Feb. 20, 1945. W. A. PURTELL 2,369,853

SCREW DRIVER

Original Filed May 26, 1939

Fig. 1.

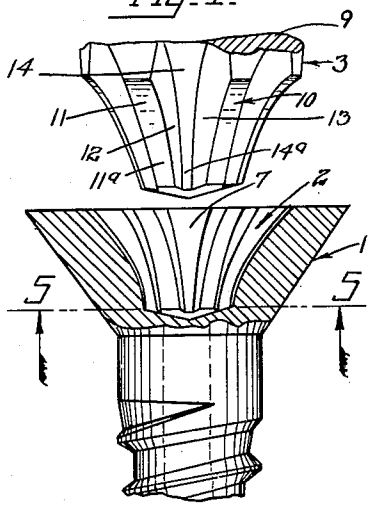


Fig. 2.

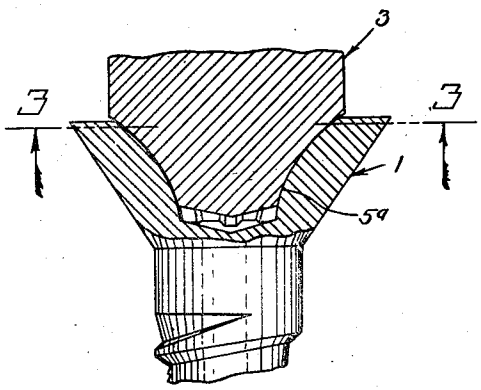


Fig. 4.

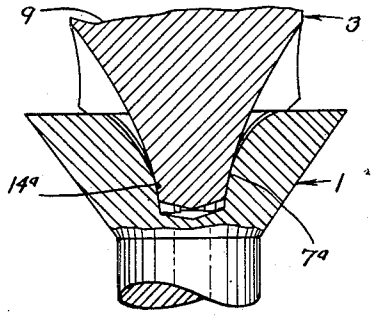


Fig. 3.

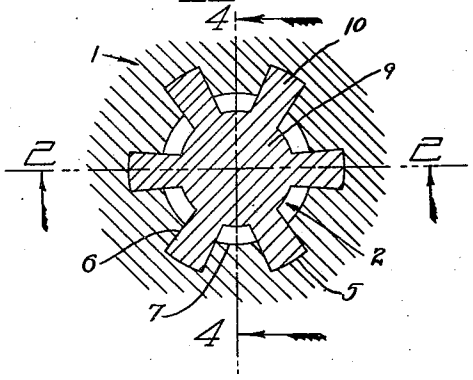


Fig. 6.

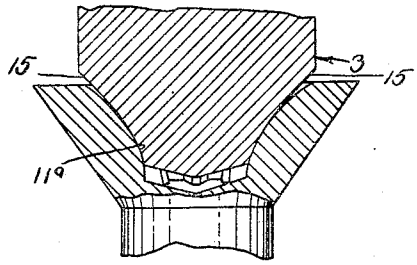
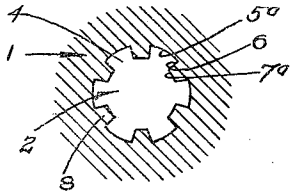


Fig. 5.



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UNITED STATES PATENT OFFICE

2,369,853

SCREW DRIVER

William A. Purtell, West Hartford, Conn., assignor to The Holo-Krome Screw Corporation, a corporation of Connecticut

Original application May 26, 1939, Serial No. 275,903. Divided and this application March 2, 1942, Serial No. 433,032

1 Claim. (Cl. 145—50)

My invention relates to screw drivers.

It has among its objects to provide an improved driver for a socketed screw. A further object of my invention is to provide such a driver for a socketed screw of the construction described and claimed in my copending application, Serial No. 275,903, filed May 26, 1939, now Patent No. 2,285,461, of which this application is a divison. A still further object of my invention is to provide such a driver having binding or wedging means thereon of an improved construction and disposed in a new position on the driver and relative to the radially located ribs thereon and adapted to cooperate in an improved manner with cooperating binding surfaces on the screw enabling the latter to be readily connected to the driver and held thereon. Other objects include the provision of an improved combination of driver and screw. These and other advantages of my improvements will, however, hereinafter more fully appear.

In the accompanying drawing, I have shown for purposes of illustration certain embodiments which my invention may assume in practice.

In this drawing:

Figure 1 is a side elevation of the driver in the process of being inserted in the screw socket, the screw being shown in section to facilitate illustration;

Fig. 2 is a vertical section on line 2—2 of Figure 3, showing the driver in operative position in the screw socket;

Fig. 3 is a transverse section on line 3—3 of Figure 2;

Fig. 4 is a vertical section on line 4—4 of Figure 3;

Fig. 5 is a transverse section on line 5—5 of Figure 1, and

Fig. 6 is a view similar to Figure 2 showing a modified construction.

In the construction shown in Figures 1 to 5, inclusive, I have shown a screw head 1 having therein a turning socket, generally indicated at 2, of the construction described and claimed in said application, with an improved turning member or driver 3, likewise of the construction illustrated therein and receivable in said socket and cooperating therewith in an improved manner, as hereinafter brought out.

The socket 2 has a series of radially disposed flutes 4 having vertically convex end surfaces 5 laterally flaring to the mouth of the socket, said surfaces providing binding portions 5 inclined at an angle to the axis of the socket which becomes more acute progressively toward the bottom of the socket. These end surfaces 5 are transversely arcuate or concave and taper so as to decrease in width toward and to the bottom of the socket. The sides of the flutes are provided with surfaces 6 converging toward the axis of the socket. Between the flutes are abutments 8 having transversely concave faces 7, the faces 7 being vertically convex and arranged so that the angle to the vertical becomes progressively more acute toward and to the bottom of the socket. The faces or surfaces 7 provide binding surfaces 7^a.

Referring to the driver, it will be seen that it has a bit 9, cut away laterally at a plurality of peripheral points to provide tapered ribs 10 conforming to and received in the major portions of the flutes 4. These ribs have end surfaces 11 conforming to and engaging the surfaces 5 and forming angles with the axis of the driver which become more acute progressively toward and to the lower end of the bit, the surfaces 11 providing binding portions 11^a. The ribs are spaced apart by portions 12, these portions tapering so as to become progressively wider toward and to the top of the socket and providing binding portions 12^a cooperating with the binding portions 7^a of the socket.

It will be seen that there is provided a driver bit portion recessed at a plurality of peripheral points to provide lateral abutments, said abutments having lateral surfaces of substantial area forming angles with the axis of the driver which become more acute progressively toward and substantially to the lower end of the bit and that, between the abutments, the bit is provided with fluted portions having transversely convex inner surfaces of substantial area which also form angles with the axis of the driver which become progressively more acute toward and to the lower end of the bit. All of these lateral surfaces of substantial area are adapted to provide binding surfaces cooperating with corresponding binding surfaces in the socket. The lateral surfaces on the ribs are of such dimensions as to space the lower end of the bit upwardly from the floor or bottom of the socket as shown in Fig. 2, and, as shown in Fig. 4, the bit and socket are so related to each other that the binding surfaces 12^a on the bit engage the socket in a zone adjacent the bottom of the socket but are not engaged with the upper portion of the socket.

In Fig. 6, I have shown a modified form of driver. Here, the ribs on the driver are cut away or slabbed off, as indicated at 15, within the

mouth portion of the socket, the lateral dimensions of the bit being such, in this case, as to space the bit from the upper or mouth portion of the socket so that the binding surfaces on the ribs are spaced downwardly from the mouth portion of the socket and upwardly from the bottom or floor of the socket, whereby the binding surfaces of the outer walls of the ribs are, relatively to depth of the socket, in an intermediate zone.

By the invention, a driver is provided having a large binding area with respect to the screw socket, a part of this area being on the ribs or wings and another part on the transversely convex surfaces which are disposed between the ribs at the root portions of the latter. The relatively increased lateral binding area provided in this manner greatly facilitates the turning of the screw.

While I have in this application specifically described certain forms which my invention may assume in practice, it will be understood that these forms have been shown for purposes of illustration, and that the invention may be modified and embodied in other forms without departing from its spirit or the scope of the appended claim.

What I claim as new and desire to secure by Letters Patent is:

A driver for a socketed screw of the type having a turning socket therein and turning tool-binding means in said socket, comprising a driver bit portion received in said socket having recesses in the bit to provide lateral abutments, lateral surfaces of substantial area forming the bottoms of the recesses and located between said abutments for binding engagement with the screw socket and forming angles with the axis of the driver which become more acute progressively toward the lower end of the bit, said abutments also having lateral binding surfaces of substantial area forming angles with the axis of the driver which become more acute progressively toward the lower end of the bit, the extreme lower end of said bit having an area larger than that of the floor of the socket and said abutments being cut back for a predetermined distance in the zone located in the entrance to the mouth of the socket so as to limit the binding of the outer surfaces of the abutments with corresponding parts in the socket to a region spaced upwardly from the bottom of the socket and downwardly from the top of the socket.

WILLIAM A. PURTELL.