J. E. LENHOLT.

WRENCH.

APPLICATION FILED OCT. 22, 1919.

1,352,461. **Patented Sept. 14, 1920.**

Fig. 1.

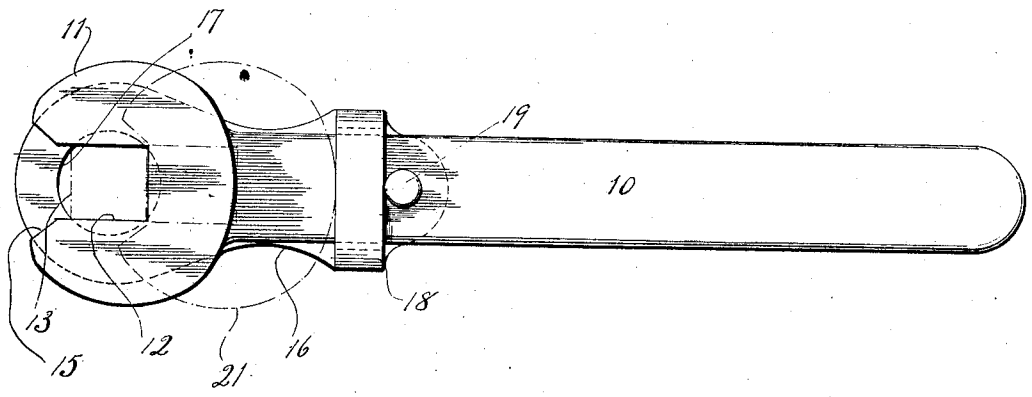


Fig. 2.

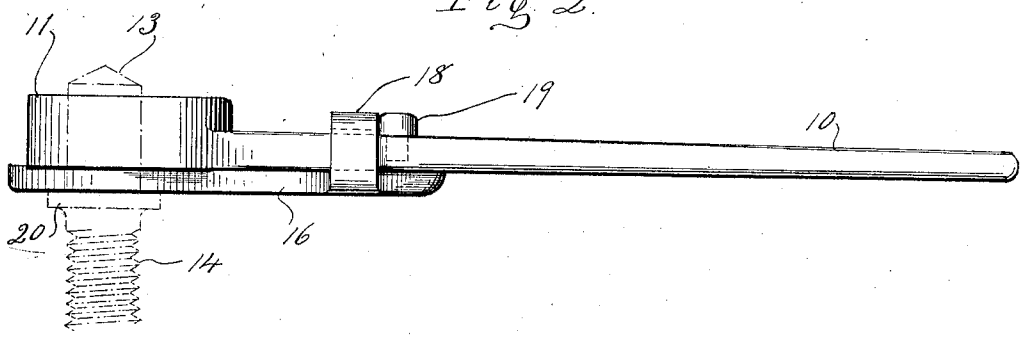
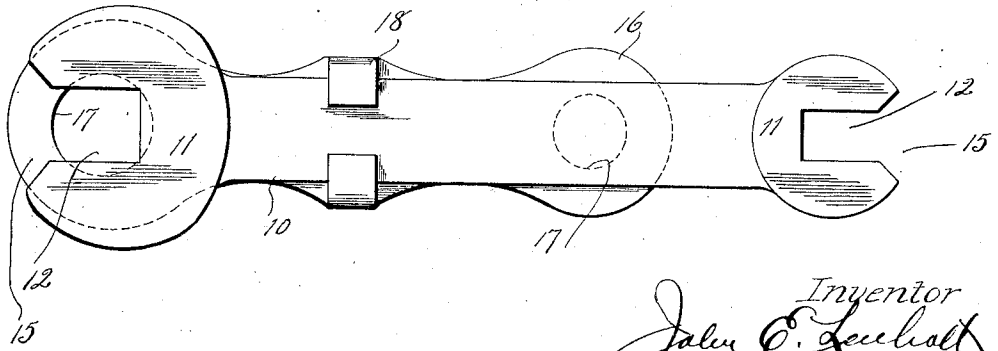


Fig. 3.



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WRENCH.

1,352,461. Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed October 22, 1919. Serial No. 332,484.

To all whom it may concern:

Be it known that I, JOHN E. LENHOLT, a citizen of the United States, residing at Guilford, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention refers to a wrench and has for its object, among other things, to provide means whereby an open ended wrench may be held in such relation to a bolt or nut that it will not become disconnected therefrom, although permitted to move radially in relation thereto a sufficient distance to permit the wrench to secure successive holds thereon.

To these, and other ends, my invention consists in the wrench having certain details of construction, and combinations of parts, as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures;

Figure 1 is a plan view of my improved wrench shown in connection with a bolt head;

Fig. 2 is a side elevation thereof; and

Fig. 3 is a plan view showing my invention as designed for use with a wrench having recesses at its opposite ends.

What have been generally known as ratchet wrenches are used to rotate nuts or bolts when it is desirable that the wrench have a constant connection therewith. This type of wrench is objectionable however because of its cost and complicated structure. With some classes of work, especially where it is in an elevated position, these wrenches are liable to be either lost or broken by an accidental fall, and frequently inconvenience, results by a disarrangement of their more or less complicated mechanism.

To obviate these difficulties and produce a wrench that will have substantially the same functions as a ratchet wrench, but with much more simple mechanism, that may be produced at the minimum cost, has been one of the objects of this invention.

The wrench herein shown and described has all the desirable features of a ratchet wrench but none of its disadvantages.

In the drawings the numeral 10 designates a wrench of a well known type having a shank that is used as a handle and a head portion 11, this latter being provided with a recess 12 of the size and shape of the nut with which it is designed to be connected. As illustrated the head 13 of the bolt 14 is square in cross section but obviously my invention is equally applicable with bolts of hexagon or octagon cross section, the recess 12 being made to conform therewith.

The head of my improved wrench is preferably formed with an open throat 15, which flares outwardly from each side of the recess 12. Slidably mounted upon the handle of the wrench 10 is a holding plate 16 having an opening 17 therethrough of sufficient size to permit the head 13 of the bolt to pass therethrough. A portion of the holding plate 16 is bent over the handle of the wrench to form a loop 18 to provide means to secure said holding plate to said wrench, this loop being sufficiently large to provide free endwise movement of the wrench handle therein.

A stop pin 19 fixed in the wrench handle limits the relative movement of the wrench and plate.

The function of this pin 19 is to prevent the disengagement of the locking plate from the wrench and as many wrenches have holes in the outer end of the handle for split rings or chains, these latter would serve the purpose of the pin or a detent might be provided or the end of the wrench upset, in fact any device which prevents disengagement of the locking plate from the wrench being acceptable.

In operation the head 13 of the bolt 14 is projected through the opening 17 of the locking plate 16, which rests on the collar 20 on said bolt and thus supports the wrench. It is preferable during this operation that the head 11 of the wrench should be moved to the position shown by the dotted lines 21 in Fig. 1, but this is not essential.

After the locking plate is in position the head 11 of the wrench is moved toward the bolt head 13 so that said head enters the recess 12, and after the wrench has been moved about the axis of the bolt 14 all that is permissible, the head is withdrawn from its engagement with the bolt head, this movement being limited by the engagement of the head

11 and the loop 18. The wrench is now returned to its original position, the recess 12 again engaging the bolt head 13 and the above operations repeated. It is apparent that with this mechanism that after the plate 16 has engaged the bolt head or nut it is impossible to disengage the wrench therefrom, but the wrench is always held in such relation to the bolt or nut as to permit of its engagement therewith.

In Fig. 3 I have shown a wrench having heads at the opposite ends thereof, provided with recesses 12 of varying sizes, so that the wrench can be used for bolts or nuts of two sizes. In this case the locking plate 16 is the same as the one described, except that it is double ended and the loop 18 is therebetween.

There are minor changes and alterations that can be made within my invention, aside from those herein suggested, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

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

1. A wrench having a head provided with a recess for engagement with a bolt head or nut; and a plate connected with said wrench with an opening therein of substantially the same diameter as the largest diameter of said bolt head or nut, said plate having a constant engagement with said bolt or nut.

2. A wrench having a head provided with a recess for engagement with a bolt head or nut, and a plate provided with means whereby during the operation of said wrench it may have a constant engagement with said head or nut, and connected with said wrench so that the latter may be moved into and out of engagement with said bolt head or nut without breaking its connection with said plate or the latter with said bolt head or nut.

3. A wrench having a head provided with a recess for engagement with a bolt head or nut; and a plate connected with said wrench with an opening therein for constant engagement with said bolt or nut, said opening and recess registering with each other when in one of their relative positions.

4. A wrench having a head provided with a recess for engagement with a bolt head or nut; a plate connected with said wrench with an opening therein for constant engagement with said bolt or nut; and means for preventing the disengagement of said plate from said wrench.

In testimony whereof, I have hereunto affixed my signature.

JOHN E. LENHOLT.