

D. G. KENNEDY.
 RATCHET WRENCH.
 APPLICATION FILED APR. 24, 1918.

1,314,964.

Patented Sept. 2, 1919.

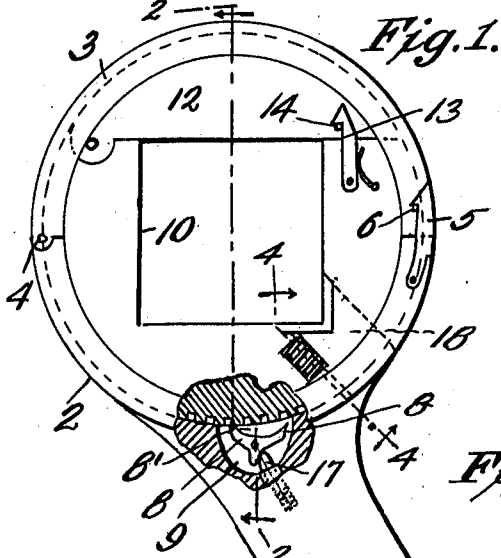


Fig. 1.

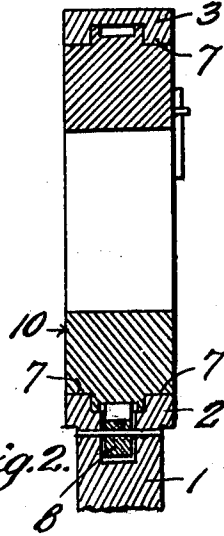


Fig. 2.

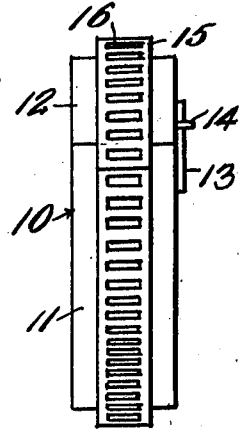


Fig. 3.

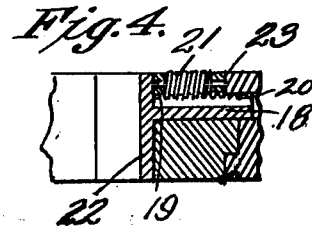


Fig. 4.

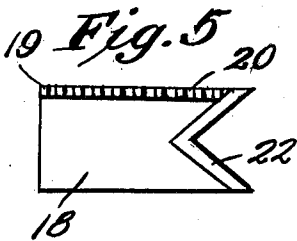


Fig. 5.

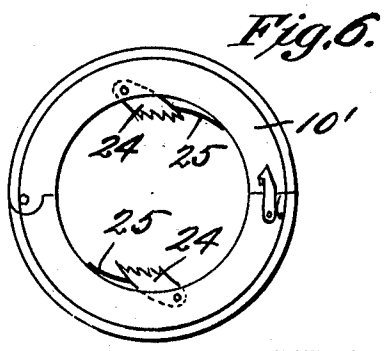


Fig. 6.

WITNESSES

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RATCHET-WRENCH.

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To all whom it may concern:

Be it known that I, DAVID G. KENNEDY, a citizen of the United States, residing at Caryville, in the county of Washington and State of Florida, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to wrenches, and more particularly to wrenches of the ratchet type.

The object of the invention is to provide a wrench of this character so constructed as to remove or tighten a square or hexagonal nut without removing the wrench at each turn.

Another object is to so construct a wrench of this character that when placed in position all that is necessary is to move the handle up or down to cause the nut to turn continuously in one direction.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a side elevation with parts broken out of a wrench constructed in accordance with this invention.

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1.

Fig. 3 is an edge view of one of the dies used in connection with the wrench.

Fig. 4 is a detail sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a detail perspective view of the compensating or adjusting element used to adapt the wrench for nuts of varying sizes, and

Fig. 6 is a side elevation of another form of die.

In the embodiment illustrated, the wrench constituting this invention comprises a handle 1 preferably of elbow-shape, having an inner semi-circular head section 2 made integral with one end thereof. A complementary semi-circular head section 3 is hinged at 4 to one end of section 2, a latch 5 being carried by the other end of section 2 to engage a pin 6 on the free end of section 3

and thus detachably secure the hinged section in closed operative position.

The sections 2 and 3 form a circular head which is provided with side flanges 7 designed to retain the removable die as 10, in position. Any desired number of these dies may be supplied with each wrench, said dies having sockets of different configuration to adapt them for use with different shaped nuts and which are interchangeable for this purpose. The dies 10 are each constructed of hingedly connected sections 11 and 12, the free ends of which are united by a spring pressed latch 13 carried by one of the sections and engaged with a pin 14 carried by the other. This die 10 has an annular centrally disposed extension 15 arranged around the periphery thereof and provided with notches 16 which are designed for interlocking engagement with a pawl 8 housed in a chamber 9 of the handle 1 as is shown clearly in Fig. 1. This pawl 8 is here shown Y-shaped in form and one side or the other of the stem or shank thereof is engaged by a spring pressed tooth 17 mounted in the handle 1 and yieldably held in engagement with said stem to hold one of the fingers 8' of the pawl in engagement with the notches of the die 10 according to the direction it is desired to turn the die so that when the handle 1 is oscillated a continuous rotary motion will be imparted to the die.

The die 10 has a nut receiving socket formed therein which is here shown rectangular in form, although it may be of any other suitable or desired configuration according to the configuration of the nut in connection with which it is to be used, said wrench being especially designed for use on square and hexagonal nuts.

To adapt a single die for use in connection with nuts of varying sizes, but the same configuration, an adjusting element or slide 18 is mounted at one corner of the die as is shown clearly in Fig. 1 and which is preferably constructed in the form shown in Fig. 5, having a flange 19 extending along one side thereof at right angles thereto and toothed as shown at 20, said teeth being designed to be engaged by the threads of a thumb screw or worms 21 operable to project or retract the slide. The inner end of the sliding member 18 has a V-shaped notch 22 formed therein to receive one corner of the nut, the remainder of the nut being forced against the opposed walls of the nut socket

in the die 10, the turning of screw 21 operating to adjust the member 18 according to the size of the nut in connection with which the wrench is to be used. It will thus be
 5 seen that a single die 10 may be used for screwing or unscrewing a number of nuts of different sizes and of the same configuration by simply adjusting the slide 18 to suitably reduce the size of the opening in the die 10
 10 to conform to the size of the nut to be actuated.

In the use of this wrench it will be obvious that the parts being in the position shown in Fig. 1, when it is desired to remove the
 15 die 10 and replace it by another, all that is necessary is to unlatch the latch 5, swing up the head section 3, and remove the die 10, then replace said die by another of desired configuration, the annular extension or
 20 shoulder 15 being inserted in the seat formed by the flanges 7 as is shown clearly in Fig. 2, and if desired, the nut may be engaged with the die by opening the section 12 and then snapping it into closed position, closing
 25 section 3, and the wrench is ready for use, and it is actuated by oscillating the bent handle 1, which causes the fingers or teeth 8' of pawl 8 to alternately engage the notches 16 of the die and thus rotate the die in the
 30 desired direction for screwing or unscrewing the nut.

It is of course understood that many different forms of dies may be used in connection with this wrench, and in Fig. 6 is
 35 shown a die especially adapted for use in connection with pipes, the toothed fingers 24, which are pressed outward by springs 25 being designed to bite into the pipe to be held, the teeth on the two fingers extending
 40 in opposite directions, so that a firm grip may be obtained. This die 10' is otherwise constructed similarly to the die 10 above described and is adapted to be inserted in the head of the wrench in the same manner.

45 The foregoing description and the drawings have reference to what may be considered the preferred or approved form of my invention. It is to be understood that I may make such changes in construction and ar-

50 rangement and combination of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the appended claims.

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

1. A wrench of the class described comprising an elbow-shaped handle having a fixed semi-circular head section at one end thereof, a cooperating head section hingedly
 60 connected at one end to one end of the fixed section, means for detachably connecting the free ends of said head sections, a die to be mounted in said head, cooperating means carried by the die and head for retaining the
 65 former in operative position and to permit its rotation relatively thereto, said die having a nut engaging socket, an adjustable slide for varying the size of said socket without altering its configuration, said slide having a
 70 right angular recess at its inner end and a toothed flange on one side edge, a screw mounted in said head and engaged with said teeth to project and retract said slide, and
 75 means for rotating the die.

2. A wrench of the class described comprising a handle having a fixed head section at one end thereof, a cooperating head section hingedly connected at one end to one
 80 end of the fixed section, means for detachably connecting the free ends of said head sections, a die to be mounted in said head, cooperating means carried by the die and head for retaining the former in operative
 85 position and to permit its rotation, said die having a nut engaging socket, an adjustable slide for varying the size of said socket without altering its configuration, said slide having a recess at its inner end and a toothed
 90 flange on one side edge with a screw mounted to engage the teeth of said flange to project and retract the slide.

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

DAVID G. KENNEDY.

Witnesses:

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