(No Model.)

J. P. MITCHELL.

WRENCH.

No. 385,366. Patented July 3, 1888.

Fig. 1.

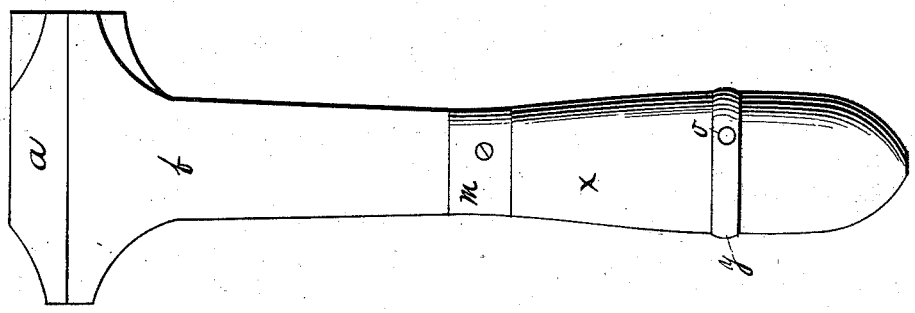


Fig. 2.

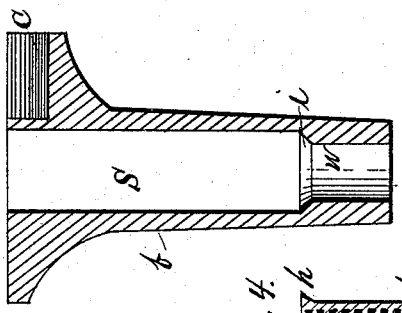


Fig. 6.

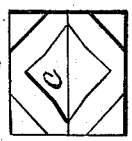


Fig. 4.

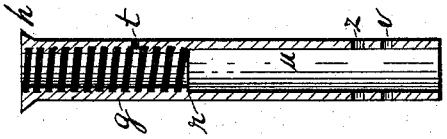


Fig. 3.

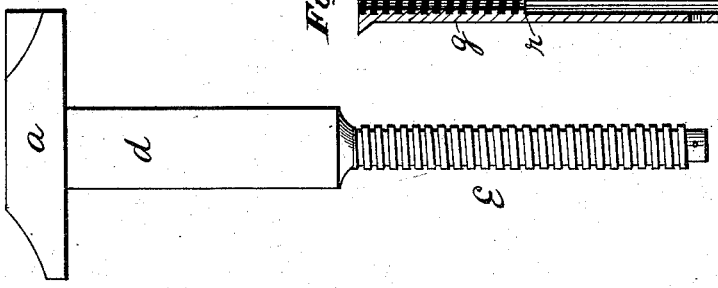
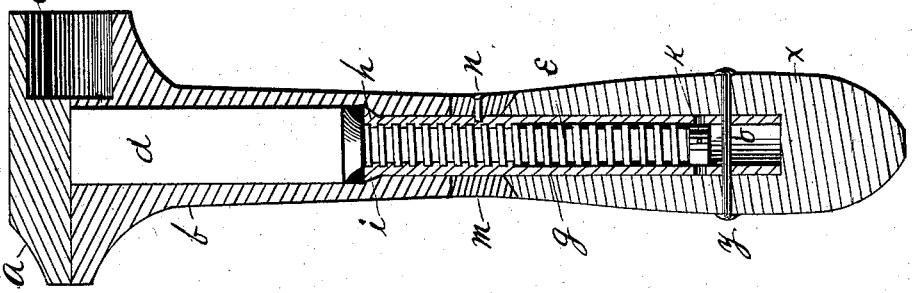


Fig. 7.

Fig. 5.



Witnesses.
Fred. A. Mason,
A. G. Fuller.

Inventor.
Joseph P. Mitchell.
by F. M. Mason atty.

UNITED STATES PATENT OFFICE.

JOSEPH P. MITCHELL, OF NEW BEDFORD, MASSACHUSETTS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 385,366, dated July 3, 1888.

Application filed March 22, 1888. Serial No. 268,178. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. MITCHELL, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

My invention relates to certain improvements in wrenches; and it consists in the peculiar construction and arrangement of the several parts, whereby the utmost strength, durability, and usefulness are obtained.

In the accompanying drawings, Figure 1 is a side view of my improved wrench. Fig. 2 is a view in longitudinal section of the under jaw of the wrench. Fig. 3 is a side view of the upper jaw of the wrench and its shank. Fig. 4 is a view in longitudinal section of the tube or cylinder, upon the outside of which the handle is secured. Fig. 5 is a view in longitudinal section of Fig. 1. Fig. 6 is a view showing the angular recess in one side of the jaws of the wrench, and Fig. 7 is a view of the stop which limits the movement of the jaws of the wrench from each other. Figs. 2, 3, 4, and 7 show the detail of construction of Figs. 1 and 5.

In Fig. 2, which is a view in longitudinal section of the under jaw of the wrench, *c* represents an angular recess, and *s* represents a rectangular opening of a size to receive and fit the shank *d*, Fig. 3. *w* represents a round opening of a size to receive and fit the outside of the tube *g*, Fig. 4. The top of the opening *w* is countersunk or shouldered, as at *i*, to correspond with the shoulder *h* of the tube *g*, Fig. 4.

In Fig. 3, *a* is the upper jaw of the wrench, *d* is the squared shank, and *e* represents a portion of the shank which is screw-threaded and of a size to fit and engage with the screw thread in the tube *g*, Fig. 4. The lower end of the shank *e* is shouldered down to receive the stop *k*.

In Fig. 4 the upper part of the tube *g* is screw-threaded interiorly to *r* and the remaining portion of the interior is enlarged, so as to freely admit the screw-threaded shank *e*, Fig. 3. The tube *g* is also furnished with the holes *t*, *v*, and *z*.

Fig. 5 shows the position and arrangement of the different parts of the wrench when put together.

In putting the parts together the tube *g* is placed in the under jaw, *b*, and its shoulder *h* brought in contact with the shoulder *i* in the jaw *b*, where it is secured by the collar *m*, placed on the tube *g*, and fastened there by the pin *n*. The upper jaw, *a*, with its shank, is then placed inside the under jaw and the tube *g* revolved until the threaded portion *e* of the shank is drawn completely into the tube *g*, when the stop *k* is secured to the end of the shank. The handle *x* is then secured on the outside of the tube *g* by means of the pin *o*, passing through the band *y*, the handle, and the tube *g*. This makes the handle *x*, tube *g*, and collar *m* practically one piece—that is to say, they move together.

In Fig. 6 is shown a front view of the angular recess in the jaws of the wrench.

It will be observed that the recess in each jaw is composed of a double angle—*i. e.*, a right angle and an obtuse angle. This is for greater convenience in grasping both square and hexagon nuts.

I claim—

In a wrench, the combination of the jaw *a*, having angular recess *c*, shank *d*, exteriorly screw-threaded at *e* and provided with the stop *k*, the jaw *b*, having angular recess *c*, rectangular opening *s*, round opening *w*, and shoulder *i*, the tube *g*, having enlarged head or shoulder *h* and interiorly screw-threaded in a portion of its length, the remaining portion enlarged to the depth of the screw-thread and provided with the holes *t z v*, the collar *m*, adapted to be rigidly secured to the tube *g*, and the handle *x*, adapted to be secured to and inclose that portion of the tube *g* which projects below the collar *m*, all as shown and described.

JOSEPH P. MITCHELL.

Witnesses:

ANDREW F. MITCHELL,

FRANK JONES.