

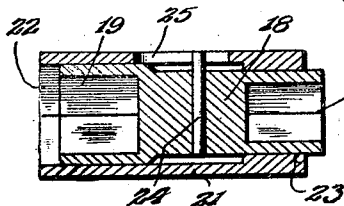
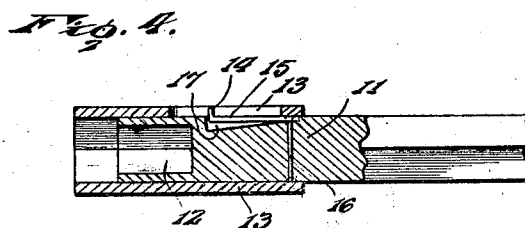
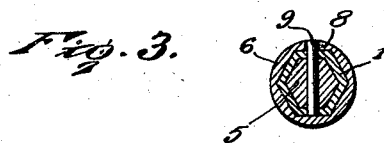
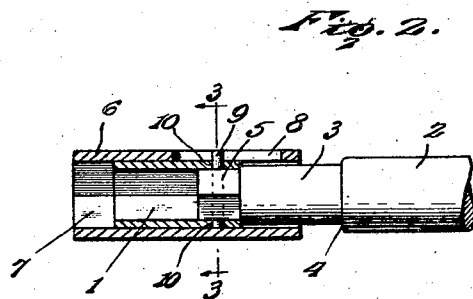
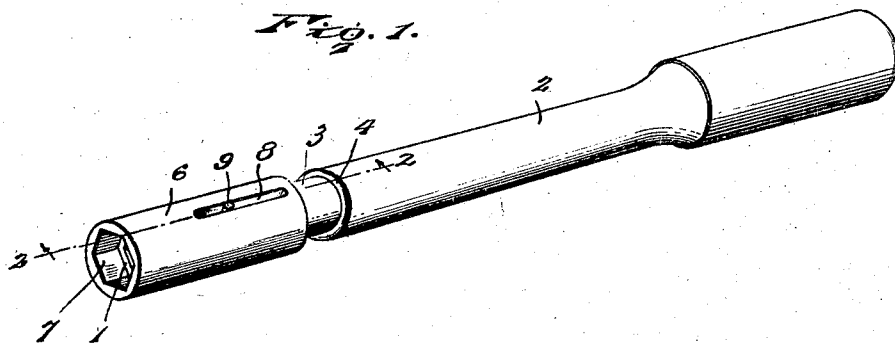
May 3, 1927.

1,626,730

H. F. HAYNES

SOCKET WRENCH

Filed Feb. 10. 1926



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By

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Patented May 3, 1927.

1,626,730

UNITED STATES PATENT OFFICE.

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SOCKET WRENCH.

Application filed February 10, 1926. Serial No. 87,386.

This invention relates to wrenches and more particularly to a socket wrench.

One object of the invention is to provide a wrench which will adjust itself to accommodate nuts or bolt heads of different sizes when applied thereto.

Another object of the invention is to so form the nut-engaging members that they may be incorporated in a socket wrench having either a handle rigidly connected therewith or a shank for connection with a ratchet handle.

Another object of the invention is to produce a socket wrench which will be of a simple construction and cheap to manufacture.

This invention is illustrated in the accompanying drawing, wherein

Figure 1 is a perspective view of one form of the improved socket wrench;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary view shown principally in longitudinal section and illustrating a modified form of wrench, and

Fig. 5 is a longitudinal sectional view through a further modification of the wrench.

In the form illustrated in Figs. 1, 2 and 3, the body portion 1 of the wrench is formed as a tube which is of uniform diameter throughout its length and hexagonal in cross section so that nuts and bolt heads may be received in its forward end. The forward end portion of the body will, therefore, constitute a nut-receiving socket. The handle 2, which is preferably formed of wood but may be of metal or any other desired material, has its forward end portion 3 of a reduced diameter to provide an annular shoulder 4 and the extreme forward end 5 of the reduced end portion 3 further reduced and shaped in cross section to fit snugly within the rear end portion of the tubular body 1, as shown in Figs. 2 and 3. It will, therefore, be seen that the handle will be prevented from turning in the body and a nut received in the forward end portion of the body will be effectively turned when rotary motion is applied to the handle. The sleeve 6 which is slidably received upon the body 1 has its bore 7 conforming in cross section to the body and, therefore, the sleeve will be pre-

vented from rotating upon the body but may be slid forwardly so that it will project from the forward end of the body and its projected forward end portion constitute a socket to receive nuts or bolt heads which are too large to be received in the socket formed by the body. The outer surface of the sleeve may be circular in cross section as illustrated or it may be formed with flat faces to conform to the shape of its bore 7 if so desired. A slot 8 extends longitudinally of the sleeve, as shown in Figs. 1 and 2, and this slot is adapted to receive one end portion of a securing pin 9 which passes through the reduced end portion 5 of the handle and through openings 10 formed in the tubular body 1. The pin 9 serves not only as means to secure the handle in engagement with the body but also as means to limit sliding of the sleeve. It should be also noted that rearward movement of the sleeve will be limited due to engagement of its rear end with the shoulder 4. By having the wrench formed, as shown, it may be applied to a nut to be tightened or loosened with the sleeve extended and if the nut is too large to be received in the socket portion of the body it will fit into the forward end portion of the sleeve and abut against the forward end of the body. If it is of the proper size to be received in the body, the forward end of the sleeve will engage with a board through which the bolt carrying the nut is passed and the body will move forwardly through the sleeve to engage the nut. The wrench will then be turned to either tighten or loosen the nut.

In the form illustrated in Fig. 4, the body portion 11 is in the form of an elongated metal rod which is preferably hexagonal in cross section and may be anchored in a handle of a conventional construction or have its rear end portion shaped for reception in a ratchet handle. At its forward end the body 11 is formed with a socket 12, preferably corresponding in size and configuration to the socket formed of the forward end portion of the tubular body 1. The sleeve 13 which corresponds to the sleeve 6 is slidably received upon the body 11 and formed with a longitudinally extending slot 13 to receive the outstanding spur 14 of a latch strip 15. The latch 15 is formed of resilient metal and is secured to the body or shank 11 by a pin 16 which extends transversely through the shank and is rigid at

its ends. A recess 17 is formed in the body 11 so that when it is desired to remove the sleeve or place it upon the body the latch may be moved to an inoperative position.

Instead of forming the body as a tube, it may be solid intermediate its length, as shown at 18 in Fig. 5, and have its forward and rear end portions formed with sockets 19 and 20. The sockets 19 and 20 are preferably hexagonal in cross section so that nuts may be received in them and the end portion of the body having the socket 19 formed therein may be of an increased diameter so that the socket 19 may accommodate nuts of greater diameter than those received in the socket 20. A handle may be secured in the socket 20 in any preferred manner if so desired, but in the form illustrated in Fig. 5 it is intended to omit the handle and thereby produce a wrench which may be conveniently carried in a pocket. The sleeve 21 which is slidably received upon the body 18 is for the major portion of its length of an internal diameter and configuration to snugly receive the enlarged end portion of the body 18. The other end portion of the sleeve is internally thickened and shaped for snug fitting engagement with the smaller portion of the body. It will, therefore, be seen that the sleeve will have one end portion forming a socket 22 which is of greater diameter than the socket 19 and its other end portion forming a socket 23 which is also of greater diameter than the socket 19 but of less diameter than the socket 22. This form of wrench may, therefore,

be used for engaging nuts or bolt heads of four different sizes. A pin 24 passes transversely through the body and one end portion projects into a slot 25 formed longitudinally in the sleeve. The sleeve may, therefore, be readily slid longitudinally of the body to project either end of the sleeve from the body but its sliding movement will be limited and it cannot become entirely disengaged from the body.

Having thus described the invention, I claim:

A socket wrench comprising a handle having its forward end portion reduced to provide an abutment shoulder and the forward end of the reduced portion further reduced and non-circular in cross section, a tubular socket member fitted upon the non-circular end of said handle and conforming to the contour thereof in cross section, said socket member projecting forwardly from the handle for engagement with a nut to be turned, a pin passed transversely through the socket member and handle and having one end portion projecting from the socket member, and a sleeve slidable longitudinally upon said socket member and the reduced portion of said handle and having its bore conforming to the contour of said socket member and snugly receiving the same, a longitudinally extending slot being formed in said sleeve and receiving the projected end portion of said pin to limit longitudinal sliding of the sleeve.

In testimony whereof I affix my signature.

HOBART F. HAYNES. [L. s.]