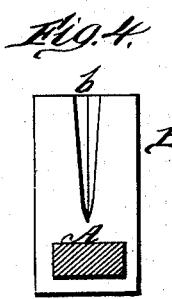
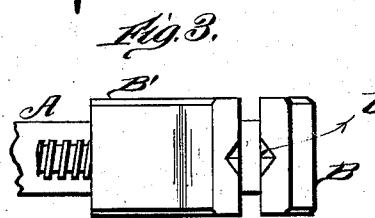
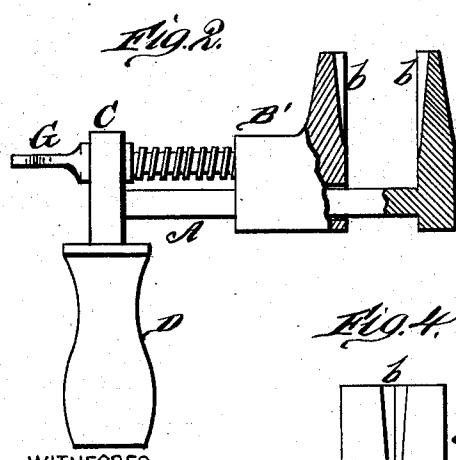
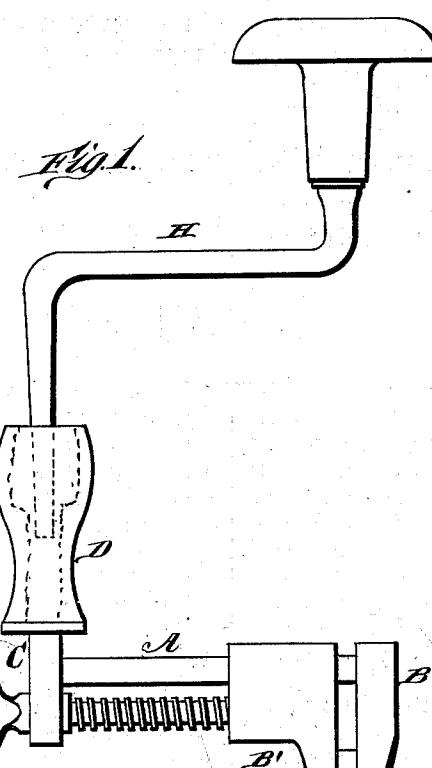


S. E. ROBINSON.
Wrench.

No. 198,685.

Patented Dec. 25, 1877.



WITNESSES

*Robert E. Pratt,
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INVENTOR.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

SYLVANUS E. ROBINSON, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **198,685**, dated December 25, 1877; application filed November 10, 1877.

To all whom it may concern:

Be it known that I, SYLVANUS E. ROBINSON, of Newark, in the county of Essex and State of New Jersey, have invented a new and valuable Improvement in Tools; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my tool. Fig. 2 is a part sectional side view. Fig. 3 is a detail view, and Fig. 4 is a sectional detail thereof.

The nature of my invention consists in certain improvements upon the wrench for which Letters Patent No. 159,119 were granted to me January 26, 1875, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A represents the bar, with stationary jaw B at one end, and a cross-piece, C, at the other end, said cross-piece extending at right angles to the bar, and having a handle, D, placed loosely thereon below the bar A. The cross-piece C extends a sufficient distance above the bar A to have a thumb-screw, G, swiveled therein, said thumb-screw passing through and operating the movable jaw B' of the wrench.

The above is precisely the same as described in my former patent above referred to.

H represents a brace-arm, having its end made square and tapering for insertion in a corresponding hole made lengthwise in that part of the cross-piece C which is surrounded by the handle D.

This brace-arm attachment to my wrench possesses numerous advantages. It makes an

adjustable socket-wrench and bit-brace, each changeable into the other; a bit-brace separable into parts, so as to take but very little room in packing or carrying. It allows me to make a bit-brace of my wrench with jaws opening far enough to grasp any kind of boring-tool and any ordinary-sized nut or bolt. It makes a bit-brace that can be instantly separated, and so used as a hand vise or clamp; and, fastened to any table, it makes a convenient bench-vise.

The brace-arm H is preferably adjusted to the wrench-handle in the manner shown; but it may be attached in any other manner.

In the inner surface of each jaw of the wrench is made a triangular notch, b, so cut as to come to the surface of the jaw at a point near the bar of the wrench; or, in other words, these notches or grooves are made beveled or inclined, being the deepest at the outer ends of the jaws, and gradually decreasing in depth, as shown. This is for the purpose of grasping a tapering object, like a bit-shank, both at the large and small parts, so as to gripe and hold it firmly.

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

In combination with a wrench having a handle extending at right angles with the bar of the wrench, a brace-arm attachment, H, arranged for attachment to, and detachment from the wrench, substantially for the purposes herein set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SYLVANUS EDWARD ROBINSON.

Witnesses:

W. H. ABRAHAM,
I. W. CONSEGIA.