

F. R. ALLEN.
WRENCH.

APPLICATION FILED DEC. 20, 1910.

1,000,878.

Patented Aug. 15, 1911.

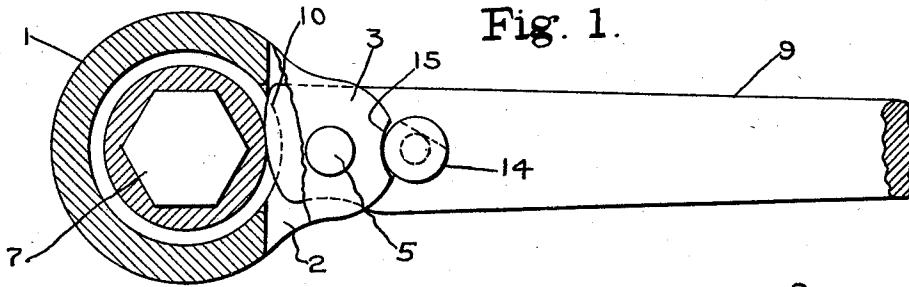


Fig. 1.

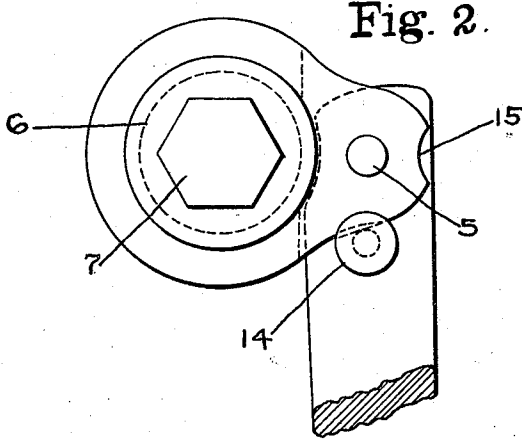


Fig. 2.

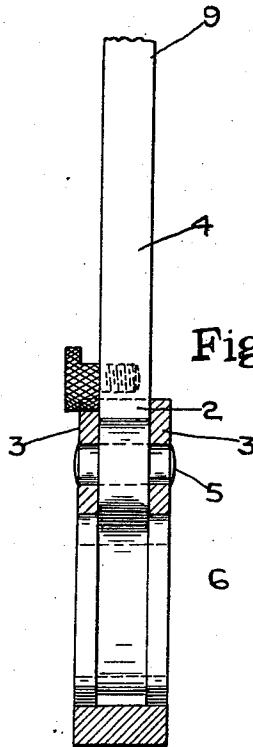


Fig. 3.

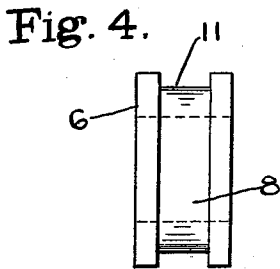


Fig. 4.

Fig. 5.

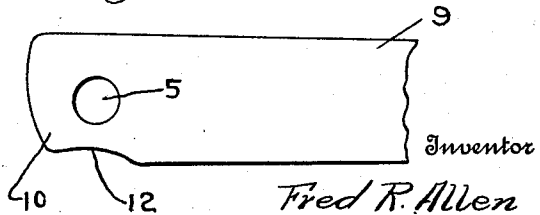


Fig. 6.

Witnesses

E. J. Ogden

J. L. Macdermott

Inventor

Fred R. Allen

By

Howard C. Barlow

Attorney

UNITED STATES PATENT OFFICE.

FRED R. ALLEN, OF PROVIDENCE, RHODE ISLAND.

WRENCH.

1,000,878.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed December 20, 1910. Serial No. 598,464.

To all whom it may concern:

Be it known that I, FRED R. ALLEN, a citizen of the United States, and resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention has reference to wrenches, its object being to provide a wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, and an operating lever having a cam-shaped portion arranged to coact with the periphery of said nut engaging member whereby the latter may be rotated in narrow spaces by short vibrations of said lever when desired.

A further object of the invention is to provide a circular groove in the nut engaging member for the reception of the cam end of the operating lever, whereby said member is retained in said keeper, and to also provide in the operating lever means whereby said nut engaging member may be readily removed and replaced by one of another size when desired.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1— is a side elevation of my improved wrench, partially in section. Fig. 2— is a side elevation showing the operating lever turned down in position to permit the ready removal of the nut engaging member. Fig. 3— is a central section through the keeper showing the nut member retained therein by the end of the operating lever. Fig. 4— is an edge view of the nut engaging member. Fig. 5— is a detail side elevation of the operating lever. Fig. 6— is a detail of the member which controls the movement of the lever with relation to the keeper.

Referring to the drawings 1 designates the keeper which may be constructed in any desired shape but is preferably made substantially in the form of a ring having a protuberance from its edge which protuberance is slotted at 2, see Fig. 3, thereby forming a pair of ears 3—3 between which the operating handle 4, hereinafter described is mounted on the pivot pin 5. This slot 2 is deep enough, as illustrated in Figs. 1 and 2, to permit the said lever 4 to be turned down on its pivot 5 at substantially right angles to its

normal operating position illustrated in Fig. 2. The nut engaging member 6 is preferably made in the form of a circular disk, its thickness corresponding substantially with that of the keeper into which it loosely fits to rotate freely. This member is provided with any suitable means for engaging the nut, bolt head or other device which it is desired to operate. I have, for convenience, however, shown a hexagonal opening 7 through said member which is adapted to receive the nut or other device to be operated. The periphery of this nut engaging member 6 is provided with a comparatively wide annular groove 8 for the reception of the cam end of the operating lever 4. This lever 4 is provided with a handle 9 of any convenient shape and of a length to provide the desired leverage. The opposite end of this lever is made of sufficient length to enter the groove 8 of the nut engaging member, said end being formed in a cam shape to engage and coact with the friction periphery 11 at the bottom of the groove 8. One edge of this lever adjacent the pivoting pin has a portion cut away or concaved as at 12 so that when the lever is turned down into the position illustrated in Fig. 2, said lever end is entirely withdrawn from engagement with the groove in the nut engaging member, thereby permitting said member to be freely removed from its keeper to be replaced with one of another size or style if desired. A retaining screw 13, having an enlarged head 14 is threaded into one side of this lever, said head being adapted to enter a recess 15 formed in the end of one of the ears 3, said recess being a little larger than said head whereby a slight motion of the lever handle with relation to the retaining member is permitted. This head 14 has a portion removed or cut away as at 16 so that when said head is rotated into position to bring this cut away portion next to the ear 3, the lever may then be freely swung on its pivot pin 5 from its normal operating position illustrated in Fig. 1 down into the release position illustrated in Fig. 2, in which latter position the nut engaging member may be freely removed. When this nut engaging member is replaced in the keeper it is only necessary to swing the handle 4 back to its normal or operative position, turn the head of the screw 13 down a portion of a revolution which brings the cut 16 away from the ear 3 and presents the circular portion of the

screw head to the groove 15. This turning motion also has the effect of setting the screw tighter into the lever, in which position it is retained by the friction of its shoulder 17, binding against the outer face of said lever.

I claim:

1. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having an annular groove, a friction surface at the bottom of said groove, an operating lever having a cam-shaped portion entering said groove to coact with said friction surface and also to retain said member in operative position within the keeper.

2. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having a friction periphery, an operating lever having a cam-shaped portion to coact with said friction periphery, and means whereby said member may be readily locked in said keeper.

3. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having a friction periphery and an operating lever having a cam-shaped portion to coact with said friction periphery, said member being retained in operative position within said keeper by the groove engaging end of said lever.

4. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having a friction periphery and an operating lever having a cam-shaped portion to coact with said friction periphery, said member being retained in operative position within said keeper by

said lever, and means whereby said lever may be readily thrown out of engagement with said member to permit its ready removal.

5. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having a friction periphery, an operating lever having a cam-shaped portion to coact with said friction periphery, said member being retained in operative position within said keeper by said lever, means whereby said lever may be readily thrown out of engagement with said member to permit ready removal of the latter, and means for loosely retaining said lever in operative position with relation to said keeper.

6. A wrench comprising a keeper, a nut engaging member rotatably mounted in said keeper, said member having an annular groove, a friction surface at the bottom of said groove, an operating lever pivotally mounted in said keeper and having a cam-shaped portion entering said groove to coact with said friction surface and also to retain said member in operative position within the keeper, means for loosely retaining said lever in its operative position with relation to said keeper, and means whereby said lever may be readily thrown out of engagement with said member to permit the ready removal of the latter.

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

FRED R. ALLEN.

Witnesses:

HOWARD E. BARLOW,
E. I. OGDEN.