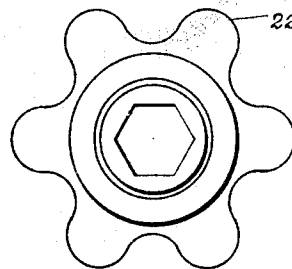
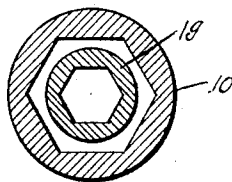
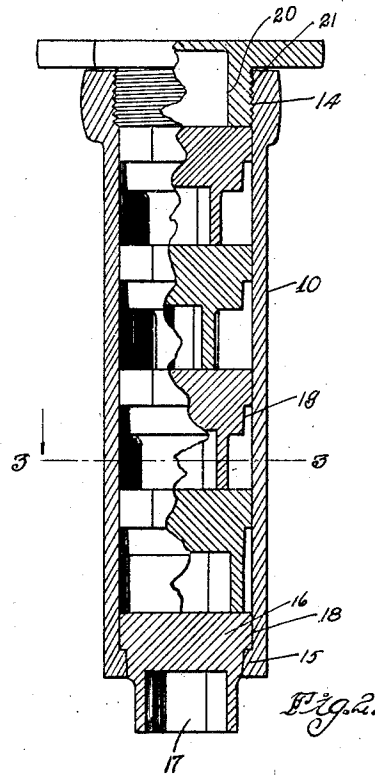
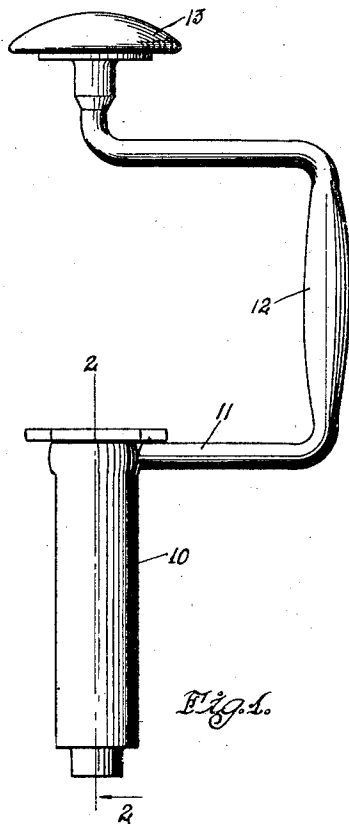


E. M. ARNOLD.
COMBINATION WRENCH.
APPLICATION FILED JAN. 25, 1921.

1,381,889.

Patented June 14, 1921.



Inventor
Edwin M. Arnold.
by Onig & Hager Attys

UNITED STATES PATENT OFFICE.

EDWIN M. ARNOLD, OF TULSA, OKLAHOMA.

COMBINATION-WRENCH.

1,381,889.

Specification of Letters Patent. Patented June 14, 1921.

Application filed January 25, 1921. Serial No. 439,854.

To all whom it may concern:

Be it known that I, EDWIN M. ARNOLD, a citizen of the United States, and resident of Tulsa, in the county of Tulsa and State of Oklahoma, have invented a certain new and useful Improved Combination-Wrench, of which the following is a specification.

The object of my invention is to provide a wrench of simple, durable and inexpensive construction, adapted to be adjusted to fit any one of a number of different sized nuts such as are used on demountable rims for automobile wheels.

A further object is to provide in such a wrench, means whereby a series of different sized detachably arranged sockets may be carried within a suitable container forming a part of the wrench member, and in such a manner that any one of the sockets may be easily and quickly placed and locked in an operative position in the container.

These and other objects which need not be mentioned in detail, will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of my improved wrench.

Fig. 2 is a longitudinal sectional view of the magazine portion, showing the socket members in position.

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a detail segmental view, showing one end of the magazine portion.

My improved wrench comprises a cylindrical portion 10 having a handle portion 11 which is formed integral with the cylindrical portion, the handle portion 11 having the form of a crank provided with a hand portion 12 and a pivoted plate 13. The plate 13 and the crank portion 11 are similar to those used on brace bits and various socket wrenches.

The cylindrical portion 10 is preferably formed hollow and has the section of a hexagon. The inner end of the opening is formed with a cylindrical portion 14, and is screw-threaded. The opposite end of the opening within the member 10 is provided with an internal annular flange 15. This

flange 15 is provided with a slight taper so that the outer portion of the flange is provided with a slightly larger opening than the inner portion, said opening being cylindrical.

The cylindrical portion 10 is designed to receive a series of socket members 16, each of which is provided with a socket portion 17 which may have either the form of a hexagon or a square or any other desired shape to fit nuts having a corresponding shape. In the drawings I have shown the member 10 of such a length that it is adapted to receive five of these socket members, each of which is provided with a socket 17 of a different size from the other, and each of which is provided with a flange portion 18 which is in the shape of a hexagon slightly smaller than the opening within said member 10.

Adjacent to the flange 18 I have provided a cylindrical portion 19, which is formed slightly tapered and of the same diameter and width as the opening within the flange 15, the portion 19 being of a slightly greater diameter than the exterior portion of the socket 17.

By this arrangement it will be seen that one of the members 16 may be placed with a socket portion 17 through the opening of the flange 15 in such a manner that the member 19 will engage the flange 15 and will be securely locked in position by a slight downward movement of the member 16. The upper end of the portion 10 is large enough so that the members 16 may be slid into or out of position at the will of the operator.

When the bottom member 16 has been placed in position, the other four members are placed on top of the said member, as illustrated in Fig. 2, and are then locked in position by means of a plug 20 having a screw-threaded portion 21 designed to coact with the screw-threaded portion 14. The plug 20 is provided with a star wheel member 22, which is of a diameter greater than the diameter of the member 10, and so arranged that it may be easily grasped by one hand of the operator so that the plug may be easily and quickly secured in position with its inner face adjacent to the top face of the top one of the members 16, after which a further movement of the plug 20 will cause all of said members 16 to engage each other, and the bottom one of said mem-

bers to be rigidly and firmly locked in position in the lower end of the member 10, thus forming a rigid socket member in the end of the member 10, which socket member may be placed upon any desired nut of the same size as the socket 17, and rotated by operating the hand portion 12 in the usual manner. The member 16 will be held against rotation relative to the member 10 by the hexagonal flange 18 coacting with the inner faces of the member 10.

Thus it will be seen that I have provided a wrench of simple and very cheap construction, which may be adapted to fit nuts of various sizes by placing the proper member 16 in the opening of the flange 15. This change may be easily and quickly accomplished by removing the plug 21, after which the member 10 is inverted, permitting the four socket members inside of the magazine to fall out, and the member in the flange 15 may then be easily removed by a gentle inward tap on the outer end of said member. This will cause it to be loosened, and it will then also fall out in the same manner as the others. The proper member may then be selected and placed in the magazine, with its socket end downward, which will immediately and automatically take its place within the flange 15, after which the remainder of the socket members may be placed in position and the cap 20 applied as before described.

By this construction I have provided means for storing all of the detachable members where they may be found at the will of the operator. In this connection, the device is so constructed that it is necessary that all of the members be placed in position before the active member may be locked, thereby providing against accidental loss of any of the wrench members.

I claim as my invention:

1. A wrench comprising a brace member having a container, a series of wrench sockets for said container, and means for

locking any one of said sockets in an operative position and the rest within said container.

2. A wrench comprising a hollow cylindrical member having a crank formed integral, a hand plate for said crank, said cylindrical member being designed to receive a series of wrench socket members, and means for locking one of said socket members into operative position in one end of said cylindrical member.

3. A wrench comprising a container portion provided with a handle, a series of socket members designed to be carried by said container, and means for locking any one of the said socket members in an operative position.

4. A wrench comprising a hollow cylindrical portion open at each end and having a handle member, a series of detachable wrench members designed to be slidably and nonrotatably mounted in said cylindrical member, and means mounted in one end of said cylindrical member for locking one of the wrench members in an operative position in the opposite end, and the remainder of said members within said cylindrical portion.

5. A wrench comprising a handle having a container, a series of detachable wrench members designed to be slidably and nonrotatably mounted in said container, with one of the said members in an operative position, and means for locking the last said member against movement relative to said handle.

6. A wrench comprising a handle having a container, a series of detachable wrench members for said container, and means for locking any one of said wrench members in operative position only when all of said wrench members are in position in said container.

Des Moines, Iowa, December 31, 1920.

EDWIN M. ARNOLD.