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ADJUSTABLE JAW INTERNAL WRENCH WITH THREADED HANDLE

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Fig. 1

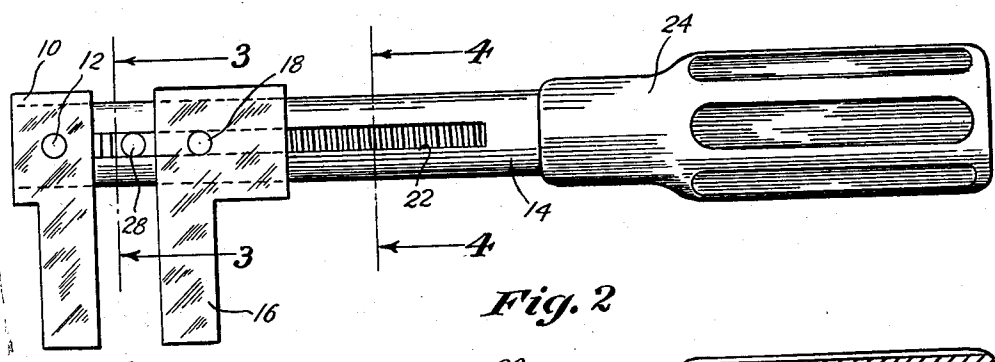


Fig. 2

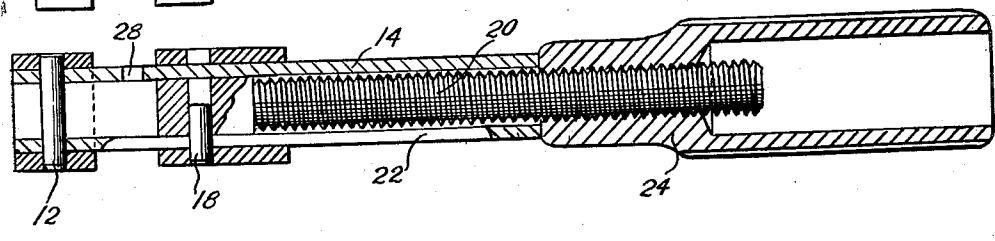


Fig. 3

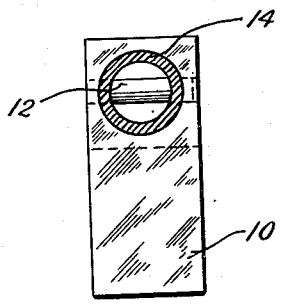
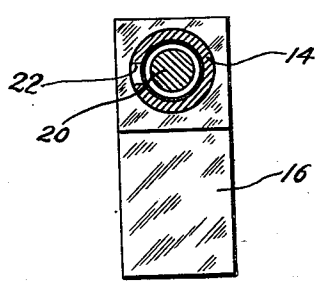


Fig. 4



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## ADJUSTABLE JAW INTERNAL WRENCH WITH THREADED HANDLE

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1 Claim. (Cl. 81-72)

1

This invention relates to wrenches and more particularly to an expanding wrench for engaging internal cylindrical surfaces of members to be tightened or loosened.

An object of the invention is to provide an improved form of wrench for engaging internal surfaces with an exceptionally strong bite or grip and to provide a form of wrench that may be used in unusual and awkward locations.

Another object of the invention is to provide two telescopic members, each member having one of the work engaging jaws at one end and there being a handle member threaded to one of the members and bearing against the end face of the other member when the jaws are being moved to their work clamping positions.

And finally it is an object of the invention to provide means for retaining the jaw members in alignment with each other.

With the above and other objects in view the invention may include the features of construction and operation set forth in the following specification and illustration in the accompanying drawings.

In the accompanying drawing annexed hereto and forming a part of this specification, I have shown the invention embodied in a so-called plumber's spud-wrench, but it will be understood that the invention can be otherwise embodied and that the drawing is not to be construed as defining or limiting the scope of the invention, the claim appended to this specification being relied upon for that purpose.

In the drawing:

Fig. 1 is a side elevation of a complete wrench made in accordance with the present invention with the jaws in one of their adjusted positions;

Fig. 2 is a longitudinal sectional view of the wrench shown in Fig. 1;

Fig. 3 is a transverse sectional view taken on the plane of line 3-3 in Fig. 1, and

Fig. 4 is a view similar to Fig. 3 taken on the plane of line 4-4 in Fig. 1.

In the above mentioned drawing, there has been shown but one embodiment of the invention which is now deemed preferable but it is to be understood that changes and modifications may be made within the scope of the appended claim without departing from the spirit of the invention.

Briefly, and in its preferred aspect, the invention may include the following principal parts: First, an outer jaw member secured rigidly to a sleeve or tube at one end thereof; second, another jaw member secured rigidly to one end of

2

a threaded member slidably movable within the sleeve, and third a handle member engaging the threads of the threaded member and bearing against an end face of the sleeve.

Referring more in detail to the figures of the drawing there is shown at 10 a jaw member attached by means of a transverse pin 12 or by any other convenient means to a sleeve 14. The opposite jaw 16 is attached as by means of a short transverse pin 18 to one end of a threaded member 20. The pin 18 passes through an elongated slot 22 extending longitudinally of the sleeve 14 during adjustment of the jaws. By means of this slot 22 in the sleeve 14 the jaw members are maintained always in alignment. Also by means of the pin 18 the jaw member 16 is rigidly attached to the threaded member 20 and may slide over the outer surface of the sleeve.

Threaded over the threaded end of the member 20 is a handle member 24. As shown the handle member is longitudinally fluted on its outside surface and provided with a central axial opening extending therethrough for the passage of member 20. The forward end only of this opening is threaded to engage the threads on member 20. The forward end of the handle member 24 in operation bears against the end face of the sleeve 14 and by rotation of the handle member 24 the jaws 10 and 16 can be forced apart to firmly engage against the inner surface of a member to be threaded on or taken from a companion member.

In order to disassemble the parts forming the wrench the jaw 16 may be brought into a position to align its hole for the transverse pin 18 with the hole 28 in the sleeve 12 so that pin 18 may be driven out. Pin 12 for the jaw 10 may also be driven out so that with the handle member 24 unthreaded from the member 20 all parts of the wrench are separated and may be reassembled very simply after replacing worn or damaged parts.

The cross sections of the jaws 10 and 16 are rectangular so that their corners or lateral edges will sharply engage the surface of the member to be turned by the wrench. The wrench is made rigid throughout its length by the sleeve 14 and threaded member 20 being tightly engaged by the handle member 24.

I claim as my invention:

An internal wrench having a jaw member provided with gripping edges on its outer surface and rigidly attached to one end of a sleeve, said sleeve having a slot extending longitudinally throughout the intermediate portions thereof, a

3

second jaw member slidable over said sleeve and having gripping edges cooperating with the gripping edges on said first mentioned jaw member, a threaded member slidable within said sleeve, the inner end of said threaded member being attached to said second jaw member by means extending through said slot, and a rotatable handle member having screw threads engaging said threaded member and being forced against the end surface of said sleeve when said second jaw member is moved from said first jaw member into clamping engagement with an internal surface of a work piece.

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4

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