May 5, 1925. 1,536,157

J. W. SLACK

POWER DRIVEN WRENCH

Filed March 13, 1924

Fig. 1.

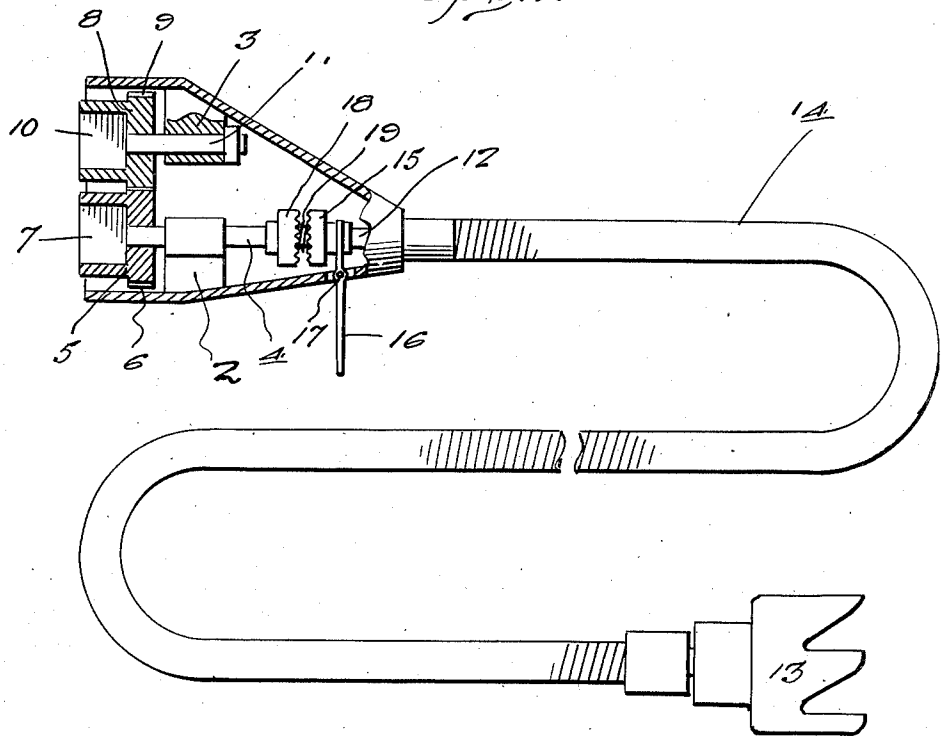
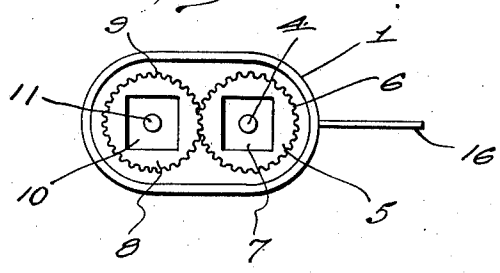


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES W. SLACK, OF EAST ENTERPRISE, INDIANA.

POWER-DRIVEN WRENCH.

Application filed March 13, 1924. Serial No. 698,996.

To all whom it may concern:

Be it known that I, JAMES W. SLACK, a citizen of the United States, residing at East Enterprise, in the county of Switzerland and State of Indiana, have invented certain new and useful Improvements in Power-Driven Wrenches, of which the following is a specification.

This invention relates to new and useful improvements in wrenches, and has for its principal object to provide a device which is adapted to be actuated by a source of external power such as the crank shaft of an internal combustion engine of an automobile.

A further object of the invention is to provide a power driven wrench of the above mentioned character, which may be used for removing and applying nuts or headed bolts from various elements such as the nut on the bolt of a demountable rim, and other parts of machinery.

A further object of the invention is to provide a power driven tool of the above mentioned character, which may also be used for actuating jacks wherein the headed member thereof is provided with a square end portion and provides a means which is very useful in connection with the removal of various parts of an automobile.

A still further object of the invention is to provide a power driven tool of the above mentioned character, which is simple in construction, inexpensive, strong and durable, and further, well adapted for the purposes for which it is adapted.

A further object of the invention is to provide a power driven tool of the above mentioned character, which may be easily and quickly placed in an operative position and does not require the alteration of any of the parts of the motor vehicle in order to place the tool in position therewith.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals designate like parts throughout the same,

Figure 1 is a side elevation of my improved tool with parts shown in section, and

Figure 2 is an end elevation looking into the enlarged portion of the casing.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a casing which is substantially oval-shaped at its forward end and tapers gradually toward its rear end in the manner as clearly shown in Figure 1 of the drawing. Extending inwardly from the opposite sides of the casing 1 are the brackets or standards 2 and 3, respectively, and the purpose thereof will hereinafter be more fully described. Journaled in the bracket 2 is the shaft 4 and mounted on the outer end thereof adjacent the open end of the casing 1 is the socket member 5. This member 5 has its base portion provided with gear teeth 6 and the socket 7 formed in the member is substantially square in cross section as clearly shown in the drawing.

Co-operating with the member 5 is a similar socket member 8 which has its base provided with the gear teeth 9 which are adapted to mesh with the gear teeth 6 of the socket member 5 and the socket member 8 is also provided with a substantially rectangular designed socket 10. The socket member 8 is supported in the opposite side of the casing 1 by means of the shaft 11 which is journaled in the supporting bracket 3 in the manner as shown.

Extending through the rear tapered end of the casing 1 is the flexible shaft 12 the outer end of which carries the ratchet collar 13 which is adapted for engagement with the transversely extending pin mounted on the outer end of the crank shaft of an internal combustion engine of an automobile. A casing such as is shown at 14 is adapted to extend around the flexible shaft 12 in the usual manner and for the purposes well known in the art. Mounted on the inner ends of the flexible shaft 12 is the clutch member 15 and the same is adapted for slidable movement thereon by means of the pivoted lever 16 which is pivoted at 17 in the casing and the outer end thereof extends outwardly of the side of the casing whereby the operator may readily control the action of the clutch 15. A co-acting clutch member 18 is mounted on the inner end of the driven shaft 4 and normally the clutch members are held in spaced relation so as to be inoperative by means of the coiled spring 19.

In operation, when it is desired to remove a nut or headed bolt from any article or piece of machinery, the flexible shaft has its outer end connected up to the crank shaft of an internal combustion engine whereby the same will be driven. The oper-

ator then throws the clutch 15 into engagement with the clutch 18 so as to cause the flexible drive shaft 12 to rotate the driven shaft 4. The rotation of the shaft 4 will simultaneously cause the rotation of the socket members 5 and 8, respectively, and as the same are geared together, the socket member 8 will rotate in a reverse direction to the socket member 5. If the socket member 8 has its socket 10 adapted to be placed on the nut to remove the same, it is to be understood of course, that the socket member 5 will have its socket 7 placed on the nut to carry the same onto the object. As soon as the operator releases the clutch 15 from engagement with the clutch 18, the rotation of the socket members is stopped.

A device of the above mentioned character, is especially adapted for use upon the various parts of an automobile, such as the applying and removal of the nuts and bolts of the demountable rim and also for actuating a jack wherein the same is provided with a square end driven member. It is to be also understood that this power driven tool may be used for other purposes such as in connection with farm machinery and the simplicity in which my device actuates enables the same to be used very efficiently, and will save considerable time as well as expense, and will at all times be ready for use requiring only the connection of the same to the crank shaft of the internal combustion engine.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention, and the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. A device of the class described comprising a casing open at its respective ends, a driven shaft journaled in said casing adjacent the outer end thereof, a socket member mounted on the outer end of said driven shaft, an additional socket member supported in said casing and adapted to be actuated by the first mentioned socket member, a flexible drive shaft extending through the opposite end of said casing, the outer end thereof adapted for connection to a source of power, the inner end of said flexible drive shaft being adapted for connection with said driven shaft whereby the latter may be actuated thereby, and clutch means for moving the drive shaft into and out of engagement with the driven shaft.

2. A device of the class described comprising a casing open at its respective ends, a pair of bearing brackets extending inwardly from opposite sides of said casing adjacent one of the ends thereof, a driven shaft journaled in one of said brackets, a socket member supported on the outer end of said driven shaft, an additional shaft journaled in the other bracket, an additional socket member carried by the last mentioned shaft and adapted to be actuated by the first mentioned socket member, said socket members having intermeshing gear teeth, a clutch member on the inner end of said driven shaft, a flexible drive shaft extending through the opposite end of said casing, the inner end of said drive shaft having a clutch member slidably supported thereon, means for normally holding said clutch members out of engagement with each other, and means for moving said clutch members into engagement with each other whereby said drive shaft will actuate the driven shaft and the socket members.

3. A wrench comprising an open ended casing, a pair of internal bearing brackets arranged within said casing, a pair of intermeshing oppositely rotating gears arranged in the casing, tool sockets carried by said gears and extending through the adjacent open ends of the casing, shafts connected with said gears and journaled in said bearing brackets, and driving means extending through the opposite open end of the casing and a driving connection with one of said shafts, whereby to simultaneously rotate said tool sockets in opposite directions.

In testimony whereof I affix my signature.

JAMES W. SLACK.