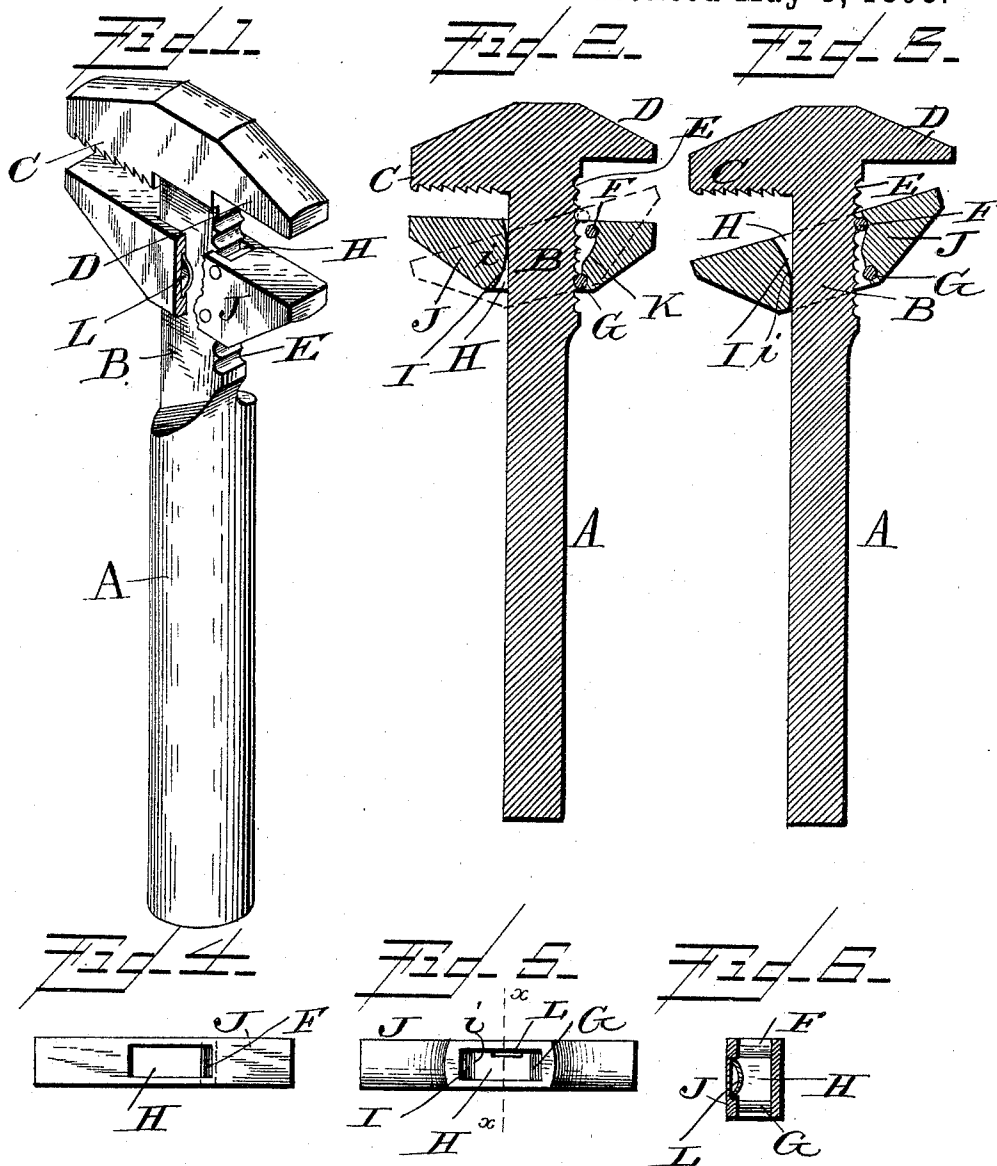


(No Model.)

J. B. SHAFFER.
WRENCH.

No. 497,135.

Patented May 9, 1893.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN B. SHAFFER, OF KEARNEY, NEBRASKA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 497,135, dated May 9, 1893.

Application filed February 13, 1893. Serial No. 462,134. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. SHAFFER, a citizen of the United States, and a resident of Kearney, in the county of Buffalo and State of Nebraska, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved wrench. Fig. 2 is a longitudinal sectional view of the same, showing it adjusted as a nut-wrench. Fig. 3 is a similar view, but showing it adjusted as a pipe-wrench. Fig. 4 is a top-view of the adjustable jaw. Fig. 5 is a view of the under side of the same; and Fig. 6 is a transverse sectional view of the movable jaw on line *x-x* in Fig. 5.

Like letters of reference denote corresponding parts in all the figures.

This invention relates to pipe and nut wrenches, and has for its object to construct a wrench of that type which shall be very strong and durable, easy of adjustment, and certain in operation without danger of slipping off the pipe or nut to be operated upon, after the wrench has been properly adjusted.

To this end, my improvement consists in the combination with the stationary jaw and a peculiarly serrated shank, of a movable or adjustable jaw of novel construction, adapted to engage and interlock with the notches or serrations in the shank, as will be hereinafter more fully described and claimed.

Referring to the drawings, the letter A designates the handle and B the stem or shank of my improved wrench, which has a fixed crosshead at its upper end forming the two stationary jaws, C and D. The former has a series of sharp teeth on the under side and forms part of the pipe-wrench, while the latter is smooth and, in conjunction with the corresponding side of the movable jaw, forms the nut-wrench.

The shank B is provided on one side with a row of semi-circular or rounded notches, E, of such shape and size that they will fit and engage the jaw-pins F and G. These are

rounded pins of steel, inserted transversely through the aperture H in the movable jaw J. By referring to Figs. 2 and 3 of the drawings, it will be seen that the aperture H, through which the shank B is inserted, has sloping or inclined sides, I and K, the former being rounded so as to form a bulge or convex bearing, *i*, which, when the jaw is in position upon the shank, will bear against the smooth side of the shank, opposite to the notches or serrations E. The other inclined side K of the jaw aperture is recessed to receive the two pins F and G, which are partly embedded in said recesses, but project a sufficient distance therefrom to engage and interlock (one at a time) with the shank-notches E.

The letter L designates a bent leaf spring, the convex side of which bears against the side of the shank. The function of this spring is to keep the movable jaw J, by friction, in position upon the shank.

In order to adjust the movable jaw up or down upon the serrated shank, it is tilted as shown in dotted lines in Fig. 2, by rocking it upon the inside convex bulge or bearing *i*. By thus rocking or tilting the jaw alternately up and down, the steel holding-pins F and G are alternately disengaged from the notches E, so that the jaw J may be moved up or down by steps, so to speak; the holding-pins F and G becoming alternately disengaged from and interlocked with the notches in the contiguous side of the shank. When used as a nut-wrench, the movable jaw will be locked in place upon the shank by the lower pin G, as illustrated in Fig. 2; while when the device is used as a pipe-wrench, the movable jaw will be held in a slanting position and locked in place upon the shank by the upper pin F, as shown in Fig. 3. In either case, the greater the strain or pressure upon the movable jaw, the firmer the said jaw will be locked or "bind" upon the shank, so that there is absolutely no danger of slipping after the jaw has once been properly adjusted upon the shank. At the same time, this adjustment can be readily effected simply by working the movable jaw up and down on the shank in the manner hereinafter described and shown by the dotted lines on the drawings.

It will be obvious that, if desired, this wrench may be constructed with jaws on one

side only, so as to make it either a nut-wrench only, or a pipe-wrench only. This may sometimes be desirable in large wrenches, intended for a specific use only; but in a wrench of
 5 medium size, it will generally be found convenient to have a pipe-wrench and nut-wrench in a single tool.

Having thus described my invention, I claim and desire to secure by Letters Patent
 10 of the United States—

In a wrench of the described type, the combination of the serrated shank having stationary crosshead, the adjustable jaw having a slanting aperture for the insertion of the

shank provided on one side with a convex
 15 bulge or bearing and having on the other side two rigid transverse pins adapted to alternately engage or interlock with the notches in the shank, and the convex spring connected with the adjustable jaw; substantially as
 20 and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN B. SHAFFER.

Witnesses:

J. A. SCHWARZENTRAUB,
 C. W. WILEY.