D. MORNEWECK.

RATCHET WRENCH.

APPLICATION FILED JULY 16, 1914.

1,209,320.

Patented Dec. 19, 1916.

Fig. 1.

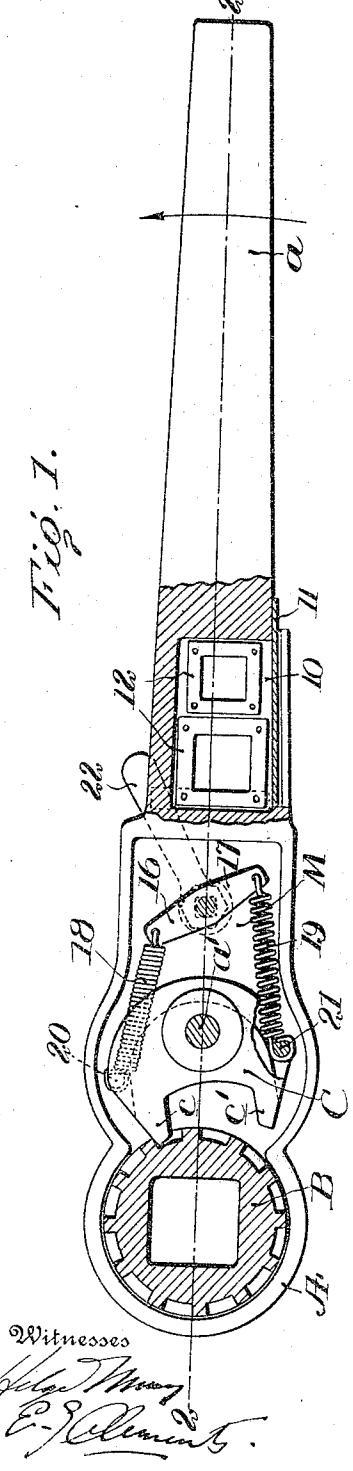



Fig. 2.

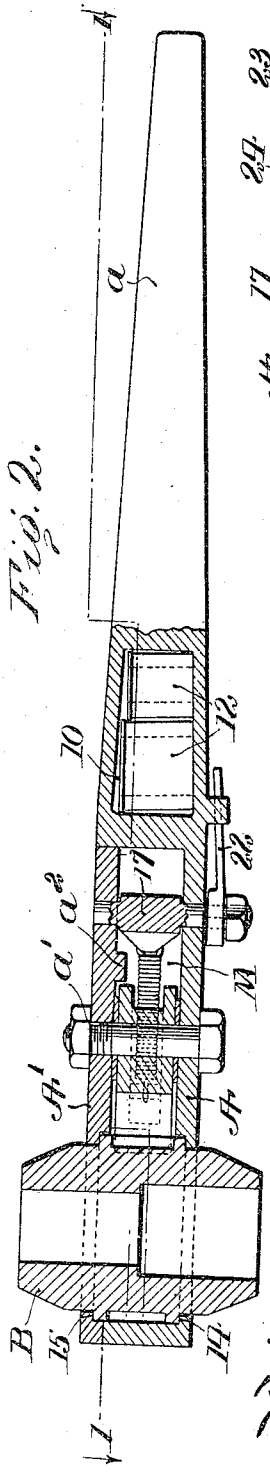



Fig. 3.

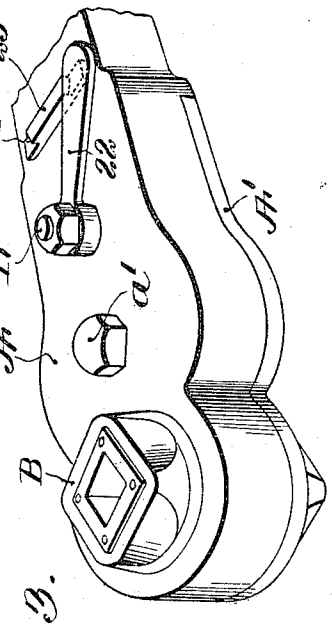
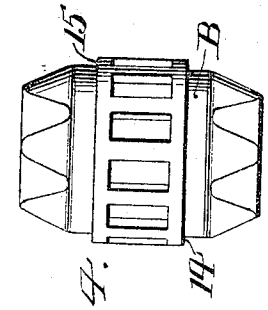



Fig. 4.




Witnesses

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# UNITED STATES PATENT OFFICE.

DAVID MORNEWECK, OF FREDONIA, PENNSYLVANIA.

## RATCHET-WRENCH.

1,209,320. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed July 16, 1914. Serial No. 851,361.

*To all whom it may concern:*

Be it known that I, DAVID MORNEWECK, a citizen of the United States, residing at Fredonia, Mercer county, and State of Pennsylvania, have invented and discovered certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

My said invention consists in certain improvements in the construction and arrangement of parts of ratchet wrenches whereby a wrench of this type is provided wherein a nut may be turned in either direction at will without removing the wrench from the nut, and wherein nuts of various sizes may be operated by the same wrench, and further, whereby a construction is provided that is not only strong and durable, but also one that is comparatively inexpensive to construct, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a horizontal section through a portion of a wrench of my improved construction as on the dotted line 1—1 in Fig. 2, Fig. 2 a vertical section as on the dotted line 2—2 in Fig. 1, Fig. 3 a detail perspective view of a portion of the under side of the wrench, and Fig. 4 a detail view of the turning head.

In said drawings the portions marked A represent the main body of the wrench, B the turning head, and C a pawl for locking the turning head against turning in either direction.

The main part or body A comprises a handle *a* at one end and a chamber M at its large end adapted for inclosing the operative parts of the device. The chamber is closed by a removable plate $A^1$ adapted to rest upon its surrounding edge or wall and on a shoulder at the rear end of said chamber, thus forming a complete inclosed chamber for the operative parts. Said plate $A^1$ is secured in place by a single clamping bolt $a^1$ and is held from lateral movement by a transverse lug or boss $a^2$ on its under face, the ends of which fit between the inner edges of opposite sides of the wall surrounding the chamber. Said part A is also formed with a pocket 10 at a point just behind the chamber M, which pocket is closed by a sliding cover plate 11 and is adapted to contain a series of sockets 12 of different sizes for a purpose to be presently described.

The turning head B is formed to journal in perforations formed in the part A and in the cover $A^1$, being formed with circumferential shoulders at points 14 and 15 which inter-engage with appropriate recesses in said parts and thus provide for the free turning of said head, while at the same time insuring a close fit. Between said shoulders 14 and 15 said turning head is formed as a ratchet wheel with a series of vertical ratchet teeth, having wide spaces between them.

The pawl C is substantially a semi-circular part pivoted on the clamping bolt $a^1$ and formed with two engaging pawl points *c* and $c^1$, on opposite corners, which project into the path of the ratchet teeth in the periphery of turning head B. A cross head 16 formed, or rigidly mounted, on a pivot shaft 17, is connected at its opposite ends, respectively, by springs 18 and 19 with points 20 and 21 on the opposite sides of the part C. A lever 22 is mounted on the outer end of said pivot 17 and is adapted to slide over a transverse bar 23 on the under side of the part A. Said bar 23 has retaining shoulders 24 at its ends to engage and hold said lever. When said lever stands in the position indicated by dotted lines in Fig. 1, the point *c* of the pawl C is in engagement with the ratchet face of turning head B, and will hold said head to turn with the handle when the handle is turned in the direction indicated by the arrow on Fig. 1. The movement of handle A in the reverse direction, however, will permit head B to stand idle, the point *c* freely sliding over the ratchet teeth in this direction, because of the yielding of the appropriate spring and the relation of the angles of the respective parts. By swinging lever 22 to engage the notch 24 at the other end of the bar 23 (see Fig. 3) the point $c^1$ on the opposite side of the pawl C will be brought into engagement with the ratchet face of the turning head B and said head held to turn with the handle A when it is swung in the reverse direction. Thus by merely shifting lever 22 from one end of bar 23 to the other the turning head B can be locked to turn with the handle A in either direction desired. The springs 18 and 19 will hold the pawl in engagement with the ratchet, but will permit the yielding of the pawl when the handle is swung

reversely to the direction in which the nut is being turned as the angle on the inner face, respectively, of the points $c$ and $c^1$ will easily ride over the opposite corner of the adjacent tooth.

As will be noted by referring to Fig. 2, turning head B is formed on one end with a nut receiving socket of one size and in the other end with a nut receiving socket of another size. The turning head is thus adapted to fit nuts of two sizes. In the pocket 10 two other sockets are shown which are adapted to fit into the sockets formed in head B and thus provide sockets adapted to fit nuts of two additional sizes. The wrench shown is thus adapted for use with nuts of four standard sizes, and, as will be readily understood, other sockets of varying sizes and of varying shapes in cross section, to fit any style as well as size of nut, may be mounted in the pocket 10, so as to increase the variety of sizes and forms of nuts with which the wrench is adapted to be used.

The single bolt $a^1$ serves to secure the cover plate $A^1$ to the body of the wrench, and also provides the fulcrum bearing for the ratchet pawl C. Thus said bolt $a^1$ serves as the sole securing means for holding the body, the closure plate, and the turning head in assembled relation, and, in addition, provides the fulcrum bearing for the pawl. It will be evident that parts of the wrench may be readily disassembled simply by removing the bolt $a^1$.

In operation, the wrench is placed upon the nut in the usual manner, the operator swings lever 22 to lock turning head B as required to obtain the desired direction of turn for the nut, when the operation proceeds in the same manrer as with any common ratchet wrench. When it is desired to turn the nut in the opposite direction the operator merely shifts lever 22 from one end of bar 23 to the other, as before described. The parts are securely locked in the desired relative position by the shoulders 24 at the ends of bar 23 which engage the side of lever 22 and hold it until forcibly lifted and shifted from one position to the other.

Access to the operative parts can be readily secured for purposes of adjustment or repair by the removing of the nut from bolt $a^1$ and lifting off plate $A^1$, as will be readily understood. The pocket 10 is neatly and securely closed by a sliding cover plate 11 and except when the sockets contained in said pocket are needed for use, it is kept closed and is practically concealed.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent is:

A ratchet wrench comprising a body part with a handle at one end and a mechanism containing chamber at the other end, said mechanism containing chamber being formed with one side open, a closure plate for closing said chamber, said body part and closure plate having openings forming annular flanges, a turning head mounted to rotate in said chamber and projecting through said openings at either end, said head formed with shoulders engaging said flanges and constructed with a ratchet, a single bolt securing the plate to the body part and holding said parts and the head in assembled relation, a double-ended pawl pivoted on the assembly bolt within said chamber and adapted to engage the ratchet, a cross-head pivotally mounted in said chamber, connections between said cross-head and the pawl, and a device for actuating said cross-head to operate the pawl, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Greenville, Pennsylvania, this 11th day of July, A. D. nineteen hundred and fourteen.

DAVID MORNEWECK. [L. S.]

Witnesses:

ALBERT C. SNYDER,

CHARLES A. LAVER.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**