

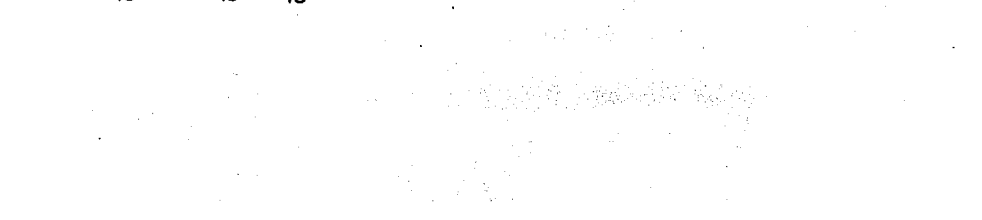
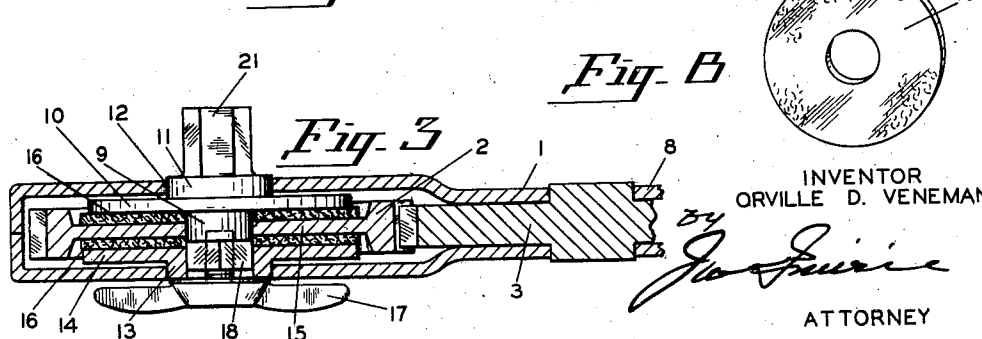
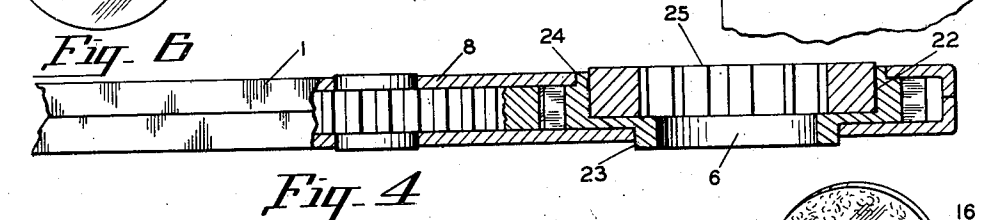
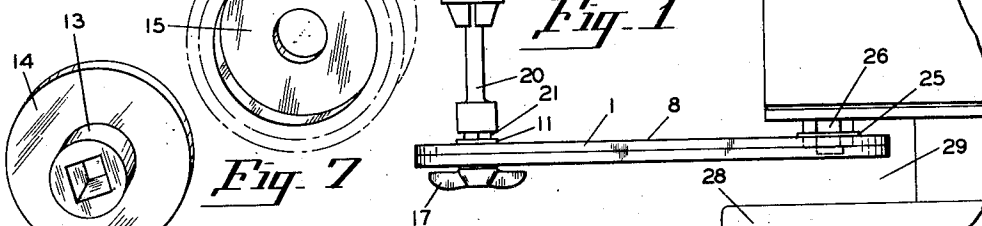
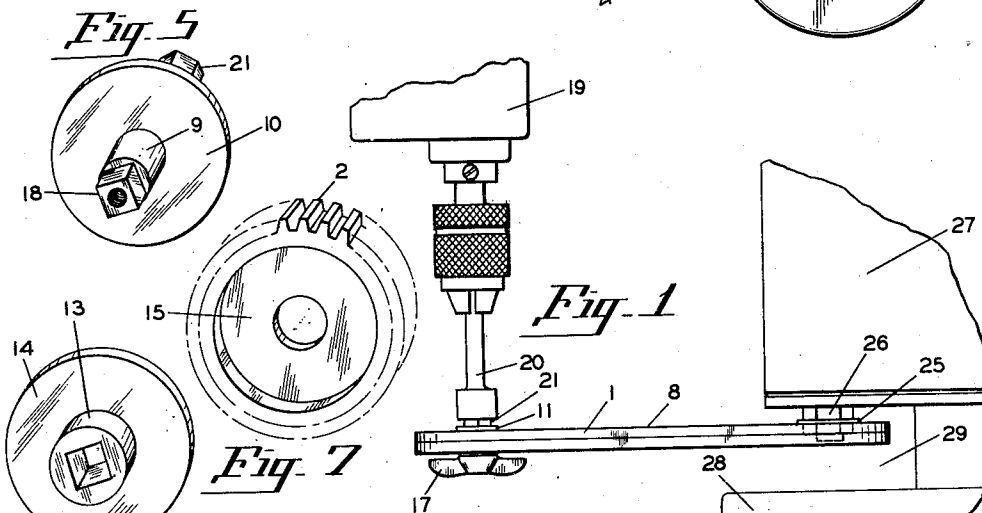
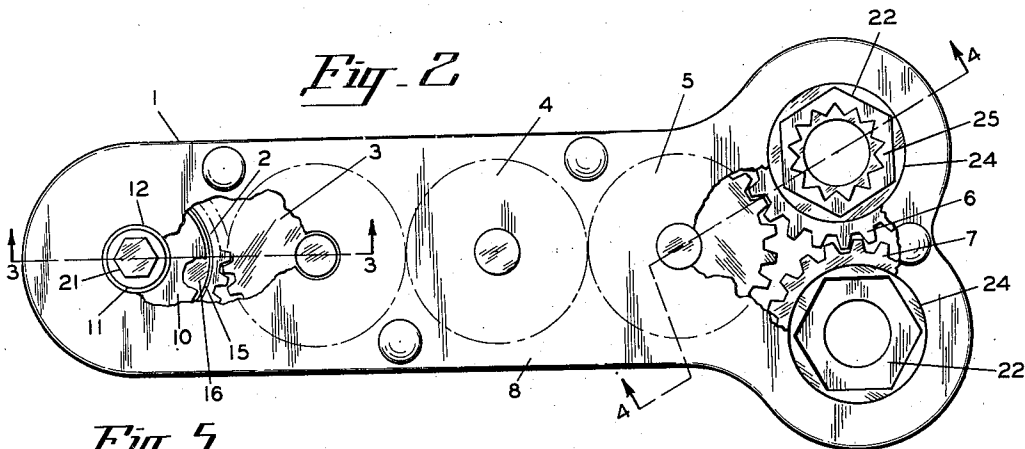
Sept. 20, 1949.

O. D. VENEMAN

2,482,387

GEAR OPERATED DOUBLE-SOCKET WRENCH

Filed Aug. 5, 1947



INVENTOR
ORVILLE D. VENEMAN

ATTORNEY

UNITED STATES PATENT OFFICE

2,482,387

GEAR-OPERATED DOUBLE-SOCKET
WRENCH

Orville D. Veneman, Portland, Oreg.

Application August 5, 1947, Serial No. 766,325

2 Claims. (Cl. 81—52.4)

1

This invention relates to wrenches and is particularly related to the socket type wrench.

The primary object of the invention is to provide a wrench that can be operated by a power drill reaching in to locations that would not be accessible to the conventional socket wrench construction.

A further object of the invention is to provide a means within the wrench for allowing the power drill to over run when a predetermined amount of resistance is offered to the turning of the nut on the bolt.

A still further object of the wrench is to provide means within the wrench for reversing the rotation of the nut on the bolt by simply shifting the wrench relative to the nut selecting a reverse socket.

These and other incidental objects will be apparent in the drawings, specification and claims. Referring to the drawings:

Figure 1 is a fragmentary side view of my new and improved wrench applied to a nut located in an inaccessible location and also illustrating a fragmentary view of the power drill applied thereto.

Figure 2 is a plan view of the wrench partially broken away for convenience of illustration.

Figure 3 is an enlarged fragmentary sectional view taken on line 3—3 of Figure 2 illustrating the over running feature incorporated in the wrench.

Figure 4 is an enlarged fragmentary side sectional view taken on line 4—4 of Figure 2.

Figure 5 is a perspective view of the driving element incorporated in the over running assembly.

Figure 6 is a perspective view of an oppositely disposed element from that of Figure 5.

Figure 7 is a perspective view of the gear associated with the over running driving elements.

Figure 8 is a perspective view of one of the friction disks associated with the over running element.

In the drawings:

My new and improved wrench is indicated generally by numeral 1. A train of gears 2, 3, 4, 5, 6 and 7 are journaled within the housing 8 of the wrench. The driving gear 2 is journaled to the driving shaft 9 and is free to revolve thereon. The driving shaft 9 has a disk 10 forming part thereof. The disk and shaft having a hub 11 journaled within the bearing 12 of the casing. The driving shaft 9 extends into the hub 13 of the disk 14 and revolves said disk. The

2

gear 2 has a solid web 15 extending between its rim and teeth or hub and its central point.

Located on either side of this web are friction washers 16. A wing bolt 17 is threaded within the end 18 of the driving shaft 9 and when this bolt is tightened it clamps the disk 10 and the floating disk 14 together compressing the friction washers 16 against the disk 15 of the gear 2, thereby rotating the said gear. The wing nut 17 bearing against the hub 13 of the disk 14.

The power drill 19 drives the socket 20, which is applied to the extension 21 of the driving shaft 9. When the gear 2 is driven by the above described assembly it will drive the gears 3, 4, 5, 6 and 7. The gears 6 and 7 have sockets 22 formed therein. These gears are journaled within the housing 8 by their hubs 23 and 24. Removable adapter sockets 25 are dropped into the sockets 22 of the gears and come in different sizes to fit various size bolts and nuts. The gear 7 will revolve a nut in the opposite direction to that of the gear 6 and is located as illustrated in Figure 2 so that either of the sockets may be applied to the nut.

I will now describe the operation of my new and improved wrench. Referring to Figure 1, the nut 26 is located under the overhang 27 having an obstruction 28 located thereon. My new and improved wrench can be inserted into the space 29 and applied to the nut permitting the drill 19 and its driver socket 20 to operate.

When the nut has been seated it is desirable to permit the drill 19 to over run without harm. This is accomplished by driving the train of gears through the friction washers 16 disposed between the web 15 of the gear 2 and the disks 10 and 14 secured to the driving shaft 9. The amount of slippage of over run will depend on how tight the wing bolt 17 is tightened. This is one of the outstanding features of my wrench construction and makes its operation possible.

I do not wish to be limited to the exact mechanical structure as shown, as other mechanical equivalents may be substituted still coming within the scope of my claims.

What is claimed as new, is:

1. A socket wrench including a housing forked at one end, a drive shaft having a disk, a hub, and a flange, the end of the hub being square and formed with a threaded opening, a bearing formed in one side of the housing to receive the flange, a gear wheel rotatably mounted on the hub of the shaft, a friction disk between the flange and the surface of the gear wheel, a second friction disk having a hub mounted on the square end of the shaft, the said second-mentioned

3

friction disk engaging the surface of the removably mounted gear wheel, a bearing in the housing in alignment with the shaft to receive the hub of the second-mentioned friction disk, a headed, threaded screw, the screw engaging the threaded opening in the shaft and the head engaging the hub of the second-mentioned friction disk, a gear mounted in each fork member of the housing, said gears intermeshing and provided with sockets, and a train of gears between the rotatably mounted gear on the shaft and one of the gears in the fork of the housing.

2. A socket wrench including a housing, one end of which is forked, the sides of the legs of the fork having bearings, a gear wheel supported on a shaft in each leg of the forked end of the housing, said gears intermeshing and provided with sockets, a train of gears in the housing, one end gear of the train of gears meshing with one of the gears in the legs of the fork, the opposite

4

end gear of the train of gears rotatably mounted on a driving shaft, a driving shaft mounted in the housing, and friction means associated with the driving shaft to permit slipping of the rotatable gear under undue strain on the gears in the legs of the fork.

ORVILLE D. VENEMAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,536,157	Slack	May 5, 1925
1,750,825	Thompson	Mar. 18, 1930
1,795,150	Slazes	Mar. 3, 1931
2,268,802	Coffman	Jan. 6, 1942
2,427,153	Mossberg	Sept. 9, 1947