D. M. Moore,

Wrench.

No. 45,334. Patented Dec. 6, 1864.

Fig. 1

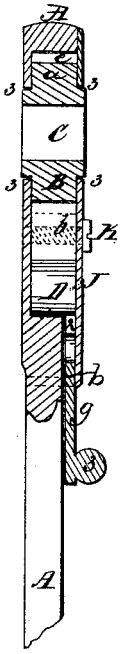


Fig. 2

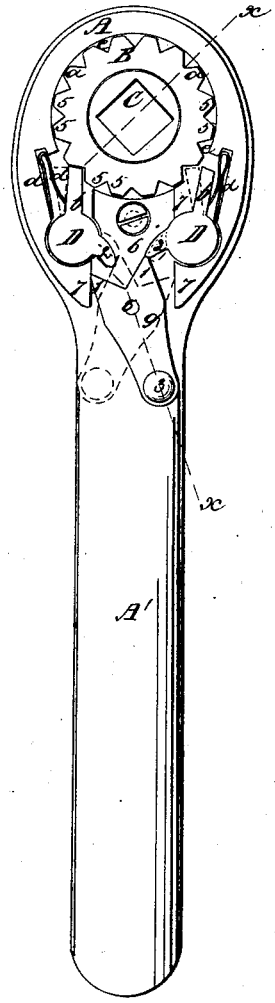
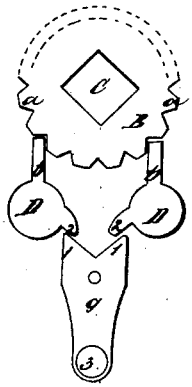


Fig. 3



Witnesses
C. L. Toplift
Henry Bloms

Inventor
D. M. Moore
per Munn & Co
Attorneys

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

UNITED STATES PATENT OFFICE.

D. M. MOORE, OF WINDSOR, VERMONT.

IMPROVED WRENCH.

Specification forming part of Letters Patent No. **45,334**, dated December 6, 1864.

To all whom it may concern:

Be it known that I, D. M. MOORE, of Windsor, in the county of Windsor and State of Vermont, have invented a useful Improvement in Wrenches; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional view of my wrench, taken on the bent line *x* of Fig. 2. Fig. 2 is a plan thereof, the face plate J having been removed to show the movable parts. Fig. 3 is a view of the ratchet-plate and the detents by which its movements are governed.

Similar letters of reference indicate like parts.

A represents the head of the wrench, and A′ its handle.

J is a cover which is secured to the head A by means of a screw, K.

A circular cavity, *e*, is formed in the head to receive a ratchet-wheel, B, whose teeth *a* are so formed that their opposite faces 5 are at right angles to each other. The ratchet-wheel has a central boss, 3, on each face, which projects through the lower side or back of the head A, and through an opening made in the cover J, respectively. When the cover is in place, the ratchet-wheel is journaled in the said central openings in the cover and head, and is free to revolve upon the bosses or trunnions 3 3. Other cavities, *d′ d′*, are also made in the head A on opposite sides thereof to receive detents *b*, two in number, which project from cylindrical bodies D, fitting into sockets formed for them in the lower ends of the side cavities, *d′ d′*, in which sockets they are free to rotate. The cavities *d′ d′* open into the cavity *e*. An arm, 2, projecting inward from each of the bodies D over the surface of the depressions 6 made in the solid part of the head, furnishes means for operating the detents when the workman desires so to do. The extreme ends of the arms 2 have flat faces, the object of which will be hereinafter explained.

g is a lever secured to the handle A′ by means of a fulcrum-pin, 6, about which it has a rotary motion which is limited by its contact with the sides 7 7 of the depression 6. The lever extends beyond the lower part of the cover, and is provided with a knob, 3, to enable the workman to change its position. The short inner end of the lever is forked, as shown at 1 1, the forks reaching toward the arms 2, with which they come in contact when the lever is swung about its fulcrum.

The detents *b b* are made to engage with the ratchet-wheel by the pressure of springs *d*, confined in the cavities *d′*, as seen in Fig. 2.

When the longer end of lever *g* is moved to the right, its right-hand fork moves against the adjacent arm 2 of the right-hand detent, and causes that detent to become disengaged from the ratchet. If the lever is moved still farther to the right, its right-hand fork reaches the flat face of the arm 2 at the same time that its left-hand fork reaches the side 7 of of the depression, which serves to hold the lever locked in the position shown in Fig. 2 and the detent still disengaged. While the parts remain in this position, the ratchet is held against rotation in one direction by the left-hand detent *b*. If, however, the lever is made to take the position shown in Fig. 3, both detents are engaged, and the ratchet is locked against rotation in either direction. If the left-hand detent is held back by the lever, the ratchet will be engaged by the right-hand detent.

C is a square opening or socket in the center of the ratchet-wheel, which is fitted onto to the bolt or screw head to be operated upon.

The operation of the wrench is as follows: The socket C being fitted upon the bolt or nut, and the detents placed as seen in Fig. 2, it is evident that the wrench can be operated by moving the handle A′ from right to left; but if the handle is moved from left to right the teeth of the ratchet-wheel will slip over the detent *b*, thereby enabling the workman to get a fresh hold of the bolt without removing the wrench from it. The converse takes place when the detents *b b* are placed in converse positions.

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

The combination, in a wrench, of the ratchet-wheel B, containing the socket for seizing the work, with the detents *b b* and lever *g*, so constructed as to lock the ratchet against rotation in any direction, and also to lock it at will so that the implement may be worked as a right-hand or left-hand wrench without removing it from the work, substantially as described.

D. M. MOORE.

Witnesses:

ED. S. FAY,

M. C. HUBBARD.