L. S. STARRETT.

Wrench.

No. 212,760. Patented Feb. 25, 1879.

Fig 1

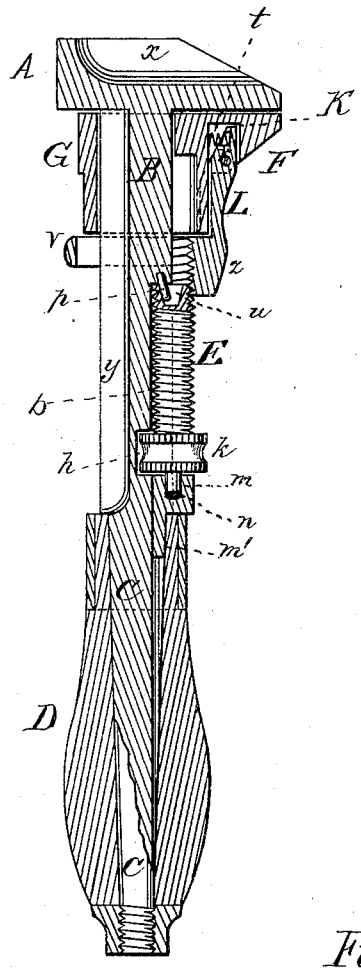


Fig 3

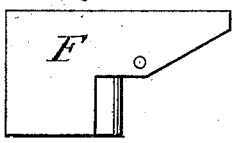


Fig 4

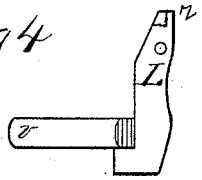


Fig 5

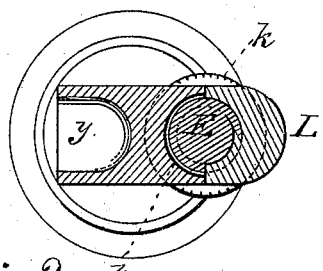
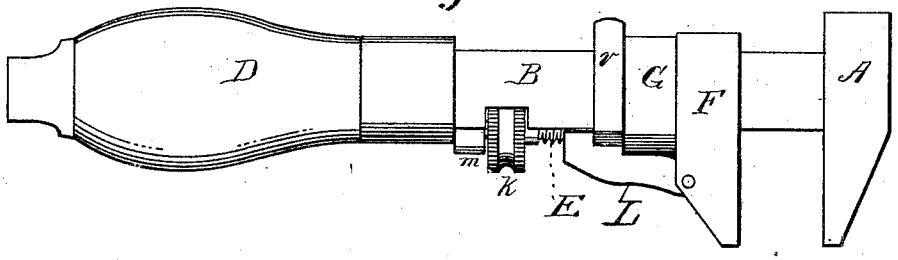


Fig 2



WITNESSES

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UNITED STATES PATENT OFFICE.

LAROY S. STARRETT, OF ATHOL, MASSACHUSETTS.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **212,760**, dated February 25, 1879; application filed September 22, 1877.

To all whom it may concern:

Be it known that I, LAROY S. STARRETT, of Athol, in the county of Worcester and State of Massachusetts, have invented a new and valuable Improvement in Wrenches; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal central section of my improved wrench. Fig. 2 is a side view thereof. Figs. 3 and 4 are details, and Fig. 5 is a cross-section of the same.

This invention relates to improvements upon the wrench for which I was granted Letters Patent, dated May 8, 1877, and numbered 190,636; and consists, first, in the substitution for the long working-screw shown in said patent of a short working-screw playing in a longitudinal recess, which occupies about half of the length of the front edge of the jaw-bar, and is of sufficient depth to afford in its front end wall a bearing for the journal of said short screw; and, second, in the construction of the jaw-bar and stationary jaw with recesses for the purpose of rendering them more perfectly annealable when a cast bar is used.

In the drawings, the letter A designates the end or stationary jaw of the wrench, from which extends a strong jaw-bar, B, which is provided with a tang, C, for insertion into the handle D, to which it is designed to be rigidly secured. In the front edge of the jaw-bar B is sunk a longitudinal recess, *b*, deep enough to allow the short working-screw E to be sunk therein about half the diameter of said screw, which is provided with a milled head or rose, *k*, which is sunk in a transverse recess, *h*, deeper than the longitudinal recess. The rose *k* is about twice the diameter of the screw, and its sunken portion abuts against the rear wall of the transverse recess *h*, which rear wall thus resists the entire strain exerted against the movable jaw and screw, the journal *n* playing sufficiently in the recess *m* to permit of such abutment when the strain is brought upon the movable jaw. The rose *k* is provided with a journal, *n*, playing in a removable journal box or bearing, *m*, located at the rear of the transverse recess *h*, and this journal box or bearing *m* is provided with an arm or tang, *m'*, which extends into the handle D, and said bearing is thereby held in place.

The upper end of the screw is provided with a pin, *p*, secured in the shoulder *u* of the longitudinal recess *b*.

In putting these parts together, the sliding jaw and brace are first placed upon the jaw-bar, and the working-screw is then fitted in the inner recess, *b*, its forward end resting upon the pin provided for it in the front wall of the recess *b*. The journal of the operating rose or milled head *k* is then inserted into its journal-box and said box placed upon its seat, with its tang or arm extending along the tang of the jaw-bar, upon which the handle D is placed.

F designates the movable jaw, designed to slide on the jaw-bar and working-screw. It is provided with an extension or neck, G, which surrounds the jaw-bar and screw, and is of sufficient length to brace the jaw to its work when set. In this jaw F, on its under side, a recess or chamber, K, is formed to receive the head *r* of the brace L, which is pivoted therein, and provided above its pivot with a seat for a spring, *t*, one end of which is secured thereto, and the other bears against the recess K in the jaw F.

At the other end, *z*, of this brace L is a loop, *v*, which extends around the jaw-bar, and on the inner surface of the end *z* of the brace is a screw-thread, which gives said end *z* the character of a half-nut, which is designed to engage with the working-screw when brought up against the same. The loop *v* is large enough to allow this half-nut to be swung free or disengaged from the screw when desired. Otherwise, said half-nut will be kept to its engagement with the screw by the action of the spring above referred to.

When the half-nut of the brace is disengaged the movable jaw may be rapidly adjusted by sliding it along the jaw-bar. For fine adjustment the half nut is brought into engagement with the screw E, which is turned by means of its milled head or rose *k*. In or-

der to disengage the brace from the screw pressure is exerted upon the top of the loop *v* or thumb-piece.

Through the entire length of the back edge of the jaw-bar B extends a groove, *y*, which is about half as deep as said bar is wide, and in the front face of the stationary jaw A is a recess, *x*. The object of this groove and recess is to reduce the bulk of the parts in which they are located, and permit said parts to be thoroughly annealed when a cheap cast bar and jaw are used, while at the same time the working-faces and strength of said parts are not impaired.

I claim as my invention—

1. In a wrench, the combination, with a recess, *b*, in the front of the bar, and the short screw E, having a milled head, *k*, of the jaw F, provided with a recess, K, for the reception of the end of the half-nut brace L, which is pivoted in said recess, substantially as specified.

2. In combination with the stationary jaw A of the wrench-stock B, having the recess *b* and short screw E, the movable jaw F and brace L, pivoted in a recess, K, in said jaw, and the spring *t*, seated in the brace and bearing against the recess K, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LAROY S. STARRETT.

Witnesses:

CHARLES W. BANNON,

HENRY H. EARLE.