June 23, 1942. A. L. STOWELL ET AL 2,287,457

SCREW DRIVER

Filed July 2, 1940

Fig-1

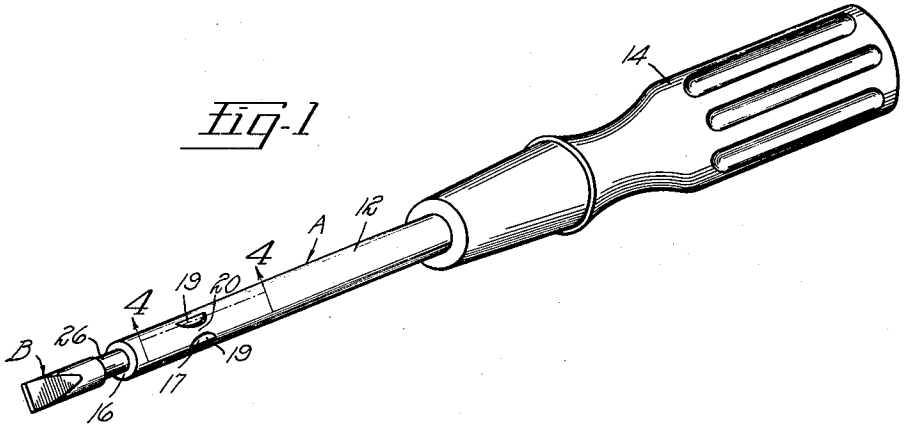


Fig-2

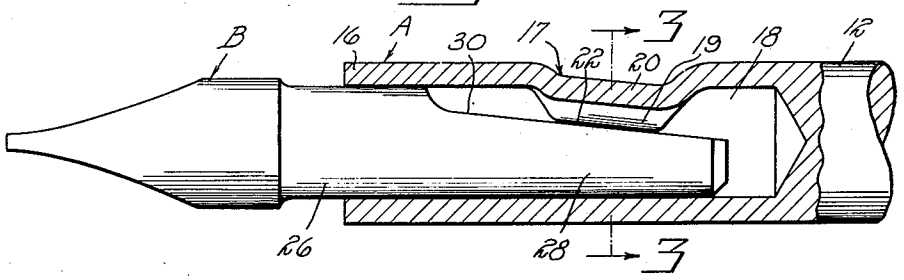


Fig-3

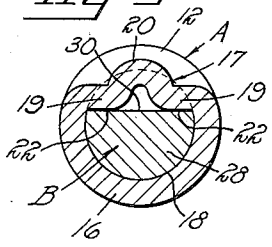
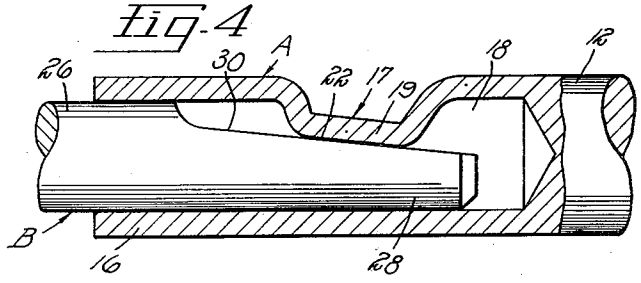


Fig-4



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SCREW DRIVER

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2 Claims. (Cl. 279—102)

This invention relates to improvements in screw drivers and more particularly to a screw driver comprising a handle or tool holder adapted to receive removable bits.

An object of the invention is to provide a screw driver of the above-indicated type having various features of novelty and advantage and which is particularly characterized by its extreme simplicity in construction, economy of manufacture, and efficiency of operation.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing:

Figure 1 is a perspective view of a screw driver embodying the invention herein;

Fig. 2 is an enlarged fragmentary view partly in section of the device illustrated in Fig. 1;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a view taken on the line 4—4 of Fig. 1.

Referring to the drawing, the invention is shown as embodied in a screw driver comprising a tool holder A and removable bit B. In accordance with the invention herein, the bit holder and bit are provided with cooperating wedging means adapted to frictionally engage one another to firmly secure the bit within the tool holder; the wedging means of the bit holder being integral therewith and formed or struck from the metal of the holder.

As shown in the drawing, the bit holder A comprises a shank 12 of any suitable metal having fixed on one end thereof the usual gripping handle 14 and terminating at its other end in a cylindrical socket 16 having a longitudinal bore 18 therein and open at the outer end thereof. In order to secure the bit within the socket 16, a longitudinally extending portion 17 of the socket wall, positioned approximately half way between the socket ends and having a length relatively short with relation to the length of the socket, is depressed radially and on a taper towards the inner end thereof to provide a pair of internal longitudinally extending indents 19 spaced apart by a raised central portion 20.

As clearly seen in Fig. 3, the indents provide centrally facing wedging shoulders 22 arranged on a normal chord intersecting the inner circumference of the socket and integral therewith, and the excess metal of the socket being taken up by the centrally raised portion 20. Likewise, the vertical distance from the shoulders 22 to a diameter parallel thereto gradually diminishes from the outer edge of the shoulders to the inner end, thus providing a gradually tapered wedge adapted to cooperate with a cooperating wedging surface on the bit over a relatively large gripping area.

The bit B is provided with a cylindrical shank 26 having an outer circumference so related to the inner circumference of the socket that it makes a relatively close fit therewith when the bit is positioned therein. The shank 26 also has a portion cut away for a substantial length thereof to provide a wedge 28 having a flat wedging surface 30 adapted to cooperatively engage the wedging shoulders 22 of the socket.

In order to assure a surface engagement over the entire area of the shoulders, the flat wedging surface 30 of the shank bit also defines a normal chord intersecting the circumference of the wedge and having a progressive taper corresponding to that of the wedging shoulders 22.

With this arrangement, when the bit is placed within the socket, the flat wedging surface 30 thereof will frictionally engage the wedging shoulders 22 of the socket and thus securely hold the bit within the socket. Moreover, as the wedging shoulders 22 of the sockets are spaced to either side of the center line of the wedging surface 30 of the bit, no relative turning movement will occur between the bit and handle when the tool is in use. With the foregoing construction, the tool is particularly adaptable for use in industrial work where, for example, as in the assembly of automobile bodies, the bits of the screw driver will rapidly wear. As is apparent, as soon as one bit wears, by simply tapping the socket the bit may be loosened and dropped out and another bit readily placed therein.

Although the invention has been shown and described with particular reference to a screw driver, it is obvious that the tool holder could be utilized for gimlets, bits, chisels, and any similar tools.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language

used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

We claim as our invention:

1. A tool holder of the character described, having a socket provided with a longitudinally extending cylindrical bore open at one end, the outer surface of said socket being indented inwardly to provide the inner surface of said socket with a pair of spaced apart integral longitudinally extending chordal wedging shoulders intermediate of the ends of the socket and tapering towards the closed end of the socket, and a removable tool receivable within said socket and having a flat face provided with a corresponding taper to said socket shoulders and adapted to frictionally engage same to retain same within the bore.

2. A tool holder of the character described, having a cylindrical socket provided with a longitudinally extending cylindrical bore open at one end, the wall of said socket being indented inwardly intermediate the ends thereof and on a taper towards the end of the socket, said indentations being relatively short compared to the length of the socket to provide within the bore a pair of spaced apart integral longitudinally extending wedging shoulders tapering towards the closed end of the socket, and a removable tool receivable within said socket and having an elongated flat face approximating the length of the socket and provided with a corresponding taper to said socket shoulders and adapted to frictionally engage same to retain said tool within the bore and prevent relative turning movement of the socket and tool.

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