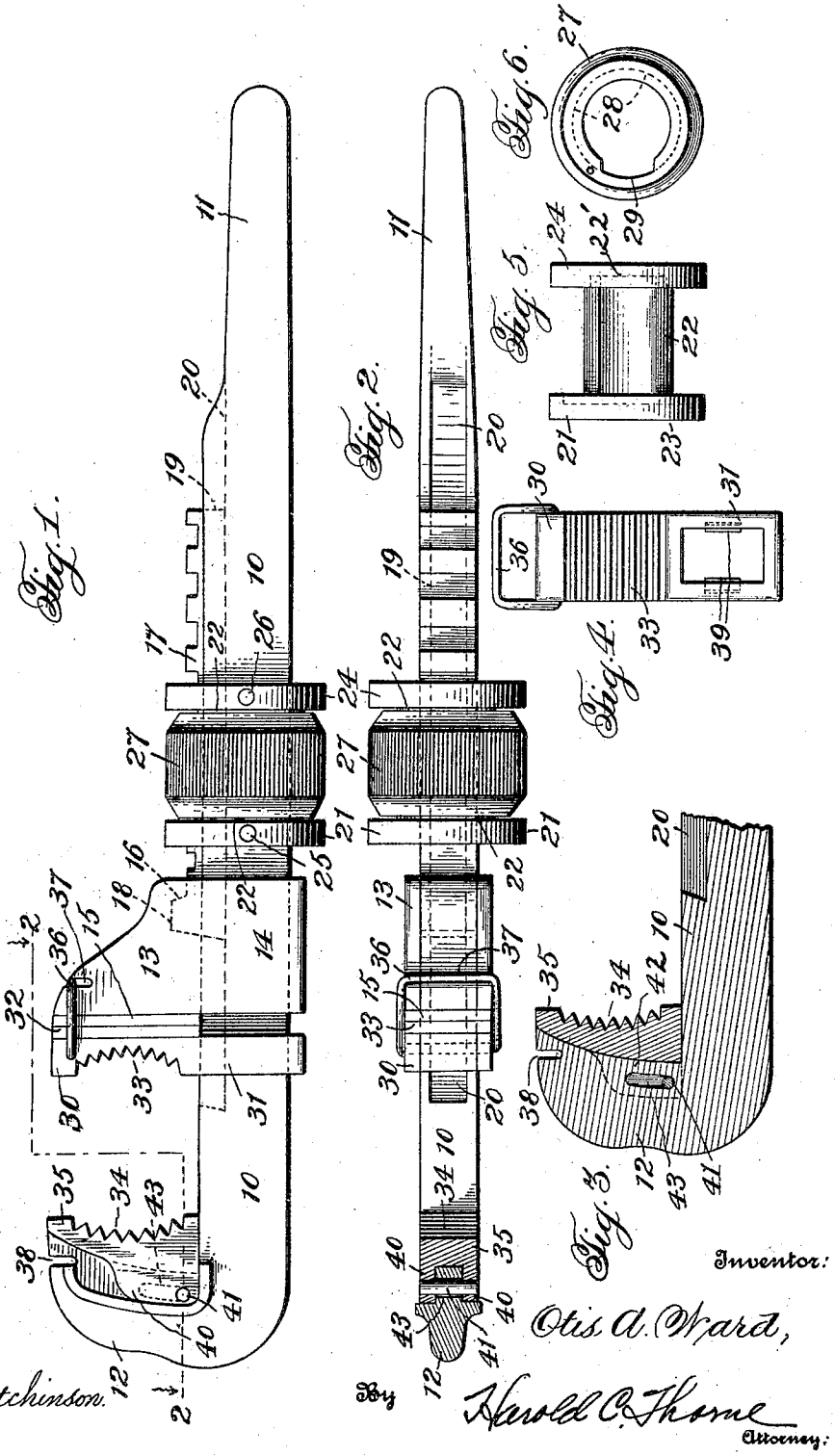
O. A. WARD.

WRENCH.

APPLICATION FILED APR. 3, 1920.

1,396,982. **Patented Nov. 15, 1921.**



Witness:

Jas. E. Hutchinson.

Inventor:

Otis A. Ward,

By Harold C. Thorne

Attorney.

UNITED STATES PATENT OFFICE.

OTIS A. WARD, OF EVANSTON, ILLINOIS.

WRENCH.

1,396,982. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed April 3, 1920. Serial No. 371,064.

To all whom it may concern:

Be it known that I, OTIS A. WARD, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches and its object is to improve the gripping faces of the jaw members and to provide a supplemental jaw member having gripping faces complemental with the faces on the fixed and movable jaw members for adapting the wrench for use as a "monkey-wrench" or a pipe-wrench.

Further objects and details of the invention will appear as described in connection with the accompanying drawings and hereinafter set forth and claimed.

Referring to the drawings forming a part of this specification, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a plan view of the wrench,

Fig. 2 is an elevation thereof with parts shown in section taken on line 2—2 of Fig. 1.

Fig. 3 is a detail longitudinal sectional view,

Fig. 4 is an end elevation of a supplemental jaw member, and

Figs. 5 and 6 are detail views.

In the drawings, the shank of the wrench is designated generally by reference numeral, 10, and has a handle portion, 11, at one end, and a jaw, 12, at its other end.

The movable or main jaw, 13, is provided with a saddle portion, 14, for embracing the shank, 10, of the wrench in the usual manner, and a face, 15, both of which may be welded to a solid metal block forming the body of the jaw.

The body of the movable jaw 13, is recessed as indicated at 16, for receiving and holding a rack bar, 17, having a projection, 18, so that they will move together. The rack bar is provided with an extending base portion, 19, which engages in a longitudinal slot, 20, in the shank, and also gives the bar sufficient strength to withstand the strain upon it while in use.

A journal, 21, as best shown in Fig. 5, comprises a body portion, 22, having a slot 22′, for receiving the shank 10, and an integral end flange, 23, and a loose end flange, 24. The journal is mounted on the shank, 10, and maintained in fixed relation therewith by suitable pins or rivets, 25, and 26, passing through the shank.

On the journal 21 is positioned a wrench nut, 27, having threads, 28, for engaging the rack bar, 17, and having a slot, 29, for releasing the rack bar.

A supplemental jaw member, 30, is provided with a saddle, 31, for embracing the shank 10, and a face, 32, which coöperates with the face 15, on the main jaw 13. On the opposite side from the face 32, the supplemental jaw is made concave and provided with gripping teeth forming a jaw face, 33, which coöperates with a similar sliding jaw face, 34, of a member, 35, mounted on the end jaw, 12.

The supplemental jaw has apertures for receiving a holding member or bail, 36, which as shown in Fig. 1, engages a slot 37, in the outer edge of the movable or main jaw 13, or it can be positioned so as to engage a similar slot, 38, in the end jaw.

Springs, 39, may be mounted within and on the opposite side of the saddle, 31, for engaging the shank, 10, whereby the friction between the springs and the shank will tend to hold the jaw member in the desired position.

The sliding jaw member, 35, is provided with ears, 40, which are apertured for receiving a pin, 41, for holding the member on a reduced extending cam, 42, on the jaw 12, by passing through a slot, 43, permitting a sliding of the member, 35, along the surface of the cam.

In operation of the wrench the wrench nut may be turned so that the slot allows the rack-bar and movable jaw member to slide to the position in which they are to be used, and then the nut is turned upon the threads to hold the jaw in close relation with the articles between the jaws.

With the supplemental jaw member, 30, fastened to the movable jaw, 13, the wrench is intended for use as a pipe-wrench. It will be noted that the sliding jaw member, 35, will remain in or be forced to its innermost position along the cam 42, as the wrench is positioned upon a pipe, and that upon drawing the handle up the gripping teeth on the jaw faces will embed themselves in the pipe as the sliding jaw member moves outward on the cam, 42, for effectively holding the pipe. A backward turn will effect a release of the wrench from the pipe.

In case the wrench is to be used as a "monkey-wrench" the bail, 36, is to be detached from the slot, 37, the supplemental jaw member is then moved along the shank, 10, until it engages the sliding member, 35, and the bail is then positioned to engage the slot 38, in the end jaw, 12, and the wrench is ready for use.

When the supplemental jaw member is provided with springs 39, the bail member, 36, is not an essential element since the springs will hold this jaw member in the desired position. However it is preferable to have the bail for positively holding the member to one or the other of the wrench jaws.

While I am aware that pipe wrenches have heretofore been provided with sliding jaw faces, my improved sliding jaw member, 35, is mounted on the end jaw, 12, in such a manner that it is always ready to receive the object to be held by the wrench without having to manipulate it by hand or provide special holding devices for it; it will readily grip the object and the leverage is such that the fulcrum is at the face 33, during the gripping process.

I do not wish to limit myself to any specific constructions as described in this specification for the purpose of giving examples or illustrations of my invention, for it is obvious that various changes in the details may be resorted to without departing from the spirit and scope of the invention, which is set forth in the following claims:

1. A wrench comprising a shank having a jaw member at one end thereof and terminating in a handle at its other end, a movable jaw member slidingly mounted on the shank, a rack-bar engaging the movable jaw member and slidable along the shank, a journal comprising a slotted body having end flanges mounted on the shank, a wrench nut mounted on said journal between said flanges and adapted to engage with the rack-bar for holding the movable jaw member in any desired position, and means for fastening said journal on the shank for holding the wrench assembled.

2. A wrench comprising a shank terminating in a handle at one end and an outer jaw member at its other end, an inner jaw member slidingly mounted on the shank for coöperating with said outer jaw member with means for holding it in any desired position on said shank, a cam surface on said outer jaw member, a sliding jaw gripping face mounted on said cam, and a complemental gripping face on the inner jaw member.

In testimony whereof I affix my signature.

OTIS A. WARD.