M. VASSAR, 2d.

WRENCH.

No. 183,235. Patented Oct. 10, 1876.

Fig. 1.

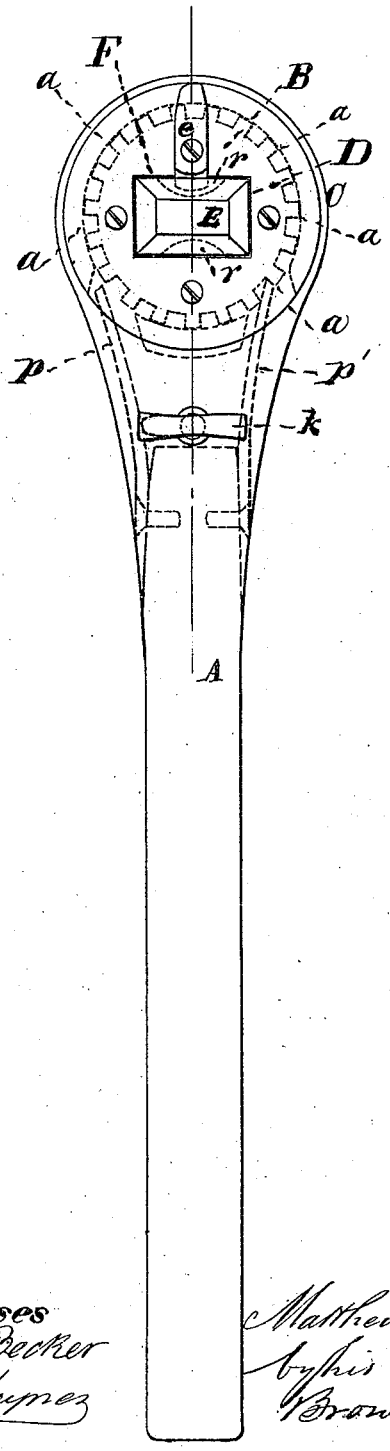
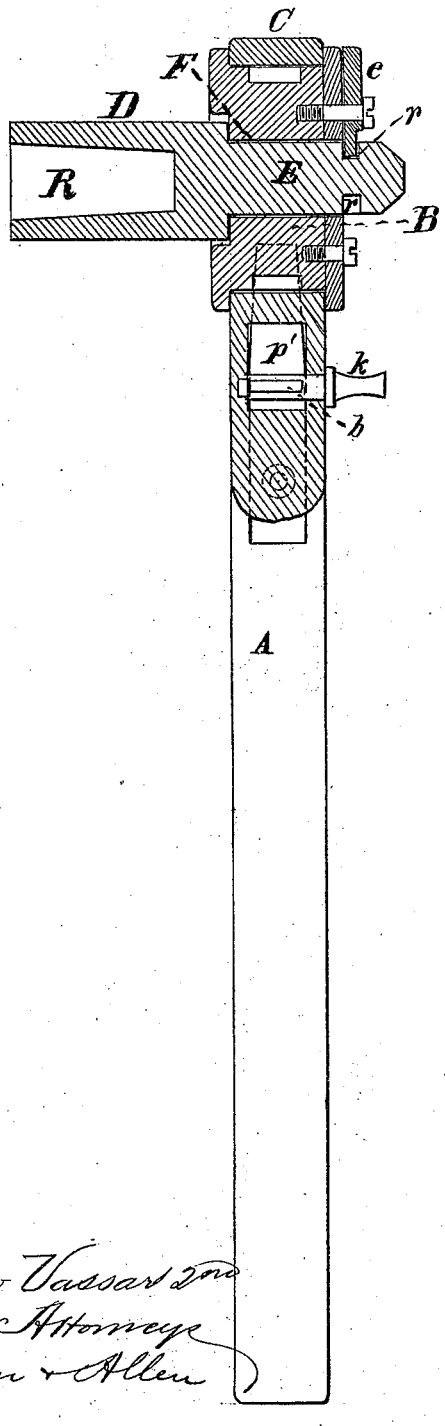


Fig. 2



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UNITED STATES PATENT OFFICE

MATTHEW VASSAR, 2ND, OF BALLSTON SPA, NEW YORK.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **183,235**, dated October 10, 1876; application filed August 25, 1876.

To all whom it may concern:

Be it known that I, MATTHEW VASSAR, 2nd, of Ballston Spa, in the county of Saratoga and the State of New York, have invented an 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 drawing, which forms part of this specification.

My invention has for its object the supplying of ratchet-wrenches with sockets of different sizes for application to nuts, bolt-heads, &c., of different sizes; and it consists in the peculiar construction of the sockets, their insertion in and attachment to the rotating head of a ratchet-wrench, as hereinafter set forth.

Figure 1 in the drawing is a top view of my improved ratchet-wrench, and Fig. 2 is a partial vertical section thereof.

A is the handle, and B the rotating head working in the eye C of the wrench. The rotating head B is toothed on its exterior, as shown at *a*, Fig. 1. The rotation of the head B is effected by one or other of the spring-pawls *p p'*, the said head rotating in the direction of the hands of a watch when the pawl *p* alone engages the teeth *a* of the rotating head, and in the contrary direction when the pawl *p'* alone engages said teeth; but when both the pawls engage the said teeth the head B is held from rotating, and the wrench may be used as an ordinary wrench having a fixed head.

The engagement of the pawls *p p'* with the teeth *a* of the head B is controlled by a key, *k*, the bit *b* of which, Fig. 2, works in a recess formed in the handle H, between said pawls, said key being also pivoted to said handle. The bit *b*, pressing against one or other of the spring-pawls *p p'*, according as said key is given a quarter-turn to the right or left, disengages one of said pawls from the teeth *a* of the head B, the opposite pawl then alone actuating said head when the handle H is oscillated.

When the key-bit *b* lies midway between the pawls, by simply giving said key a quarter-turn the rotation of the head B may be reversed to allow the wrench to be used for right or left threads, and for screwing nuts off and on, and taking out, as well as putting in, screw-bolts. When the key-bit *b* lies midway between the pawls *p p'*, both the said pawls engage the teeth *a*, and the head B cannot rotate.

In the head B are severally inserted, as occasion may require, sockets D, the bodies of which have recesses R, Fig. 2, for the reception of nuts, bolt-heads, &c. Said sockets have also formed upon them rectangular shanks or tenons E, which fit a similarly-shaped mortise, F, formed in the central part of the head B. In that part of the tenon E which protrudes through the head B, and on opposite sides thereof, are formed small recesses *r*, and pivoted to the top of the head B is a button, *e*, which may be turned so that one end of the same will enter either of the recesses *r*, which may, by the insertion of the tenon E into the head B, be presented to the said button, such turning of said button, and its engagement in the recess *r*, serving to securely fasten and attach the socket D to the said rotating head.

By this construction I am enabled to turn a series of nuts or bolts of widely-varying dimensions, without making the rotating head B and eye C large and cumbersome; and I furnish a more compact, light, and useful ratchet-wrench than has hitherto been produced.

I claim—

The combination of the rotating head B, having the button *e* pivoted thereto, and having the central mortise F formed therein, with the socket D, having the tenon E formed thereon, and having the recesses *r* for the reception of the button *e*, substantially as and for the purpose set forth.

MATTHEW VASSAR, 2ND.

Witnesses:

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