J. J. Richardson,

Wrench.

No. 38,914. Patented June 16, 1863.

Fig. 2

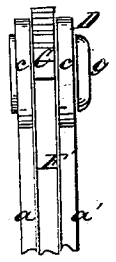


Fig. 1

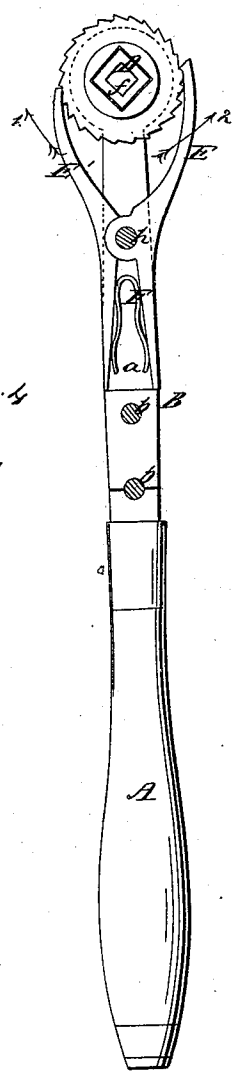


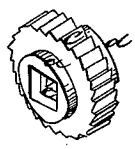
Fig. 3



Fig. 4



Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

J. J. RICHARDSON, OF WOODSTOCK, VERMONT.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **38,914**, dated June 16, 1863.

To all whom it may concern:

Be it known that I, J. J. RICHARDSON, of Woodstock, in the county of Windsor and State of Vermont, have invented a new and Improved Ratchet-Wrench; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention with one of the side pieces of the shank of the wrench removed; Fig. 2, an edge view of the principal part of the same; Fig. 3, an end view of the removable socket pertaining to the same; Fig. 4, a perspective view of Fig. 3; Fig. 5, a perspective view of the ratchet pertaining to the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a ratchet two pawls, a spring, and a removable socket arranged and combined in such a manner that a nut may be turned by an oscillating movement without taking the wrench from it, and the same wrench rendered capable of being applied to different-sized nuts.

The object of the invention is to obtain a wrench which may be used in those cases where it would be inconvenient or impossible, on account of a restricted space, to use an ordinary wrench, or one which requires to be removed from the nut and applied at every turn of the same.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the handle of the wrench, which may be of wood; and B is the metal shank, which is composed of two parts, *a a'*, one part, *a*, being fitted in the handle A, and the other part, *a'*, screwed to *a* by screws *b*. The outer ends of the two parts *a a'* of the shank B terminate in eyes *c*, in which two cylindrical bosses, *d d*, are fitted and allowed to turn freely. These bosses *d d* are at the two sides of a ratchet, C, and concentric with it, forming what may be termed a "hub" for the same. The ratchet and bosses have a square opening, *e*, passing entirely through them, and in this opening a socket, D, is fitted, which also has a square opening, *f*, made through it, and is provided at one end with a flange or shoulder, *g*.

E E' represent two pawls, which are secured by a pin, *h*, between the two parts *a a'* of the shank B. One of these pawls, E, is a pulling one, and the other, E', a pushing or shoving one. They are both connected by the pin *h*, and between the inner parts of said pawls a spring, F, is placed, which spring has a tendency to keep the pawls engaged with the ratchet C, as will be fully understood by referring to Fig. 1. The implement is used by placing the socket D on the nut to be turned and then fitting the bosses *d* on the socket; or the socket D may first be fitted in the bosses *d* and the socket then adjusted on the nut, whichever is most convenient. The wrench is then operated with an oscillating movement, and the nut will be turned without removing the wrench from it, as the pawls catch or engage with the teeth of the ratchet in moving in one direction, indicated by arrow 1, and slip over them in moving in the opposite direction indicated by arrow 2.

Several sockets, D, are used with the same wrench. These sockets are all of the same size externally, but the square openings *f* are of different dimensions to suit different-sized nuts.

The whole arrangement is extremely simple and efficient, may be constructed at a moderate cost, and there are no parts liable to become deranged by use or get out of repair.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The ratchet C, provided with two bosses, *d d*, which are fitted loosely in eyes at the ends of the parts *a a'* of the shaft B, in combination with the pawls E E', spring F, and removable socket D, all arranged to operate as and for the purpose set forth.

J. J. RICHARDSON.

Witnesses:

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