

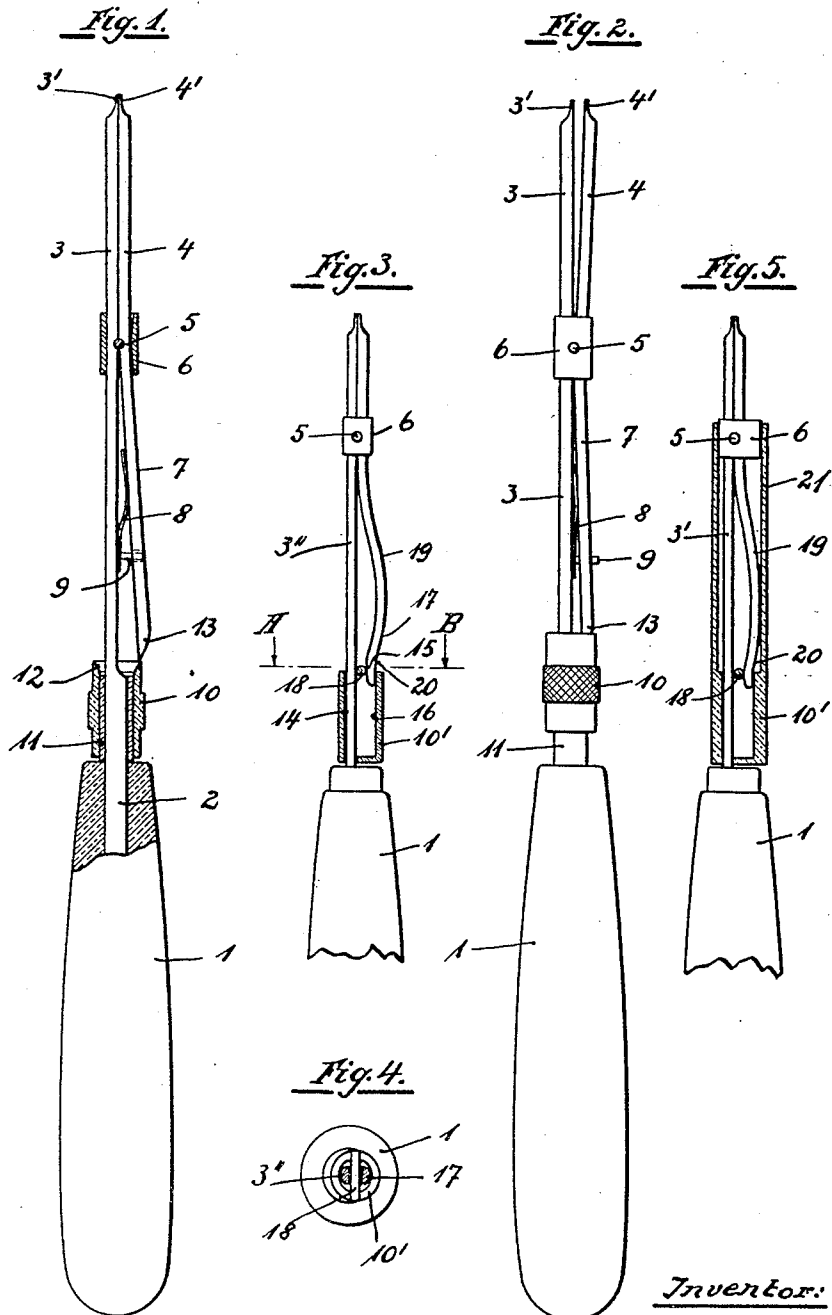
June 27, 1933.

L. MÜLLER

1,915,546

SCREW DRIVER

Filed Oct. 14, 1931



Inventor:

Louis Müller
by Kautzsch & Co.
Attys.

UNITED STATES PATENT OFFICE

LOUIS MÜLLER, OF TRUCHTELFINGEN, WURTEMBERG, GERMANY, ASSIGNOR TO
OTTO ALDINGER, OF STUTTGART, GERMANY

SCREW DRIVER

Application filed October 14, 1931, Serial No. 568,756, and in Germany February 10, 1931.

My invention relates to screw drivers. It is an object of my invention to improve a screw driver in such manner that the operating edge of the screw driver can be secured by a device operable in a simple manner, so that the screw driver is enabled to hold the screw, for instance after the screw is unscrewed.

In order to accomplish this, I subdivide the shaft and the edge to be introduced into the head groove of the screw driver in a plane parallel to and coinciding with the edge of the screw driver and I provide besides the fixed half of the shaft to be secured to the handle a movable half pivotally connected to the fixed half means being provided by which after the edge of the screw driver has been introduced into the groove of the screw head, the movable shaft halves of the driver head are resiliently spread apart, so that they are applied against the side walls of the screw head groove and secure the screw on the screw driver.

In a preferred embodiment of my invention the movable half of the screw driver is formed as a two armed crank lever having legs somewhat out of alignment and being pivoted with its knee on the fixed half of the screw shaft. The forward leg of the movable half is tapered so as to form together with the similarly tapered forward end of the fixed half a complete screw driver head. The rearward leg of the movable half carries a slidable sleeve by which the movable half is controlled.

In the drawing affixed to this specification and forming part thereof, two embodiments of my invention are illustrated diagrammatically by way of example.

In the drawing,

Fig. 1 is a side elevation, partly in section, of one embodiment of my invention.

Fig. 2 is a side elevation shown in another position.

Fig. 3 is a side elevation partly in section of another embodiment, and

Fig. 4 is a section on the line A—B in Fig. 3.

Fig. 5 is a side elevation partly in section

of a modification of the embodiment shown in Fig. 3.

Referring to the drawing and first to Figs. 1 and 2, 1 is the screw driver handle, 2 is the fixed shaft, the forward portion 3 of which is reduced so as to form one half of the total shaft and head. 4 is the movable shaft pivotally secured to the forward portion 3 of the fixed shaft 2 by means of a transverse pin 5 and a fixed sleeve 6 surrounding both halves. The plane in which the composite shaft is subdivided is parallel to and coincides with the free edge of the screw driver so that the driver head is formed by the tapered end portions 3' and 4' of the halves 3 and 4 supplementing each other to form the full head and edge. The rearward leg 7 of the movable half 4 is bent slightly outwardly, so that the movable half forms a crank lever, the rearward leg of which can be used as actuating lever arm for spreading the halves 3' and 4' of the head. 8 is a leaf spring inserted between the rearward leg 7 of the movable shaft and the fixed shaft and acting on the movable shaft so as to force the head portions 3' and 4' towards each other, as shown in Fig. 1. 9 is a guide pin secured to the fixed shaft 3 and extending through recesses provided in the leaf spring 8 and the movable shaft 4, this pin preventing undesirable transverse displacements of the movable shaft.

10 is a slidable sleeve adapted to engage the free end of the rearward leg 7 and guided on a fixed sleeve 11 secured on the fixed shaft portion 2. Sleeve 10 is provided with a conical recess 12 at its forward end. When sleeve 10 is moved in the direction towards the screw driver head, the recess 12 will engage the inclined end portion 13 of the rearward leg 7 of the movable shaft 4, thereby rocking the latter from the position shown in Fig. 1 into the position shown in Fig. 2, in which the halves 3' and 4' of the screw driver head are spread apart against the action of the spring 8.

In the operation of the device the sliding sleeve 10 is moved, after the screw driver edge has been introduced into the groove of the screw head, so that the halves 3' and 4' of the

screw driver head resiliently hold the screw, which is now secured to the screw driver head. The sleeve can be made of insulating material. The two halves of the screw driver shaft and more particularly the rearward leg 7 should be dimensioned in such manner that the halves 3' and 4' of the head are spread apart in a resilient manner.

Referring now to Figs. 3 and 4, showing an embodiment of my invention in which the movable shaft is positively actuated by the displacement of the sleeves, the fixed half 3'' has a semicircular cross section. The sleeve 10' is provided with a corresponding guide piece 14. The sleeve is provided with another guide piece formed by controlling surfaces acting upon the movable shaft and formed with an inner guide face 15 and an outer guide face 16. The inner guide face 15 is formed by a transverse pin 18 secured to the outer end of the sleeve 10'. When the sleeve 10' is moved towards the screw driver head, the outer surface 16 engages the outer semicircular surface 17 of the movable shaft, so that the shaft head is spread apart. The outer controlling surface 16 is formed by the inner wall of the sleeve 10'. When the sleeve 10' is returned into its position of rest, the inner controlling surface 15 formed by the transverse pin 18 engages the inner surface of the rearward end of the movable shaft. The rearward leg of this shaft is curved outwardly at 19 near the joint 5, 6 and curved inwardly at 20 near the end of the sleeve 10'.

Referring now to Fig. 5 the sleeve 10' is provided with an extension 21 reaching to the sleeve 6 of the joint and enclosing the latter as well as the curved rearward leg of the movable screw driver shaft. The operation of this device is substantially the same as that of the embodiment shown in Fig. 3.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to a person skilled in the art.

In the claims affixed to this specification no selection of any particular modification of the invention is intended to the exclusion of other modifications thereof and the right to subsequently make claim to any modification not covered by these claims is expressly reserved.

I claim:—

1. A screw holder and driver comprising an edge at its head, a shaft subdivided into a fixed and a movable shaft portion in the central plane of said edge, said movable shaft portion having a front portion tapered on its end so as to form a half of a screw driver head and a rearward leg forming a knee and being somewhat out of alignment with respect to the front portion, said leg being outwardly curved near the knee of said movable portion and inwardly curved near its end, a

pivotal connection connecting the knee of said movable shaft portion with said fixed shaft portion, a slidable sleeve on said fixed shaft portion and having guiding surfaces engaging the fixed and the movable shaft portions, respectively, and an extension forming part of said slidable sleeve and enclosing said rearward leg and said pivotal connection.

2. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, a hinge with its axis extending in parallel to the plane of division connecting the two portions, an edge on the forward end of each portion, and a sleeve which is mounted to slide on said shaft between said handle and said hinge and is adapted to act on said shaft portions so as to move their edges apart as it slides toward said hinge.

3. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, a hinge with its axis extending in parallel to the plane of division connecting the two portions, with a pin and a tube which receives the outer ends of the pin and surrounds the two portions, an edge on the forward end of each portion, and a sleeve which is mounted to slide on said shaft between said handle and said hinge and is adapted to act on said shaft portions so as to move their edges apart as it slides toward said hinge.

4. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, a hinge with its axis extending in parallel to the plane of division connecting the two portions, an edge on the forward end of each portion, and a sleeve of insulating material which is mounted to slide on said shaft between said handle and said hinge and is adapted to act on said shaft portions so as to move their edges apart as it slides toward said hinge.

5. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, one of said portions being fixed to said shaft, and the other portion being a bell-crank lever, a hinge connecting the lever to said fixed portion, an edge on the forward end of said fixed portion and said lever, and a sleeve which is mounted to slide on said fixed portion between said handle and said hinge and is adapted to act on said lever so as to move its edge away from the edge of said fixed portion as it slides toward said hinge.

6. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, one of said portions being fixed to said shaft, and the other portion being a bell-crank lever, a beveled face on the end of

the rear arm of said lever, a hinge connecting the lever to said fixed portion, an edge on the forward end of said fixed portion and said lever, and a sleeve which is mounted to slide on said fixed portion between said handle and said hinge and is equipped with a camming face for cooperation with the beveled face on said rear arm.

7. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, one of said portions being fixed to said shaft, and the other portion being a bell-crank lever, a hinge connecting the lever to said fixed portion, an edge on the forward end of said fixed portion and said lever, a bush on said fixed portion, and a sleeve which is mounted to slide on said bush and is adapted to act on said lever so as to move its edge away from the edge of said fixed portion as it slides toward said hinge.

8. A screw holder and driver comprising a handle, a shaft on said handle which is divided into two shaft portions in its axial plane, one of said portions being fixed to said shaft, and the other portion being a bell-crank lever, a hinge connecting the lever to said fixed portion, an edge on the forward end of said fixed portion and said lever, a sleeve which is mounted to slide on said fixed portion between said handle and said hinge and is adapted to act on said lever so as to move its edge away from the edge of said fixed portion as it slides toward said hinge, and resilient means tending to return the edge on said lever toward the edge of said fixed position.

In testimony whereof I affix my signature.

LOUIS MÜLLER.