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CAPTIVE WRENCH FOR COUPLING-NUT SWIVELED ON A TUBE

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Fig. 1.

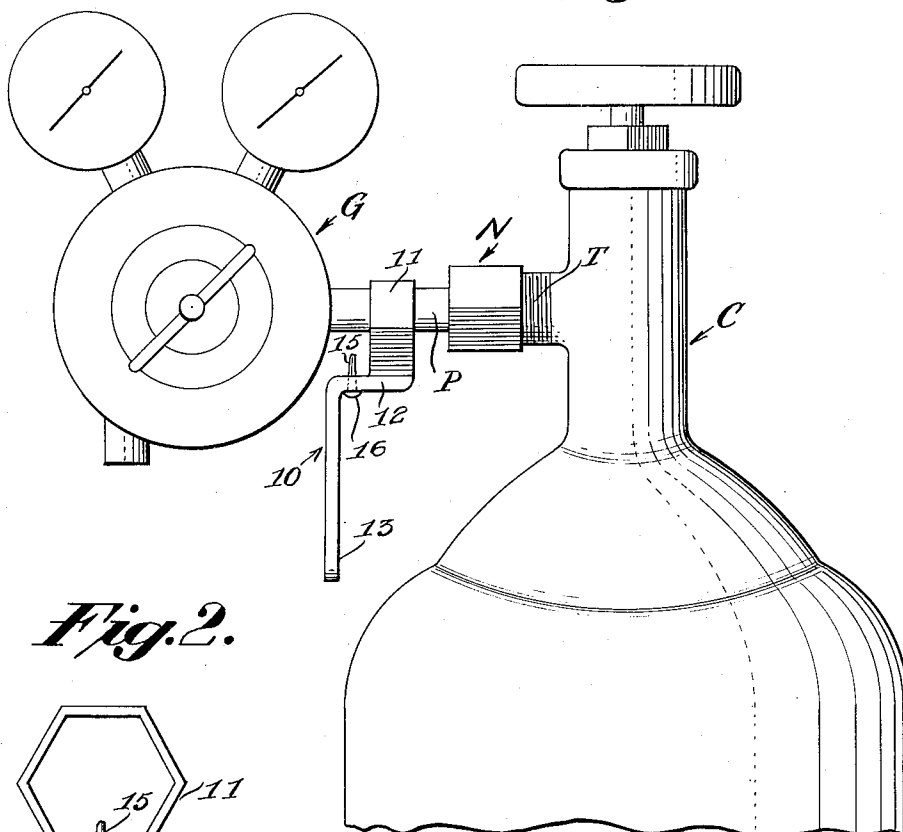


Fig. 2.

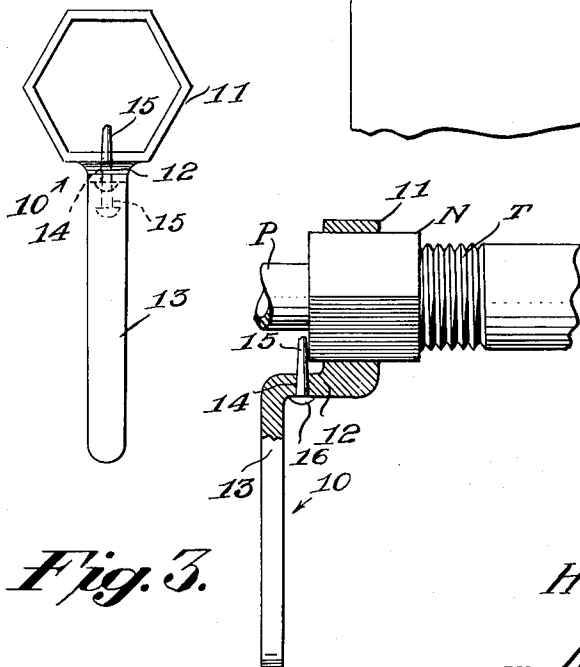


Fig. 3.

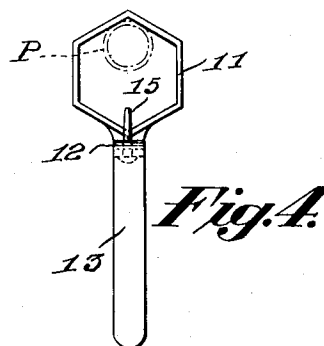


Fig. 4.

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CAPTIVE WRENCH FOR COUPLING-NUT SWIVELED ON A TUBE

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1 Claim. (Cl. 285—1)

This invention relates to a captive wrench for coupling-nut swiveled on a tube.

The invention is more particularly concerned with a wrench of the box-type, or one having a through opening defined by angularly related nut-gripping faces.

Wrenches of this type are generally hexagonal for conformity with a hexagonal nut but the wrench may have other multiple nut-gripping faces so far as the present invention is concerned.

In structures comprising adjacent mechanical devices wherein one of the devices includes a length of pipe or hose having a nut swivelly connected to the end thereof for removable connection with the other device, it has been found desirable to suspend the wrench from the pipe or hose when not in use whereby same is readily available when it is desired to turn the nut, such for example where a regulator gauge is connected to a compression cylinder and wherein occasions arise for removal of the gauge from the cylinder.

In such structures, the wrench while being capable of passing lengthwise over the nut cannot be removed inadvertently or by an unauthorized person since same cannot be passed over either the cylinder or the gauge.

However, when the swivel nut is disengaged from the cylinder, the wrench is free to be released by merely passing same over the nut axially thereof and in a direction away from the gauge.

It is accordingly a primary object of this invention to provide a wrench of the above noted character with simple means for preventing complete passage thereof over a nut while permitting the socket-forming head of the wrench to have an effective gripping action on the nut.

Other objects and advantages of the invention will become apparent in the course of the following detailed description, taken in connection with the accompanying drawing, wherein

Fig. 1 is a fragmental elevation showing the wrench according to the present invention idly supported on mechanism including a nut with which the wrench is to be used.

Fig. 2 is an elevation of the wrench as observed from the left of the wrench shown in Fig. 1.

Fig. 3 is a fragmental enlarged view showing the head end of the wrench in section and engaged with a nut.

Fig. 4 is a view similar to Fig. 2 showing a modified and preferred form of the wrench.

Referring now in detail to the drawing, and first to Fig. 1 thereof, C designates a compression cylinder having a threaded outlet connection T with which the pipe P of a regulator gauge G is removably connected by a polygonal nut N having a swivel connection with the pipe P.

The body 10 of the wrench is of standard form and includes a polygonal socket 11, a neck 12 and a handle

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13 which is parallel with end faces of the socket but laterally displaced therefrom by the neck 12.

The wrench is adapted to engage the nut N either in removal of the regulator gauge G from or the attachment thereof to the compression cylinder C.

In Fig. 1 the wrench is shown as being suspended from the pipe P while in Fig. 3 the wrench is shown in operative engagement with the nut N.

It is obvious from Fig. 3 that if the nut N is disengaged from the connection T the wrench socket 11 would be free to pass over the nut in a direction away from the gauge if the usual opening in the socket 11 were not obstructed.

In accordance with the present invention, the wrench neck 12 is provided with an aperture 14 in which is frictionally disposed a tapered pin 15 having a head 16. The pin may be initially inserted into the aperture 14 in the position indicated by light dotted lines in Fig. 2 with the free end of the pin disposed clear of the opening in the wrench whereby same is capable of being passed inwardly over the disconnected nut to the position in Fig. 1.

With the wrench thus positioned the pin is driven inwardly as indicated in Figs. 1 to 3 wherein the inner end of the pin is engageable with the adjacent end of the nut N and thus the wrench cannot be removed. The pin is tapered and driven in with sufficient force so that it cannot as easily be removed as would be the case if it merely had a threaded connection with the neck 12.

While in Figs. 1 to 3 the wrench handle 13 is shown as being attached to one of the polygonal sides of the socket 11, in those cases where the socket 11 forms a regular polygon having an even number of sides it is preferred to attach the handle 13 and neck 12 to the socket 11 at the junction of two angular sides as indicated in Fig. 4 so that the vertex axis of said junction and the central longitudinal axis of the handle will lie in a common plane whereby the wrench in its inoperative pipe-engaging position of Fig. 1 will hang on dead center from the pipe P which will thus be disposed in the angle formed by those two angular sides of the socket 11 that lie opposite said junction-forming sides.

Having set forth my invention in accordance with a preferred structural embodiment thereof, what I claim and desire to secure by U. S. Letters Patent is:

In a wrench of the box-type and including a socket having a nut-receiving opening defined by angularly related nut-engaging walls, said walls defining forward and rear end faces of said socket a handle disposed normal to a nut-engaging axis of said socket, a neck extending from the rear face of said socket at the junction of two angularly related walls thereof, so that a longitudinal axis of said neck lies parallel to said nut-engaging axis, said handle being spaced from the rear face of said socket by said neck, said neck being provided with an aperture having its longitudinal axis extending normal to said nut-engaging axis, and a pin frictionally engaged within said aperture, said pin having a free end portion disposed between said nut-engaging axis and a vertex axis of said two junction-forming walls, whereby said pin projects into a prolongation of said nut-receiving opening, so as to hold the wrench captive on a tube which swivelly mounts a coupling-nut to be actuated by said wrench.

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