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1,507,990

D. C. DONALDSON

SCREW DRIVER

Filed June 14, 1923

Fig. 1.

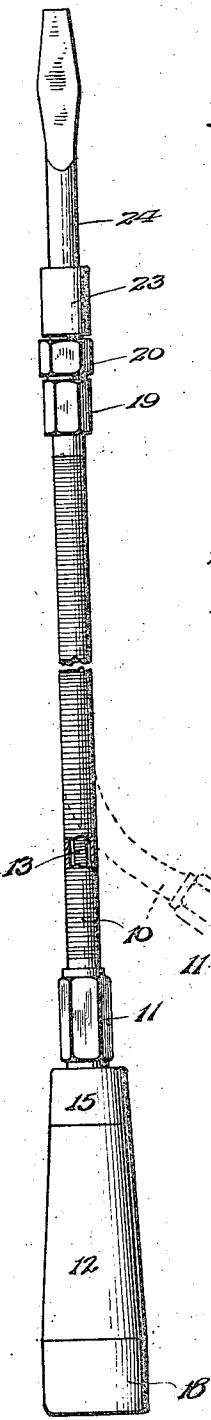


Fig. 2.

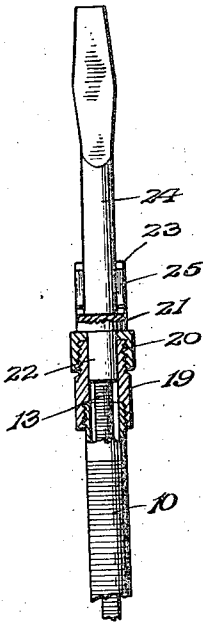
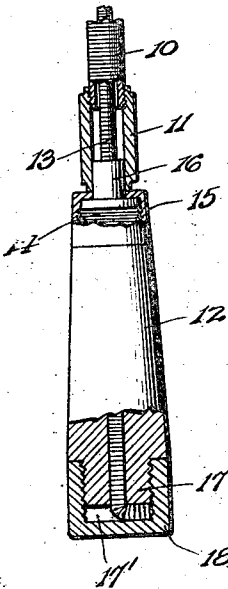


Fig. 3.



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By

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UNITED STATES PATENT OFFICE.

DONALD C. DONALDSON, OF LOVELL, WYOMING.

SCREW DRIVER.

Application filed June 14, 1923. Serial No. 645,382.

To all whom it may concern:

Be it known that I, DONALD C. DONALDSON, a citizen of the United States, residing at Lovell, in the county of Big Horn and State of Wyoming, have invented certain new and useful Improvements in Screw Drivers, of which the following is a specification.

This invention relates to an improved screw driver which, while being adapted for general work, is particularly designed for light usage and seeks, as one of its principal objects, to provide a device of this character embodying a flexible drive shaft for the bit of the device so that the screw driver may be used in otherwise inaccessible places.

The invention seeks, as a further object, to provide a screw driver of this character wherein the bit may be readily removed when desired so that bits of different sizes may be conveniently employed.

And the invention seeks, as a still further object, to provide a screw driver which will successfully combine the factors of structural simplicity, efficiency and durability in practical use.

Other and incidental objects will appear hereinafter.

In the drawings:

Figure 1 is an elevation of my improved screw driver,

Figure 2 is a fragmentary sectional view particularly showing the mounting of the bit, and

Figure 3 is a fragmentary sectional view showing the connection between the flexible drive shaft of the device and the handle.

In carrying the invention into effect, I employ a flexible armor tube 10 which is preferably formed from a helically wound strip of suitable sheet metal and screwed upon the tube at one end thereof is a sleeve 11. Associated with said sleeve is a handle 12 having an opening therethrough to accommodate a flexible drive shaft 13 extending freely through the tube 10, the drive shaft being preferably formed of a stiff coiled spring. At its forward end, the handle is formed with a nipple 14 upon which is screwed a cap 15 and a thimble 16 swiveled within said cap and rotatably fitting in the sleeve 11. As shown in Figures 1 and 3 of the draw-

ings, the nipple 14 is of smaller diameter than the handle to define an annular shoulder at the base of the nipple and the cap 15 is limited by said shoulder so that the thimble 16 is loosely confined between the forward end of said nipple and the end wall of the cap. At its outer end the handle is formed with a nipple 17 having a slot 17' into which the adjacent end of the drive shaft 13 is bent and screwed upon said nipple is a cap 18 clamping said end of the drive shaft in said slot to provide a rigid connection between the drive shaft and handle. Screwed upon the armor tube 10 at its forward end is a sleeve 19 upon which is screwed a cap 20 and mounted upon the shaft 13 at the adjacent end thereof is a socket 21 having a stem 22 rotatably fitting through said cap into the sleeve receiving the forward end of the drive shaft to which the stem is suitably fixed. The socket 21 is cylindrical in shape but is slotted at opposite side thereof to define companion arcuate jaws 23 and removably fitting in the socket is a screw driver bit 24 yieldably gripped between said jaws and provided at opposite sides thereof with wings 25 extending into the slots between the jaws locking the bit to turn with the socket. Thus, as will be seen, the bit may be engaged with a screw when the handle 12 may be turned for rotating the bit and turning the screw. As suggested in dotted lines in Figure 1, the armor tube 10 and drive shaft 13 may be flexed so that even though the screw is located at some inaccessible point, the handle may, nevertheless, be disposed in a position to be readily grasped and turned.

Having thus described the invention, what is claimed as new is:

In a screw driver, a flexible armor tube, a flexible drive shaft extending through the tube, a sleeve upon one end of the tube, a handle fixed to the shaft at said end of the tube, a cap upon the handle, a thimble swiveled within said cap rotatably fitting in said sleeve forming a connection between the handle and sleeve and receiving the drive shaft therethrough, and a bit connected with the shaft at the opposite end of the tube.

In testimony whereof I affix my signature.

DONALD C. DONALDSON. [L. s.]