United States Patent

Prial

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[54] FIREMEN'S WRENCHLIKE TOOL

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 867,311, Oct. 17, 1969, abandoned.

[52] **U.S. Cl.**.....**81/90 F,** 7/12
[51] **Int. Cl.**.....**B25b 13/50**
[58] **Field of Search**.....7/12, 1 G; 81/90; 254/25, 131

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[57] **ABSTRACT**

A tool, possessing particular utility for firemen, is formed from a one-piece, rigid bar having a straight lever body portion with opposing ends, on one of which is an integral, obtusely angularly arranged end portion. The lever body and angular end portions have complemental, angularly disposed inner sides that straddle the periphery of a spoked hand valve wheel and engage it tangentially at circumferentially spaced fulcrum points. A hook element normally operatively depends from the angular end portion to engage a spoke and the opposite end of the lever body portion serves as a handle to which torque is applied in turning the handwheel.

2 Claims, 3 Drawing Figures

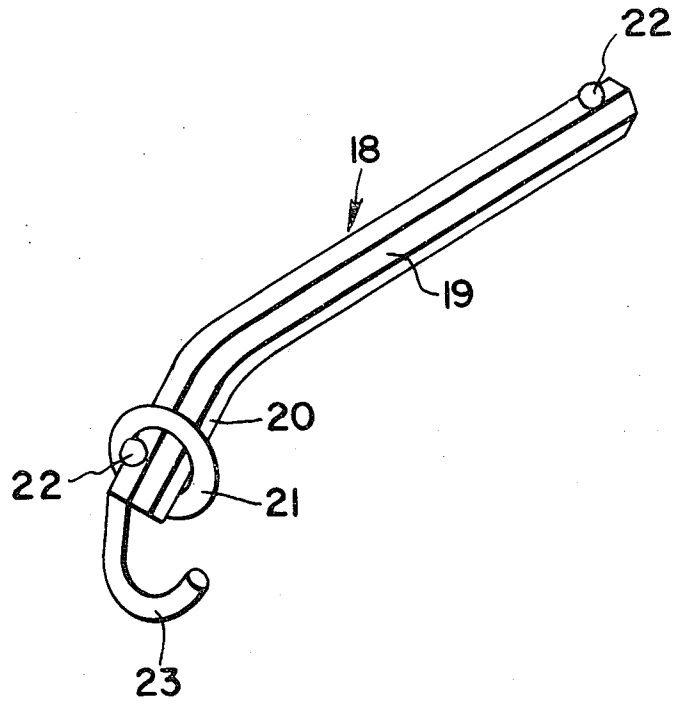


FIG. 3

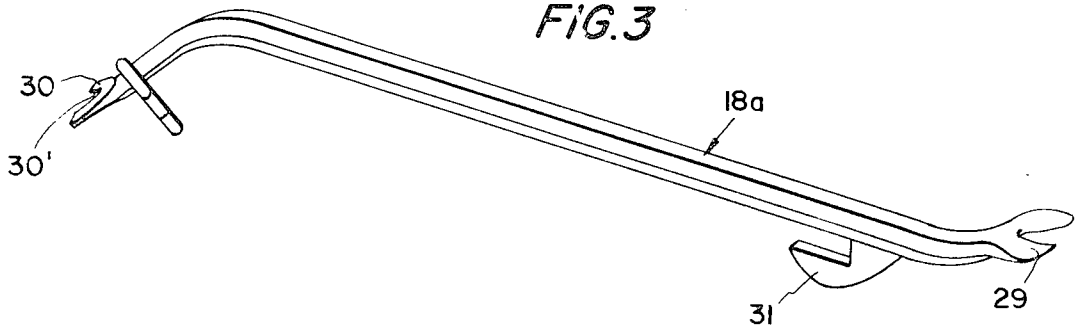


FIG. 1

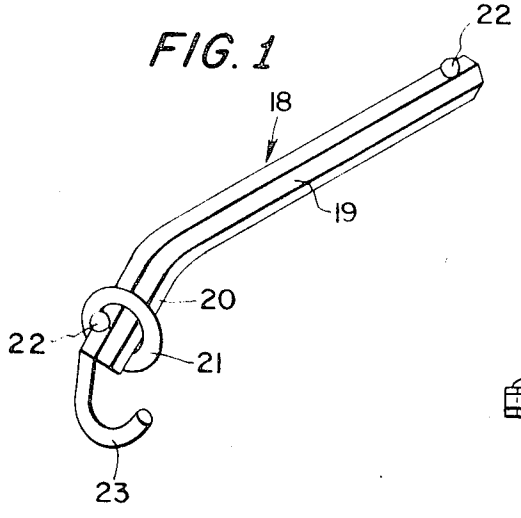
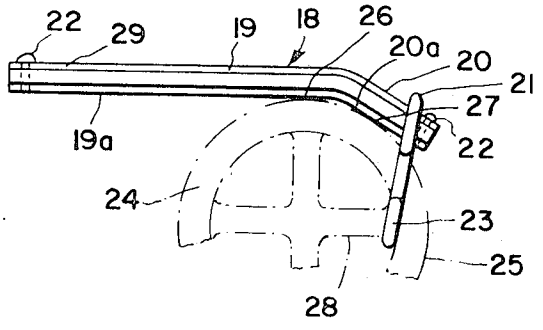


FIG. 2



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FIREMEN'S WRENCHLIKE TOOL

The present invention generally appertains to improvements in bar-type tools, this application being a continuation-in-part application of my copending application Ser. No. 867,311, filed Oct. 17, 1969 and now abandoned.

A distinct need exists for a compact and simplified multipurpose tool for fire department work. Firemen frequently have a need for crowbars and prying bars and also for wrenches and other handtools in the performance of their work, usually under conditions of danger. Separate tools for the various common tasks are inconvenient, expensive and time consuming where time is obviously of the essence.

The objective of the present invention is to provide a single durable economical tool to assist firemen and the like in performing several of the most common tasks encountered as the scene of a fire, the tool being essentially unitary and having only one moving part which cannot be separated or lost. The multipurpose tool of the invention includes a rigid bar body portion with tapered bifurcated ends enabling the tool to serve as a small crowbar or prying bar. It can also be manipulated as a hammer to smash windows and skylights or to break door panels in emergency situations. It possesses a fixed wrench lug which allows the fireman to quickly remove or replace standard sprinkler heads. The main feature of the tool resides in a quickly adjustable free-sliding hook element on the bar body portion enabling the tool to serve as a spanner-type wrench for turning spoked or wheel-type valve handles of all sizes on standpipes and for turning firehose couplings which have turning lugs projecting therefrom.

The tool is formed from a one-piece, rigid bar having a substantially straight lever body portion with opposing ends. An angular end portion is formed integrally with one end and is arranged at an obtuse angle to the lever body portion. The long lever body portion and the relatively short angular end portion have complemental inner sides which are substantially flat to constitute good bearing surfaces. A hook element is carried by the bar and normally operatively depends from the angular end portion to engage a radial spoke of a spoked hand valve wheel, while the inner sides of the lever body portion and the angular end portion straddle the periphery of the handwheel and engage the periphery tangentially at circumferentially spaced fulcrum points. The opposite end of the lever body portion, as the hook element engages the radial spoke and the lever body portion and angular end portion bear on the wheel periphery at points opposite the juncture point between such portions, serves as a handle to which torque can be applied in causing the bar to turn on the periphery of the wheel and the hook element to pull on the spoke of the wheel. Thus, the handwheel is turned easily and quickly without regard to the possible stuck condition of the handwheel and with great safety to the user, since there is no likelihood of the tool slipping off the handwheel. Other features and advantages of the invention will be apparent during the course of the following description, having reference to the accompanying drawings.

BRIEF DESCRIPTION OF DRAWING FIGURES

FIG. **1** is a perspective showing of the tool of the present invention.

FIG. **2** is a side elevational view of the tool of FIG. **1** and showing the same in use in turning engagement of a hand valve wheel.

FIG. **3** is a perspective view of a modified form of tool, wherein the hook element is retained captive on the bar by the tapered bifurcated outer ends on the lever body portion and the angular end portion.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings in detail, wherein like numerals designate like parts, and referring first to FIGS. **1** and **2**, the numeral **18** designates a tool which is formed in one piece from rigid bar stock and which is composed of an elongated, substantially straight lever body portion **19** having an outer

end and an inner end. A relatively short angular end portion **20** is formed integral with the inner end of the lever body portion and is disposed at an obtuse angle to the axis of the lever body portion. The angular end portion has an outer free end and its inner end is integral with the inner end of the lever body portion. The lever body portion has a substantially flat inner side **19***a* and the angular end portion **20** has an inner flat side **202**, such inner sides being complemental and being arranged at an obtuse angle. The inner sides constitute good bearing surfaces for the contact of the lever body portion and the angular end portion with the periphery of spoked hand valve wheel **24**.

The lever body portion and the angular end portion engage the periphery **25** of the handwheel **24** at tangentially spaced points **26** and **27**, respectively, as such portions of the bar tool **18** straddle the periphery in overlying engagement thereof, as shown in FIG. **2**. In such position, a hook element **23** engages a spoke of the handwheel. The hook element **23**, as shown in FIG. **2**, normally operatively depends from the angular end portion **20** and engages the spoke **28** of the handwheel as the lever body portion and the angular end portion engage at points **26** and **27** the periphery of the handwheel. In such placement of the tool on the handwheel, the outer end portion **29** of the lever body portion serves as a handle and torque applied downwardly thereon will produce a turning movement of the handwheel through the bearing and turning points **26** and **27** and the pulling of the hook element on the spoke.

The hook element is provided with a ring or eye end portion **21** that is of an internal size and area, as shown in FIG. **1**, to slidably engage the bar. It is prevented from coming off the outer ends of the angular end portion and the lever body portion by small projections **22** inserted in or carried by such ends so that the projections extend laterally therefrom and keep the hook element captive on the bar tool **18**.

As shown in FIG. **3**, the tool **18a** is formed and used the same as the tool **18**, except that the means for preventing withdrawal of the hook element completely from the tool is provided by tapered bifurcated outer end portions **29** and **30** formed on the lever body portion and the angular end portion. Such end portions **29** and **30** also can function as prying tips in using the tool **18***a* as a crowbar or pry bar.

The tool **18***a* can also have a wrench jaw **31** secured on the inner side of the lever body portion adjacent the outer end thereof, such wrench jaw serving to hold the hook element on the tool and also cooperating with the inner side of the lever body portion to form an open-end wrench that adds to the utility of the tool **18a**.

A further and optional feature of the tool **18***a*resides in the provision of a square notch **30'** in the tip **30**. The special purpose of this notch is to fit over the square web usually found on the inside of an ordinary door lock cylinder, enabling the tool to be used for removing the cylinder by driving it down and prying it out of the door. When the cylinder is pried out, the lock may be opened with a screwdriver and damage to the door is minimized.

It is to be understood that the forms of the invention herein shown and described are to be taken as preferred examples of the same, and that various changes in shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention.

What is claimed is:

1. A wrench-type tool for turning a spoked hand valve wheel or the like comprising a rigid angular bar including an elongated substantially straight lever body portion having a substantially flat inner side and opposing inner and outer ends, a relatively short angular end portion integral with the inner end of the lever body portion and arranged at an obtuse angle to the inner side of the lever body portion and having a substantially flat inner side constituting an obtuse angular extension of the inner side of the lever body portion, said angular end portion having an outer free end, said angular bar being seated on the periphery of a handwheel with the inner sides of the lever body portion and the angular end portion contacting

the same tangentially at circumferentially spaced points, the out ends of the lever body portion and the angular end portion being spaced from the periphery of the handwheel during such wheel-engaging use of the tool, a hook element carried by the bar and normally operatively depending from the angular end portion thereof to engage a radial spoke of said handwheel while the bar is in engagement of the handwheel and the outer end of the lever body portion constituting a handle to which downward torque can be applied so as to turn the handwheel,

said hook element having a substantially closed eye freely slidable on the bar and projection means laterally extending from the bar at the outer ends of the lever body portion and the angular end portion to maintain the hook element captive on the bar.

2. The invention of claim 1 wherein said projection means includes tapered bifurcated tips on the outer ends of the lever body portion and the angular end portion.

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