April 6, 1954 R. E. CARSON 2,674,286

HANDLE WITH RETRACTILE TOOL

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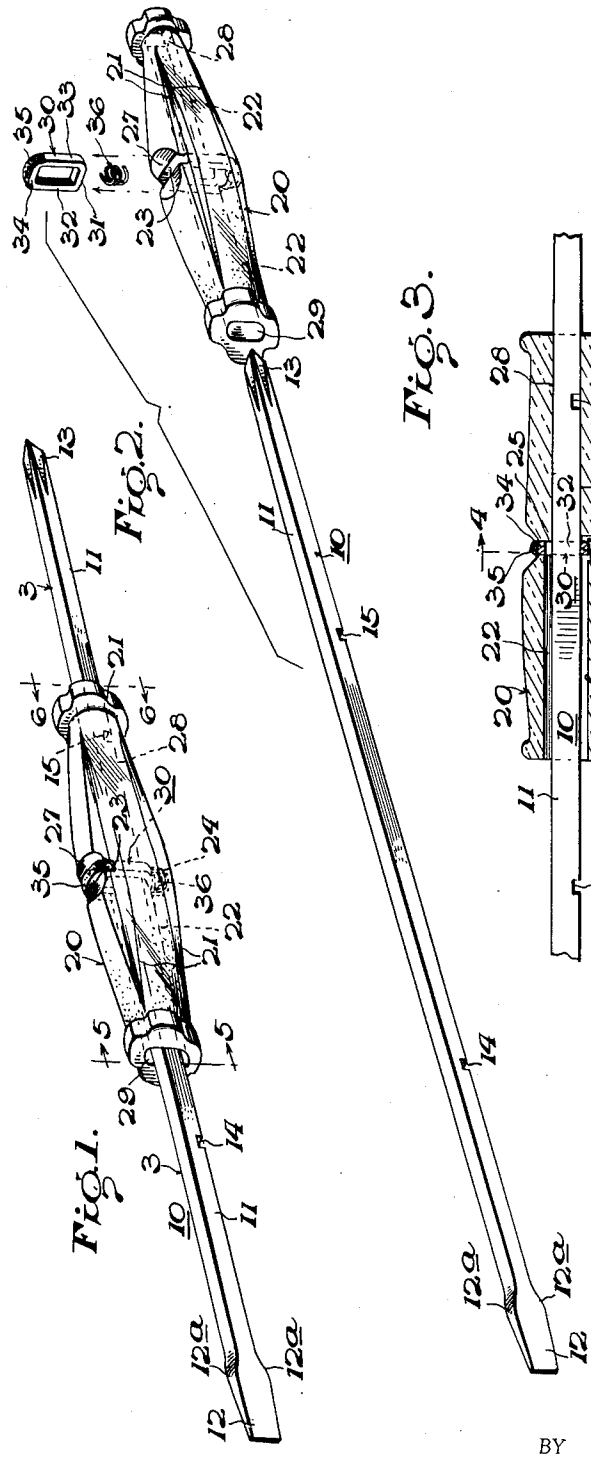


Fig. 1.

Fig. 2.

Fig. 3.

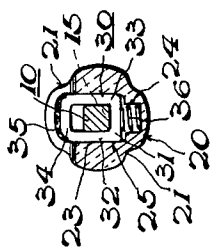


Fig. 4.

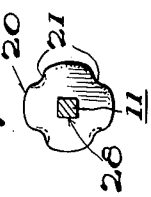


Fig. 6.

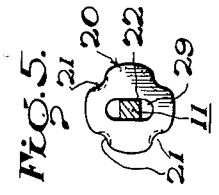


Fig. 5.

INVENTOR

Robert E. Carson.

BY Andrew J. O'Boyle

ATTORNEY

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HANDLE WITH RETRACTILE TOOL

Robert E. Carson, Grants Pass, Oreg.

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1 Claim. (Cl. 145—64)

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This invention relates to improvements in screw drivers, and more particularly, to a duplex screw driver incorporating a conventional driving blade and a "Phillips" driving head.

The advent of the Phillips screw, with its cruciform slotted head, requires a specially conformed screw driver. This means that a mechanic must have a Phillips screw driver, in addition to each of the conventional screw drivers, thereby doubling the number of screw drivers in his kit, with increase in weight of equipment, as well as increased cost for his working tools.

An object of my invention is to provide a duplex screw driver incorporating both a Phillips driving head and a conventional driving head, yet conserving the form and utility of a single tool.

Another object of my invention is the provision of an improved duplex screw driver incorporating both a Phillips driving head and a conventional driving blade, together with a single handle, movable to and securable in place at either end of the tool shank, whereby to selectively present either a Phillips driving head or a conventional driving blade.

A further object of my invention is the provision of an improved duplex screw driver of the type described having special locking means engageable with the shank of the tool, at both ends thereof, whereby the handle can be moved to either of two positions to present the Phillips type screw driver, or a conventional type screw driver.

A still further object of my invention is the provision of a duplex screw driver having a completely insulated handle, whereby automobile mechanics and the like can test ignition circuits without danger of shock.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements, comprising my invention, may be varied in construction, proportions and arrangements, without departing from the spirit and scope of the appended claims.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements in their useful applications to the particular constructions, which for the purpose of explanation, have been made the subject of illustration.

In the drawings:

Figure 1 is a perspective view of the duplex screw driver with the handle shown intermediate its working positions;

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Fig. 2 is an exploded view of the screw driver and its component parts;

Fig. 3 is a longitudinal section through the handle with a fragmentary detail of the shank being shown in elevation;

Fig. 4 is a cross-section taken on line 4—4 of Fig. 3 showing the mounting of the depressible shank-locking ring and its biasing spring in the handle, and

Figs. 5 and 6 are sections, taken respectively on lines 5—5 and 6—6 of Fig. 5, and showing the special configuration of the shank-receiving handle at the ends thereof.

Referring to the drawings, the novel duplex screw driver of my invention will be seen to comprise a double-ended shank 10, of square cross-section, a handle 20 slidably mounted on the shank, and a locking member or detent 30. The shank 10 is comprised of an elongated body portion 11, of rectangular or other non-circular cross-section; a conventional driving blade 12 having lateral extensions 12a, at one end thereof; and a Phillips type driving head 13, at the other end. A pair of duplicate, transverse recesses or slots 14, 15, are severally formed in the same side of the shank, substantially one-half a handle length from each end thereof. The handle 20 may be made of insulating plastic, desirably clear, and is provided with a suitable gripping surface 21, as shown.

The handle 20 is hollow throughout its length, as indicated generally at 22, the inner surface of the handle being generally conformed, at one end, to receive the shank 10, and slidably hold it against rotation. At its other end, the hollow of the handle is oblong in cross-section, as will be described more in detail hereinafter. The handle is further provided with a central, transversely recessed well or slot 23, formed at right angles to the longitudinal axis of the handle, and defining with the passage 22 a bottom socket or depression 24, and side recesses 25, 26, with an open slotted top 27. The Phillips end of the handle is characterized by a square cross-section 28 of the center hole or shank-receiving passage 22, as the driving head 13 does not exceed the shank in size in any direction. However, at the other end of the shank, the conventional driving blade 12 is flattened out in one dimension, as indicated at 12a, and the shoulders or protuberances 12a extend beyond the body of the shank. Because of this, the shank-receiving socket or hole 22 is made oblong at the other end of the handle, as indicated at 29, so as to permit the lateral extensions

12a to be socketed in the handle when the Phillips driving head 13 is to be operated. It is to be noted that the smallest dimension of section 29 of the handle is equal to a side of the square cross-section 28.

An annular locking member 30, conformed to and adapted to slidably engage shank 10, is seated in the recess 23 and is locked in the handle by the shank. This annular locking member, of oblong cross-section, is comprised of a bottom locking bar 31, integral sides 32, 33 and a top bar 34. The top bar 34 is provided with an electrically insulating surfacing 35, which is desirably of the same composition as the body of the handle 20. A compression spring 36 is seated in the socket or recess 24 of the handle, and is adapted for biasing engagement with bottom cross bar 31 of the locking member 30. Biasing spring 36 is larger than the aperture or open slotted top 27 of recess 23 of the handle, so that it cannot fall out of place when the shank 10 is removed from the handle 20. In its widest dimension spring 36 can be passed through the oblong section of the handle socket and readily seated in its socket 24.

In assembling the tool, the biasing spring 36 is introduced through the oblong section 29 of central passage 22 of the handle, and is seated in socket 24. Because its upper end is wider than slot 27, the spring cannot fall out of the handle, as noted. When the spring 36 is seated, the annular detent 30 is dropped into slot 23 of the handle, and depressed against the bias of the spring, until its inner periphery is in register with the periphery 28 of the central passage. The detent is held in this position, and the end 13 of the shank is passed through section 29 of the central passage 22 until the body of the shank passes through member 30 and is gripped thereby. When the shank 10 of the screw driver is advanced to permit the seating of locking cross bar 31 in either of slots 14, 15 in the bottom surface of the shank, the latter is positively locked in place in and by the handle 20. It will be noted that because of the special cooperation between the locking slots or detents 14, 15 of the shank 10, and the recess 23 of the handle, the respective ends of the shank are covered and protected while the opposite end is exposed for use. Thus, with slot 14 engaged by detent 31, the handle will cover and protect conventional blade end 12 of the shank, leaving the Phillips head 13 exposed for use. Conversely, with slot 15 engaged by the detent, the Phillips end of the shank will be covered and protected by the handle, and the conventional driver blade 12 will be exposed for use.

The handle 20 is desirably made of electrically insulating plastic material, as is the surfacing 35 for the detent 30. With such an arrangement the novel duplex screw driver herein is not only capable of use as a screw driver, but can be used by automobile mechanics and electricians, and others who have occasion to work with live electrical circuits, including ignition circuits of automobiles.

It will be appreciated that there has been provided a novel double ended tool having a handle which is shiftable from one end to the other whereby one tool end is exposed for use and the other tool end is sheathed in and by the handle. It will also be appreciated that the novel tool herein, and especially the slideable handle is particularly adapted for use with screw drivers incorporating a conventional flat blade on one end and a cruciform Phillips type driving head on the other end. The novel handle and locking means are desirably of insulating plastic whereby the tool may be used in the testing of electric circuits without danger of shock.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood I do not confine myself to the precise details of construction herein set forth by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art without departing from the spirit of the invention or exceeding the scope of the appended claim.

I claim:

A tool of the character described comprising a unitary tubular handle member of electrically insulating material, said handle being open at both ends and having a longitudinal bore and a central transverse recessed portion adapted to receiving a locking member, a polygonal stock slidably mounted in the handle and exceeding the length thereof, said stock being non-rotatably slidable in the bore of the handle, a spring-biased locking member positioned in said recessed portion across the center of the handle, said member being conformed to and receiving said stock in sliding, non-rotating engagement, whereby the locking member is retained in the handle of the stock; an electrically insulated pressor means associated with the locking member whereby when said member is depressed the stock is slidably movable through the handle, said pressor means being positioned within the recessed portion of the handle below the plane of the surface thereof, and transverse locking slots in the face of the stock selectively engageable by the locking member in snap-locking engagement, whereby the handle is locked in place on the stock to sheathe one end of the stock and to expose the other end for use.

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