UNITED STATES PATENT OFFICE.

WILLIAM H. OLIVER, OF CHICAGO, ILLINOIS.

WRENCH OR NUT-JACK.


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To all whom it may concern:

Be it known that I, William H. Oliver, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Wrenches or Nut-Jacks, of which the following is a specification.

This invention relates to improvements in wrenches or nut-jacks, as they are sometimes called.

The primary object of the invention is to produce an improved wrench or jack which may be easily and quickly adjusted and locked in its adjusted position.

A further object is to produce a device of this character which will be simple and durable in construction and cheap to manufacture.

To this end and the accomplishment of other new and useful objects, as will appear, the invention consists in certain features of novelty in the construction and arrangement of the parts hereinafter fully set forth and claimed as shown in the accompanying drawing illustrating an example of the invention.

In the drawing,—Figure 1 is a side elevation of my improvement. Fig. 2 is a rear view. Fig. 3 is a longitudinal section on line 3-3 of Fig. 2. Fig. 4 is an enlarged detail view of the rear of the rigid jaw showing the rack teeth; and Fig. 5 is a detail of the wheel or disk showing the operating screw or worm.

The form of my invention illustrated, the numeral 1 designates the shank or body of the wrench on one end of which is an outer rigid jaw 2, the other end being shaped to form a suitable handle of any desired shape as illustrated at 3. The shank 1 is preferably angular in form of any desired shape, and is provided upon its rear face with a longitudinal rib 4. This rib extends for a short distance from the outer or rigid jaw 2 and terminates in a rack or series of teeth 5, which teeth are beveled or reduced on one edge, as shown at 6, for a purpose hereinafter set forth. The shank 1 is preferably channeled out or grooved as at 7, below the rack or teeth 5, and located within this groove or channel is a stop or lug 8. The part of the invention above described may be constructed in any desired manner, but I prefer to cast the same, and to construct the jaw with an angular recess 9, in its inner face, and with a rounded periphery or outer face.

Surrounding the shank and sliding thereon is a sleeve or collar 10, carrying an inner jaw 11, which is also provided with an angular recess 12 in its face adapted to cooperate with the recess 9 in the face of the outer jaw 2 and a rounded outer face or periphery. The rear wall 13 of the sleeve or collar 10 is inclined and extends outward from the top of the sleeve toward its base and away from the shanks 1, to form a housing, and said wall is provided with a centrally disposed aperture 14, surrounding which, and on the inner face of the wall 13, is a recess or cavity 15, and a lug or projection 16 is carried within the housing adjacent to the base of the rear wall.

Carried by the sleeve or collar 10, at a point preferably below the housing, and secured by means of a removable bolt 17, is a handle 18. The bolt 17 is provided with a screw threaded end 19, adapted to extend beyond the inner face of the sleeve 10 and into the groove or channel 7 of the shank 1, this extended end being adapted to contact with the lug or projection 8, to prevent the accidental displacement of the parts when the jaws are fully expanded.

The numeral 20 designates an operating member which I have preferably shown as a disk or wheel which is provided with a serrated or notched periphery 21. Extending from the rear face of said disk or wheel is a centrally disposed projection or trunnion 22, which is adapted to be seated and journaled in the aperture 14 in the rear wall 13 of the sleeve 10. The inner face of the wheel is provided with a radially extending spiral web or rib 23 adapted to engage and co-act with the teeth or rack 5 on the rib 4, and said wheel is conical in shape, as will be seen, to permit the same to assume the proper position in relation to the wall 13 of the housing and thus allow the spiral rib or web 23 to engage the teeth or rack 5. The diameter of said wheel is of such a size that when in position its periphery will extend beyond the edges of the housing formed in the sleeve 10.

It will be noted that when the parts are assembled, as shown in Fig. 3, the operating disk or wheel 20 is disposed at an angle to the shank 1, and located within the housing in such a manner that the lower edge thereof stands behind the lug or projection 16, which will prevent its displacement, while the spiral web or rib 23 stands between and contacts with only two of the teeth 5 at a point substantially diametrically opposite to the lug or projection 16. With this arrangement, and with the trunnion 22 journaled in the aperture 14 of the rear wall 13, it is impossible for the operating wheel to become displaced.

The parts being assembled, as shown in Fig. 3, the jaws are easily adjusted by turning the wheel 20 either with the thumb and second finger or stroking the palm of the hand over the periphery of the wheel, if a more rapid adjustment is desired, which brings the jaws into the desired position. The nut may be started by grasping the shank handle 3, or by means of the handle 18, after which said handle 18 may be used as a crank to run the nut off.

One of the most important features of the invention lies in the fact that the operating wheel 20 is disposed at an angle to the teeth on the shank so that all strain exerted on the jaws is in a direct line with the center
of the axis of the wheel which will cause said wheel to serve as a lock for the jaws after they have been adjusted.

The parts are disassembled in the following manner:

5 The bolt 17 is retracted until its threaded end is flush with the inner face of the sleeve 10, or if desired, may be entirely disengaged therefrom; the operating wheel revolved, which will cause the inner jaw, through the medium of the spiral web or rib 23 and the teeth 5, to move to such a position that the teeth and web have become disengaged, when the sleeve 10 may be easily slipped off over the shank handle 3, after which the wheel 20 may be removed from its housing.

To assemble the parts, the wheel 20 is first inserted in the housing with its trunnion journaled in the aperture 14, the sleeve then slipped over the shank until the web or rib 23 engages the teeth 5, the wheel revolved, thus moving the sleeve 10 upward until the end thereof is beyond the lug or projection 8, and the bolt 17 is then screwed into position until the end stands within the groove or channel 7.

Having thus fully described my invention, I desire it understood that I do not wish to be limited to the exact sizes, proportions, construction and arrangement of the several parts, as various changes may be made without departing from the spirit of my invention.

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

30 1. In a device of the class described, the combination of a shank having a jaw and a stop, a sliding jaw on the shank, adjusting means for said jaw, and a crank handle operatively and detachably connected with the sliding jaw, the end of said handle being arranged to engage said stop to limit the movement of said sliding jaw.

35 2. In a device of the class described, the combination of a shank, having a groove therein and provided with a handle, a sleeve surrounding the shank, adjusting means carried by the sleeve, a handle carried by the sleeve, and a bolt passing through the handle, the end of said bolt being adapted to enter and slide within the groove.

3. In a device of the class described, the combination of a rigid jaw, rack teeth carried by the jaw, a sleeve surrounding the rack, an operating member, a spiral rib carried by the face of the member, and a lug or projection carried by the sleeve, said member being mounted in the sleeve behind the lug and in an inclined position with relation to the rack, so that one portion only of the rib will engage the teeth, whereby the jaws may be adjusted and locked in their adjusted position.

4. In a device of the class described, the combination of a shank having a jaw and a rack, a sliding jaw on the shank, a support connected with the sliding jaw and having a journal bearing and provided with a projecting lug, a rotary operating member supported by said lug at one side and having a journal in said bearing, one face of said operating member having a spiral arranged in an inclined plane with respect to said rack and engaging the rack at one edge.

5. In a device of the class described, the combination of a rigid jaw, rack teeth carried thereby, a movable jaw, a sleeve carried thereby and provided with an inclined rear wall adjacent to and spaced from the rack, said wall having a centrally disposed aperture therein, a lug within the sleeve, an operating member comprising a conical disk wheel, a trunnion carried by one face thereof, and a spiral rib carried by its opposite face, said wheel being mounted in the sleeve with its trunnion journaled in the aperture, so that the said wheel will assume an inclined position in relation to the rack, with one point only of the rib engaging said rack and with the diametric opposite point of the wheel standing behind the lug.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 22nd day of September, A. D. 1905.

WILLIAM H. OLIVER.

WITNESSES:
FRANCIS A. HOPKINS,
CHARLES H. SEEM.