

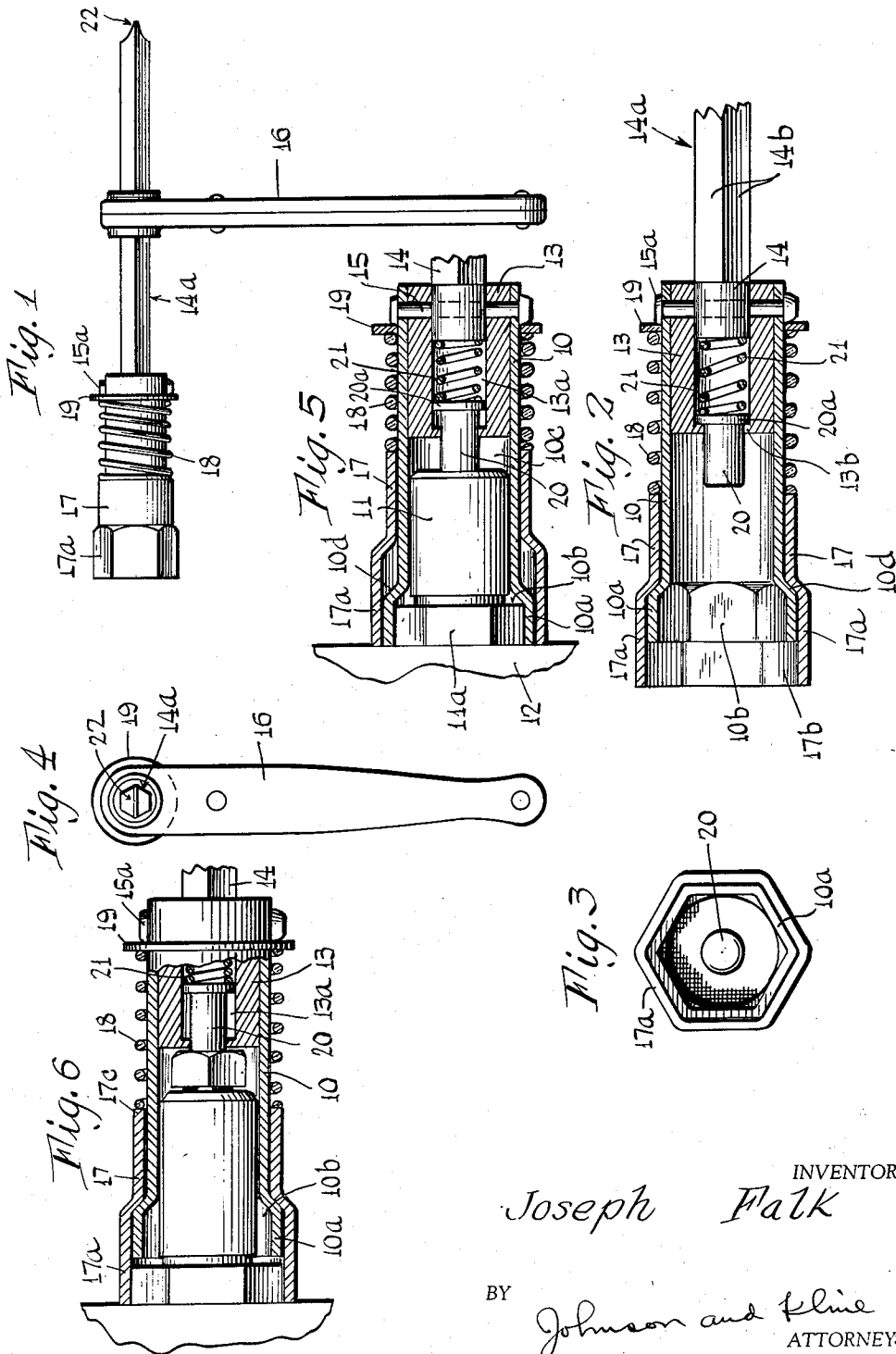
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MULTISOCKET EJECTOR-WRENCH FOR NIPPLES

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MULTISOCKET EJECTOR-WRENCH
FOR NIPPLES

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5 Claims. (Cl. 81-124.1)

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The present invention relates to a combination tool for use with threaded members and one which is particularly useful in the removing and installation of nipples on gas ranges and the like.

Heretofore it has been difficult because of the fact that the nipples which are usually confined in a small space behind the panel of the gas range are hard to reach and install or remove. This has been further complicated by the fact that nipples are of varying sizes and it is necessary to have a wrench for each size capable of use in said confined spaces.

The present invention overcomes this difficulty by providing a combination tool which can be accommodated in small and confining spaces and will easily and quickly remove nipples of different sizes. This is accomplished, according to the present invention, by providing a multiple wrench embodying a sleeve with an enlarged head to receive the nut portion of the nipple with the nipple portion extending into the sleeve and in providing an outer sleeve slidable on the inner sleeve adapted to accommodate a larger size nipple. The sleeves have a driving means secured thereto to which a ratchet wrench may be applied so that nipples in confined spaces may be readily removed.

If desired, ejector means may be provided for discharging the nipple from the sleeve after it has been removed from the stove.

A feature of the present invention resides in the simplicity of the construction, its ease of manufacture and assembly and its effective operation.

Other features and advantages will be apparent from the specification and claims when considered in connection with the drawings wherein:

Figure 1 shows a side view of the tool of the present invention.

Fig. 2 shows a longitudinal sectional view through the tool.

Fig. 3 shows an end view of the tool looking at the socket end.

Fig. 4 shows an end view looking at the driver end.

Fig. 5 shows a longitudinal sectional view of the tool as applied to a small nipple.

Fig. 6 shows a longitudinal sectional view of the tool as applied to a large nipple.

While the combination tool of the present invention may be utilized for removing any device having an out-of-round nut portion, it is herein illustrated and described in connection with the mounting and removal of nipples of the type used in connection with gas ranges and the like,

which nipples have a main nipple portion and an out-of-round nut portion for mounting the same.

As shown in Figs. 2 and 5 the device of the present invention comprises an inner sleeve 10 having an enlarged out-of-round portion 10a at its forward end forming a nut-receiving socket 10b and has a nipple-receiving portion 10c in which the nipple portion 11 of a small nipple mounted on a gas stove or the like 12 may be inserted with its nut portion 11a in the socket 10b. The rear end of the inner sleeve is provided with a driving means. While this may take many forms it is at present preferred to employ a bushing 13 secured therein and having a bore 13a in which is mounted a driver 14. The bushing and driver are connected to the sleeve by a transversely extending fastening member 15 which may comprise a rivet, bolt or the like. The extended portion 14a of the driver, as shown, is provided with a plurality of sides 14b on which is slidably mounted the usual ratchet operator 16 for rotating the sleeve and the nipple carried thereby in either direction depending upon the position of the operator thereon.

With this arrangement it will be seen that the wrench may be positioned over a nipple in a confined space and the ratchet operator may then be moved along the driver to a position that will permit free operation of the wrench.

In order to accommodate the tool for larger size nipples an outer sleeve 17 is provided which is slidably mounted on the inner sleeve and has an enlarged portion 17a at the forward end having a socket 17b adapted to closely fit the out-of-round portion 10a of the inner socket as shown in Fig. 3 so as to form a driving fit between the inner and outer sleeves. As shown in Fig. 2, the enlarged portion 17a of the outer sleeve is substantially longer than that of the inner sleeve so that when in its normal position it projects beyond the end of the inner sleeve a distance sufficient to accommodate the nut of a large nipple, as shown in Fig. 6, with the nipple portion extending into the inner sleeve.

In the illustrated form of the invention the outer sleeve is urged into its normal position (Fig. 2) by means of a spring 18 surrounding the inner sleeve. In the preferred form of the invention the spring 18 is of such a size that its end abuts and engages the end 17c of the outer sleeve to urge it to the normal position wherein the wall 10d of the enlarged portion of the inner sleeve forms an abutment to limit forward movement

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of the outer sleeve. The other end of the spring engages a washer 19 slidably mounted on the inner sleeve. The washer is held against movement off the end of the inner sleeve by any suitable means. As herein illustrated this is accomplished by the washer contacting the enlarged ends 15a of the transverse member securing the bushing, sleeve and driver together.

If desired, ejecting means may be provided in the socket in the inner sleeve receiving the nipple portion to eject the nipple from the socket after it has been removed. While this may take many forms, it is herein illustrated as comprising a plunger 20 slidably mounted in the bore 13a of the bushing and having a collar 20a thereon to engage an inwardly projecting portion 13b at the end of the bore to limit its movement into the nipple-receiving portion of the sleeve. A spring 21, positioned in the bore between the driving member and the collar on the plunger, urges the plunger into ejecting position.

It will be seen that the foregoing construction can be easily manufactured and quickly assembled. The inner and outer sleeves may be formed of drawn sheet metal or castings and the remainder of the parts may be formed by screw machine parts. In assembling the device the outer sleeve is slipped over the inner sleeve, the bushing is put in position, the ejector means and spring inserted in the bore in the bushing, the outer spring slipped over the end of the inner sleeve, the washer put in place, the driver inserted in the bushing and the entire assembly secured together by means of the single fastening device.

In operation when it is desired to remove a small nipple the wrench is inserted over the nipple and pressed inwardly against the stove to cause the outer sleeve to move backwardly as shown in Fig. 5 until the small nipple is received in the socket in the inner sleeve. The ratchet operator is adjusted along the driver until it is in a position in which free operation can be obtained and the operator turned to drive the inner sleeve and remove the nipple. It will be noted in Fig. 5 that the ejection spring is compressed and will cause ejection of the nipple when it has been removed from the stove. The converse of the operation takes place when it is desired to install the nipple.

When a large nipple is to be removed the wrench is inserted over the nipple, as shown in Fig. 6, with the nut portion of the nipple disposed in the socket in the outer sleeve in advance of the inner sleeve, with the nipple portion extending into the inner sleeve. It will be noted that the ejection means here is compressed and prepared to eject the nipple upon completion of the removal operation.

If desired, the end of the driving member may be provided with an edge 22 to form a screw driver to be actuated by the ratchet operator.

It will be seen that I have provided a combination tool which greatly facilitates the installation and removal of nuts or nipples having nut portions and which is of simple construction and easy to manufacture and operate.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A combination tool comprising an inner sleeve having an enlarged out-of-round portion forming a nut-receiving socket at its forward end and having a driving member at its rear end; an outer sleeve slidable on the inner sleeve and hav-

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ing an enlarged portion forming a nut-receiving socket at its forward end surrounding the out-of-round portion of the inner sleeve so as to form a driving connection therewith and normally extending beyond the end of said inner sleeve a sufficient distance to receive a nut therein in advance of the inner socket; and yielding means urging the outer sleeve forwardly along the inner sleeve, the enlarged portion of the inner sleeve forming a stop for the outer sleeve to position it in the normal nut-receiving position, and the yielding means enabling the outer sleeve to be retracted and the inner nut-receiving socket exposed to receive a nut.

2. A combination tool comprising an inner sleeve having an enlarged out-of-round portion forming a nut-receiving socket at its forward end, and a bushing, having a driving member therein, secured to its rear end; an outer sleeve slidable on the inner sleeve and having an enlarged portion forming a nut-receiving socket at its forward end surrounding the out-of-round portion of the inner sleeve so as to form a driving connection therewith and normally extending beyond the end of said inner sleeve a sufficient distance to receive a nut therein in advance of the inner socket; and yielding means urging the outer sleeve forwardly along the inner sleeve, the enlarged portion of the inner sleeve forming a stop for the outer sleeve to position it in the normal nut-receiving position, and the yielding means enabling the outer sleeve to be retracted and the inner nut-receiving socket exposed to receive a nut.

3. A combination tool for gas range nipples and the like having a nut portion at one end, said tool comprising an inner sleeve having a nipple-receiving portion and an enlarged out-of-round portion forming a socket at its forward end for receiving the nut portion; a driving member secured to the rear end of the sleeve; an outer sleeve slidable on the inner sleeve and having an enlarged portion forming a socket at its forward end for selectively receiving the nut portion of a larger nipple, said last-named socket surrounding the out-of-round portion of the inner sleeve and normally extending beyond the end of said inner socket a sufficient distance to receive the nut portion of the larger nipple in advance of the inner socket with the nipple portion extending into the inner sleeve; and spring means surrounding the inner sleeve and having one end engaging and urging the outer sleeve forwardly along the inner sleeve, the enlarged portion of the inner sleeve forming a stop for the outer sleeve to position it in the normal nut-receiving position, and the spring means yielding and enabling the outer sleeve to be retracted and the inner socket exposed to receive a nut portion of a small nipple.

4. A combination tool for gas range nipples and the like having a nut portion at one end, said tool comprising an inner sleeve having a nipple-receiving portion and an enlarged out-of-round portion forming a socket at its forward end for receiving the nut portion; a driving member secured to the rear end of the sleeve; an outer sleeve slidable on the inner sleeve and having an enlarged portion forming a socket at its forward end for selectively receiving the nut portion of a larger nipple, said last-named socket surrounding the out-of-round portion of the inner sleeve and normally extending beyond the end of said inner socket a sufficient distance to receive the nut portion of the larger nipple in advance of

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the inner socket with the nipple portion extending into the inner sleeve; ejector means in the inner sleeve normally urged to a position to eject a nipple from said sleeve; and spring means surrounding the inner sleeve and having one end engaging and urging the outer sleeve forwardly along the inner sleeve, the enlarged portion of the inner sleeve forming a stop for the outer sleeve to position it in the normal nut-receiving position, and the spring means yielding and enabling the outer sleeve to be retracted and the inner socket exposed to receive a nut portion of a small nipple.

5. A combination tool for gas range nipples and the like having a nut portion at one end, said tool comprising an inner sleeve having a nipple-receiving portion and an enlarged out-of-round portion forming a socket at its forward end for receiving the nut portion; an outer sleeve slidable on the inner sleeve and having an enlarged portion forming a socket at its forward end for selectively receiving the nut portion of a larger nipple, said last-named socket surrounding the out-of-round portion of the inner sleeve and normally extending beyond the end of said inner socket a sufficient distance to receive the nut portion of the larger nipple in advance of the inner socket with the nipple portion extend-

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ing into the inner sleeve; a bushing positioned in the rear end of the inner sleeve; a driver having one end disposed in the bushing; a transversely extending member passing through the inner sleeve, bushing and driving member and securing the same together; spring means surrounding the inner sleeve and having one end engaging and urging the outer sleeve forwardly along the inner sleeve; and an abutment member engaging the other end of the spring, the transversely extending member projecting beyond the sides of the sleeve and forming a stop for the abutment member and the enlarged portion of the inner sleeve forming a stop for the outer sleeve to position it in the normal nut-receiving position, and the spring means yielding and enabling the outer sleeve to be retracted and the inner socket exposed to receive a nut portion of a small nipple.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
108,330	Cass -----	Oct. 18, 1870
1,089,249	Moose -----	Mar. 3, 1914
1,346,061	Rosenberg -----	July 6, 1920
2,485,169	Roeschke -----	Oct. 18, 1949
2,651,229	Lenz -----	Sept. 8, 1953