Feb. 2, 1960 M. G. JOYCE 2,923,335

SCREW EXTRACTING TOOL

Filed Sept. 4, 1957

Fig.1

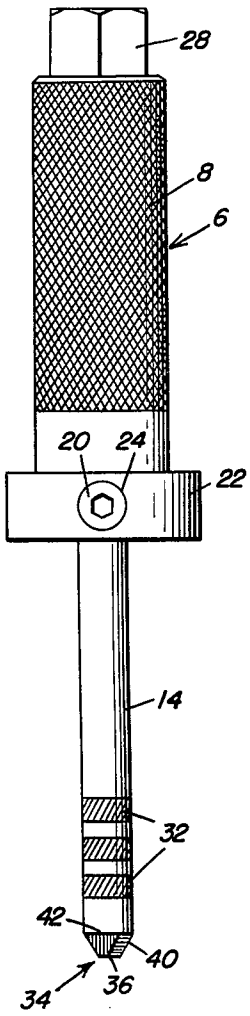


Fig.2

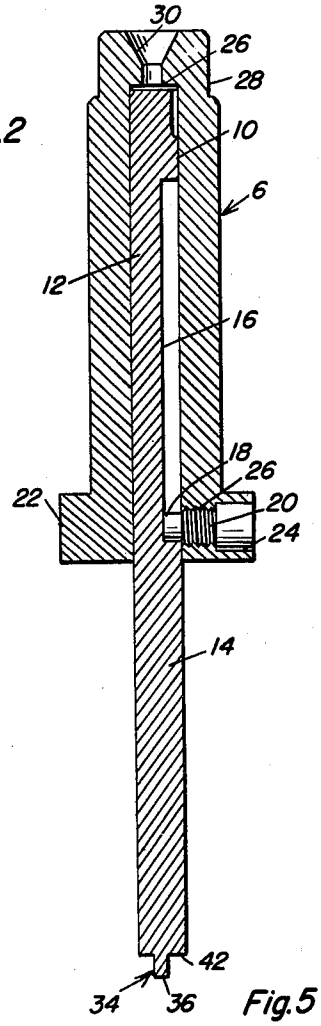


Fig.3

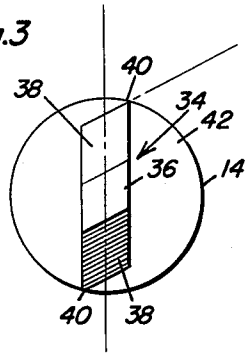


Fig.4

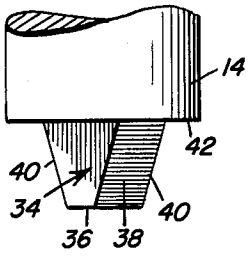
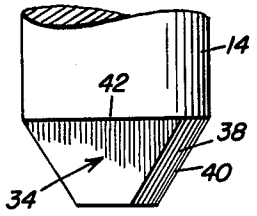


Fig.5



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SCREW EXTRACTING TOOL

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1 Claim. (Cl. 145—1)

This invention relates to a simple, practical and inexpensive hand tool; namely a special purpose screwdriver which is expressly and effectually designed and suitably constructed to enable a user thereof to loosen and remove so-called Phillips, Reed and Prince screws that have specially recessed heads and cannot be successfully dislodged and unscrewed by way of conventional-type screwdrivers.

Stated otherwise, the regular tapered bit or blade of ordinary screwdrivers does not, as is well known, properly mate with screw heads having other than standard kerfs and slots. Since the "slots" are broached in varying configurations, any effort to employ the ordinary screwdriver results in gouging, mutilating and damaging the driver slot. This situation has posed a problem. Therefore, the purpose of the present novelly constructed screwdriver is to solve the problem. As a matter of fact and since the tool herein revealed has been made and effectually used, it appears destined for widespread adoption and use.

Looking toward the end results desired, a novel tool is had wherein easy removal of special headed screws (Phillips or Reed and Prince) of all sizes is assured. By not drilling screws in center before removal, as in regular removal practices, no damage is caused to nut faces or threaded surfaces. There is little possibilty of shavings, caused by drilling screws, falling into inaccessible areas or in electrical components or equipment. Time is saved by not requiring any other tools or reworking prior to removal of special headed screws (Phillips or Reed and Prince). Excessive hammering or drilling operations on screws before removal, which causes undue damage or rough usage on any critical structural areas or damageable parts of equipment adjacent to area of screw removal, is avoided. And, removal of screws in inaccessible areas where other types of removal equipment cannot be used is aptly accomplished.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the views:

Fig. 1 is an elevational view of the improved tool;

Fig. 2 is a longitudinal section partly in elevation;

Fig. 3 is an enlarged bottom plan view; and,

Figs. 4 and 5 are enlarged fragmentary views showing the bit from different points of view.

Briefly and by way of introduction to the description of the details it will be seen that the invention characterized by an elongated rigid shank having a bit at one end to enter and temporarily key itself in a screwdriver slot in the head of a screw, the other end of said shank having an anvil-like impact receiving surface, and a hammering handle slidingly mounted on the last named end portion of said shank, said handle having a striking and blow imparting surface opposed to and movable toward and from said impact surface, said blow imparting surface having

an air venting hole therein, and said handle being slidingly keyed against rotation on said shank.

Referring now to the drawings the handle **6** is elongated and cylindrical in cross section and externally knurled at **8** to provide a satisfactory hand-grip. The handle is hollow or interiorly bored and the bore **10** as seen in Fig. 2 defines a socket for the upper end portion **12** of the elongated shank **14**. This portion of the shank is provided with an elongated keying groove **16** to accommodate the inner end **18** of a setscrew **20** as seen in Fig. 2. The lower end portion of the handle is provided with a reinforcing and outstanding collar or flange **22** and on one side a socket **24** is provided and the inner end of the socket is screw-threaded at **26** to accommodate the setscrew. The upper circular flat end of the shank provides an anvil-like driving or impact receiving surface **26** and this cooperates with the correspondingly flat and coacting blow imparting surface which is formed at the upper end of the bore or socket. The upper end portion of the handle is slightly reduced in cross-section and formed with flat faces to provide a tool or wrench grip **28**. This end portion is also provided with a hole **30** of appropriate shape which serves as an air vent. Thus it will be seen that the shank is slidably, removably and non-rotatably connected with the handle. By removing the shank and replacing it with another shank of corresponding dimensions the over-all utility of the tool is obviously extended. The lower end portion of the shank is provided with milled surfaces **32**. Primarily the lower end is provided with a reduced extending bit **34**. This bit may vary in shape to conform with varying screw head needs. The one shown is substantially of truncated pyramidal form and is denoted generally by the numeral **34**, the truncated end being designated at **36**. The tapering edges **38** are beveled as shown in Figs. 3, 4 and 5 to provide knife-like cutting edges **40**. The reduction in size of the bit provides a shoulder **42** at the juncture of the bit and shank.

Screws can be removed by inserting the reverse driving tool and using the impact handle to set the reverse bit into the deformed slot. Then the questionable screw can be removed by turning in the normal manner.

The reverse blade angle of this tool is slightly greater than the specified screw slot angle to insure a driving set and the tool tip is shorter than the depth of the screw slot to prevent bottoming the blade into the deformed screws.

This tool can be adapted for the removal of any type screw or Allen-type socket by changing the blades into the broach configuration for the subject screw.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

A special purpose screw dislodging, loosening and removing tool comprising an elongated rigid shank having a bit at one end to enter and temporarily key itself in a screwdriver slot in the head of a screw, the other end of said shank having an anvil-like impact receiving surface, and a hollow hammering handle having an axial socket closed at one end and open at the other end, said shank fitting telescopically and slidingly in the socket, said handle being of requisite weight having a striking and blow imparting surface at the closed end opposed to and movable toward and from said impact surface, said blow imparting surface having an air venting hole therein, said handle being knurled to provide a gripping surface and the upper end of the handle having an integral tool grip, said bit

comprising an axially centered extension reduced in cross-section, the reduction in cross-section and axial centering of the bit providing shoulder means at the juncture of the shank and bit, said bit also being of pyramidal truncated form and disposed at an oblique angle and having vertical edge portions which are beveled and cooperate in defining knife-like edges.

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