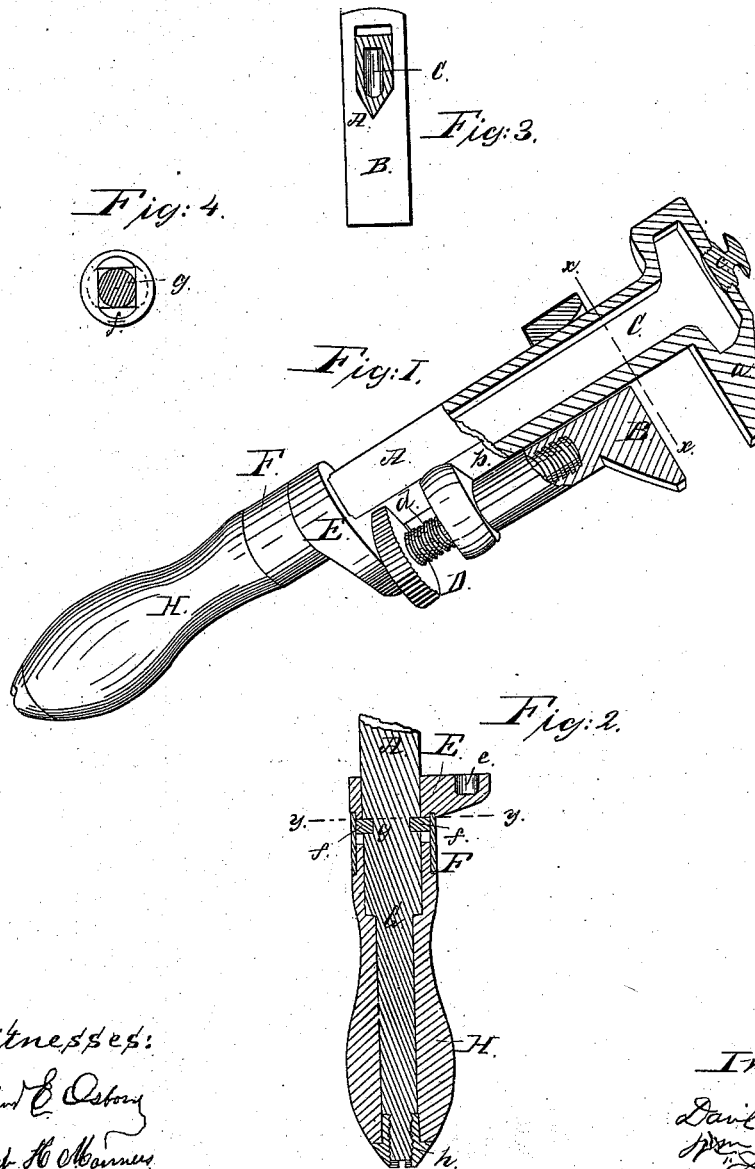


Campbell & Saul.

Nut Wrench

N^o 107,871.

Patented Oct. 4, 1870.



Witnesses:

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DANIEL CAMPBELL AND WILLIAM SAUL, OF ELIZABETH, NEW JERSEY.

Letters Patent No. 107,871, dated October 4, 1870.

IMPROVEMENT IN WRENCHES.

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

We, DANIEL CAMPBELL and WILLIAM SAUL, both of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Wrenches; of which the following is a specification.

Nature and Object of the Invention.

Our invention relates to adjustable wrenches, and consists in a novel construction and arrangement of parts, which have for their object the production of a light, strong, and durable tool, as will be fully set forth hereafter.

Description of the Drawing.

Figure 1 is a perspective view of our invention, partly in section.

Figure 2 is a vertical section through the center of the handle.

Figure 3 is a sectional view through the line *x x*, fig. 1.

Figure 4 is a sectional view through the line *y y*, fig. 2.

General Description.

The stem and head *A a* of this wrench are cast with a chamber, *C*, extending nearly the length of the stem above the handle, of such size that, while it can be used as a receptacle to hold oil, lead, or other substances, the quantity of metal in the parts will not be so much reduced that the strength of the wrench is effected.

The opening in the head *a*, communicating with the chamber is provided with a screw-stopper, *I*.

The front edge of the stem is extended, to form the wedge-shaped rib *b*, which runs the length of the stem, excepting where a space is left near the handle for the screw-head *D*.

The end of the rib at this point forms a shoulder to hold the screw-head in its place, and prevent the end of the shaft *d* from being thrown out of its socket, *e*, fig. 2.

This construction of the stem permits the size of the shoulder to be enlarged, without increasing the

size of the stem, or cutting into it so far, for the reception of the screw-head, as to weaken it.

The socket piece *E*, which holds the end of the screw-shaft *d*, is held up by the washer *f*, as plainly shown in fig. 2, and the washer *f* is retained in place by being turned around, so that the square portion of the shank *G* comes crosswise of the slot in the washer, as illustrated in fig. 4.

The ferrule *F* surrounds the end of the wooden handle *H* and the washer *f*, and fits into a circular depression in the socket *E*.

The ferrule and socket are formed in two separate parts, as shown, for the purpose of facilitating the adjustment of the washer *f* in place, as well as of lessening the cost of manufacture of the wrench.

The wooden handle *H* is held in place upon the rod, (a continuation of the shank *G*,) by the nut *h*.

In the construction of the handle of this wrench, the parts are so arranged that the direct strain upon the wood portion and the screw-nut *h* is, to a great degree, removed and thrown upon the stem *A* and shank *G*, and the tendency of the wood *H* to become split, and its upper end to be torn from beneath the ferrule, is greatly diminished, if not entirely prevented.

Claims.

We claim—

1. As an improvement in adjustable wrenches, making the body of the wrench hollow, thereby reducing the weight, and providing a receptacle for oil, lead, &c., substantially as herein described.
2. The arrangement and combination of the ferrule *F*, for the handle, and the socket *E*, for the screw, in two parts, substantially as and for the purpose described and specified.
3. The combination and arrangement of the stem *A*, provided with rib *b*, jaw *B*, screw *d*, socket *E*, ferrule *F*, and washer *f*, fitting the groove in the shank *g*, substantially as described and specified.

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Witnesses:

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