



No. 616,540.

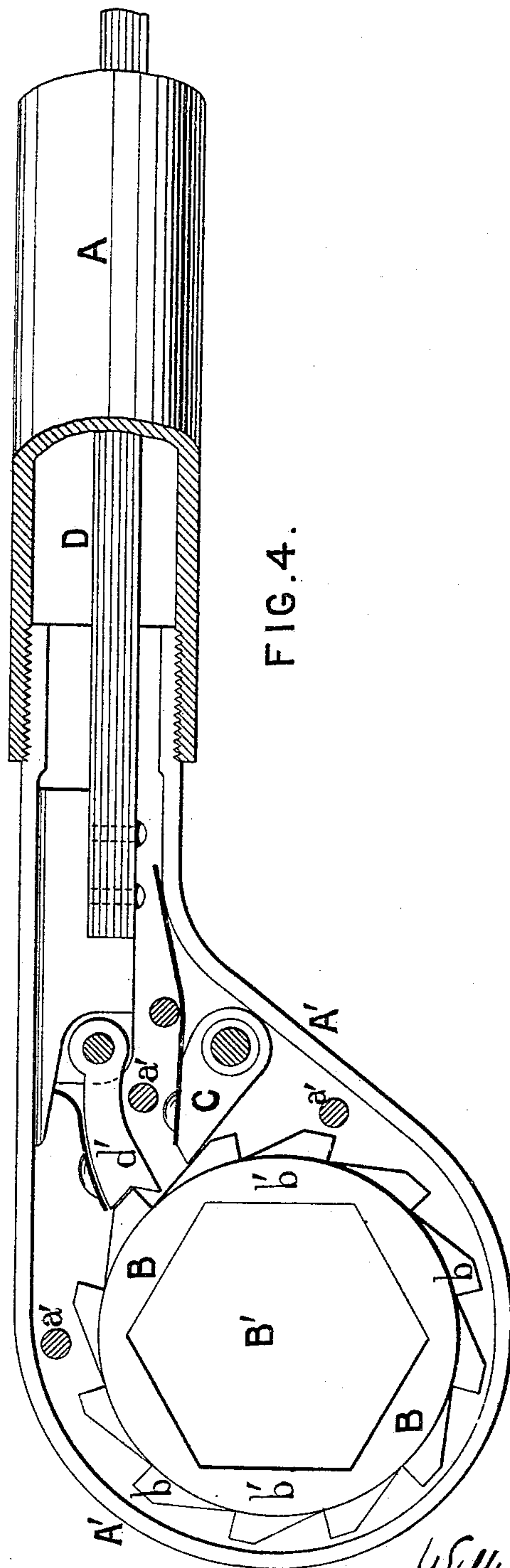
Patented Dec. 27, 1898.

W. KING.  
WRENCH.

(Application filed Dec. 21, 1897. Renewed Nov. 7, 1898.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES  
*Joseph Pates*  
*Howard*

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*att'y.*



# UNITED STATES PATENT OFFICE.

WILLIAM KING, OF ECCLES, ENGLAND.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 616,540, dated December 27, 1898.

Application filed December 21, 1897. Renewed November 7, 1898. Serial No. 695,753. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM KING, a subject of the Queen of Great Britain, residing at Eccles, in the county of Lancaster, England, have invented a certain new and useful Improved Wrench, (for which I have obtained Letters Patent in England, dated July 14, 1891, No. 11,947, and in Belgium, dated November 30, 1896, No. 124,877,) of which the following is a specification.

This invention relates to an improved construction of wrench to be applied to nuts or bolts or screws, whereby such nut can be caused to move any required distance along the screw without removing the wrench, whether the nut be tight or slack upon its screw.

It consists, essentially, in constructing the wrench with a ratchet or toothed wheel the center of which is formed open to fit over or to embrace the nut carried by a suitable lever and with a second or auxiliary lever by which the ratchet can be rotated while the other lever remains stationary.

Figure 1 is a side elevation; Fig. 2, a longitudinal section; Fig. 3, an end elevation of ratchet-wheel B, with the case or head A' in section; Fig. 4, a longitudinal section of a larger tool.

In the end of a handle or hand-lever A, I place a ratchet-wheel B, so as to be capable of rotating therein. The ratchet-wheel B is formed with teeth *b* around its periphery and with journals *b'*, which fit into apertures or bearings *a* in the sides of the head or case A', which contains it, and in its center it is provided with a square, hexagonal, or other hole B' to fit over the nut of a screw or bolt.

The handle or hand-lever A is preferably made of steel or iron tube of any desired length, and the head or case A' may be made of two steel stampings, which inclose and form a support for the ratchet B and are attached to the lever or handle A by being screwed into it. The two parts of the head or case A' are secured together by rivets *a'* and carry a pivoted pawl C, which engages with the teeth *b* of the ratchet B to permit of the ratchet turning in one direction only. A second lever D in the form of a sliding bar capable of moving longitudinally is placed in the interior of

the tubular handle or hand-lever A. The end of this lever D is formed like a pawl or may have a pawl *d'* pivoted to it to engage with the teeth of the ratchet, so that at each movement to and fro longitudinally the ratchet is turned about its axis for the distance of one or more teeth. The lever D is preferably placed inside the tubular handle, as shown, and moves along one side of it.

The lever or sliding bar D is fitted with a knob or handle F, by which it is moved toward the ratchet, and a small spring G, placed at the end of the handle or other suitable position, draws it back again after each forward movement. By moving the sliding lever D the ratchet is moved forward about its axis one or more teeth.

By the wrench constructed according to my invention a nut which is tight may be unscrewed till it is slack and the operation continued without removal of the wrench until it is brought completely off the bolt, or it may be placed loose on the bolt and the reverse operation performed till it is finally fixed.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. A wrench constructed with a ratchet B provided with central aperture to receive a nut and a pivoted pawl to prevent rotation of the ratchet in combination with a hand-lever A and a second lever D in the form of a sliding bar parallel with the hand-lever provided with a pawl C at the inner end to actuate the ratchet D, substantially as described.

2. In a wrench the combination of the tubular hand-lever A, the head A' attached thereto forming a casing for the ratchet, the ratchet B provided with a central aperture B' to receive a nut pivoted in bearings *a* in the head A', the pivoted pawl C to prevent rotation of the ratchet, the sliding lever D placed in the hand-lever to actuate the ratchet, and the spring G, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM KING.

Witnesses:

J. OWDEN O'BRIEN,  
R. OVENDALE.