# W. Pirsson,

## Wrench.

No. 55,157. Patented May 29, 1866.

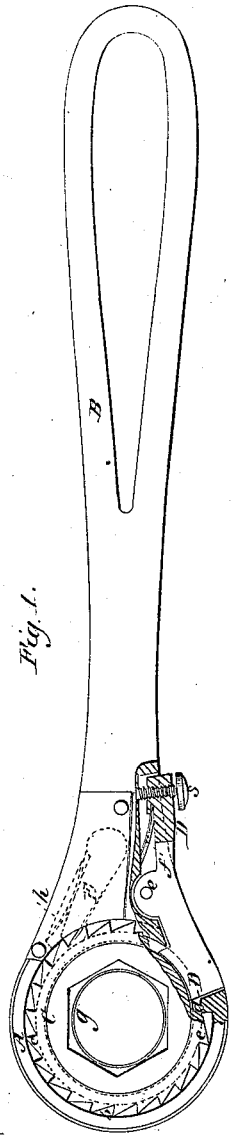


Fig. 1.

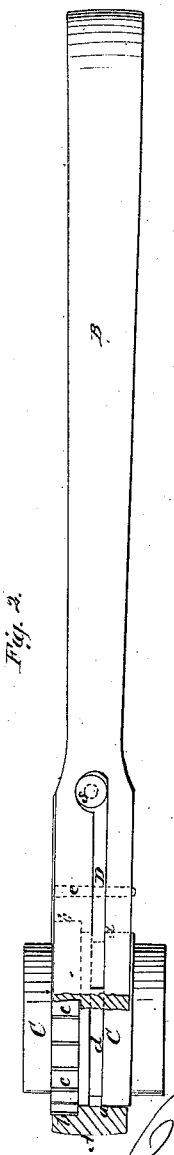


Fig. 2.

Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM PIRSSON, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN RATCHET-WRENCHES.

Specification forming part of Letters Patent No. **55,157**, dated May 29, 1866.

*To all whom it may concern:*

Be it known that I, WILLIAM PIRSSON, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Ratchet-Wrenches; 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, forming part of this specification, in which—

Figure 1 is a top view of a wrench with my improvement, having a portion of the stock and ratchet-socket broken away to exhibit the method of securing the said socket in the stock. Fig. 2 is a side view, showing part of the stock broken away to exhibit the construction of the socket.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to ratchet-wrenches provided with interchangeable sockets fitting screw-bolt heads and nuts of different sizes and shapes; and it consists in certain improved means of securing the ratchet-sockets in place in the stock of the wrench, and of liberating them when it is desired to remove them from the stock to change the different sizes.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A B is the stock of the wrench, consisting of a head, A, of circular or other suitable form externally, and a handle, B.

The head A has a circular opening right through it, as shown at *a a* in Fig. 2, and this opening is countersunk on one side, as shown at *b b* in the same figure.

C is a ratchet-socket having a portion of its exterior turned or otherwise finished to fit the opening *a*, and furnished externally with a circumferential series of ratchet-teeth, *c c*, which are received within the countersink *b*. In the portion of the exterior of the socket below the ratchet-teeth there is a circumferential groove, *d*, for the reception of one end of a lever-like catch, D, which is fitted into a mortise cut through the head A perpendicularly to the axis of its circular opening and entering the said opening. This catch, which serves to hold the socket in the stock, is secured in the stock by means of a fulcrum-pin, *e*, which is inserted through holes in the catch and stock. The other end of the said catch has screwed through it a screw, *s*, the head of which projects outward from the stock in a convenient position to be pressed inward by the thumb while the stock is held in one hand, such pressure serving to draw the inner end of the catch out of the groove *d* and liberate the socket.

A spring, *f*, Fig. 1, is applied within the mortise to press the catch into the groove *d* and keep it therein when there is no pressure on the head of the screw *s* or other end of the catch; but in order to prevent the catch from being accidentally withdrawn from the groove *d* the screw *s* is kept screwed up to the back of the mortise in the stock until it is desired to take out or change the socket.

E is the pawl by which the ratchet-socket is caused to turn with the stock when the latter is moved in one direction, but which slips over the ratchet-teeth *c c* without turning the said socket when the latter is placed upon a bolt-head or nut which fits its interior cavity or opening, *g*. This pawl, which is pressed up to the ratchet-teeth by a spring, *h*, is inserted into a cavity in the upper side of the socket and secured in place and covered up by a plate, *i*, which is screwed or otherwise secured on the upper side of the stock.

To take out the ratchet-socket C the screw *s* is first screwed out some distance. The wrench is then held in one hand with the thumb against the head of the screw, which is then pressed inward to withdraw the inner end of the catch D from the groove *d*, and the socket may then be lifted out from the stock, or will drop out if the stock is inverted from the position shown in Fig. 2.

To put in and secure another socket the wrench is held in the position shown in Fig. 1—that is to say, with the countersink *b* upward—and while the screw *s* is pressed in by the thumb the socket is dropped into the opening *a*, where it is stopped by the ratchet-teeth resting on the bottom of the countersink in a proper position for the catch to enter the groove *d*, and the pressure of the thumb being removed the catch is pressed into the said groove by the spring *f*. The screw *s* is then screwed in again to make the catch secure.

The advantage of this improvement consists in the great facility it affords for the removal

and interchanging of the ratchet-sockets and the security with which they are held in place provided the spring *f* be of suitable strength.

The same improvement may be applied, in connection with a ratchet-socket, to make a ratchet-drill stock.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The lever-like catch D, applied as described, with a spring, *f*, in a mortise in the stock, and in combination with a circumferential groove, *d*, in the exterior of the ratchet-socket, the whole arranged substantially as herein described.

2. The screw *s*, in combination with the catch D, substantially as and for the purpose herein specified.

WM. PIRSSON.

Witnesses:
HENRY T. BROWN,
J. W. COOMBS.