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SOCKET WRENCH AND SCREW DRIVER

Filed Jan. 12, 1927

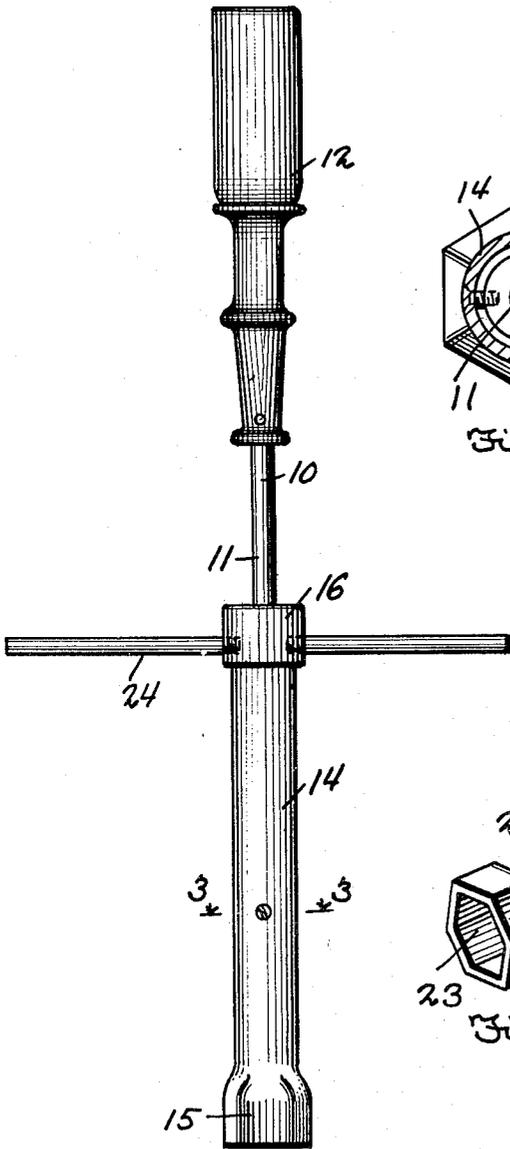


Fig. 1.

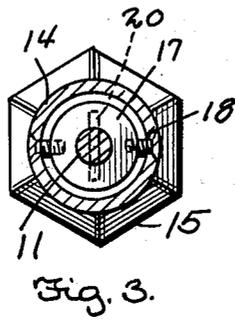


Fig. 3.

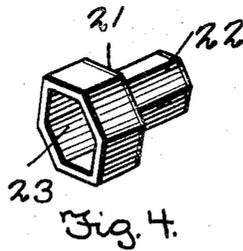


Fig. 4.

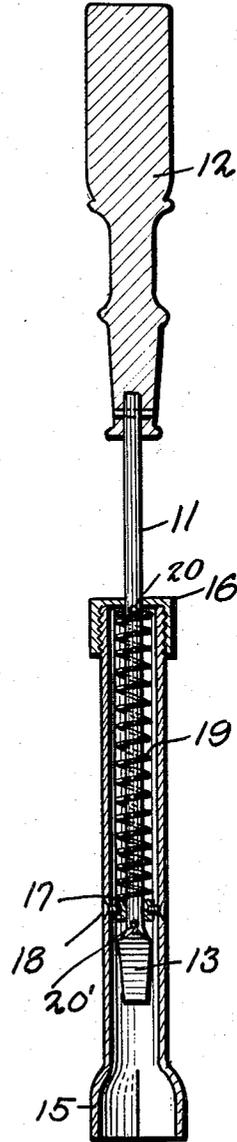


Fig. 2.

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SOCKET WRENCH AND SCREW DRIVER.

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The present invention relates to improvements in combination tools.

An important object of the invention is to provide a combined screw-driver and socket wrench adapted to facilitate the adjustment of the valve-actuating mechanism of internal-combustion engines.

A further object of the invention is the provision of a tool designed to permit convenient and rapid adjustment of the rocker-arm set-screw of valve-actuating mechanism.

Another object of the invention is the provision of a tool embodying a screw-driver and a socket wrench, by the use of which the lock nut of a set-screw may be loosened and held in position during the adjustment of the set-screw.

Still another object of the invention is the provision of a unitary structure of the above character which will greatly facilitate the operations outlined above and which will be compact and durable of construction.

Still another object of the invention is the provision of a device of the above type which will be efficient in operation and which can be manufactured at a relatively low cost.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawing forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

Fig. 1 is a side elevational view of the combined screw-driver and socket wrench constructed in accordance with my invention.

Fig. 2 is a vertical longitudinal sectional view taken through the center of the structure shown in Fig. 1.

Fig. 3 is an enlarged transverse sectional view taken on the line 3—3 of Fig. 1, and

Fig. 4 is a perspective view of a detachable socket member adaptable for connection with my improved tool.

Referring to the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 10 generally designates a screw-driver of conventional construction embodying a longitudinal shank 11 preferably of circular cross-section having a handle 12 secured to its upper end. The lower end of the shank 11 is formed with a beveled screw-

engaging bit 13. An essential characteristic of my present construction resides in the provision of a movable socket mounted on the shank of the screw-driver whereby the screw-driver shank is normally urged to a retracted position in the socket and resiliently movable to an extended position to expose the shank bit. With this in mind, I provide a socket wrench embodying a longitudinal tubular body 14 expanded at its lower end and formed to provide a non-circular preferably hexagonal socket 15. The tubular wrench body 14 is formed so as to be readily slidable on the screw-driver shank and is exteriorly screw-threaded at its upper or inner end. Threaded on the upper end of the wrench body 14 is a cap 16 formed with a reduced central opening through which the shank 11 is slidably extended. Rigidly secured within the wrench body 14 adjacent its lower end is a guide collar 17 formed with a central opening through which the shank 11 is slidably fitted. This collar is secured by means of screws 18 mounted in countersunk threaded openings in the side of the wrench body.

Positioned in the upper portion of the wrench body 14 and disposed about the shank 11 is a tension spring 19, having its upper end engaged against a pin 20 secured through the shank and its lower end bearing on the collar 17. This spring is designed to normally maintain the screw-driver shank 11 in an elevated position in the wrench body, as clearly illustrated in Fig. 2. The upward movement of the screw-driver shank is limited by means of a transversely extending pin 20' secured through a bore formed through the shank and adapted to contact with the under side of the collar 17 in the elevated position of the screw-driver.

In order that my improved device may be employed upon various sizes of nuts I contemplate the provision of a series of detachable extension sockets 21 embodying non-circular connecting sleeves 22 and enlarged non-circular sockets 23. The sleeves 22 are designed to be telescopically fitted within the socket 15 formed integral with the lower end of the wrench body. This structure will permit convenient application of my improved socket wrench to the various nuts and bolts of internal-combustion engines.

As previously pointed out in the descrip-

tion, my improved screw-driver and socket wrench is designed particularly for adjusting the set-screws on valve rocker arms of internal-combustion engines, this being effected by initially positioning the socket 5 15 or extension socket 21 upon the set-screw lock nut and rotating the socket sufficiently to permit adjustment of the set-screw. The socket may be conveniently 10 rotated by means of a pair of radially-extending bars 24 threaded at their inner ends for threaded engagement in threaded openings formed in the cap 16, as shown to advantage in Fig. 1. When the lock nut has 15 been loosened, the screw-driver is forced outwardly in the socket so that the bit 13 will engage the groove in the head of the set-screw, whereby the set-screw may be adjusted to secure the proper adjustment of 20 the valve.

It is to be understood that the form of my invention herewith shown and described is to be taken as the preferred example of the same, and that various changes as to 25 the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I 30 claim:

1. In a tool of the class described, a shank having a screw-engaging bit at one end and a handle at the other end, a tubular body enclosing the shank, a cap at one end of the 35 body having an opening slidably accommodating the said shank, a collar secured within the body intermediate the ends thereof and guiding the shank in its sliding movement,

the said body having a polygonal nut-engaging socket at its other end, an abutment 40 element upon the shank, and a spring upon the shank within the body bearing at one end against the collar and at its other end against said abutment element and yieldably holding the shank retracted within the 45 said body.

2. In a tool of the class described, a shank having a screw-engaging bit at one end and a handle at the other end, a tubular body enclosing the shank, a cap removably 50 threaded to the body at one end and having an opening slidably accommodating the said shank, a collar secured within the body intermediate the ends thereof and guiding the shank in its sliding movement, the said body 55 having a polygonal nut-engaging socket at its other end, an abutment upon the shank engageable with the outer side of the said collar to limit the inward movement of the shank in the body, an abutment element 60 upon the shank for coaction with the said cap, and a spring upon the shank, within the body, bearing at one end against the collar and at its other end against the last-mentioned abutment element and yieldably 65 holding the shank retracted within the said body, the shank being rotatable in the opening in the cap and in the opening in the collar whereby to permit of rotation of the shank to adjust a screw engaged by the said 70 bit, while the polygonal socket of the said body is in engagement with a lock-nut upon the screw.

In testimony whereof I affix my signature.

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