March 28, 1950 C. N. RAUP 2,502,025

NUT AND WASHER PLACING TOOL

Filed July 16, 1947

Fig. 1.

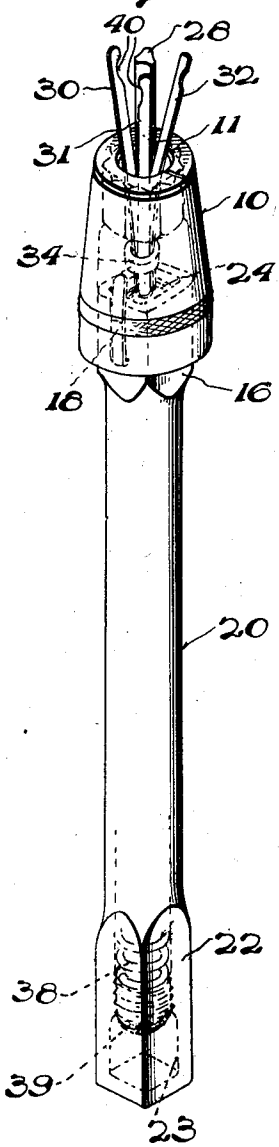


Fig. 2.

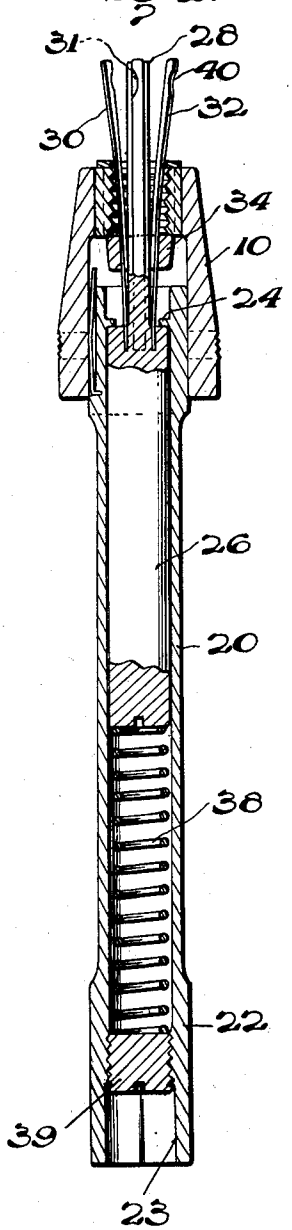
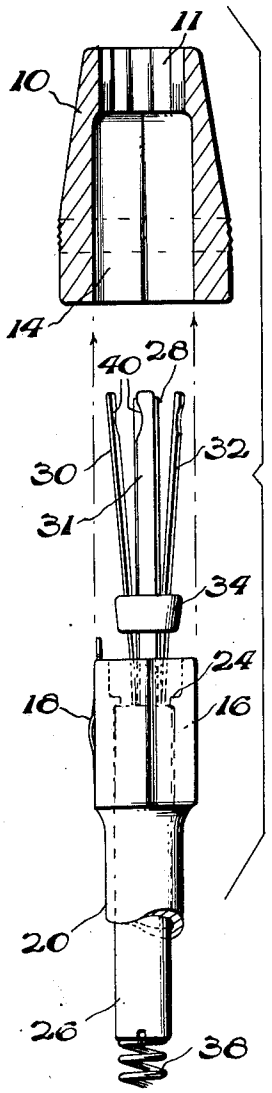


Fig. 3.



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NUT AND WASHER PLACING TOOL

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6 Claims. (Cl. 81—125)

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The present invention relates generally to tools and particularly to an improved wrench adapted to retain a nut and washer in position for screwing the nut and applying the washer onto a bolt.

The principal object of this invention is to provide a novel and improved tool for screwing nuts and washers onto the threaded ends of bolts positioned in restricted places, such as crevises or the like, inaccessible to the usual nut wrenches, which require some means for holding the nut and washer until it becomes at least partially threaded onto the threaded end of the bolt.

Another object is to provide in a simple tool for securing a nut and washer on a bolt, a plurality of spring fingers adapted to frictionally retain the nut and washer in the tool and properly align the same for registry with the threaded end of the bolt on which the nut and washer are to be applied.

With these and other objects in view, the invention consists in the construction, arrangement and combination of parts hereinafter described and particularly pointed out in the claims, it being understood that I do not intend to limit myself to the details of construction.

In the drawings, like parts throughout the several views are given like numerals and are thus identified in the following detailed description:

Fig. 1 is a perspective view of the present invention;

Fig. 2 is a longitudinal cross-sectional view of the same;

Fig. 3 is a view partly in cross-section and partly in perspective of the device pulled apart from the socket part of the wrench.

Referring in detail to the drawings, the tool includes a detachable wrench head 10. The wrench head 10 comprises an upper nut engaging fluted socket 11 and a lower square socket 14 adapted to frictionally fit over a square head 16 carrying a flat friction-spring 18.

The square head 16 is a part of a hollow tubular shank 20, which shank has a similar squared head 22 on its opposite end. Each square head 16 and 22 is differently formed on its interior bore, which is circumferential and a continuation of the circular bore of the hollow shank 20. For example, the bore of the square head 16 is formed with an annular shoulder 24, which serves as a stop for a plunger rod 26 reciprocably movable within the bore of the shank 20, while the bore of the square end 22 is formed with a square female socket 23. This socket is internally threaded from the bottom in an annular opening which continues into the bore of shank 20

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and receives a screw for the purpose hereinafter explained in column 2, lines 29 to 33.

The plunger rod 26 is formed with a three-sided reduced pilot or nut and washer aligning extension member 28, which extends out through the socket wrench 10, as shown. Secured to each flat side of the extension or pilot member 28, as by brazing or the like, are spring fingers 30, 31 and 32. These fingers serve to retain the nut and washer in the socket wrench 10 by frictional engagement with the bores of the nut and washer, while the nut and washer are placed over the fingers on the aligning member 28. The spring fingers 30, 31 and 32 have a spring action, such as to cause their respective ends to normally diverge outwardly from the member 28.

To facilitate the ready application of the socket wrench 10 and the nut and washer over the spring fingers, there is provided a slide ring 34. This ring is slidable toward the ends of the fingers along the extension or aligning member 28, so as to compress the ends together around the member 28. To discourage the ring from sliding off the ends of the fingers they are formed with notches 40.

The plunger rod 26 is normally held toward the socket wrench end of the tool and against the annular shoulder 24 by a coil spring 38 mounted in the bore of the shank 20. This spring is retained within the bore by a cap screw 39, which threads into the threaded opening in the bottom of socket 23 leading into the bore of the square end 22.

Operation

To use the tool, the slide ring 34 is first moved forward toward the ends of the spring fingers 30, 31 and 32 to the notches 40. Then the socket wrench 10 is applied to the square end 16 where it is frictionally retained by the flat spring 18. Next the nut to be applied to the bolt is mounted over the tip ends of the ring compressed fingers and the tip of the pilot member 28.

Following this, the nut is pushed back with the ring 34 into the socket wrench 10, and a washer may then be applied over the fingers. The end of the extension or pilot member 28 is now pressed against the end of the bolt and the plunger rod 26 may thus be pushed back into wrench socket 10 against the action of spring 38. This being done the shank 20 is turned with the nut and it is threaded onto the end of the threaded bolt with the washer.

Without further description, it is thought that the novel features and advantages will be readily apparent to those skilled in the art, and it

will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention and scope of the appended claims.

What I claim is:

1. A tool comprising a hollow shank, a socket wrench mounted thereon, a plunger reciprocably mounted in said shank, pilot means carried by said plunger extending through and beyond the end of said socket wrench for aligning a nut and washer with the thread end of a bolt, flat spring fingers mounted around said pilot and resilient means for urging said plunger forward in said shank, to thereby project said pilot means beyond the end of said wrench.

2. A tool comprising a hollow shank, a socket wrench mounted thereon, a plunger reciprocably mounted in said shank, pilot means carried by said plunger extending through and beyond said socket wrench for aligning a nut and washer with the thread end of a bolt, and a plurality of spring fingers secured at one end to the base of the pilot means normally tending to spread outwardly at their free ends for frictionally retaining a nut on said pilot means.

3. A tool comprising a hollow shank, a socket wrench mounted thereon, a plunger reciprocably mounted in said shank, pilot means carried by said plunger extending through and beyond said socket wrench for aligning a nut and washer with the thread end of a bolt, a plurality of spring fingers secured at one end to the base of the pilot means normally tending to spread outwardly at their free ends for frictionally retaining a nut on said pilot means, and a slide ring mounted around said fingers and slidable to compress the ends thereof together and means in said hollow shank for urging said pilot means and said fingers beyond the end of the wrench.

4. The device as described in claim 3, wherein said spring fingers have notched ends.

5. A tool comprising a hollow shank, a socket wrench mounted thereon, a plunger rod reciprocably mounted in said shank, an annular rib formed within the bore of one end of said shank serving as a stop for said plunger rod, resilient means normally retaining said rod against said stop, and pilot means carried by said plunger extending through and beyond said socket wrench for aligning a nut and washer with the thread end of a bolt.

6. A tool comprising a hollow shank, a socket wrench mounted thereon, a plunger rod reciprocably mounted in said shank, an annular rib formed within the bore of one end of said shank serving as a stop for said plunger rod, a pilot means carried by said plunger extending through and beyond said socket wrench for aligning a nut and washer with the thread end of a bolt, a spring normally retaining said rod against said stop, and a cap member for retaining said spring within said hollow shank against the end of said plunger rod.

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