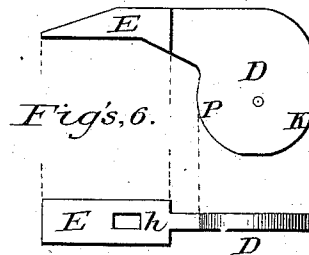
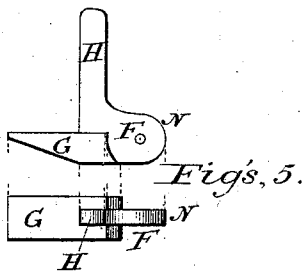
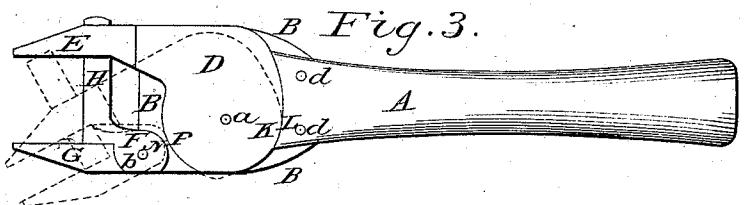
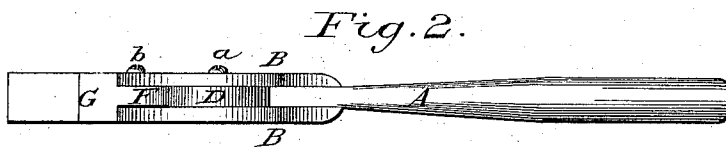
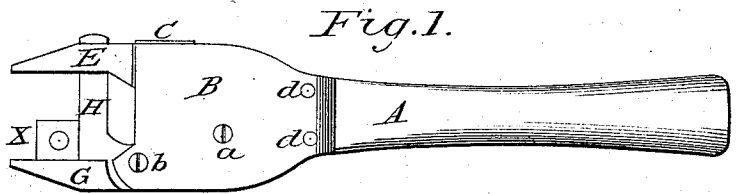


H. FESSLER & R. V. JONES.

Wrench.

No. 106,475.

Patented Aug. 16, 1870.



Witnesses:

McDonald.
Andrew Chaffin

Inventors.

Henry Fessler
Robert V. Jones
by Job Abbott
Attorney.

United States Patent Office.

HENRY FESSLER AND ROBERT V. JONES, OF CANTON, OHIO, ASSIGNORS TO
THEMSELVES AND JOHN D. GRABER, OF SAME PLACE.

Letters Patent No. 106,475, dated August 16, 1870.

IMPROVEMENT IN WRENCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, HENRY FESSLER and ROBERT V. JONES, both of Canton, Stark county, Ohio, have invented a new and improved Wrench, and that the following is a full, clear, and exact specification thereof.

Nature and Objects of the Invention.

The first part of our invention relates to the construction of a wrench, consisting of a handle having arranged in it two pivoted jaws, which are so connected with each other as that the movement of the handle in the direction required for turning the nut causes said jaws to turn on their pivots in such a manner as to adjust themselves to the size of the nut to be turned, whereby we obtain a very cheap and strong self-adjusting wrench, which is very quickly and easily operated, and not liable to get out of repair under the roughest usage.

The second part of our invention relates to the peculiar construction and arrangement of the pivoted jaws and handle in a wrench constructed as stated in first clause, whereby we obtain a solid bearing between the jaws and between the main jaw and handle, in all positions of said jaws, by which the strain on the jaw-pivots is greatly diminished, and the strength of the wrench is materially increased without increasing its weight.

Description of Accompanying Drawing.

Figure 1 is a front view of a wrench embodying our invention.

Figure 2 is a side view of the same.

Figure 3 is a front view of the same, with the front plate of the handle removed.

Figure 4 is a side view of the handle, with jaws removed.

Figures 5 and 6 are side views and plans of the jaws.

General Description.

The handle A B B consists of the handle proper, A, and the side plates B B, which are secured to the handle A by the rivets *d d*, and have the plate C secured to them, as shown, to stiffen the outer ends of the plates.

This handle A B B is conveniently made of cast or malleable iron, in which case the several parts A B B C can be readily cast in one piece, as is readily seen.

The main jaw D E consists of the body D, of a thickness equal to the distance between the plates B B of the handle and the jaw proper, E, in which is formed the mortise *h*, as shown in fig. 6.

The lever-jaw F G H consists of the part F, of a thickness equal to the distance between the plates B B and the jaw proper, G, to which is secured the

lever-arm H, which is of the same cross-section as the mortise *h* in the jaw E D.

The jaw E D is pivoted on a screw or rivet, *a*, between the plates B B of the handle, and the jaw G H is pivoted between said plates, on the screw or rivet *b*, with its lever-arm H extending through the mortise *h* in the jaw E D, as shown in figs. 2 and 3.

From this description it is seen that, if the wrench be brought up to a nut, X, (which is to be turned onto the bolt on which it is placed,) in such a position as to bring said nut against the jaw G and lever-arm H, as shown in fig. 1; and if the handle A be moved in the direction indicated by arrow, keeping the wrench pressed against the nut X, the handle A B will turn around the rivet *b* as a pivot, which will cause the jaw D E to turn on the pivot *a* and slide on the lever-arm H, until the jaw E comes to a bearing against the nut X, when the several parts will have assumed the positions indicated by dotted lines in fig. 3.

The nut having been thus grasped by the jaws of the wrench, it can be turned down, as desired, by continuing the movement of the handle A, and it is evident that the more power there is applied to the handle A, the tighter will the jaws E G clasp the nut X.

By turning the wrench over, it is evident that it can be used to turn the nut X off from the bolt on which it is placed in a manner evident from the foregoing description.

In order to give the jaws bearings on each other and on the handle, the face K of the body D of the jaw D E is made on the arc of a circle, having its center at the rivet *a*, and the face L of the handle is made on the same circle, so that the faces K and L are in contact in any position of the jaw D E.

The face P of the part D of the jaw D E is made on the arc of a circle, having its center at the rivet *a*, and the face N of the part F of the jaw F G is made on the arc of a circle having its center at the rivet *b*, and drawn tangent to the circle of curvature of the face P, so that the faces N and P are in contact in any position of the jaws D E and F G.

By this construction, the only strains on the rivets *a b* in the use of the wrench are shearing strains parallel with the direction of the power applied to the handle, as the components of the power at right angles to these strains are taken up by the metal in the jaws and handle, which are always in contact, and thus are in position to resist this compression strain without taxing the rivets *a b*.

Claims.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The lever-arm H, attached to one of the pivoted jaws F G, and working through a mortise, *h*, in the other pivoted jaw D E of a wrench, substantially as and for the purpose specified.

2. The combination of the handle A B B, jaw D E, arranged on the pivot *a* and provided with mortise *h*, and jaw F G, arranged on the pivot *b* and provided with the lever-arm H, the several parts being arranged substantially as and for the purpose specified.

3. The jaws D E and F G and the handle A B B, when so constructed and arranged as that, in any po-

sition of said jaws and handle, there shall be a face bearing between the two jaws, and between the lower jaw and handle, substantially as is herein specified.

As evidence of the foregoing, witness our hands this 28th day of March, 1870.

HENRY FESSLER.
R. V. JONES.

Witnesses:

JOB ABBOTT,
ANDREW CHOFFIN.