United States Patent

[11] 3,598,002

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[73] Assignee **The United States of America as represented by the Secretary of the Army**

[54] **WRENCH SET**
4 Claims, 2 Drawing Figs.

[52] **U.S. Cl.** **81/71, 145/62**
[51] **Int. Cl.** **B25b 13/48**
[50] **Field of Search** ..... 81/71, 177 N; 145/62, 64, 61-61

[56] **References Cited**

UNITED STATES PATENTS

939,079	11/1909	Peck	145/62
2,821,403	1/1958	Bevan	81/177-2 X
2,719,042	9/1955	Espy	81/71 X

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ABSTRACT: A holder and handle for Allen and/or Bristol type wrenches that includes a hollow holder in which several different sized chucks can be held. A different size wrench can be fitted into each chuck which in turn is held firmly in the end of the handle by a knurled threaded nut.

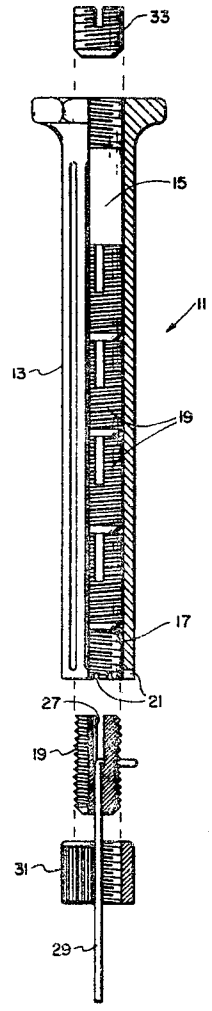


FIG. 1

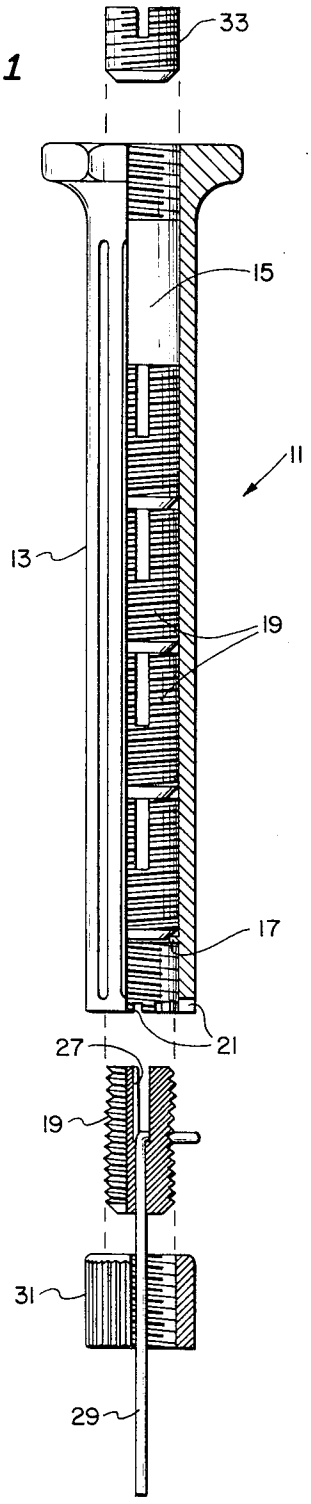
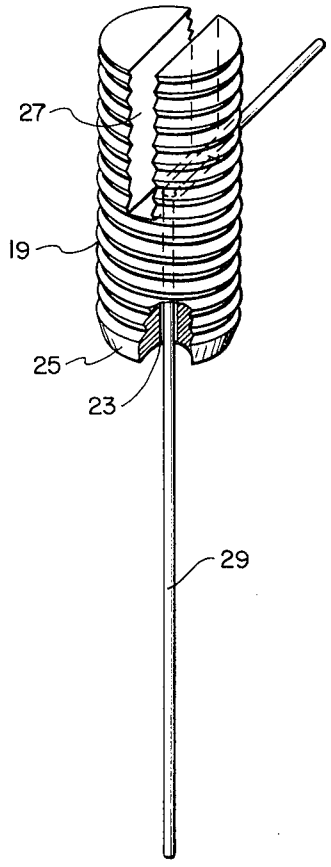


FIG. 2



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WRENCH SET

The invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

BACKGROUND OF THE INVENTION

At present there are many forms of wrench sets for accommodating varied size wrenches and means for securing such wrenches in an operating handle. One such set is shown in U.S. Pat. No. 2,878,701 to Weersma which describes a device comprising an elongated holder of circular cross section having a polygonal socket having a series of progressively reduced polygonal sections adapted to receive a series of wrenches of varying sizes and held in a position by setscrews. It has been found that after repeated useage of wrench sets of this type, the setscrews tend to loosen and fall free thereby rendering such devices impracticable. It has been further found that in instances where wrenches of small cross section are used, a relatively small surface is available for securement, in which instance undesirable rotation of the wrench may take place.

SUMMARY OF THE INVENTION

It is the general purpose of the present invention to provide a wrench set including a holder that serves as a depository for a plurality of chucks into which can be secured different sized wrenches that are separately secured by a threaded nut that is engageable in the handle of the set.

Other objects of the invention are to provide a wrench set that is comparatively simple in design and structure, that is extremely versatile, compact, and which may be made at low cost.

BRIEF DESCRIPTION OF THE DRAWING

The exact nature of this invention will be readily apparent from consideration of the following specification relating to the annexed drawing in which:

FIG. 1 is an exploded cross-sectional view of the wrench set; and

FIG. 2 is a view in perspective depicting one of the chucks in enlarged detail with the wrench therein.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to FIG. 1 of the drawing, the reference numeral **11** is employed to generally designate a hand tool device which pertains to wrenches of the "Allen" or similar types. The device consists of a handle portion **13** which may have the usual lengthwise flutings or knurled surface for aiding in the grasp and manipulation thereof. The handle **13** is in the form of a cylinder having a bore **15** that is internally threaded at both ends to a slight depth below the respective ends thereof. Within the bore **15** there is positioned a ledge **17** transverse to the longitudinal axis of the handle that serves as a support for several chucks bearing reference numeral **19** contained in the bore of the handle. The handle is further provided with a series of peripheral notches **21** at its lower end, as viewed in FIG. 1. The notches are in the nature of slots, each

of which are of a different width to accommodate varying sized wrenches as hereinafter described.

One of the chucks **19** earlier referred to is shown in enlarged detail in FIG. **2**. The chuck **19** is cylindrical in form and externally threaded to be engageable in the lower threads of handle **13**. The chuck further includes a bore **23** and has its leading edge beveled as shown at **25**. The chuck is also provided with a diametric slot **27** at its other end that extends from the peripheral edge of the chuck to approximately one-half the length of the chuck. In each particular chuck it is to be noted that the width of the slot **27** is exactly the same as the diameter of the bore **23**. However, the several chucks differ from each other in having bores and corresponding slots of varying sizes. In each instance however the diameters of all the chucks are identical and have similar external screw thread arrangement.

In FIG. **1** there is shown a wrench **29**, such as the Allen type, inserted into a chuck **19**, ready for insertion into the handle **13**. In such stage the long arm of the wrench **29** has been inserted through the bore **23**, and the short arm of the wrench positioned within the slot **27** to the bottom thereof. The combined chuck and wrench are then threaded into the handle **13** to a depth that the short arm of the wrench lies flush with the bottom of the handle and the arm is inserted into its proper sized slot **21**. There is then applied a knurled nut **31**, which is internally threaded, about the exposed threaded portion of the chuck **19** to secure the entire wrench set assembly. The top of handle **13** is terminated by a screw cap **33**.

It is to be understood that the invention is not to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

What I claim is:

1. A wrench set comprising an elongated holder of circular cross section having internal screw threads proximal to the top and bottom ends of the holder and further provided with a series of peripherally spaced notches of varying width at the bottom end thereof,

a plurality of wrench holder chucks adapted to be confined in said holder, each of said chucks having external threads so as to be partially threadable into the bottom portion of said holder, and wherein each of said chucks has a central bore of predetermined diameter and a diametric slot of a width identical to the width of the respective bore whereby a wrench may be confined in said slot and said bore, and

means for containing said chuck and a wrench in the bottom of said handle and within one of said peripheral notches.

2. A wrench set of the kind set forth in claim **1** wherein said last mentioned means comprises an internally threaded locknut that is adapted to encompass the exposed portion of a chuck that is partially threaded into the bottom of said handle.

3. A wrench set of the kind set forth in claim **1** and further including removable means at the top end of said handle for confining said chucks therein.

4. A wrench set of the kind set forth in claim **1** wherein each of the peripheral slots of the bottom of said handle are of successively larger width and discretely identical in width with the diameter and width of the respective bore and diametric slot of each of the wrench holder chucks.