Jan. 5, 1932. H. J. COOK 1,839,835

SCREW DRIVER

Filed April 7, 1931

Fig. 1.

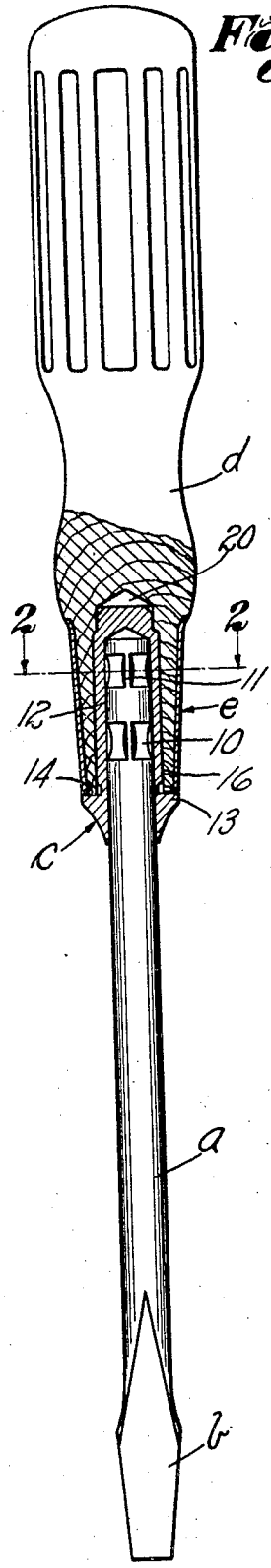


Fig. 4

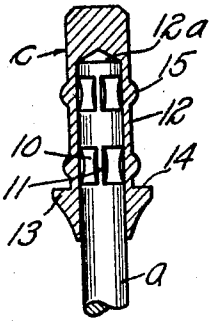


Fig. 2

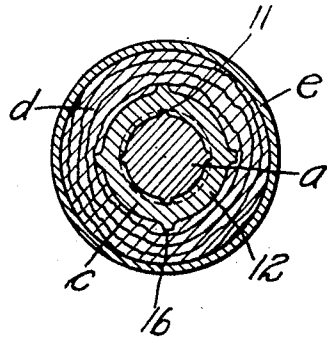


Fig. 3

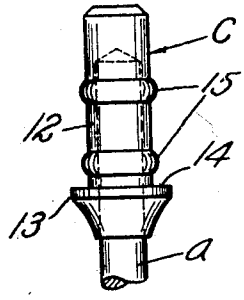


Fig. 5

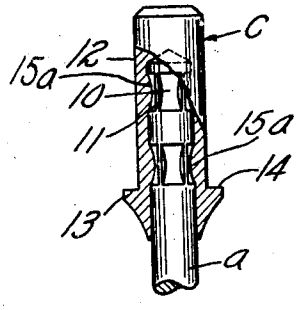
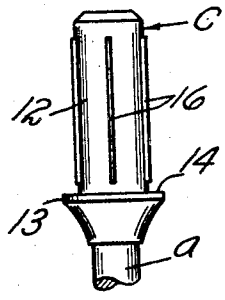


Fig. 6



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UNITED STATES PATENT OFFICE

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SCREW DRIVER

Application filed April 7, 1931. Serial No. 528,257.

This invention relates generally to hand tools of the type having a shank with a blade or operating portion at one end, a bolster about and secured to the other end of the shank, and a handle carried by the bolster. In the present illustrative disclosure, the improvements of the present invention are shown by way of exemplification only as being incorporated in a screw driver.

The aim of the present invention is to provide an improved tool of this sort having various features of novelty and advantage, and which is particularly characterized by its strength and durability and the security with which the shank and bolster are fixed together against turning and longitudinal movements.

A further aim of the invention is to provide a high-grade and serviceable screw driver of simple construction and adapted to be economically manufactured.

A still further aim of the invention is to provide an improved method of making a screw driver constructed in accordance with the present invention.

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 hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein is shown one embodiment which the present invention may take, and the various steps performed in making the screw driver:

Figure 1 is a side elevational view, with parts in section;

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is an elevational view showing the bolster before it has been operated upon to lock it to the shank;

Fig. 4 is a sectional view through what is shown in Fig. 3;

Fig. 5 is a view similar to Fig. 4, but showing the bolster as having been locked on the shank; and

Fig. 6 is an elevational view of the finished bolster.

Referring to the drawings in detail, *a* denotes the shank of the tool having at one end an operating portion *b* which may be of suitable form, such as a screw driver blade. *c* designates generally a bolster secured to the other end of the shank; *d*, a handle of wood or the like, and *e*, a ferrule about the forward end of the wooden handle.

In accordance with the present invention, the shank *a* is preferably formed from a round piece of stock cut to proper length and then deformed at one end to provide the blade *b*. The shank, at its other end, is provided with a suitable number of circumferential grooves 10 interrupted by partitions or lugs 11. In the present instance, two such grooves are illustrated, and each groove has four spaced apart partitions or ribs. The grooves, by preference, are rounded or curved in cross section, and the lugs or partitions 11 have their outer edges flush with the perimeter of the shank. It is understood that this particular arrangement is shown by way of illustration only, and the exact number of grooves and the ribs therein may be varied. The grooves and the ribs therein may be economically and easily formed by suitable pressing dies.

The bolster *c* has a tube-like portion or sleeve 12 provided at one end with a head 13 which forms a radially extending shoulder 14 against which the forward end of the handle is adapted to engage. The head 13, which may be of any suitable configuration, is preferably tapered down so as to merge into the shank. The bolster has a bore 12*a* open at the headed or forward end of the bolster. This bore is substantially of the same diameter as that of the shank so that the latter will have a close fit therein. The bolster is provided with external circumferential rings or beads 15 preferably curved in cross section and each of a mass substantially equal to the volume of a respective groove 10 in the shank. These rings 15 are so positioned that, when the shank has been inserted and bottomed

in the bore of the bolster, they register with the grooves 10 of the shank, as shown most clearly in Fig. 4. After the parts have been assembled, as shown in Fig. 4, the sleeve of the bolster is positioned between suitable dies, and these dies move towards each other so as to cause the metal about the grooves to flow into those grooves, thus bringing the bolster to the shape shown in Fig. 5. In this operation, the metal of the bolster is forced into the grooves so as to completely fill the same, and the external periphery of the sleeve of the bolster is brought to cylindrical form throughout its length. In effect, internal rings or beads 15*a* are formed on the sleeve, and these rings engage in the grooves and are interrupted by the partitions 11. Thus, there is formed, between the bolster and the shank, interlocks which hold the bolster on the shank against turning or axial movement.

By preference, longitudinally extending ribs 16 are then formed on the exterior of the sleeve 12, four of such ribs being shown in the present illustration. These ribs may be formed by placing the sleeve of the bolster between suitable dies and squeezing the ribs up from the circumferential surface of the sleeve.

The handle *d* has, at its forward end, a bore 20 of substantially the same diameter as that of the sleeve 12 of the bolster so that the sleeve will closely fit therein. After the bolster has been secured to the shank, and the ribs 16 have been formed on the bolster, the handle, with the ferrule *e*, thereon is brought into position with respect to the bolster, and then the handle is driven onto the bolster. When the handle is driven or forced onto the bolster, the ribs 16 cut grooves in the wall of the bore of the handle so that the bolster and handle are securely held together against turning movement.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that my improved screw driver, while of simple nature and capable of being economically manufactured, is very strong and durable, and the bolster is so securely and rigidly anchored to the shank that there is no danger of these elements pulling apart or turning one relative to the other. The engagement of the internal rings or swells 15*a* of the bolster in the grooves of the shank prevent axial movement between the bolster and the shank. These rings are in the form of a series of lugs between which fit the partitions or lugs 11 so that turning movement between the bolster and the shank is guarded against. The handle is securely fastened to the bolster.

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 drawings 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.

I claim as my invention:

1. In a screw driver, a shank having a blade at one end and a circumferential groove adjacent its other end, said groove having partitions, a bolster having a sleeve closely fitting about the grooved end of the shank, said bolster having an internal ring or bead fitting in said groove and interlocked with said partitions, and a handle having a bore closely receiving said sleeve.

2. In a screw driver, a shank having a blade at one end and a circumferential groove adjacent its other end, said groove having a plurality of partitions extending generally lengthwise of the shank with the outer edges of said partitions substantially flush with the circumference of the shank, a bolster having a bore closely receiving the grooved end of said shank and having an internal ring intermediate its ends and contracted into and engaging in said grove and interlocked with said partitions, and a handle having a bore closely receiving said bolster.

3. In a screw driver, a shank having a blade at one end and a circumferential groove adjacent its other end, partitions in and extending across said groove, a bolster having a sleeve with a head at one end and a bore open at the headed end of the bolster, the grooved end of said shank being closely fitted in and being bottomed in said bore, the sleeve of said bolster having an internal circumferential ring or bead contracted into said groove and interlocked with the partitions thereof, longitudinally extending ribs on the exterior of said sleeve, and a handle having a bore closely receiving said sleeve with the ribs extending into the wall of the bore of the handle.

4. In a screw driver, a shank having an operating portion at one end and a plurality of circumferential grooves adjacent its other end, each of said grooves having partitions extending thereacross, a bolster having a sleeve closely fitting about the grooved end of the shank, said bolster having internal rings or beads fitting in said grooves and interlocked with said partitions, and a handle having a bore closely receiving said sleeve.

5. In a screw driver, a shank having a blade at one end and a pair of circumferential grooves adjacent its other end, partitions in and extending across each of said grooves, a bolster having a sleeve with a head at one

end and a bore open at the headed end of the bolster, the grooved end of said shank being closely fitted in and being bottomed in said bore, the sleeve of said bolster having internal circumferential rings or beads contracted into said grooves and interlocked with the partitions thereof, longitudinally extending ribs on the exterior of said sleeve, and a handle having a bore closely receiving said sleeve with the ribs extending into the wall of the bore of the handle.

6. The method of constructing the herein described tool, which consists in forming on a round shank a circumferential groove with partitions extending across the groove, forming a bolster having a sleeve portion and an external integral bead on the sleeve portion, slipping the bolster over the grooved end of said shank and to a position where said bead is in registry with said groove, then contacting the beaded portion of said sleeve, thereby forming an internal bead on the bolster contracted into said groove, and slipping a handle over said bolster.

7. The method of constructing the herein described tool, which consists in forming on and adjacent one end of a shank a circumferential groove provided with transverse partitions, forming a bolster with a sleeve, a bore open at one end of the sleeve and an external circumferential bead on the sleeve, slipping the bolster onto the grooved end of the shank to a position where the bead substantially registers with the groove, then applying pressure radially and inwardly against the bead to cause the metal of the bolster to flow into said groove and bring the external circumference of the bolster into cylindrical form, forming on the external circumference of said sleeve longitudinally extending ribs, providing a handle having a bore at one end of substantially the same diameter as the external diameter of the sleeve, and forcing said sleeve into said bore.

HARRIS J. COOK.