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2,792,861

SCREW DRIVER

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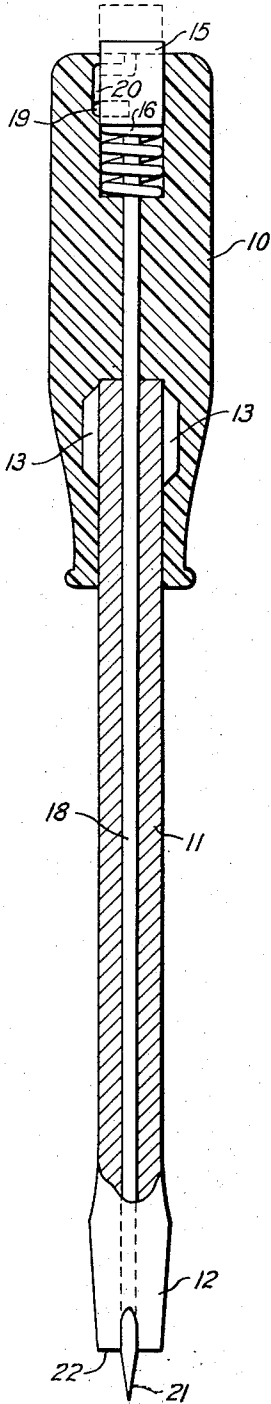


FIG. 1

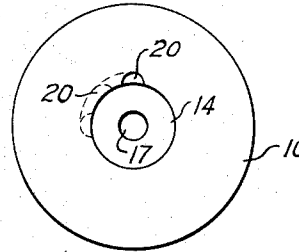


FIG. 2

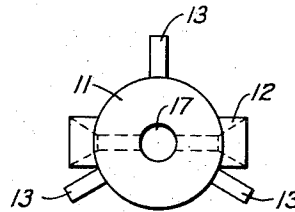


FIG. 3

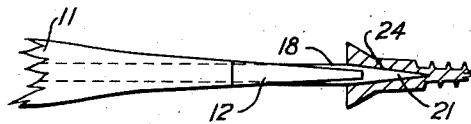


FIG. 4

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SCREW DRIVER

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1 Claim. (Cl. 145—50)

My invention relates to a screw driver so designed and constructed that a special screw will be held in place on the screw driver without being held by the hand of the user.

One of the objects of my invention is to provide a screw driver of such construction and design as to particularly adapt it for use with a special screw and at the same time provide a screw driver which may be used with conventional equipment.

Another object of my invention is to provide a screw driver of the character described which may also be used as an awl and punch to make holes in wood, metal or other material in which to insert a screw.

Referring to the drawings:

Fig. 1 is a side elevation of my screw driver with part of the device broken away, showing the slideable punch shaft, compression spring element on said shaft and the operating and locking button.

Fig. 2 is a top view of the screw-driver handle with the slideable punch, spring and locking elements removed.

Fig. 3 is a top view of the shank and bit portion of my screw driver with the slidable punch shaft element removed.

Fig. 4 is a side view of the screw driver with the shank of the screw driver broken away showing a screw in section in place on the screw driver.

Referring further to the drawings:

The handle 10 of the screw driver is constructed preferably from plastic material. A shank 11 and bit 12 of a conventional type screw driver is locked into the handle 10 by means of wings 13. Positioned in the center of the top end of the handle 10 is a hole 14 of sufficient depth to receive the operating and locking button 15 and compression spring 16. Counter-drilled through the remainder of the handle 10 and in the center of the hole 14 is a smaller hole 17. The hole 17 continues on through the center of the shank 11 and the bit 12 of the conventional screw driver shank and bit. The hole 17 receives and slideably carries the punch element shaft 18. Said punch element shaft 18 being integral with and depending from the bottom side of the operating and locking button 15. The spring 16 is positioned around the punch element shaft 18 immediately below the operating and locking button 15 and is retained in the lower portion of the hole 14 of the handle 10. The operating and locking button 15 is also provided with a small nub 19 positioned on its outer periphery near the bottom end thereof. The nub 19 may be either fixed or depressible. In the latter case a small spring, not shown in the drawings, would be positioned behind the nub 19 and within the operating button 15. A slot 20 is also provided in the side of the hole 14 of the handle 10 for receiving said nub 19. This slot is so designed that the punch element and operating button of my screw driver may be removed or inserted in the screw driver portion of my device at will and so that the punch element may be locked in the depressed position by means of the cooperation between the nub 19 and the slot 20. The slot 20, at

its lower end, runs at right angles to the plane of the punch element shaft 18 approximately 90° around the circumference of the hole 14 in the handle 10.

The slot 20 is provided, near the top portion of the hole 14, with another portion that runs at right angles to the plane of the punch shaft 18 around the circumference of the hole 14 before again turning in a perpendicular direction to the top surface of the handle 10. This arrangement enables the punch shaft element to be retained within the screw driver in a suitable position without coming out of the screw driver and also enables the punch element to be depressed and held manually or locked in the depressed position.

When the punch shaft 18 is in the depressed position the sharpened and pointed end 21 thereof protrudes below or beyond the working edge 22 of the screw driver bit 12. When the operating button 15 is released from its locked position in the slot 20 of the handle 10, the spring 16 lifts the operating button 15 and the punch shaft 18 to the top of the vertical portion of the slot 20, the nub 19 preventing the operating button 15 and the punch shaft 18 from being forced completely out of the device. When the operating button and punch shaft are in this position the point 21 of the punch shaft 18 will be withdrawn into the bit of the device so that the device can then be used as a conventional screw driver.

While my improved screw driver is intended to be used with a special screw which has a kerf in its head like a conventional screw and which also has a deep, round hole 24, the circumference of which converges to a point deep in the shank of the screw, it may still be used with a conventional screw. Such construction permits the point 21 to penetrate deeply into the shank of a special screw and hold the screw upon the bit 22 of the screw driver.

When the shaft 18 is locked in the position shown in Fig. 1 the sharp point 21 protruding beyond the working edge 22 of the bit 12 provides a means for punching starting holes for screws in wood, metal or other material as well as providing a means by which the special screw is frictionally held firmly upon the screw driver.

While the special screw shown in Fig. 4 of the drawings is one adapted for use in a self penetrating screw to be inserted in wood or other materials where such screws are used, it is apparent that my improved construction would be equally advantageous for use in connection with screws used for insertion in complementary threaded holes. The screw would be held firmly in place on the screw driver no matter what angle might be found necessary or convenient in holding the screw driver.

Having thus described my invention I claim:

In a screw driver having an adjustable working edge bit; a retractable cone-shaped point protruding beyond the working edge of the bit; a handle having an enlarged cylindrical opening near its outer end; a hollow shaft extending from the working edge of the bit to the handle; a smaller shaft the point of which forms the retractable cone, retractable within the hollow shaft and extending within the center of the handle; locking means in the end of the handle adapted to lock the retractable shaft in place for securing the protruding point in its extended position; an enlarged end to the retractable shaft within the enlarged cylindrical opening in the handle; a compression spring surrounding the retractable shaft within the cylindrical opening of the handle adapted to withdraw the retractable shaft and its protruding point when the locking means to the retractable shaft is released.

References Cited in the file of this patent

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