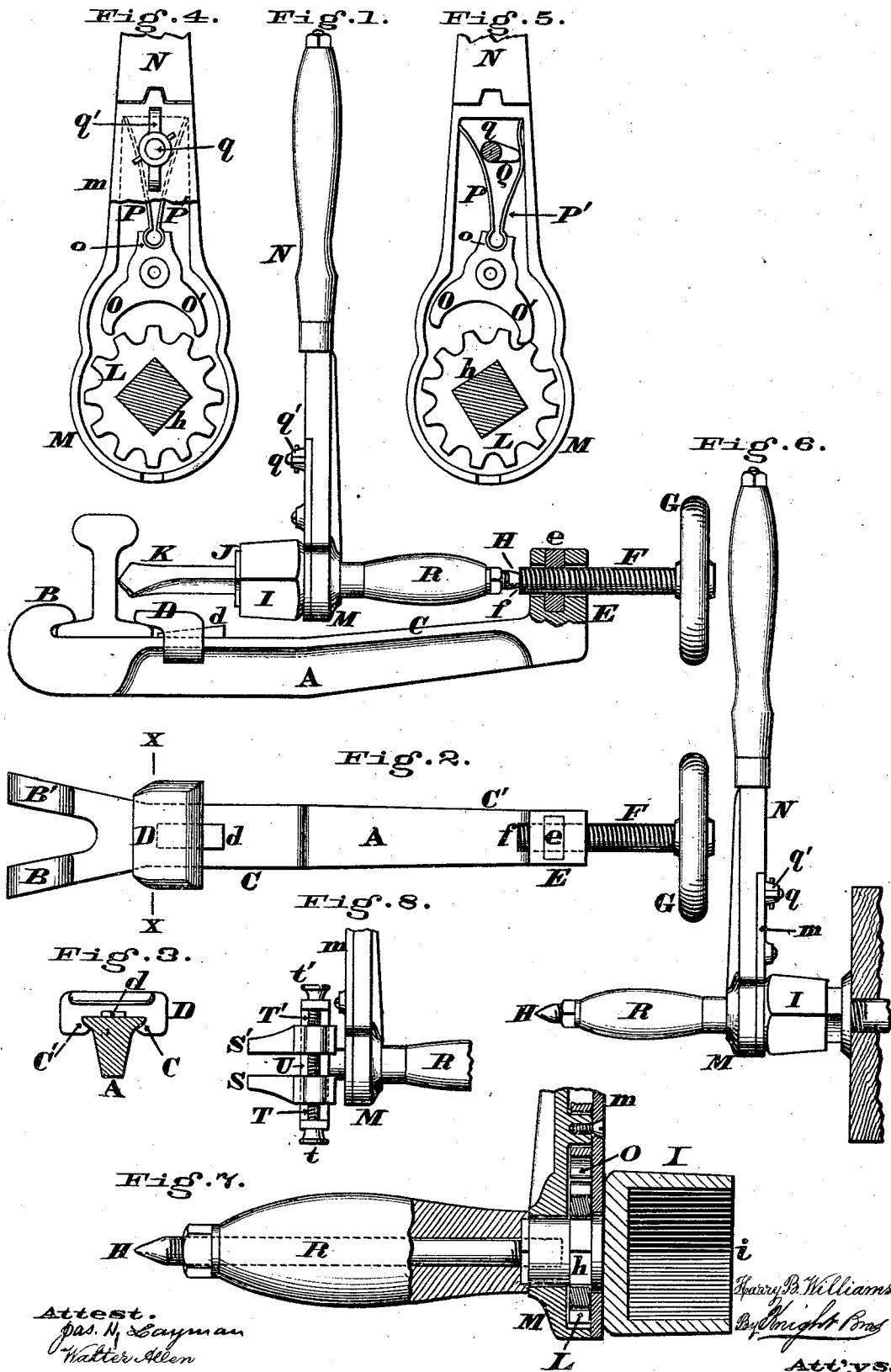


H. B. WILLIAMS.
Stocks for Drill or other Bits.

No. 138,973.

Patented May 13, 1873.



Attest.
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UNITED STATES PATENT OFFICE.

HARRY B. WILLIAMS, OF CINCINNATI, OHIO, ASSIGNOR TO HIMSELF, ALBERT G. CORRE, LYMAN L. BENSON, AND JOHN B. SCHRODER, OF SAME PLACE.

IMPROVEMENT IN STOCKS FOR DRILL OR OTHER BITS.

Specification forming part of Letters Patent No. **138,973**, dated May 13, 1873; application filed February 3, 1873.

To all whom it may concern:

Be it known that I, HARRY B. WILLIAMS, of Cincinnati, Hamilton County, Ohio, have invented an Improved Combined Ratchet Wrench and Drill, of which the following is a specification:

Nature and Objects of the Invention.

This is an improvement in the class of portable instruments which are convertible at will into drills or into wrenches, and which, in either form, are capable of being operated either to the right or left, at the option of the user. My invention is particularly designed to facilitate the operations of railway and bridge-builders in drilling holes for screw-bolts, and in screwing and unscrewing nuts.

General Description.

Figure 1 is a partly-sectionized elevation of my combined tool as adapted for drilling the web of a railway-rail to receive a fish-plate bolt. Fig. 2 is a top view of the clamp-bar and its attachments. Fig. 3 is a transverse section at the line *ax*. Figs. 4 and 5 are enlarged elevations of the lower parts of the handle, without the cap, the non-circular shank of the socket being shown in section. Fig. 6 is an elevation, showing the implement changed to a socket-wrench. Fig. 7 is an enlarged axial section of the socket and socket-handle. Fig. 8 is a partial elevation, showing a form of my wrench having a pair of adjustable jaws.

I will first describe the implement as for drilling. A is a clamp-bar, terminating at one end in two lips B B', to grasp one side of the rail-base; said bar is also provided with flanges C C', which serve to stiffen it laterally, and, also, as a guide and holder for a slidable jaw, D, whose office is to grasp the other side of said base. The bar A, with its flanges C C', being made tapering toward the other extremity, relieves the said bar of unnecessary weight, and enables the jaw D to be easily slipped off of or onto the said bar; and said bar is bent upward, as shown, so as to give sufficient clearance to the feed-wheel, to be presently described. The other extremity of

said bar consists of a lug, E, having fitted within it a nut, *e*, preferably of steel, whose screw-threaded aperture receives a feed-screw, F, having a hand-wheel, G, and having a recessed point, *f*, to embrace the pointed shank H of a socket, I, having a square or other non-circular cavity, *i*. This socket may be employed to hold the chuck J of a drill, K, as in Fig. 1, or to hold a nut for screwing or unscrewing the same, as in Fig. 6. That portion *h* of the shank H immediately in front of the socket has a square or other non-circular form, and has attached to it a pinion, L, which is inclosed in the lower or looped portion M of handle N. Pivoted within said box M, above the said pinion, is a duplex pawl, O O', having in its upper side a notch, *o*, to receive a duplex spring, P P', one or other member of which, being pressed by an eccentric, Q, operates to hold one or other member, O or O', of the pawl into the pinion L, so as to make either the right or the left vibration of said handle effective, and, by this means, to work the instrument in that direction which may be desired; or, in other words, so as to drill or wrench, as the case may be, either to the right or to the left. The stem *q* of the eccentric Q extends to the outside of the box, and is furnished with a handle, *q'*, by means of which the duplex pawl may be placed in either the right effective position, as in Fig. 5, or in the ineffective position, as in Fig. 4; or, by simply reversing the eccentric, the pawl will become effective in the left position. The box M has a removable cap, *m*.

Operation.

For drilling purposes, my improvement is operated as follows:

The bed-plate A is applied to the rail in such a manner as to cause the lips B B' to grasp its base on one side of the bottom flange. (See Fig. 1.) The shiftable jaw D is then adjusted to the opposite flange of the rail and secured by driving in the wedge or key *d*. By this arrangement, the clamp-bar is securely locked to the rail and maintained in such a position as will render the drill the most effective and convenient for the operator, as the jaw D pre-

vents said clamp sagging down or getting out of line with respect to the rail.

Any suitable form of drill is then applied to the chuck J, and the latter inserted in the socket I. The pointed shank H is now seated within the recessed end *f* of screw F, and the latter rotated until the point of the drill is brought in contact with the rail-web or other object to be operated upon. The handle N is then vibrated in the usual manner, the eccentric Q having first been set so as to rotate the drill to the right or left, as may be most suitable to the drill-bit. As rapidly as the drill penetrates the rail, it is fed up by the hand-wheel G. After the aperture has been drilled, the screw F is run back, the chuck J, with its drill K, removed from the implement, and a bolt having been inserted in the hole thus made, the socket I is then employed for engaging the nut with the bolt. As long as the nut runs with comparative freedom it can be screwed upon the bolt by simply rotating the handle R, but as soon as said nut commences to bind, and more power is required, the lever N is brought into action; such use of the implement is shown in Fig. 6. Instead of the socket I, the implement may be provided with two jaws S S', upon a guide-head, U, which jaws can be adjusted toward or away

from each other by the right and left hand screw T T', whose heads *t t'* are situated at the outer ends thereof, so as to allow said jaws to be brought to any desired closeness of approximation. This substitute for the socket is shown in Fig. 8. Another modification may have one fixed and one movable jaw.

Claims.

I claim herein as new and of my invention—

1. The combination of the flanged bed or clamp-bar A C C', having the lips B B' and the sliding jaw D, wedge *d*, nut *e*, and lug E, and feed-screw F G having the recessed point *f*, substantially as shown and described.

2. In combination with the above, the reversible convertible drill and wrench, consisting of the parts *h i j L M m N O O' o P P' Q q q' R H*, constructed, arranged, and operating substantially as shown and described.

In testimony of which invention I hereunto set my hand.

HARRY B. WILLIAMS.

Attest:

GEO. H. KNIGHT,
JAMES H. LAYMAN.