QUICK RELEASE FOR SOCKET WRENCHES

Fig. 1

Fig. 2

Fig. 3

Fig. 4

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I Claim. (Cl. 81—177)

This invention relates in general to a socket wrench of the kind employing sets of removable sockets in combination with a driver or stud, the latter having means such as a ball, detent, or the like for holding the socket there- to during the operation thereof, and the principal object of the invention resides in the provision of a new and improved means for releasing these sockets which some- times are difficult to remove from the stud of the wrench particularly when the sockets are small and the user’s hands are greasy.

A further object of the invention resides in the pro- vision of a driver or stud for the socket of a socket wrench, said driver or stud having a ball, detent, or the like for temporarily securing the socket in position there- on, together with means releasing the same, so that it no longer holds the socket, which then can be easily with- drawn from the driver or in fact can actually fall off the stud due to gravity.

Other objects and advantages of the invention will ap- pear hereinafter.

Reference is to be had to the accompanying drawings in which:

FIG. 1 is a view in elevation illustrating the inven- tion applied to a ratchet wrench;
FIG. 2 is a view on an enlarged scale with parts in section illustrating the stud;
FIG. 3 is a view in section on a still further enlarged scale illustrating the ball, detent, etc. in socket-holding position, and
FIG. 4 is a view similar to FIG. 3 showing the ball, detent, etc. in socket-releasing position.

This invention has been illustrated as being applied to an ordinary socket wrench, for instance of the ratchet type, having a handle 10, a head 12, and a driving stud 14. The stud 14 is ordinarily square, hex, etc., but can be of any non-circular shape in order to drive a socket 16, these all being well known in the art.

The stud or driver 14 is provided with a ball, detent, or the like 18 which may be spring-pressed if desired but need not be in the present case, and which is held in the position shown in FIG. 2 to cooperate with a small dimple, lip, or the like on the socket 16 to hold it in the position shown in FIGS. 1 and 2. This position is also shown in FIG. 3 wherein the stud 14 is shown as pro- vided with an internal generally centrally located mov- able pin 20. This pin extends at one end 22 out through the head 12 and terminates in an operating knob. The member 20 may be of any cross section desired although cylindrical is preferred, and also it can be solid. When it is in the position shown in FIGS. 1 and 3, it abuts a ball 18 in an aperture of the stud and holds it outwardly as indicated at 24, see FIGS. 2 and 3, in socket-holding position. Due to the presence of the pin 20, the ball cannot retreat inwardly with respect to the stud 14. On the other hand, it can be held in position as is normal by reason of the fact that its diameter is slightly greater than the aperture in the stud through which it projects, as is well known in the art.

However when it is desired to remove the socket 16, all that is necessary to do is to press inwardly on the knob 22 and pin 20 in the direction of the arrow in FIG. 3 and this then aligns the ball 18 with respect to a cut- out portion or recess 26 in the pin 20. In this position, see FIG. 4, the socket itself forces the ball 18 inwardly into the recess 26 and it no longer acts to hold the socket in position, and as a matter of fact the socket can then fall off merely through gravity if the wrench is held in the position shown in the drawings. In any event the socket 16 is easily picked off manually without any resistance on the part of the ball 18.

It is preferred that the pin 22 shall be normally held in the FIG. 1 or FIG. 3 position by any kind of spring means such as for instance a coil spring 28 engaged with the pin at one end and located in a recess 30 in the head 12 of the wrench. Any other spring means could be used such as a flat spring or a loose rubber or plastic collet or the equivalent thereof.

It will be seen that this invention provides a very sim- ple and quick and easily operated device for quickly de- taching sockets from socket wrench studs whether the same are solid, ratchet, or whatever the general construc- tion of the wrench might be.

Having thus described my invention and the advan- tages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

In a socket wrench, a handle, a head thereon, a driv- ing stud in the head, said stud extending from a side sur- face of the head, a longitudinal passage in said stud, a longitudinally movable pin in said passage, an aperture in the stud communicating with the passage, a detent ele- ment mounted in the aperture, the edges of the aperture holding the detent to the stud, the detent being normally engaged with a surface of said pin, said detent element being held therein in outwardly located position in order to engage and hold a socket on the stud, and a recess in said pin for selective alignment with said detent element so that the latter is received therein, releasing the socket, a spring normally urging the pin to a position where it holds the detent outwardly, said pin extending through the head in a direction opposite the stud and in position to be engaged manually by the operator of the wrench holding the handle, to be depressed against the action of the spring to move the pin from detent element holding position to a position wherein said recess receives the detent element.

References Cited by the Examiner

UNITED STATES PATENTS

2,008,367 7/35 Rhinevault 287—119
2,954,994 10/60 Beers 287—119
2,987,334 6/61 Wendling 287—119
3,069,191 12/62 De Pew 287—119
3,138,964 6/64 Penner 81—177 X
3,156,479 11/64 Drazek 279—76

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