

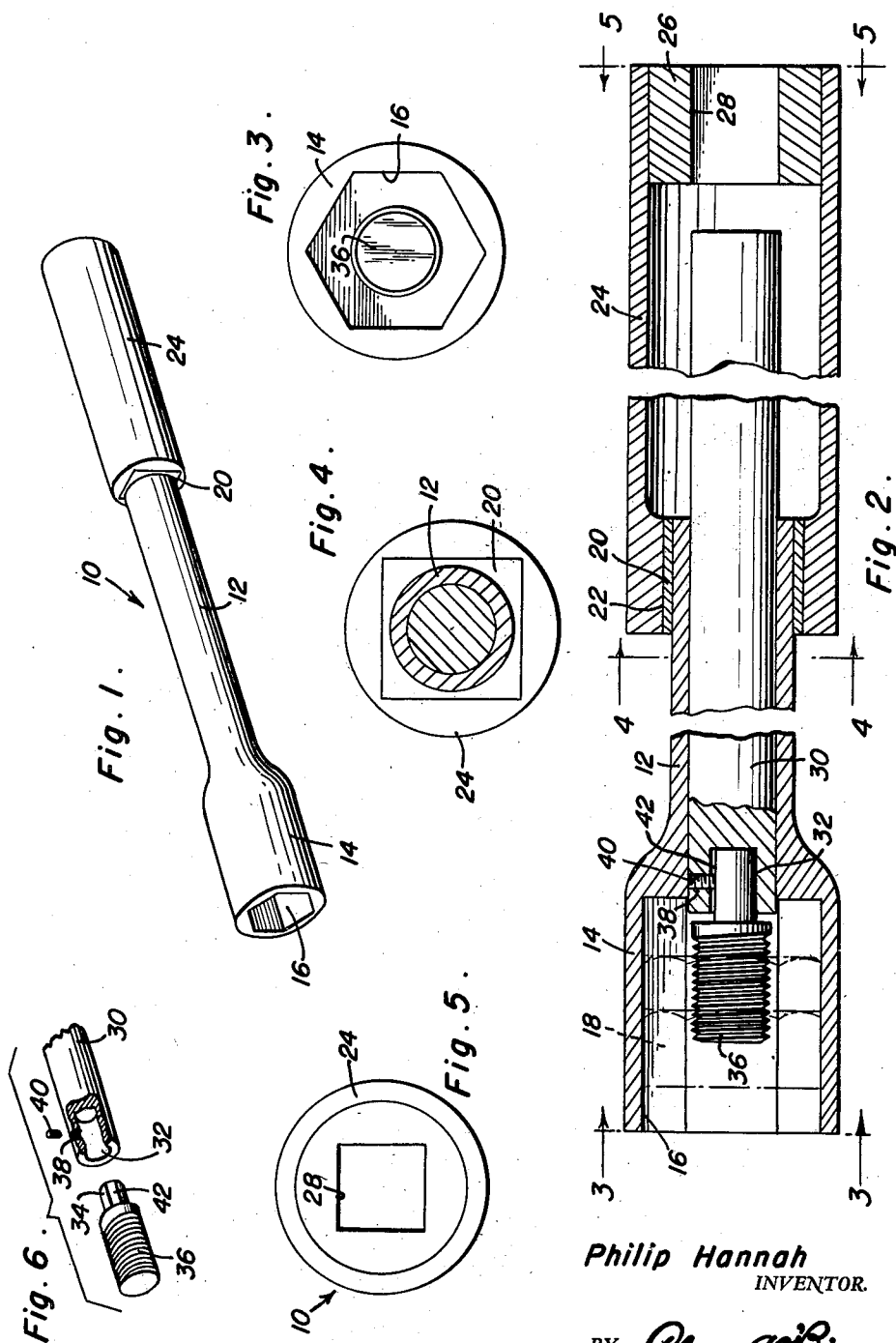
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NUT-HOLDING SOCKET WRENCH

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NUT-HOLDING SOCKET WRENCH

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This invention relates to new and useful improvements in wrenches, and the primary object of the present invention is to provide a wrench for turning or rotating nuts and embodying novel and improved means for holding and retaining a nut relative to said wrench, whereby the same may be engaged with a threaded shank, stud, or the like.

Another important object of the present invention is to provide a wrench including a handle having a socket at one end for engaging a nut that is to be turned, a member carried inside the handle and around which the handle can rotate, and an externally threaded nut supporting element removably carried by the inside member for holding a nut positioned in the socket.

A further object of the present invention is to provide a tool of the aforementioned character, the parts of which are quickly and readily assembled or disassembled in a convenient manner and which embodies in its construction means for engaging an auxiliary lever or handle for use in removing or applying nuts in otherwise inaccessible places.

A still further aim of the present invention is to provide a wrench that is simple and practical in construction, strong and reliable in use, neat and attractive in appearance, small and compact in structure, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the wrench constructed in accordance with the present invention;

Figure 2 is a longitudinal vertical sectional view taken substantially through the center of Figure 1, and with parts thereof broken away;

Figure 3 is a transverse vertical sectional view taken substantially on the plane of section line 3—3 of Figure 2;

Figure 4 is a transverse vertical sectional view taken substantially on the plane of section line 4—4 of Figure 2;

Figure 5 is an end view of the present wrench taken substantially on the plane of section line 5—5 of Figure 2; and

Figure 6 is a fragmentary group perspective view showing the manner in which the nut supporting means used in conjunction with the pres-

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ent invention is removably applied to one end of the rotatable member, and with parts of the rotatable member broken away.

Referring now to the drawings in detail wherein, for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the present wrench generally, including a tubular outer member or handle 12, one end of which is integrally formed with an enlarged head or socket 14 which is preferably hexagonal in cross section so that the inner wall 16 thereof will engage the multisides of a hexagonal nut 18.

Obviously, the socket 14 may be square in cross section, or any other suitable size or shape so that the same will be applicable for nuts of various sizes and shapes.

Rigidly attached to or forming an integral part of the handle or outer tubular member 12 is a substantially square collar 20 that engages a substantially square socket 22 provided at one end of a hand gripping sleeve or coupling member 24. This sleeve 24 may be removably secured to the collar 20 by a set screw or the like (not shown), the same may be rigidly attached to the collar 20 (not shown), or the same may be removably applied to the collar 20 as illustrated best in Figure 2 of the drawings.

A plug 26 is fixed in one end of the sleeve, the opposite end from socket 22, and this plug 26 is provided with a preferably square central opening or bore 28 for engaging the squared end portion of an auxiliary lever or handle (not shown).

Rotatably mounted within the outer tubular member 12 or telescoped therein is a substantially cylindrical inner member 30, one end of which is provided with a recess or seat 32 that receives the reduced shank portion 34 of an externally threaded nut holding or retaining member 36.

The member 30 is provided with an internally threaded aperture 38 that communicates with recess 32 and mounts a set screw 40, one end of which bears against a flat surface 42 provided on the shank 34 for retaining and holding the member 36 relative to the rotatable and slidable member 30.

It should be noted that the present tool is particularly applicable for holding down or engaging nuts and "pal nuts" on aircraft exhaust collector rings of aircraft engines. These collector rings are located in inaccessible places and are very difficult to reach with the conventional type of wrenches now employed. With the present tool, the nuts can be easily installed without the loss of valuable time, as a mechanic can in-

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stantly screw on the nut and can see at an instant that object on which the nut is to be applied.

Obviously, there are many other uses for the present invention, use with aircraft mechanical work, vehicle engine work, or the like. However, the same is particularly applicable for use in removing or applying nuts to the threaded studs of exhaust collector rings.

In practical use of the present invention, the member 30 is slid or moved forwardly so that the holding member or threaded stud 36 will extend outwardly from the socket 14. A nut or nuts 18 are then applied to the holding member 36 and the member 30 moved rearwardly in the outer tubular member 12 so that the socket 16 will engage a selected one or both of the nuts 18. By then rotating the socket 14, the nut or nuts may be quickly and readily applied to the threaded stud or element for which the nuts are designed. In order to increase the leverage action, an auxiliary handle (not shown) may be inserted into the plug 26.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A telescopic wrench comprising a tubular outer member having first and second end portions, a multi-sided nut receiving socket at the first end portion of said outer member, a multi-sided collar about the second end portion of said outer member, a coupling member having a multi-sided opening at one end receiving said collar, an inner member freely slidable and rotatable in said outer member, and a nut holding member detachably secured to one end of said inner member and movable into and out of said nut receiving socket upon relative axial movement of said inner and outer members.

2. A telescopic wrench comprising an outer tubular member having an elongated nut receiving socket at one end, an inner member freely slidable and rotatable in said outer tubular mem-

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ber, a threaded stud secured to one end of said inner member and movable into and out of said socket upon relative axial movement of said inner and outer members, said socket being considerably larger and longer than said stud to accommodate at least two nuts threaded on said stud, said inner member being considerably longer than said outer tubular member whereby axial movement of said inner member displaces the entire stud from said socket, and manually operable means engaging the end of said outer tubular member remote from said socket.

3. A telescopic wrench comprising an outer tubular member having an elongated nut receiving socket at one end, an inner member freely slidable and rotatable in said outer tubular member, a threaded stud secured to one end of said inner member and movable into and out of said socket upon relative axial movement of said inner and outer members, said socket being considerably larger and longer than said stud to accommodate at least two nuts threaded on said stud, said inner member being considerably longer than said outer tubular member whereby axial movement of said inner member displaces the entire stud from said socket, a multi-sided collar fixed about the end of said outer tubular member remote from said socket, and a manually operable sleeve surrounding the end of said inner member remote from said stud and having a multi-sided opening in one end engaging the collar so that rotation of the outer member is caused by manual rotation of the sleeve.

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