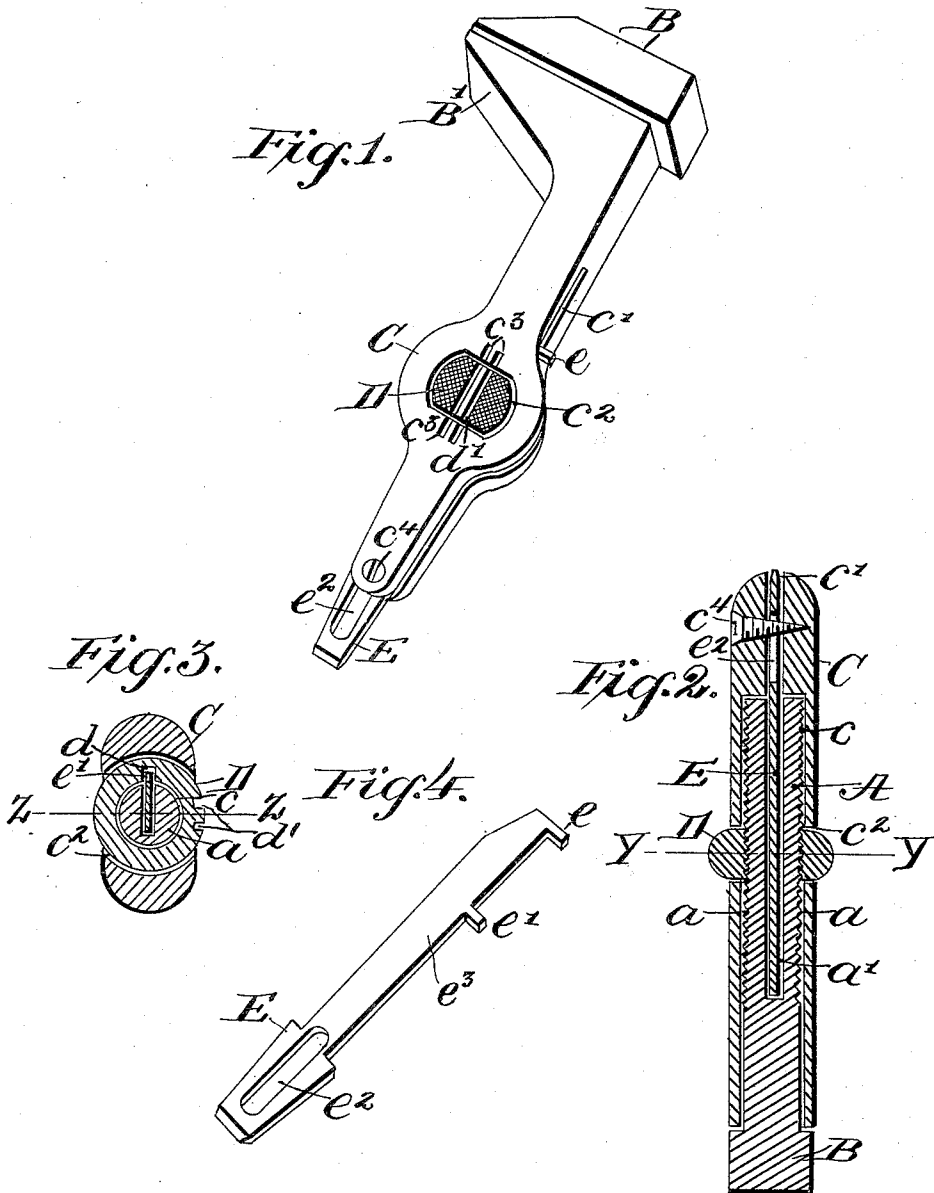


(No Model.)

B. A. HAINES.
COMBINED WRENCH AND SCREW DRIVER.

No. 411,190.

Patented Sept. 17, 1889.



Witnesses.
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UNITED STATES PATENT OFFICE.

BURR ALBERT HAINES, OF SMITHVILLE, NEW JERSEY.

COMBINED WRENCH AND SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 411,190, dated September 17, 1889.

Application filed April 27, 1889. Serial No. 308,802. (No model.)

To all whom it may concern:

Be it known that I, BURR ALBERT HAINES, a citizen of the United States, residing at Smithville, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Combined Wrenches and Screw-Drivers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in combined wrenches and screw-drivers; and the nature thereof consists in securing a screw-driver in the handle of a wrench and in providing means whereby the said screw-driver may be locked in position for either transportation or use, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a perspective view of my invention. Fig. 2 is a longitudinal section thereof on the line $z z$ of Fig. 3. Fig. 3 is a cross-section on the line $y y$ of Fig. 2, and Fig. 4 is a detail of the screw-driver.

The rounded post A of the lower jaw B of the wrench has screw-threads a upon its upper end, while the same end is also provided with a longitudinal slot a' . The handle C is attached to the upper jaw B', and has in its central part the longitudinal rounded cavity c to receive the post A. A longitudinal slot c' is formed in the upper end of the handle, corresponding to the slot a' in the post A, while a recess c^2 is also formed in the said handle extending from side to side thereof, intersecting the longitudinal cavity c . A thumb-nut D is placed in the recess c^2 , working upon the screw-threads a upon the post A, and thus by the revolution of the said nut the jaws B and B' may be caused to approach or recede. The thumb-nut D has also an interior groove d on one side thereof, and has upon its outer surface depressions or marks d' , which, when in line with the correspond-

ing depressions or marks c^3 upon the handle C, indicate that the groove d is in the same plane as the longitudinal slots a' and c' in the post A and handle C, respectively, and toward the back of the handle in that plane.

The screw-driver E has upon its rear end a nose e , while upon the same side as the nose, but more toward the middle thereof, is the lug e' . The forward end of the screw-driver has a slot e^2 , through which passes the screw c^4 in the handle C, for the purpose of guiding the screw-driver, which is, with the exception of at nose e , lug e' , and slot e^2 , narrow enough to work freely within the smaller inside diameter of the nut D.

The screw-driver rests, when not in use, within the slots a' and c' of the post A and handle C, that portion marked e^3 in Fig. 4 being surrounded by the nut D, while the lug e' rests upon the under surface of the said nut, the nose e projecting through the slot c' in the handle to the surface of the back thereof, and thus serves as a means for moving the screw-driver.

When it is desired to use the screw-driver, the nut D is turned until the marks d' and c^3 coincide, when the nose e may be pushed toward the upper end of the handle. In this operation the lug e' will pass through the interior groove d of the nut. After the screw-driver has been pushed out to its full extent the nut D may be turned, when the lug e' will bear upon the upper surface of the nut, thus preventing the return of the screw-driver to within the post A, and it is in this position that it is represented in Fig. 1. When it is desired to return the screw-driver, the above-described operation is reversed and the screw-driver will occupy its position as first above described, in no way preventing the rotation of the nut D and the proper manipulation of the jaws B and B' of the wrench.

The tool hereinbefore described may be put together as follows: The nut D is first placed in position in the recess c^2 and the screw-driver placed in the longitudinal slot of the handle and passed through the nut. The post A is then inserted in the longitudinal cavity of the handle in such a position that its slot is in the same plane with that of the handle

and with the screw-driver. The nut is then rotated, drawing the jaws together, and the screw c^4 is inserted in its hole.

Having thus described my invention, what I claim is—

1. In a combined wrench and screw-driver, the combination of a post carrying a lower jaw and having a longitudinal slot therein, a handle carrying an upper jaw and having a longitudinal cavity and slot therein, a recess in the said handle intersecting the said cavity, a thumb-nut in the said recess engaging the said post, and a screw-driver contained in the said longitudinal slots in the post and handle, as and for the purposes described.

2. In a combined wrench and screw-driver, the combination of a post carrying a lower jaw and having a longitudinal slot therein, a handle carrying an upper jaw and having a longitudinal cavity and slot therein, a recess in the said handle intersecting the said cavity, a thumb-nut in the said recess engaging the said post, an interior groove in the said nut, and a screw-driver having a lug upon its edge adapted to pass through the said interior groove, the said screw-driver being contained in the said slots in the post and handle, as and for the purposes described.

3. In a combined wrench and screw-driver, the combination, with an upper and a lower jaw B' and B , respectively, of a rounded post A , attached to the said lower jaw B , a longitudinal slot a' in the said post A and screw-threads a thereon, a handle C , attached to the said upper jaw B' , a longitudinal cavity c and slot c' in the said handle C , a recess c^2 , extending from side to side of the said handle and intersecting the said cavity c , a thumb-nut D , having an interior groove d' , contained within the recess a^2 and engaging the screw-threads a on the post A , a screw-driver E , resting within the slots a' and c' of the post A and handle C , respectively, a nose e and a lug e' on the said screw-driver, a slot e^2 in the screw-driver, a screw c^4 in the handle C passing through the said slot e^2 , and marks d' and c^3 upon the nut D and handle C , respectively, all as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

BURR ALBERT HAINES.

Witnesses:

E. F. BURNS,
J. POWELL.