R. JACK.

WRENCH.

No. 169,812. Patented Nov. 9, 1875.

*Fig. 1.*

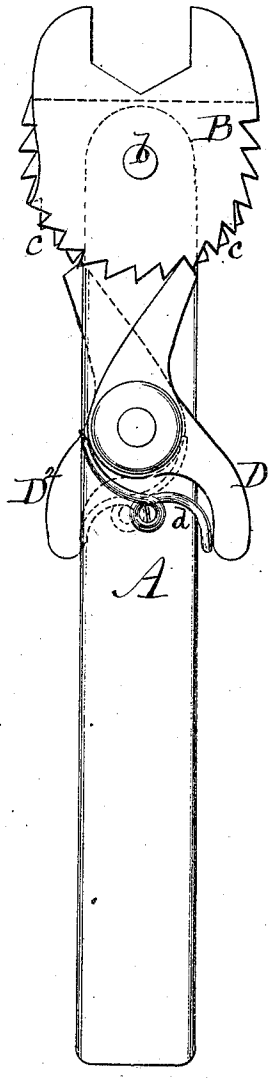



*Fig. 2.*

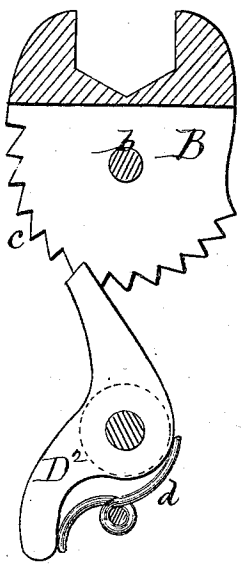



*Fig. 4.*

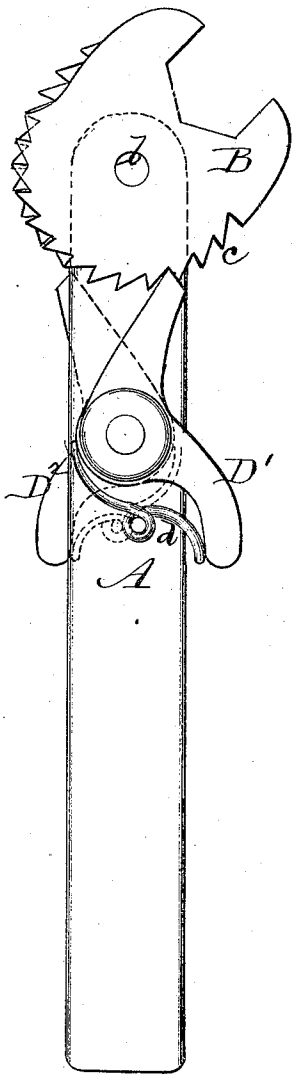
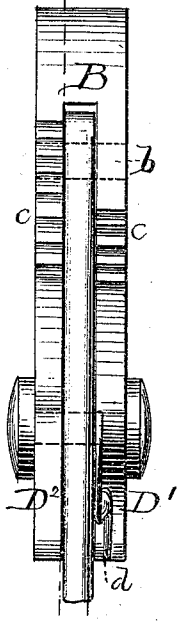



*Fig. 3.*




Witnesses.
John Becker
Fred Haynes

Robert Jack
by his Attorneys
Brown & Allen

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

ROBERT JACK, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO HIMSELF AND THOMAS GANNON, OF SAME PLACE.

## IMPROVEMENT IN WRENCHES.

Specification forming part of Letters Patent No. **169,812**, dated November 9, 1875; application filed August 30, 1875.

*To all whom it may concern:*

Be it known that I, ROBERT JACK, of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improved Wrench, of which the following is a specification:

My invention relates to certain improvements whereby facility is afforded for using a wrench in corners, narrow spaces, and other places difficult of access, by wrenches of ordinary construction.

The invention consists in a wrench provided with an open-jawed movable head, which may be adjusted and secured at any desired angle with relation to the handle, in the manner and for the purpose hereinafter particularly described and set forth.

In the accompanying drawing, Figure 1 is a side view of my improved wrench. Fig. 2 is a longitudinal section. Fig. 3 is an edge view. Fig. 4 is a side view at right angles to Fig. 1.

The handle A may be of any suitable construction, and is attached to the head B by a pivot, *b*, running through the head and the upper portion of the handle. The head B is divided below the jaws to receive the handle. The lower edges of the branches formed by this division are curved, and are provided with notches or ratchet-teeth *c*, the teeth running in one direction on one of the branches, and in an opposite direction on the other branch. Pivoted to the handle A, on one side, is a pawl, $D^1$, which may be in the form of an elbow-lever, so that while the short arm is engaged with the notches or ratchet-teeth *c*, the long arm extends slightly beyond the edge of the handle, and may be readily manipulated by the thumb or finger of the hand which grasps the handle. On the opposite side of the handle is a pawl, $D^2$, similar in form to the pawl $D^1$, and pivoted in the same manner, but in an opposite direction, so as to engage with the ratchet *c* on the branch of the head opposite to that with which the pawl $D^1$ engages. Both of the pawls are provided with springs *d*, which tend to keep them engaged with the ratchets *c*.

In using this wrench, the head B is turned on its pivot *b* to one side or the other, and adjusted at any desired angle with relation to the handle, in which position it is held by the engagement of the pawls $D^1$ $D^2$ with the ratchets *c*.

By turning the head B in different directions with relation to the handle, the wrench may be used upon bolts and nuts in many positions and places where it would be difficult to reach them or turn them with wrenches of ordinary construction. By having the jaws open it may be applied to nuts and bolts which could not be reached by ratchet-wrenches.

The wrench may be used, to a limited extent, as a ratchet-wrench by disengaging with the thumb or finger one or the other of the pawls, allowing the other to engage with the ratchet so as to allow the wrench to be used in either direction; and it may be said to combine the advantages of a wrench with a fixed head and open jaws, and a ratchet-wrench, while, under certain circumstances, it is superior to either.

It will be seen that by providing the head B with branching arms, having ratchet-teeth projecting in reverse directions, and pivoting the pawls on opposite sides of the handle, and arranging springs to act upon the pawls, that the latter are always kept in mesh with the ratchet-teeth, and the thumb-pieces may be operated directly upon, thus placing the pawls under the complete control of the user, whereby the wrench is more reliable than where pawls are operated by an independent lever pivoted to the handles, as heretofore.

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

The head B, divided below the jaws to form two branches or arms which are provided with ratchet-teeth *c*, projecting in reverse directions, in combination with the handle A, pivoted between the branching arms of the head and the pawls $D^1$ $D^2$, pivoted upon opposite sides of the handle, and springs *d*, acting upon said pawls to keep them in mesh with the ratchet-teeth, substantially as and for the purpose described.

ROBERT JACK.

Witnesses:
HENRY T. BROWN,
MICHAEL RYAN.