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H. SONTAG

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REMOVABLE SWIVEL HEAD FOR TOOL HANDLES

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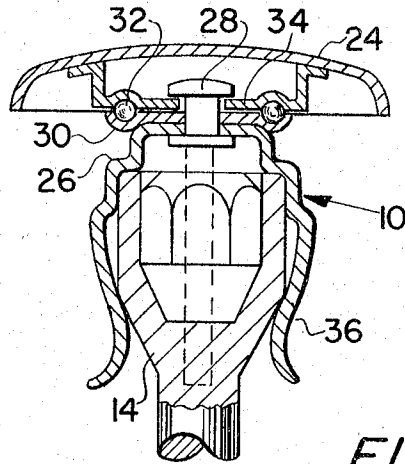


FIG. 3.

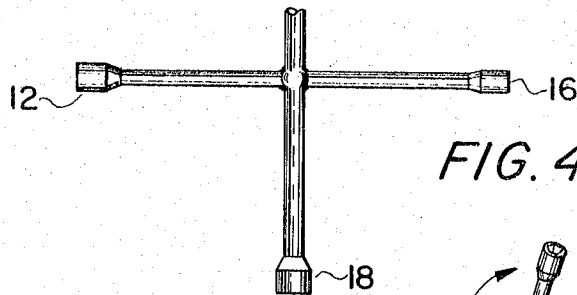


FIG. 4.

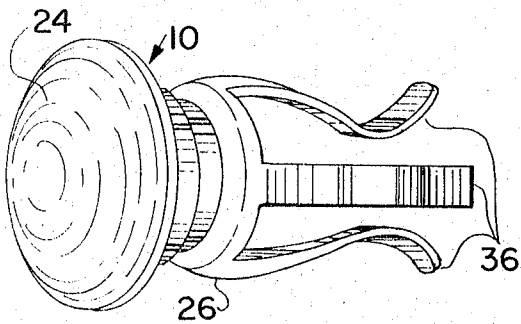


FIG. 2.

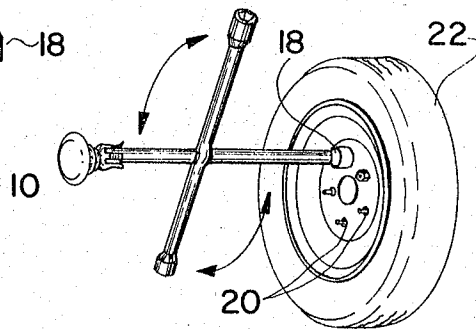


FIG. 1.

INVENTOR
HARCOURT. SONTAG

BY

Walter S. Pawl

ATTORNEY

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**REMOVABLE SWIVEL HEAD
FOR TOOL HANDLES**
Harcourt Sontag, 4717 37th St. N.,
Arlington, Va. 22207
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1 Claim. (Cl. 81-177)

This invention relates to separate swivel heads for quick application to the outer end of a rigid handle of a tool which requires a turning movement with or without axially applied pressure to operate the tool.

The object of this invention is to facilitate and hasten the operation of any tool with a handle requiring turning movement while in engagement with the work, such as the operation of a wrench, screwdriver, hand drill, crank, etc.

A more specific object is to facilitate the use of the common cross bar type of tire lug wrench having a different size socket at the end of each arm.

Other and more specific objects will become apparent in the following detailed description of a preferred form of the invention, as illustrated in the accompanying drawing, wherein:

FIG. 1 is a perspective view of the swivel head mounted on the outer end of a cross-bar tire lug wrench applied to a nut on one of the wheel mounting lugs,

FIG. 2 is an enlarged perspective view of this swivel head by itself,

FIG. 3 is a plan view of the cross-bar wrench, one arm of which is broken away to show an enlarged cross-sectional view of the swivel head mounted on the end of said arm, and

FIG. 4 is a perspective view of the wrench and swivel head in operation.

The swivel head 10 is shown in FIGS. 1 and 3 as applied to the conventional cross bar type of tire lug wrench having different size hexagonal sockets 12, 14, 16 and 18 at the outer ends of its arms.

A wheel 22 is shown mounted on wheel mounting lugs 20. Socket 18 being the size of the nuts 21 that fit these lugs, the swivel head 10 is applied to the opposite arm over the socket 14, and may be kept on that lug not only to facilitate the use of socket 18, but also to serve as an indication that socket 18 is the proper size socket for nuts 21 that will fit lugs 20, so that the user will not have to look for the proper one of the four different size sockets as he would have to do if he did not have this indication, and would probably have to try one or more of the other three sockets before striking the right size. The main function of the swivel head, however, is to facilitate the use of any tool requiring a turning operation and having a rigid headed handle, the cross bar wrench being only one tool of this type.

The swivel head 10 has a rotatably mounted knob 24 on the outer end of a cap portion 26 by means of a swivel pin 28. A thrust bearing washer 30 fixed to the outside of the cap portion 26 and the wall 34 of the knob structure have opposed circular races for the bearing balls 32 of this thrust bearing.

The cap portion 26 is adapted to receive the rigid headed handle of any tool, such as the wrench socket 14 happens to be in the present illustration, which is on the outer end of the tool handle opposite from the tool head being applied to the work, which in this case happens to be the wrench socket 18.

The four extensions 36 from the outer edge of the cap

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portion 26 are curved as shown to form spring clamp jaws to grip over the socket 14, which is the rigid head of the tool handle in the present illustration, the outwardly curved or flared outer ends of the clamp jaws 36 enable the swivel head to be pushed over the rigid head or end of the tool handle, so as to resiliently grip around the handle and hold the swivel head in place until removed by pulling it off the tool handle.

The swivel head is especially useful where axial pressure or thrust is required against the work while turning the tool. The substantially flat top of the knob adapts it to be used as a breast plate to provide the necessary axial pressure against the work while leaving the hands free to apply the required torque to turn the tool.

The swivel head is very simple in construction and is very useful in that it makes the job of changing tires with their wheels much easier and speedier and eliminates the danger of getting blisters on hands which would normally result from the excessive pressure concentrations and friction required in gripping the rigid tool handle while operating the tool without a swivel head. The spring clamp jaws make the swivel head easy to mount and remove from any handle and occupies little space in storage.

Cap portion 26 may have a stepped pocket in the hollow of the cap to provide shoulders of different sizes for fitting over handle ends of different sizes, to reduce lateral play between the cap portion and the handle ends of different sizes corresponding to the several sizes of the shoulders.

Many obvious modifications in details of the construction may be made without departing from the spirit and scope of the present invention, as defined in the appended claim.

What is claimed is:

In the combination of a cross bar type tire lug wrench in which the cross bars define four projections, each projection terminating in a socket, at least one socket having an outside diameter larger than the outside diameter of at least one other socket and a removable swivel head mounted on one socket of said wrench, the improvement which comprises the following elements in combination with said swivel head,

a spring clamp mounting cap portion of said swivel head having shoulders fitting over the smaller and the larger socket of said wrench, said cap portion having at least three curved spring tongues extending from its edge and resiliently clamping around either socket,

a rotatably mounted knob on the outside of the cap portion,

a first ball bearing having opposed circular race grooves on the inner end of said knob and the outer end of said cap portion, respectively, to provide annular races, and

bearing balls in said races.

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WILLIAM FELDMAN, *Primary Examiner.*

MILTON S. MEHR, *Examiner.*