

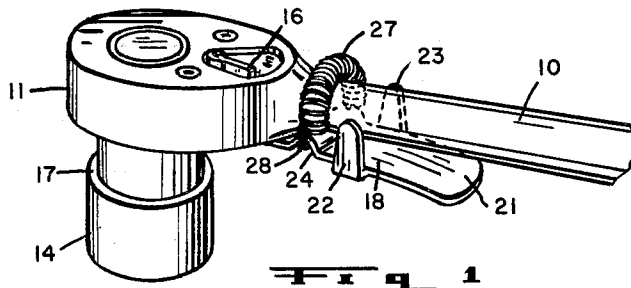
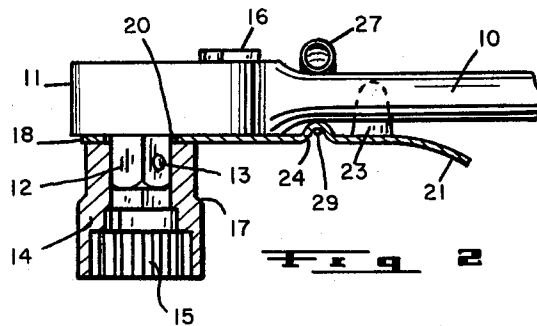
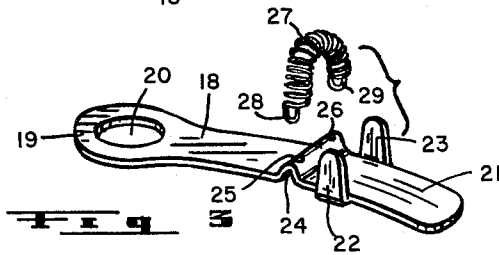
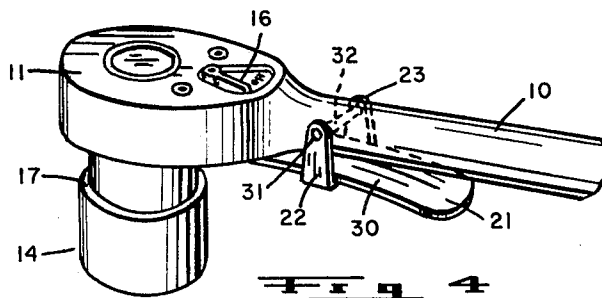
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WRENCH SOCKET REMOVERS

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WRENCH SOCKET REMOVERS

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This invention relates to box wrenches for turning nuts, bolt heads, keys or the like, and more particularly to what is generally known in the trade as socket wrenches. In such types of wrenches, a single handle is used to separately operate any one of a plurality of wrench sockets which are releasably receivable thereon, and each will fit a different sized nut or bolt head. A spring pressed ball on the wrench frictionally holds the individual sockets thereon. If the socket thereon must be removed for the substitution of another, the operator will hold the handle with one hand while the fingers of his other hand pulls the socket off, from said frictional grip. As said sockets are smoothly finished, with just a slight shoulder therearound for the fingers to grip, a mechanic with greasy hands usually encounters difficulty in removing said sockets, due to his fingers slipping past said shoulder.

The principal object of the present invention is to provide an attachment to the handle of a box or socket wrench, for mechanically removing individual sockets from the operational shank thereof.

A further object of the invention is to construct this remover either as a permanent part of the manufactured handle, or as a releasable attachment thereto, or to handles now in use, and without interfering with the normal operation of same.

Further objects of the invention are: to construct the remover in a simple, economical and durable manner; for ease of construction and assembly, low cost manufacture; reasonable retail price; and many years of useful satisfactory service.

With the above important and other minor objects in view, which will become more apparent as the description proceeds, the invention consists essentially in the construction and arrangement of the parts hereinafter more particularly described, reference being had to the accompanying drawings wherein like characters of reference indicate corresponding parts in the several figures, and wherein:

FIGURE 1 is a perspective view of a ratchet socket wrench, with an attached socket thereon, and with the remover positioned for mechanically ejecting said socket from the wrench.

FIGURE 2 is a side view of the socket wrench shown in FIGURE 1, and with the socket and the remover shown in vertical section thereon.

FIGURE 3 is a perspective view of the remover by itself, and with a retainer spring separately shown thereabove.

FIGURE 4 is a perspective view similar to FIGURE 1, but showing a modified method of attaching the remover to the wrench.

A ratchet socket wrench is shown in the drawings. This wrench presents a handle 10 having an enlarged head 11, which houses a ratcheting mechanism (not shown). A ratchet operable square shank 12 projects below the head 11, and one side of this shank is provided with a steel ball 13, which is outwardly spring pressed (not shown). A plurality of individual wrench sockets, such as the one shown at 14, are provided for separate use with the wrench. These wrench sockets are adapted to be received on the shank 12 with hand pressure, and so they can be operated by the wrench. The ball 13 frictionally engages an indent (not shown) in each socket to retain same on said shank. The sockets are hollow, and their lower interior walls are provided with teeth 15 there-

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around which engage the corners of nuts or bolt heads (not shown) when the sockets are telescoped thereover. In operation, when the socket wrench handle 10 is turned in one direction, the socket 14 is turned to rotate the engaged nut or bolt head, while when the handle is turned in the other direction, the ratchet mechanism will release the shank, and the wrench will make an idle movement. A lever 16 on the head can be swung sideways to alter this ratchet mechanism and reverse such operation.

When a socket is to be removed from the wrench, as previously explained, greasy hands are inclined to slip off an annular shoulder, shown at 17 on these sockets, and not only results in lost time, but sore fingers.

The remover, comprising this invention, is best shown in perspective at 18 in FIGURE 3. It comprises a strip of sheet metal, or other suitable material, having one end thereof rounded, as at 19, with a central hole 20 therein. The opposite end of the strip 18 is slightly downwardly curved, as at 21, and provided just at the start of the curve, with a pair of upstanding spaced guide lugs 22 and 23, one on each side of the strip. The central part of the strip 18, slightly back from the above lugs, is upwardly ridge creased in an inverted trough-shape thereacross, as indicated at 24. The peak of this ridge is provided with a pair of holes 25 and 26, one at each end thereof. A curved coil spring 27 is also part of the invention, and its hooked ends 28 and 29 thereof are each adapted to catch in one of the holes 25 and 26 to retain the spring on the strip, as shown in FIGURES 1 and 2.

When attaching the remover to the socket wrench, the coil spring 27 is stretched over the free end (not shown) of the handle 10. It is then slid therealong, holed end first, with the lugs 22 and 23 on each side to guide same, and when this end reaches the shank 12 it is slipped thereover so the shank slides into and through the hole 20, as shown in FIGURE 2.

When the remover is in the position above explained, the spring 27 is encircling the neck of the handle 10, close to the head 11, and is holding the remover firmly up against the underside of said head, with the ridge 24 against the handle, while the lugs 22 and 23 at the sides of the handle prevent any side movement. As the remover is comparatively thin, its spacing effect is negligible, and a socket 14 can be hand pressed onto the shank 12, as shown in FIGURE 2, and it will be retained thereon by the ball 13 entering the indent mentioned, without any looseness, or interference with the wrench turning of a nut or bolt head. In other words: the wrench and socket shown in FIGURE 2 can be placed on a nut or the like and be operatively turned to tighten or loosen same, as if the remover were not there.

When it is desired to remove the socket from the wrench, such as for replacement with another, the operator simply grasps the handle 10 of the wrench, and with one finger of the grasping hand, squeezes or pulls up on the curved portion or end 21 of the remover. As the peak of the ridge 24 is tight against the handle, the remover pivots thereon and the rounded end 19 thereof moves down to push the socket, which practically jumps off the shank 12. When the pressure is released from the end 21, the remover swings back up into the position shown in the drawings, and it is a simple matter to pick up the correct socket required, and manually press same into operational position on the shank. This removal action is absolutely positive.

The remover 30, shown in FIGURE 4, is preferably designed for use with new wrench production. It is exactly the same construction as shown for that 18, except that the ridge 24 and coil spring 27 are dispensed with, the lugs 22 and 23 are both moved back to the position of the said former ridge 24, and the upper part of each lug is provided with a hole therethrough, indicated

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at 31. A pin 32 passes through the holes 31 and through the centre of the handle 10, so the lugs of the remover can pivot thereon when finger pressure is exerted on the curved end 21 to eject the socket. As a hole would have to be bored or drilled through the handle for this pin 32, and this might weaken the said handle, it will be appreciated that suitable studs (not shown) could be provided on the sides of the handle, in place of the pin, and for the same pivoting purpose of the remover.

While in the present instance I have shown a ratchet socket wrench in the drawings to receive the remover, this was done to show how well the invention works with this particular tool. It is to be understood however, that the invention can also be used to advantage with, and work just as well, on other socket wrenches which do not have the ratchet feature.

What I claim as my invention is:

1. In combination with a socket wrench, having a socket operable shank extending therefrom; a socket remover for said wrench, comprising: a flat strip having a central fulcrum thereon; means for pivotally holding said fulcrum on said wrench, with one end of said strip terminating adjacent said shank; and the opposite end of said strip finger-operable, when said wrench is hand grasped, to rock said strip on said fulcrum, and move said first mentioned end along said shank.

2. In combination with a socket wrench, having a socket operable shank extending therefrom; a socket remover for said wrench, comprising: a flat elongated strip having a hole through one end thereof; a central fulcrum on said strip; means for pivotally holding said fulcrum on said wrench, with said shank passing through the end hole in said strip; and the opposite end of said strip finger-operable, when said wrench is hand grasped, to pivot said strip on said fulcrum and move said first mentioned end along said shank.

3. In combination with a socket wrench, having a socket operable shank extending therefrom, and with a wrench socket slidably attached on said shank; a remover for said wrench socket, comprising: a flat elongated strip having a hole through one end thereof, and provided centrally with a fulcrum thereacross; said strip positioned between the wrench and the socket, with the shank passing

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through said end hole therein, and said fulcrum bearing against the wrench; a pair of guide lugs, one on each side of the strip, adjacent said fulcrum and straddling the wrench; and the opposite end of said strip finger-operable, when said wrench is hand grasped, to rock same on the fulcrum such that the first mentioned end of the strip will move along the shank and eject the socket therefrom.

4. In combination with a socket wrench, having a socket operable shank extending therefrom, and with a wrench socket slidably attached on said shank; a remover for said socket, comprising: a flat elongated strip having a hole through one end thereof; said shank passing through said hole; a ridge formed centrally across said strip as a fulcrum therefor; spring means encircling said wrench, with the ends thereof connected to opposite ends of said ridge, to resiliently hold said fulcrum against said wrench; a pair of lugs, one of each side of said strip, adjacent said fulcrum and straddling said wrench, to prevent side movement of said strip thereon; and the opposite end of said strip finger-operable by a hand grasping said wrench, to pivot said strip on said fulcrum, move said first mentioned end thereof along said shank, and eject said socket from said shank.

5. As a new article of manufacture, a wrench socket remover, comprising: a flat elongated strip having a hole through one end thereof; a ridge formed centrally across said strip to present a fulcrum therefor; said ridge provided with a pair of holes therethrough, one at each end thereof; a pair of upstanding lugs, one on each side of the strip, forming spaced guide members; a spring member, having each end thereof hooked into one of the holes of said ridge, to form a resilient wrench retainer loop over the strip; and the opposite end of the strip slightly curved in a direction away from said lugs, as a finger tipping lever therefor.

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