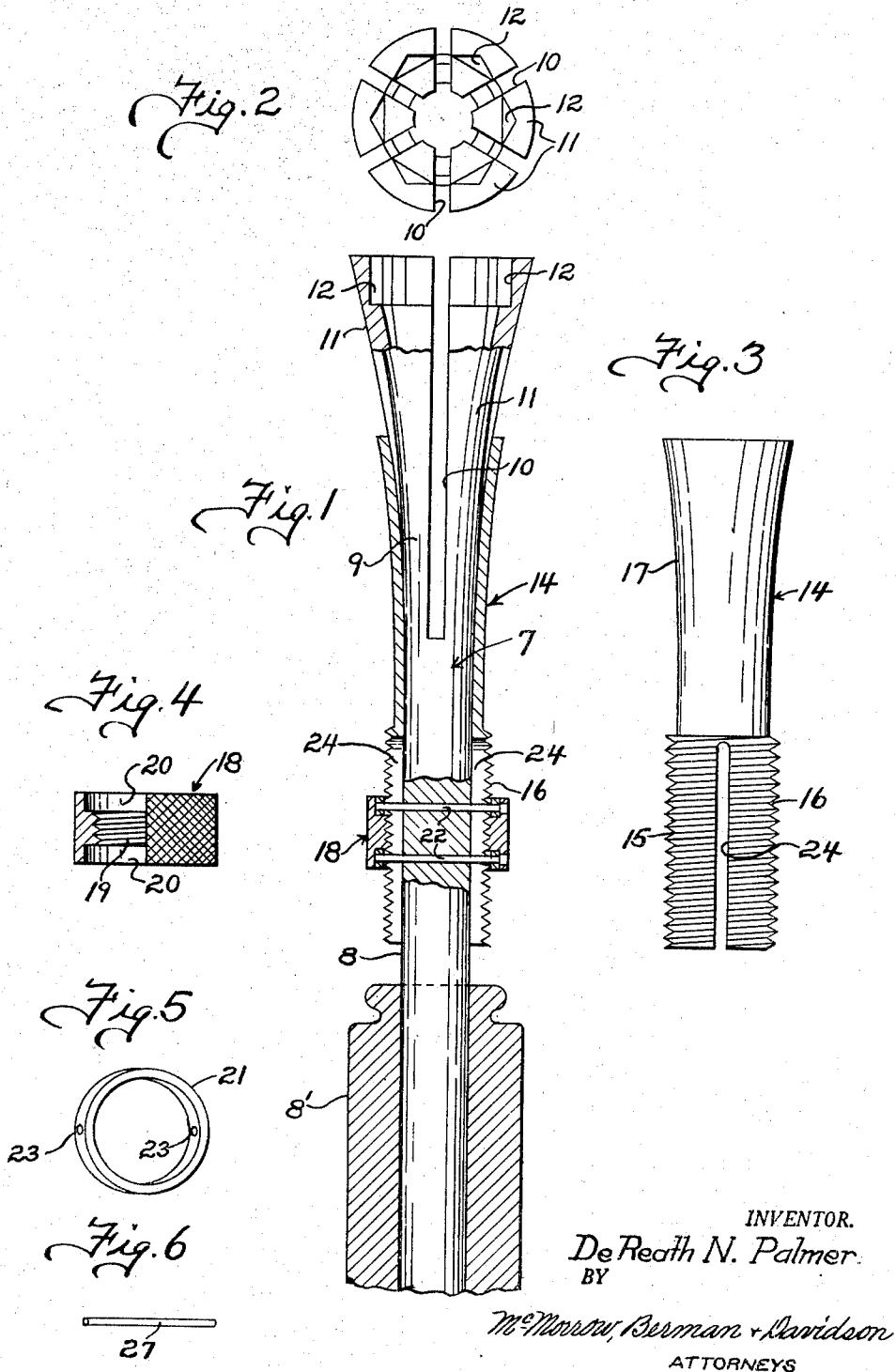


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WRENCH SHANK HAVING SPRINGY-ARM JAWS CAMMED BY SLIDABLE
THREADED-SLEEVE ACTUATED BY NUT SWIVELING ON SHANK
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WRENCH SHANK HAVING SPRINGY-ARM
JAWS CAMMED BY SLIDABLE THREADED-
SLEEVE ACTUATED BY NUT SWIVELING
ON SHANK

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1 Claim. (Cl. 81—113)

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This invention relates to a wrench and more particularly to a wrench having springy-arm jaws cammed by a sliding threaded sleeve actuated by a nut swiveling on the shank.

It is an object of this invention to provide a wrench of the kind more particularly described hereinafter, formed to provide means whereby a person may reach into positions or locations that are ordinarily difficult to reach and remove or replace threaded nuts or bolts.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claim.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein merely for present purposes of illustration, a specific embodiment of the invention is set forth in detail.

In the drawings:

Figure 1 is a general transverse longitudinal section taken through said embodiment, showing the wrench jaws in open or expanded position.

Figure 2 is a top plan or forward end elevation thereof.

Figure 3 is a side elevation of the jaw contracting tube.

Figure 4 is a side elevation, partly broken away, of the operating nut.

Figure 5 is a perspective view of one of the two washers or rings, and

Figure 6 is a side elevation of one of the two ring locking pins.

Referring in detail to the drawings, the numeral 7 generally designates the main jaw member, comprising a solid straight shank portion 8, extending axially into a screw driver type handle 8', in which the shank portion is fixed, and a hollow flared forward portion 9, which is formed with a plurality of longitudinal slots 10, defining between them a plurality, in this instance six, flexible spring jaws 11, which normally occupy divergent positions. The jaws, as shown in Figure 2, are of segmental cross section.

As shown in Figure 1, the forward ends of the spring jaws 11 are thickened and formed on the inner sides with triangular recesses or seats 12 for conformably seating the corners of hexagon nuts or the hexagon heads of studs. It will be understood that the seats 12 may be formed to seat other than hexagon forms and that the number of jaws 11 may be reduced or increased accordingly.

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Slidable along the shank 8 and along a part of the flared portion 9 of the main jaw member is the jaw contracting tube or sleeve 14, comprising a cylindrical rear portion 15 having external screw threads 16 and a forwardly flared portion 17, the cylindrical portion slidably fitting the shank portion 8 and the flared portion 17 being somewhat shorter than the flared portion 9 of the main jaw member and of smaller diameter, such that upon forward movement of the sleeve 14 the flared portion 17 will engage and contract the spring jaws 11, and upon rearward movement of the sleeve 14 the jaws 11 will spring back toward normal position.

Means for controllably operating the sleeve 14 while holding the wrench by the handle 8', consists of a knurled nut 18, having screw threads 19 engaging the screw threads 16 on the sleeve 14. The screw threads 19 of the nut 18 terminate in spaced relation to the opposite ends of the nut, as shown in Figure 4, and annular recesses 20, 20 larger in diameter than the threads 19 are formed in the opposite ends of the nut to accommodate washers or rings 21, 21 which are traversed by pins 22, 22 passing through diametrically paired holes 23, 23 formed in the washers and through the main jaw shank portion 8, as shown in Figure 1, whereby the nut 18 is fixed in a position on the wrench within comfortable reach of the fingers of a hand holding the handle 8'. The sleeve 14 has slots 24 opening through its rear end, to clear the pins 22, 22.

The nut being thereby free to rotate with respect to the shank 8 but not to move therealong, can be rotated in opposite directions so as to feed the sleeve 14 rearwardly or forwardly and thereby open and close the jaws 11, as may be desired. The sleeve 14 remains in any position to which it is adjusted because of the threaded connection with the swivelling nut 18, there being no extra locking means or exertion of holding force by the operator. Thus, the wrench can firmly grip nuts and bolt heads located in difficult to reach places.

What is claimed is:

A wrench for endwise engagement with a nut, said wrench comprising a handle, a jaw member comprising a shank fixed to extend forwardly from said handle, a forwardly flared hollow portion on the forward end of said shank, said flared portion comprising spaced normally laterally outwardly expanded spring jaws conformably engaging the corners of a nut, a sleeve slidably circumposed on said shank and having a forward portion arranged to engage the outside of said

jaws and compress said jaws inwardly to grip a nut when said sleeve is moved forwardly along said shank from the rearward starting position in which said jaws are free to occupy their maximum expanded positions, and operating means on said shank, within reach of fingers of a hand holding said handle, for moving said sleeve forwardly from and return to starting position, said operating means comprising external screw threads on said sleeve, a nut threaded on said screw threads, and means to rotatably mount said nut in spaced relation to said shank, said means comprising rings engaging upper and lower ends of said nut, and pins traversing said rings and said shank and passing through longitudinal slots formed in said sleeve, whereby said

nut, when rotated in either direction, will not move along said shank but will axially move said sleeve.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
493,815	Bingham -----	Mar. 21, 1893
803,692	Hill -----	Nov. 7, 1905
883,168	Chapman -----	Mar. 31, 1908
1,690,018	Kerfoot -----	Oct. 30, 1928