(No Model.)

# F. MOSSBERG.

## WRENCH.

No. 482,749. Patented Sept. 20, 1892.

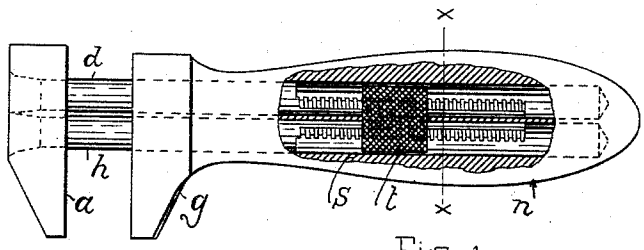


Fig 1

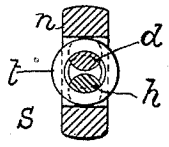


Fig 2

WITNESSES

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## WRENCH.

SPECIFICATION forming part of Letters Patent No. 482,749, dated September 20, 1892.

Application filed February 3, 1892. Serial No. 420,154. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK MOSSBERG, of Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of adjustable wrenches used to turn screw-nuts, and refers more especially to the devices for effecting the adjustment of the wrench to different sizes of nuts and to the construction of those parts by which that adjustment is accomplished, being an improved modification of the invention described in my application Serial No. 416,168. It is fully illustrated in the accompanying drawings.

Figure 1 is a side elevation of the wrench with a portion of the handle broken away to show the construction and arrangement of the parts inside. Fig. 2 is a vertical cross-section taken on line *x x* in Fig. 1, with the end of nut in elevation.

This wrench is intended for one of the short-pocket or kit wrenches, which are usually shortened up in length as much as possible by having the movable jaw and handle in as close proximity to each other as may be or by making them in one piece, as in this case. It consists of the head or outer jaw *a*, made in the usual monkey-wrench form, and a shank constructed of two parallel bars *h d*, firmly inserted in the jaw *a* in the position usually occupied by the rectangular shank of the monkey-wrench. The other jaw *g*, usually considered the movable or adjustable one, is preferably made in one piece integral with the handle *n*, which is shaped in the most suitable form to hold in the hand. This jaw *g* and handle *n* are preferably made of steel in one-drop forging, with an opening at *s*, extending through it sidewise. This forging is finished on its outer surface and has two parallel holes drilled nearly through it lengthwise from the jaw end, the centers of which holes agree in distance from each other with the centers of the two parallel bars *h d* and are made of proper size to let these bars slide snugly in them. These two bars *h d* are each milled or turned off—say about two-fifths of their diameters on their outer sides, or those sides farthest from the center-line between them—so that these milled surfaces will form parts of the same circle. A screw-thread is then made on this outer surface of the two bars, the same as if they were one bar, and a circular nut *t* has a screw-thread made on its inside to fit in the screw-thread made on the outer surfaces of the two bars, so that the nut will screw onto the two bars, the same as though they were one bar. As the two parallel bars *h d* are held in the holes in the handles in which they slide so that they cannot be brought closer together, the threads on their outer sides will hold with great solidity in the threads of the nut. By this arrangement the wrench is made to utilize the full breadth covered by the two bars in resisting any strain tending to open the jaws. This resistance is very much the same as though the two bars *h d* were made solidly fast in both jaws, for when the wrench is applied to a nut to turn it the strain tends to open the jaws and draw the bar *h* out of the handle, which is resisted by the thread in the nut. At the same time the strain tends to push the bar *d* into the handle, which is also resisted by the thread in the nut *t*, which balances the strain of the other bar on the inside of the nut in the other direction. This makes a very strong wrench, which from its construction can be made, mainly, of the best stock bar-steel with the least amount of labor, especially in the case of the head-jaw and parallel bars, which constitute that portion of the wrench that has the most of the work to do.

In putting the wrench together the nut *t* is inserted in the opening *s* in the handle and the parallel bars *h d* inserted in their respective holes in the end of the movable jaw and handle and pushed down until they reach the nut *t*, which is then turned to engage with the screw on the outer sides of the two bars, and the wrench is ready for use.

Having thus described my improvements, I claim as my invention—

A wrench having a head with a shank consisting of two parallel bars adjustable in a handle having an inner jaw attached thereto, in combination with a nut having an internal screw-thread fitting into screw-threads on the outer sides of said bars and chambered in said handle to adjust the bars lengthwise therein, as set forth.

FRANK MOSSBERG.

Witnesses:
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E. B. READ.