H. F. READ.

Wrenches.

No. 138,932. Patented May 13, 1873.

Fig. 1.

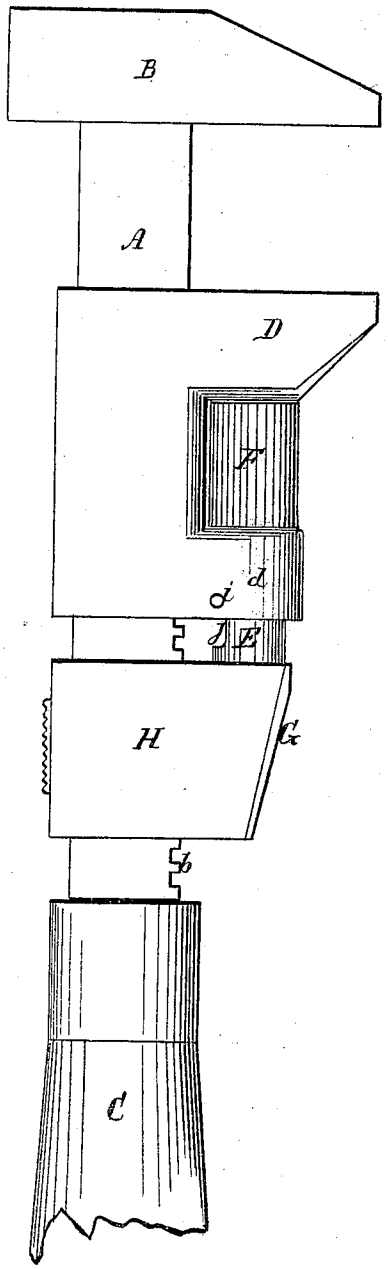


Fig. 2.

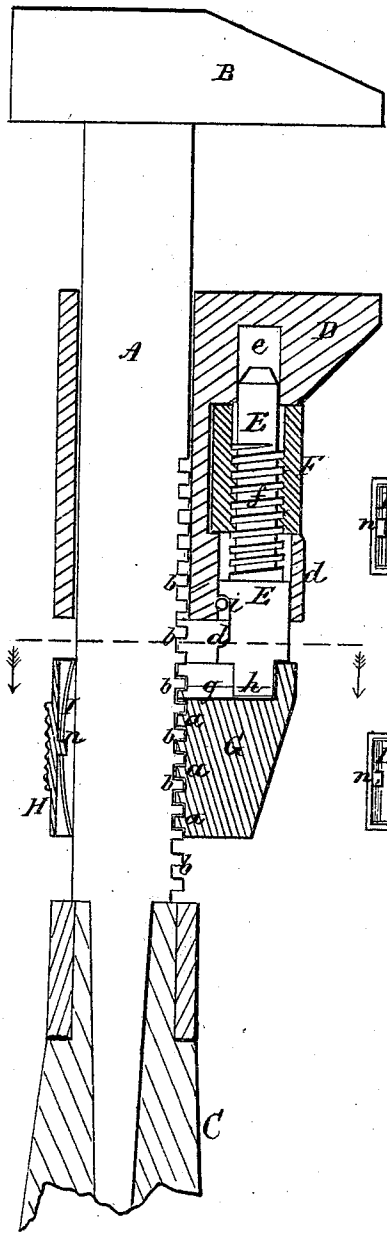


Fig.

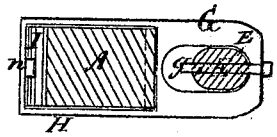
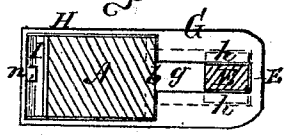


Fig. 3.



Witnesses

Wm. Wagner.

Auguste A. Girard

Inventor

Henry F. Read

By his Attorneys.

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UNITED STATES PATENT OFFICE.

HENRY F. READ, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO EDMUND BEACH, OF SAME PLACE.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **138,932**, dated May 13, 1873; application filed September 16, 1872.

To all whom it may concern:

Be it known that I, HENRY F. READ, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Wrenches, of which the following is a specification:

This invention relates to that class of wrenches in which the clamping-jaw has a sliding movement independent of the screw by which the jaw is adjusted to clamp the nut, and to liberate the clamping-jaw from the nut; and the invention which forms the subject-matter of this patent consists of a screw thumb-nut carried by and moving with the adjustable jaw, and independent of the holding device of the screw-stem, which intermatches with said thumb-nut, whereby I produce a new, useful, and more effective means for adjusting the movable jaw upon the screw-stem, to take up the lost motion of the interlocking teeth of the jaw-bar and holding device, to secure a perfect clamp of the wrench upon the article; also, in providing the movable jaw with a stop to limit the forward movement of the clamping-jaw of the screw-stem, so as to prevent the jaw and screw-stem from becoming separated; also, in the construction of the device for attaching the screw-stem to the holding device, and in the combination of the several parts of the wrench, when arranged for joint operation as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents a side elevation of a wrench embracing my improvements. Fig. 2 represents a longitudinal section thereof, and Fig. 3 a cross-section at the line X X of Fig. 1.

The jaw-bar A carries at one end the fixed jaw B, and at the other the handle C, and between these the adjustable jaw D and the carrying and holding device. The adjustable jaw D is provided with a projection, *d*, through a hole in which and the jaw projection the adjusting screw-stem E works, and over which the jaw slides. The bearings of the stem E in the jaw D are cylindrical, and the hole *e* in the front projection is deep enough to allow of the adjusting movement of the jaw D upon the screw-stem, and still maintain its bearing therein. This stem E is provided with a screw-thread, *f*, between the jaw D and its projection *d*, for a thumb-nut, F, which fits between these parts, so that the turning of the nut will correspondingly move the jaw. The stem E is carried by the holding device G, and its connection therewith is such as to allow the latter to have a movement at right angles to the screw-stem E, and independent thereof, for a purpose to be presently explained. This connection is made by providing the holding device G with an oblong T-shaped slot, *g*, in its face, into which matches the correspondingly-shaped end *h* of the screw-stem E, and thus locks the two together.

The holding device consists of a band, H, embracing the toothed bar A, and secured to a toothed piece, G, the teeth *a* of which match into the teeth *b* of the jaw-bar, the teeth of both parts being square in their cross-section, so that when interlocked the holding device G cannot move either way until released from the teeth. The band H has sufficient play to allow the teeth of the piece G to be separated from those of the jaw-bar A, so that it may slide thereon, which play is obtained on the T-shaped head of the screw-stem E by reason of the oblong T-shaped opening *g* in the holding-piece. A spring, I, is arranged between the band H and the jaw-bar A, so as to constantly tend to keep the teeth *a* of the holding device interlocked with those, *b*, of the bar A, and their separation is effected by simply pressing the band H, so as to carry its holding toothed piece G away from the teeth *b* of the jaw-bar, when the latter may be moved as desired. The adjustment of the movable jaw D is limited upon the screw-stem E by means of a stop, *i*, in the projection *d* working into a recess, *j*, in the screw-stem, and this adjustment by the screw-stem and thumb-nut is to take up whatever lost movement may take place between the interlocking teeth and the thing to be clamped, because it is obvious that, in moving the adjustable jaw D to clamp the nut by the holding device G, the teeth *a* thereof will match with those, *b*, of the bar A, so as to leave more or less space between said

interlocking teeth when the jaw is brought against the nut, which must be taken up to insure the proper clamping of the jaws. By this improvement both the adjustment of the jaw and the taking up of the lost motion are very quickly and easily effected, and when made is secure. The spring I is held in position by a pin, *n*, projecting from the inside of the band and fitting into a hole in the middle of the spring, so that the latter is easily inserted in its place after the parts are put together.

The holding device and screw-stem may be connected by a pin passing freely into a hole in the stem, as shown in Fig. 4. The inner end of the slot *g* is open, in order to allow the T-head *h* to be inserted in said slot, which must be done before the holding device G is fitted upon the jaw-shank A, as shown in Fig. 3 of the drawing. This arrangement renders the connection of these parts convenient in putting them together, and more durable.

Having described my invention, I claim—

1. The thumb-screw nut F, carried by and revolved upon the movable jaw D and screw-stem, in combination with the screw-stem E, carried by and sliding with the holding device G, as and for the purpose described.

2. The thumb-screw nut F, located and arranged between the arms D *d* of the jaw D, and upon the screw-stem as an axis, whereby the nut F is held in position and the jaw D moved over the screw-stem without the turning of the latter, as described.

3. The stop *i* of the movable jaw D, in combination with the shouldered recess *j* in the screw-stem E, to obtain a lock for preventing the separation of the jaw and screw-stem, as described.

4. The T-shaped head *h* of the screw-stem E and the ways of the slot *g*, when arranged to be interlocked through the inner open end of the slot *g*, as described.

5. The combination of the screw thumb-nut F, screw-stem E, holding device G H, interlocking T-head *h*, stop *i*, intermating teeth *a b*, the fixed and movable jaws B D, and the jaw-bar A, constructed and arranged for joint operation as described.

In testimony whereof I have hereunto set my hand this 14th day of September, A. D. 1872.

HENRY F. READ.

Witnesses:

A. E. H. JOHNSON,

AUGUSTUS H. GIRARD.