilient means engaging the axial member, positioned perpendicularly thereof for imparting lateral thrust on opposite ends, and tending to move the worm toward the rack, when its movement is unobstructed, and a thumb member extending along side of the rack, for imparting rotary movement to the axial member.

In testimony whereof I affix my signature.

JOHN M. DE VILBISS.