

UNITED STATES PATENT OFFICE

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SCREW-HOLDING SCREW DRIVER

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This invention relates to the class of tools and pertains particularly to improvements in screw holding screw drivers.

The primary object of the present invention is to provide an improved means for holding a screw while the same is being started into a piece of work and for maintaining the same rigid until driven home.

Another object of the invention is to provide in a screw holding screw driver, means whereby the driver may be forced tightly against the screw in the kerf of the head by rotating the same while gripping the screw holder.

Still another object of the invention is to provide a screw holding device wherein upon proper manipulation of certain parts thereof and the holding of the same by the operator, the screw head engaging portion of the holder will be automatically drawn back to release the screw after the same is forced home in a piece of work.

Other objects and advantages of the present invention will become apparent as a description of the same proceeds and the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of the present invention with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention, as expressed in the appended claims.

In the drawing:—

Figure 1 is a view in side elevation of a screw driver and holder therefor constructed in accordance with the present invention shown partly in longitudinal section.

Figure 2 is a view partly in longitudinal section and partly in elevation of the lower portion of the device showing the application thereof.

Figure 3 is a sectional view taken substantially upon the line 3—3 of Figure 1.

Figure 4 is a sectional view taken transversely of the screw holding jaws, per se.

Figure 5 is a view of the inner face of one of the jaws.

Referring more particularly to the drawing wherein like numerals of reference indicate corresponding parts throughout the several views, the numeral 1 indicates the shank of a screw driver which is especially constructed to hold the screw holding unit embodying a portion of this invention, this screw driver here being shown as of the type adapted to be held in a brace, one end thereof being of polygonal cross sectional design and tapered as indicated at 2 similar to a bit or other boring tool which is held in the jaws of a brace.

The working end of the shank is suitably sharpened and formed as indicated at 3 to engage in the kerf of a screw. Intermediate its ends the shank of the screw driver is enlarged as indicated at 4 and this enlarged portion is provided with screw threads 5.

Formed to receive the enlarged threaded portion 4 of the screw driver shank is a relatively long sleeve 6, the inner wall thereof being threaded throughout, as shown, and at one end this sleeve is partially closed, as indicated at 7, only sufficient space being provided for the extension therethrough of a portion of the screw driver lying between the part 4 and the working end 3 thereof.

In the forward end of this sleeve 6 there is formed at diametrically opposite points the transverse recesses 8 and in each recess one end of the shank portion 9 of a jaw member 10 positions. These inserted ends of the jaw shanks are pivotally maintained in place in their respective recesses by pins 11 which are extended transversely through the bodies of the sleeve and through the recesses, in the manner shown. At its outer end each of the jaws 10 is turned inwardly forming the screw head engaging portion 11, the inner face of which is bevelled, as indicated at 12, so that the edge of this portion is relatively sharp and the central part of this edge is provided with a notch 13 in which a shank of the screw to be engaged positions. A screw is indicated at 14 positioned between the opposed edges of the jaws 10 and engaged by the point of the screw driver.

The jaws 10 are maintained in engagement with the screw by a cover sleeve 15. This sleeve, as shown, is of a size to snugly receive the shank engaging sleeve 6 and also the jaws carried thereby, the outer faces of these jaws lying substantially parallel with the outer face of the sleeve 6, as shown.

Carried by the sleeve 6 is a pin 16 which is adapted to slidably engage in a recess 17 formed longitudinally of the inner face of the sleeve 15 and extending from a point adjacent the inner end to substantially the transverse center thereof. The wall of the sleeve 15 is provided with an opening 18 at one end of the slot 17 of sufficient size to permit of the extension therethrough of the pin 16 so that the same can be readily placed in or removed from position.

In using the present screw holding screw driver the sleeve 6 must be first so set as to position the point of the screw driver a substantial distance behind the jaws to permit the positioning of the screw head therebehind, the outer sleeve 15 also being drawn back free from contact with the jaws so that the same can be swung laterally. After the screw has been placed in position, the sleeve 15 is then pushed forwardly so as to force the jaws together to grip the screw and the shank 1 is then rotated while the operator holds the sleeves 6 and 15. This causes the shank to be driven forwardly and after engagement of the point is made with the kerf of the screw it will force the screw head firmly against the jaws 10. The screw is then sufficiently rigidly held to enable the operator to start it into a piece of work.

After driving the screw in to a point where the jaws are in close proximity to the work the outer sleeve 15 is drawn back and rotation of the shank continued while holding the sleeves. This operation causes the driver to move forward spreading the jaws 10 and driving the screw home, thus automatically disengaging the holder from the screw as it is driven to position.

While the present screw holding screw driver has been described as adapted to use in connection with a brace, it is of course to be understood that I do not wish to be in any manner limited to the use of the present structure for it is obvious that it may be made a part of a hand screw driver or a driver of the straight shank type.

Having thus described my invention, what I claim is:—

1. A screw holding screw driver, comprising a driver shank having a threaded portion, a sleeve having threaded engagement with said portion for movement longitudinally of the shank, screw holding elements carried by the sleeve adjacent the working end of the shank, and an outer sleeve shiftable on and longitudinally of the first sleeve for engaging and holding the screw holding ele-

ments in a desired position, said outer sleeve having limited movement upon the first mentioned sleeve controlled by a pin carried by one of the sleeves slidably engaging in a slot in the other sleeve.

2. A screw holding screw driver comprising a driver having a portion of the shank thereof enlarged and provided with screw threads, a body designed to threadably receive the enlarged portion of the shank and provided with means at one end to limit the movement of said shank in said body in the direction of said end, a pair of screw holding jaws pivotally attached to the body, a sleeve movably mounted upon said body adapted to encase the screw holding jaws and in its movement to operative position to swing said jaws inwardly, within the area defined by the circumference of the body, to engage a screw head and to maintain the screw in position for engagement by the shank, and means coupling the sleeve with the body and permitting only longitudinal movement of the same on said body.

In testimony whereof I hereunto affix my signature.

JOSEPH E. CALVERT.