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S. MANDL

2,282,148

TOOL HANDLE

Original Filed Jan. 18, 1940

Fig. 1.

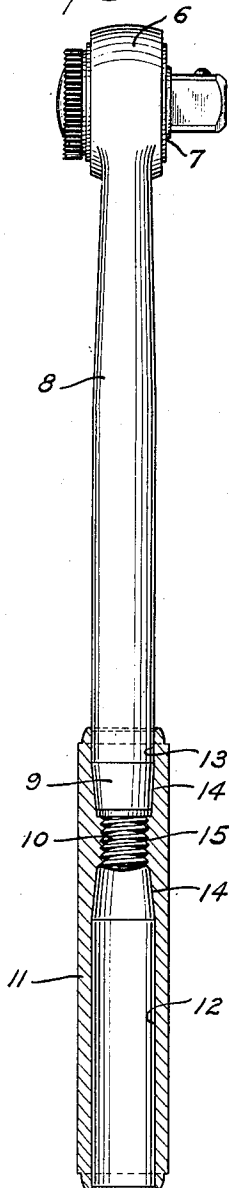


Fig. 2.

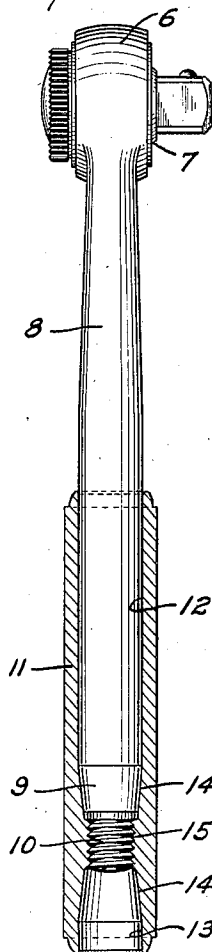


Fig. 4.

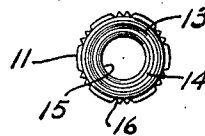
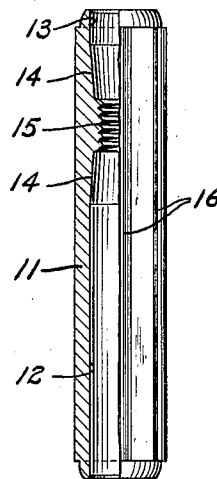


Fig. 3.



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TOOL HANDLE

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Original application January 18, 1940, Serial No.
314,435. Divided and this application Novem-
ber 8, 1940, Serial No. 364,889

10 Claims. (Cl. 74-544)

The present invention relates generally to im-
provements in the construction and operation
of tool handles for wrenches or the like, and the
present application is a division of my co-pend-
ing application Serial No. 314,435, filed January
18, 1940.

An object of this invention is to provide a new
and useful handle structure for tools or the like,
which will enable most effective actuation and
use of the tool.

A more specific object of my present invention
is to provide an improved handle assemblage for
oscillatory or rotary tools such as wrenches or
ratchets, which can be readily adjusted to vary
the effective length of the actuating lever.

Another specific object of the invention is to
provide an improved tool handle of the lever type,
which can be quickly and effectively lengthened
or shortened to vary the stroke or leverage, and
to provide a compact assemblage for shipment.

These and other specific objects and advan-
tages will be apparent from the following detailed
description.

A clear conception of an embodiment of my
present invention, and of the mode of construct-
ing and of utilizing tool handles built in accord-
ance with the improvement, may be had by refer-
ring to the drawing accompanying and form-
ing a part of this specification, wherein like ref-
erence characters designate the same or similar
parts in the various views.

Fig. 1 is a part sectional side elevation of a
ratchet wrench, showing one of the improved
handles applied thereto and extended to maxi-
mum length;

Fig. 2 is a similar view of the ratchet wrench,
showing the handle reversed to provide an actu-
ating lever of minimum length;

Fig. 3 is a part sectional side view of the re-
versible handle alone; and

Fig. 4 is an end view of the handle alone.

While the improved handle assemblage has
been shown and described herein as being espe-
cially adapted for use in connection with oscil-
latory ratchet wrenches or mechanisms, it is not
my desire or intent to thereby unnecessarily re-
strict the scope or utility of the invention which
is more generally applicable to various tools.

Referring to the drawing, the improved tool
shown therein by way of illustration, comprises
a wrench head 6 having therein ratchet mech-
anism 7 and being provided with an integral
actuating arm or lever 8 having a tapered por-
tion 9 and a screw threaded extreme end portion
10; and a reversible tubular handle 11 having a

long socket 12 and a short socket 13, both pro-
vided with adjacent tapered ends 14 separated by
an internally threaded flange or part 15.

The wrench socket or head 6 may be formed
for the reception of elements other than the
ratchet mechanism 7, and may even be formed
for direct coaction with a nut or bolt head; and
the lever arm 8 need not be formed in one with
the head 6 but may be otherwise associated there-
with. The portion of the arm 8 adjoining the
tapered part 9, is preferably cylindrical and
formed to snugly coact with either of the handle
sockets 12, 13; and when the handle part 15 and
socket 13 are applied to the arm portions 9, 10
as in Fig. 1, the handle 11 is disposed at con-
siderably greater distance from the axis of the
head 6, than when the handle part 15 and socket
12 are applied to the lever portions 9, 10 as in
Fig. 2. This variation in the effective length of
the tool actuating lever, may be quickly and con-
veniently effected with the aid of the threaded
portions 10, 15; and the tapered portions 9, 14
of the arm 8 and handle 11 respectively, provide
for firm attachment and prevent undesirable play
or looseness between the parts. The exterior of
the tubular handle 11 may also be provided with
longitudinal serrations 16 as shown in Figs. 3 and
4 in order to enhance the grip.

During normal use of the improved tool, the
handle 11 may be applied to the actuating arm
8 either as shown in Fig. 1 to provide long lever-
age, or as illustrated in Fig. 2, to provide shorter
leverage; and since the latter assemblage is more
compact it is preferable to utilize the same for
storage and packing. The ratchet mechanism 7
may then be properly adjusted and associated
with the work, in a well known manner; and
reversal of the handle 11 to change the leverage
from long to short, and vice versa, may be quickly
accomplished with the aid of the coacting thread-
ed portions 10, 15. The serrations 16 facilitate
manipulation of the tool during normal use, and
also aid in driving the tapered bored portions 14
of the handle 11 upon the externally tapered por-
tion 9 of the arm 8; while the snug engagement
between the bored sockets 12, 13 and the cylin-
drical portion of the arm 8 insures maximum
rigidity in the structure.

From the foregoing detailed description it
should be apparent that my present invention
provides a simple, compact, durable and highly
efficient reversible handle assemblage for various
types of oscillatory or rotary tools, the effective
length of which may be quickly varied to suit dif-
ferent conditions of use. This variation in lever-

age obviously permits considerable variation in the force which may be applied, and in the speed with which the tool may be operated or manipulated; and also permits most compact packaging of the tool assembly. The invention has proven highly desirable and successful in actual commercial use, and may obviously be embodied in tools of various types at moderate cost.

It should be understood that it is not desired to limit this invention to the exact details of construction or to the precise mode of use, herein shown and described, for various modifications within the scope of the appended claims may occur to persons skilled in the art.

I claim:

1. In combination, a tool having a head and a rigid actuating arm provided with a taper remote from said head, and a tubular handle having alined similarly tapered sockets of different depth reversibly associable with the end of said arm remote from said head to vary the effective length of the arm.

2. In combination, a tool having a head and an integral actuating arm of fixed length provided with a taper remote from said head, the end of said arm beyond said taper having external screw threads, and a hollow handle having opposite alined similarly tapered sockets of different depth and a threaded intervening portion cooperable with said arm taper and threads.

3. In combination, a tool having a head and an integral actuating arm provided with a taper and screw threads remote from said head, and a handle having alined sockets of different depths interchangeably cooperable with said arm and taper, said handle having an internally threaded portion cooperable with said arm threads.

4. In combination, a tool having a head and a solid cylindrical arm extending away from said head and provided with a threaded free end, and a tubular handle having opposite cylindrical sockets of different depth adapted to interchangeably snugly receive said cylindrical arm end, said handle being provided with internal threads disposed between said sockets and cooperable with said arm threads.

5. In combination, a tool having an actuating arm provided at its free end with a taper and a

screw thread adjacent to the taper, and a tubular handle having oppositely directed tapered sockets interchangeably snugly cooperable with said arm taper and also having an internally threaded portion cooperable with said arm threads.

6. In combination, a tool having an actuating arm provided at its free end with a taper and a screw thread adjacent to the taper, and a tubular handle having oppositely directed tapered sockets interchangeably snugly cooperable with said arm taper and also having an internally threaded portion cooperable with said arm threads, said handle sockets being of different depths.

7. In combination, a tool having an actuating arm provided at its free end with a taper and a screw thread adjacent to the taper, and a tubular handle having oppositely directed tapered sockets interchangeably snugly cooperable with said arm taper and also having an internally threaded portion cooperable with said arm threads, said handle sockets being alined with each other and with said arm and also being of different depths.

8. In combination, a tool having an actuating arm provided at its free end with screw threads and with adjoining tapered and cylindrical portions, and a handle having alined cylindrical and tapered sockets of different depth interchangeably snugly cooperable with said arm end and also being threaded for coaction with said arm threads.

9. In combination, a tool having a head and a rigid actuating arm provided with a taper and fastening means adjacent to the taper, and a handle having alined sockets of different depth interchangeably cooperable with said arm taper, said handle having complementary fastening means cooperable with said fastening means on said arm.

10. In combination, a tool having a head and a rigid actuating arm provided with a taper, and a handle having alined oppositely directed sockets of different depths, said handle sockets each having a tapered portion interchangeably cooperable with said arm taper to provide a composite arm of different effective lengths.

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