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LOCK NUT TIGHTENING AND CONDUIT REAMING TOOL

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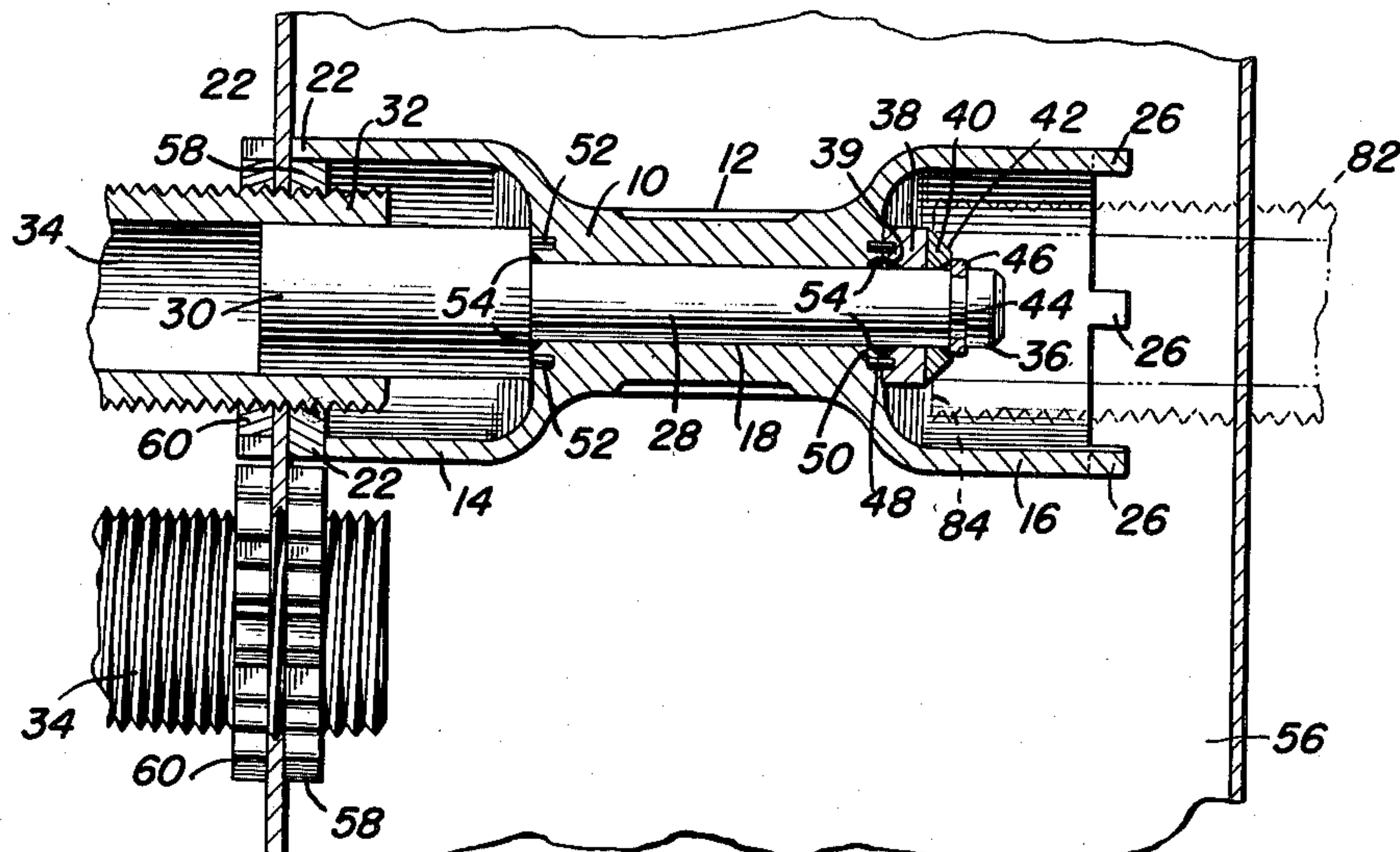


Fig. 1.

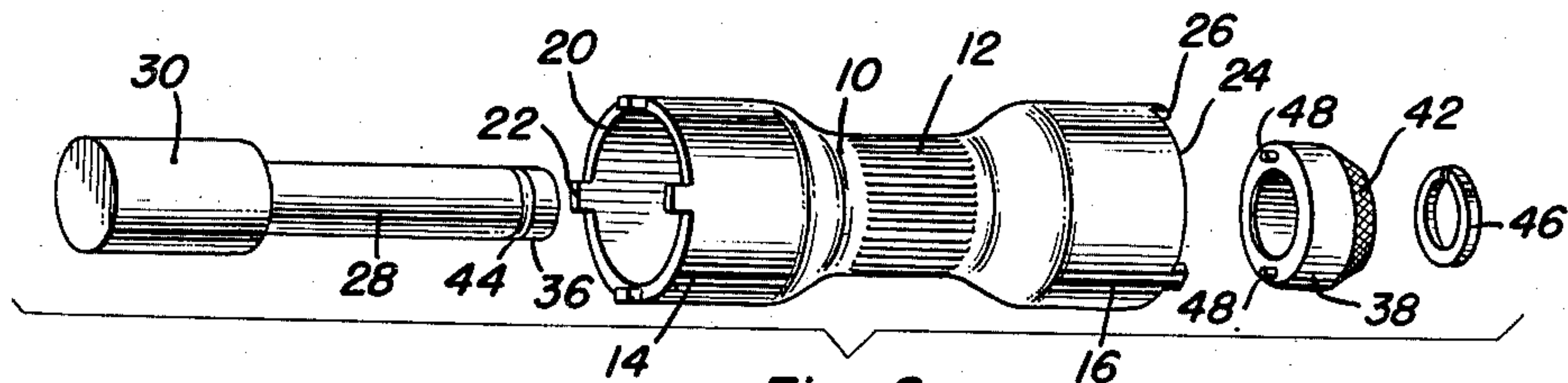


Fig. 2

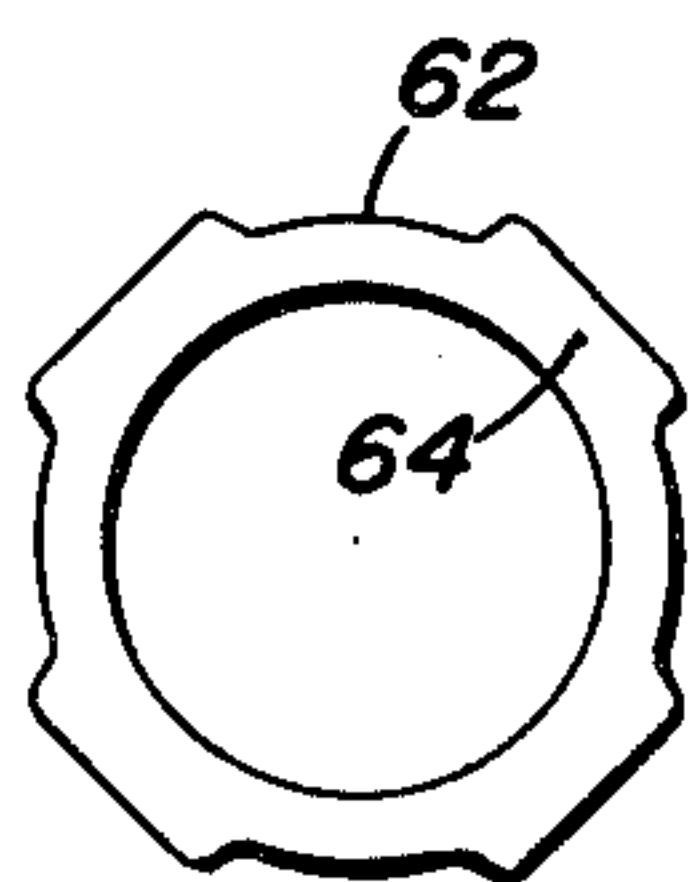


Fig. 3.

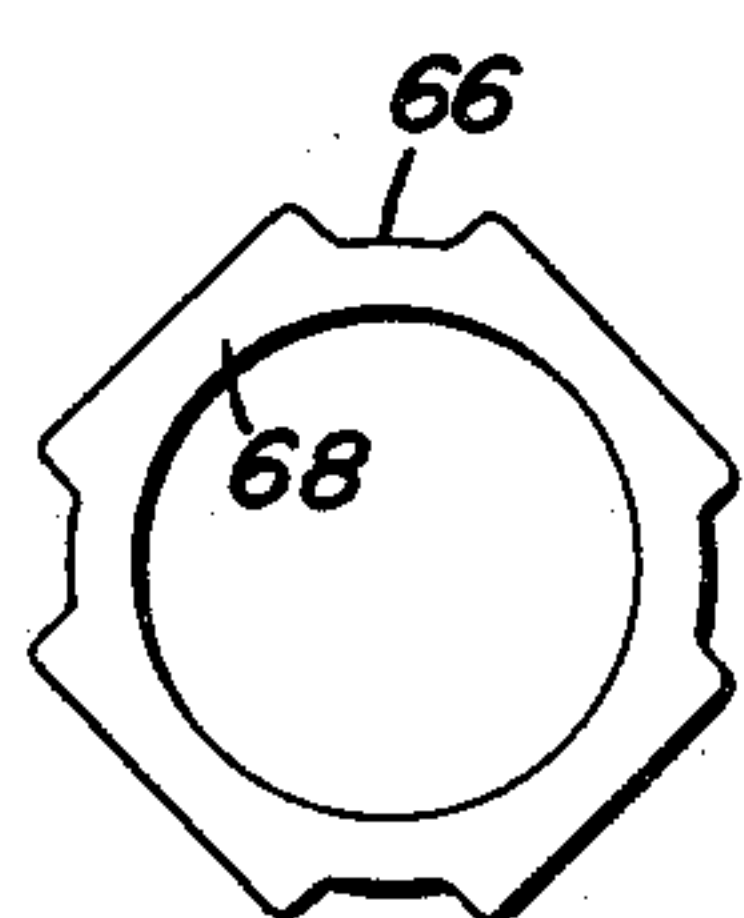


Fig. 4.

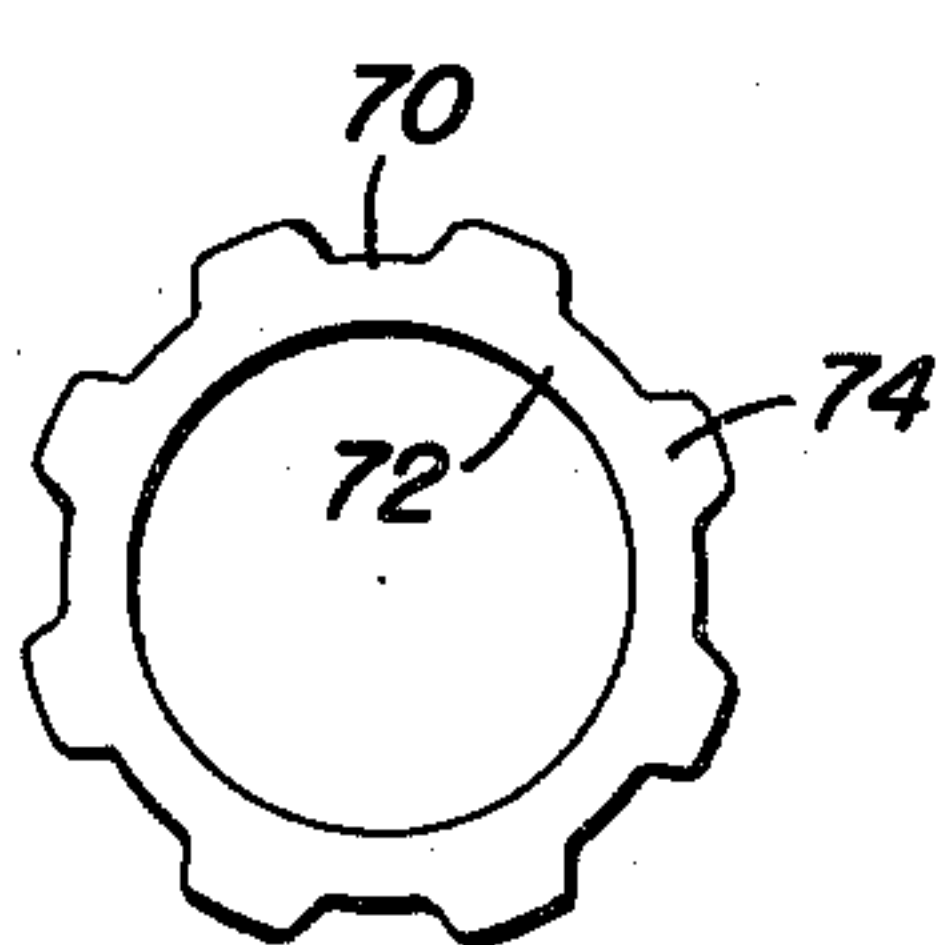


Fig. 5.

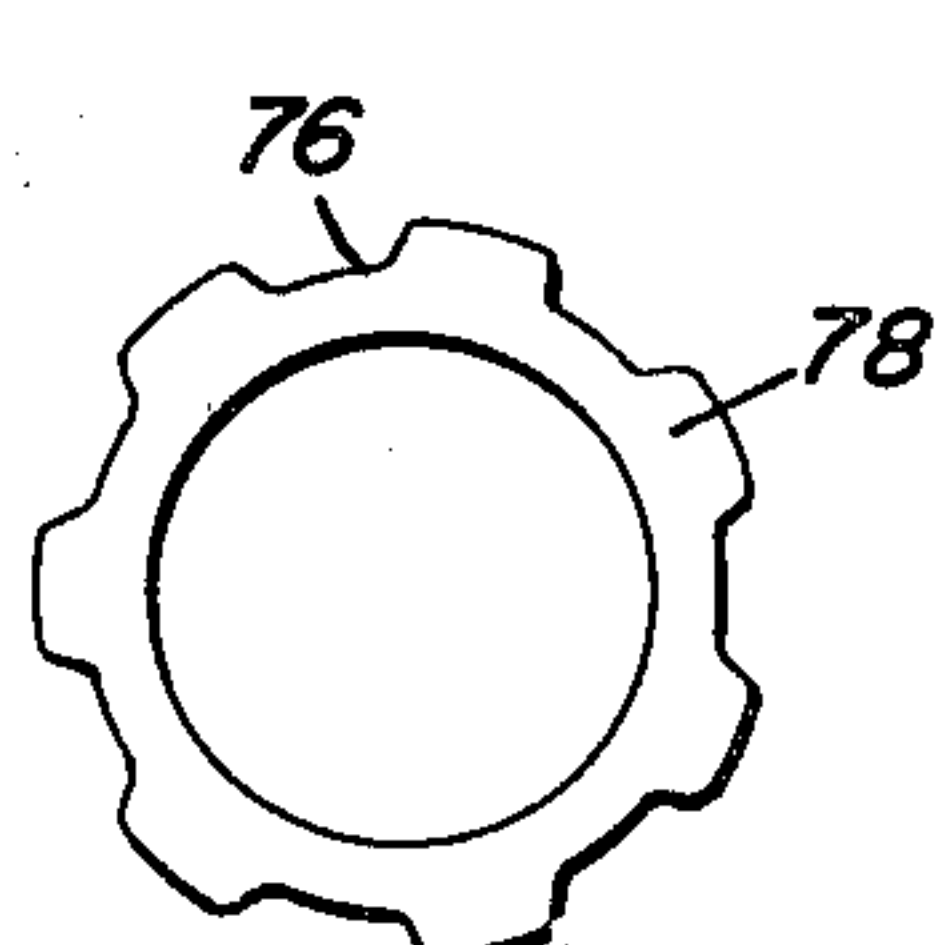


Fig. 6.

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UNITED STATES PATENT OFFICE

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LOCK NUT TIGHTENING AND CONDUIT
REAMING TOOL

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12 Claims. (Cl. 7—14.1)

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This invention relates to new and useful im-
provements in tools for installing conduits to
electrical outlet boxes, and the primary object
of the present invention is to provide a tool for
both tightening lock nuts on the conduits of
electrical outlet boxes and for reaming the open
inner ends of conduits that are supported in
electrical outlet boxes.

Another important object of the present in-
vention is to provide a lock nut tightening and
conduit reaming tool that includes novel and
improved means for holding and positioning the
same relative to the conduits of electrical out-
let boxes.

Another object of the present invention is to
provide a lock nut tightening and conduit ream-
ing tool that is so designed as to facilitate the
same to be conveniently inserted in an electri-
cal outlet box to engage conduit lock nuts which
are so positioned relative to each other as to
prevent the normal application of usual tools
such as wrenches, sockets, pliers, or the like.

Another object of the present invention is to
provide a tool of the aforementioned charac-
ter so constructed as to facilitate the use of the
same on all types of conventional lock nuts.

Another object of the present invention is to
provide a combination lock nut tightener and
conduit reamer that is applicable for simul-
taneously tightening a lock nut on one conduit
and reaming the inner end of a further con-
duit.

A further object of the present invention is
to provide a tool for installing conduits relative
to electrical outlet boxes all parts of which are
quickly and readily assembled or disassembled
in a convenient manner to facilitate the con-
venient inspection or replacement of parts.

A still further aim of the present invention
is to provide a combination lock nut tightening
tool and conduit reaming tool that is simple
and practical in construction, strong and re-
liable in use, small and compact in structure, neat
and attractive in appearance, relatively inexpen-
sive to manufacture, and otherwise well adapted
for the purposes for which the same is in-
tended.

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

Figure 1 is a longitudinal vertical sectional
view of a conventional electric outlet box includ-

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ing a plurality of conduits and showing the pres-
ent invention, partly in section and partly in
elevation, in use;

Figure 2 is a group perspective view of the
present invention in disassembled form;

Figure 3 is a plan view of one conventional
type of conduit lock nut for which the present
invention is applicable for use with;

Figure 4 is a plan view of another conven-
tional type of conduit lock nut that is applicable
for use with the present invention;

Figure 5 is a plan view of a further type of
conventional lock nut that is applicable for use
with the present tool; and

Figure 6 is a plan view of a still further type
of conventional lock nut that is applicable for
use with the present tool.

Referring now to the drawings in detail, where-
in, for the purpose of illustration, there is dis-
closed a preferred embodiment of the present
invention, the numeral 10 represents a preferably
cylindrical body having a plurality of longitudi-
nally extending, circumferentially spaced ribs
12 on its outer periphery for frictionally engag-
ing a suitable tool whereby the body may be
conveniently rotated.

Integrally formed with the body 10, at each
end thereof are enlarged, annular sockets 14
and 16 that communicate with an axial bore 18
provided in the body 10. Projecting outwardly
from the outer edge or extremity 20 of one of the
sockets, for example, socket 14, is a plurality of
circumferentially spaced, diametrically opposed
gripping lugs 22, and projecting outwardly from
the outer edge or extremity 24 of the remaining
socket, namely, socket 16, is a plurality of cir-
cumferentially spaced gripping lugs 26.

Rotatably positioned in the bore 18 is a sub-
stantially cylindrical stem or support member
28 having an enlarged cylindrical head portion
30 that is loosely positioned in one of the sockets,
either socket 14 or 16. A portion of the head 30
extends outwardly from the socket in which the
same is positioned to facilitate same to engage
in an easily visible manner to the operator, one
end 32 of a conduit 34.

As illustrated in Figure 1, the head portion 30
of the support member 28 is positioned in the
socket 14. When in this position, the free end
36 of the support member 28 extends into the
other socket, namely, socket 16, to frictionally
engage an annular reamer 38 having a central
bore, the ends of which are outwardly flared or
rounded as at 39 to facilitate the same to be
engaged on the support member 28 in a conven-

ient manner, one end of which is fixed to a frusto-conical bearing member 40 having a knurled outer surface 42. An annular recess 44 is provided in the free end 36, and frictionally engages a split retaining ring 46 that frictionally engages the member 40 to retain the reamer 38 on the support member 28 and outwardly projecting pins 48 carried by the reamer in recesses 50 provided in the body 10 that communicate with socket 16.

It should be noted that further recesses 52 are provided in the body 10 which communicate with socket 14, whereby, when the support member is reversed so that the head portion 30 is positioned in the socket 16, the pins 46 will engage these latest recesses 52.

The entrance into the bore 18 from each end is enlarged or tapered outwardly, as at 54, to facilitate the convenient insertion of a support member 28 into the bore 18 from either end.

In practical use of the present tool, the same is inserted into a conventional electrical outlet box 56 in which there extends a plurality of conduits 34 having inner locking nuts 58 and outer locking nuts 60, it being noted that the locking nuts of adjacent conduits are relatively close to each other to prevent the normal engagement of the same by a wrench, socket, pliers or the like.

The socket 14, having preferably four equally spaced lugs 22, is applicable for engaging all four equally spaced notches 62 of a lock nut 64, shown in Figure 3, the equally spaced notches 66 of a further lock nut 68, shown in Figure 4, and alternate notches 70 of a still further lock nut 72 having eight equally spaced projections 74, and the equally spaced lugs 26, preferably three equally spaced lugs, engage the notches 76 of a lock nut 78 shown in Figure 6 when the socket 14 and lugs carried thereby are not applicable for that particular type of lock nut which is engaged on the conduit.

The head portion 30 of the support member 28 will frictionally engage the inner end of one of the conduits to retain and position the socket 14 or 16 relative thereto and the lugs carried by the socket engage with the inner lock nut 58 that is on the conduit that is to be fixed to the electrical outlet box. In this position, a further conduit, designated by the numeral 82, and shown best in dotted lines in Figure 1, may be extended inwardly so that its inner end 84 is engaged by the knurled surface 42 of the member 40, to cause a reaming of the inner end 84 of this latest conduit 82 as the body 10 is rotated and the lock nut 58 is tightened.

Obviously, the socket 14 or 16 may be used to tighten lock nuts without the necessity of having to employ the reaming member for simultaneously reaming a further conduit. However, it is noted that this dual functioning may be accommodated to reduce the normal time necessary for both tightening lock nuts and reaming conduits that are applied to electrical outlet boxes.

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 combination lock nut tightener and conduit reamer comprising a body, an elongated member carried by the body and having first and second ends, means at the first end of said member for engaging and supporting the body relative to a conduit, means carried by the body and embracing the first-mentioned means for frictionally engaging a lock nut, and means carried by the second end of said member for reaming a conduit.

2. A combination lock nut tightener and conduit reamer comprising a body, an elongated member removably carried by the body for supporting the same relative to a conduit, said member having first and second end portions, a socket carried by said body for embracing a lock nut, the first end portion of said member being received in said socket, means carried by the socket for frictionally engaging a lock nut, and means carried by the second end portion of said member for reaming a conduit.

3. The combination of claim 2 wherein said body includes a roughened gripping area for receiving a tool.

4. The combination of claim 2 wherein said means carried by the socket for frictionally engaging a lock nut includes a plurality of circumferentially spaced, outwardly projecting lugs.

5. A combination lock nut tightener and conduit reamer comprising a body having a socketed end portion, a support member removably carried by said body and having one end received in said socketed end portion for engaging a conduit, lock nut engaging lugs carried by said socket, means carried by the other end of said support member for reaming a conduit, means for lockably retaining the conduit reaming means and support member relative to the body, and means for retaining the conduit reaming means in a fixed position relative to the body.

6. A combination lock nut tightener and conduit reamer comprising a sleeve-like body having a socketed end portion, a support member removably carried by the body having an enlarged head portion positioned in the socketed end portion of said body for engaging a conduit, lugs carried by the socketed end portion of said body for engaging a lock nut, a reamer carried by the support member and at the opposite end thereof from the socketed end portion for reaming a conduit, means for retaining the reamer and support member relative to the body, and means carried by the reamer for lockably engaging the body.

7. The combination of claim 6 wherein said means for retaining the reamer and support member relative to the body includes a split ring, said support member having an annular recess for yieldingly receiving said split ring.

8. The combination of claim 6 wherein said reamer includes a substantially frusto-conical member having a knurled outer surface.

9. A lock nut tightener for conduits comprising a body having a roughened outer surface for engaging a tool, said body having first and second end portions, a socket at the first end of said body for loosely embracing a lock nut, means carried by the socket for engaging a lock nut, and means carried by the body for supporting the same relative to a conduit, said last-mentioned means in-

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cluding an elongated member detachably secured to said body and having an end portion projecting outwardly from the second end portion of said body and adapted to be inserted in a conduit.

10. The combination of claim 9 wherein said means carried by the socket for engaging a lock nut includes a plurality of circumferentially spaced gripping lugs.

11. A combination lock nut tightener and conduit reamer comprising a body having first and second end portions and an axial bore, a socket member at the first end portion of said body, a supporting member received in said bore and having first and second end portions, the first end portion of said supporting member being received in said socket member and adapted to be inserted in a conduit, the second end portion of said supporting member projecting outwardly from the second end portion of said body, a reamer mounted on the second end portion of said supporting member, means detachably securing the reamer to the supporting member, means securing the reamer to the body for rotation therewith, and means carried by the socket member for engaging a lock nut.

12. A conduit reamer comprising a body having an axial bore and first and second end por-

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tions, a supporting rod received in said axial bore and having first and second end portions projecting outwardly from the first and second end portions of said body, the first end portion of said rod adapted to be inserted in a conduit to retain said body relative to a conduit, a reamer on the second end portion of said rod, means carried by said rod retaining the reamer relative thereto, and means for securing the reamer to the second end portion of the body for rotation of the reamer with the body.

CLEMENT H. WATKINS.

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