Oct. 9, 1923. 1,469,792

N. A. JOHNSON

REMOVABLE BLADE SCREW DRIVER

Filed March 6, 1922

FIG. 1

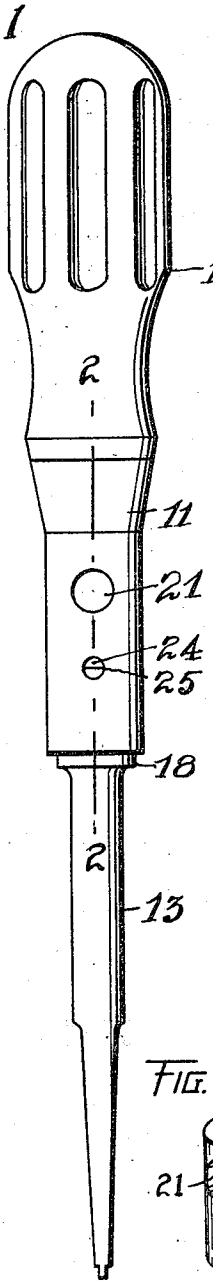


FIG. 2

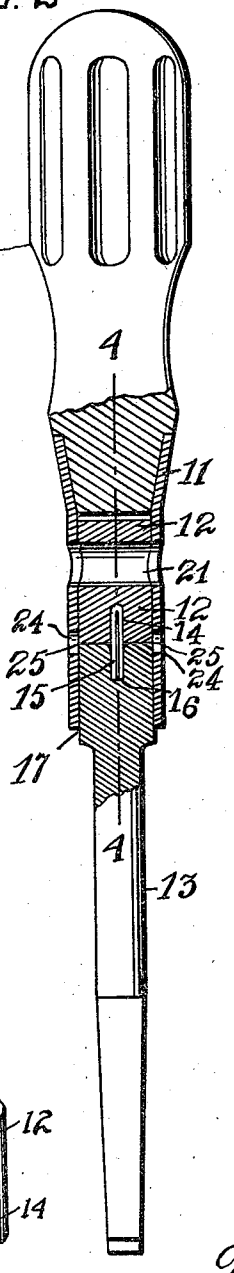


FIG. 3

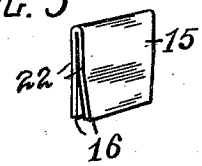


FIG. 4

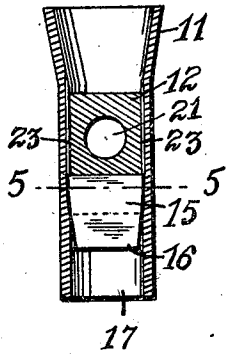


FIG. 5

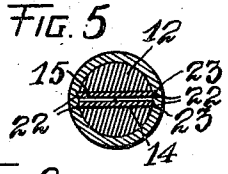


FIG. 6

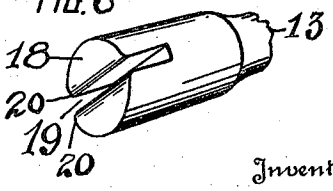
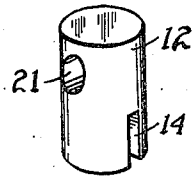


FIG. 7



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UNITED STATES PATENT OFFICE.

NELS A. JOHNSON, OF JAMESTOWN, NEW YORK.

REMOVABLE-BLADE SCREW DRIVER.

Application filed March 6, 1922. Serial No. 541,373.

To all whom it may concern:

Be it known that I, NELS A. JOHNSON, a citizen of the United States, residing at the city of Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Removable-Blade Screw Drivers, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention relates to screw drivers and similar tools; and the object of the improvement is to provide mechanism by means of which blades of different sizes may be readily removed and inserted, being securely held by a resilient holding means, which permits easy disconnection of the blade therefrom and reattachment thereto, means being provided for the quick starting of the blade should it become rusted or otherwise set in the socket; and the invention consists in the novel features and combinations hereinafter set forth and claimed.

In the drawings, Figure 1 is an elevation of the screw driver with the blade turned edgewise. Fig. 2 is an elevation of the screw driver with the blade turned flatwise and the blade attaching portion shown in diametral section at line 2—2 in Fig. 1. Fig. 3 is a perspective view of the return bend or U-shaped attaching spring for the screw driver blades. Fig. 4 is a diametral sectional view at line 4—4 in Fig. 2 of the blade attaching portion of the screw driver, showing the preferred arrangement of the same. Fig. 5 is a crosswise sectional view at line 5—5 in Fig. 4 showing the preferred construction of the parts. Fig. 6 is a perspective view of the butt of one of the screw driver blades showing the open-ended attaching or retaining slot therein. Fig. 7 is a perspective view of the blade attaching or retaining plug removed from the tubular holding piece or ferrule.

Like characters of reference refer to corresponding parts in the several views.

The screw driver preferably comprises the handle 10 with its spaced grooves extending around the handle in order to obtain a strong grip on said handle. The handle 10 is fitted into the ferrule 11 which has the retaining plug 12 therein for the removable screw driver blade or bit 13.

The retaining plug 12 has the open-ended diametral slot 14 into which is fitted the return bend end of the U-shaped spring 15 in firm holding engagement so that its slightly tapered free ends 16, which also normally spread apart slightly, may extend into the socket 17 for the butt 18 of the screw driver blade 13 in the ferrule 11. The butt 18 has the crosswise diametral open-ended slot 19 therein with slightly rounded edges 20 at each side to receive and press together the spreading tapered free ends 16 of the U-shaped spring 15 in a firm retaining engagement for said butt so that when the blade 13 is pressed upon the screw head, it will be also held from turning in the socket 17. The plug 12 is preferably spot welded or riveted in the ferrule 11 so that the return bend spring 15 is fixedly held in the groove 14 in the plug 12, and extends out slightly at each end of said groove 14.

The struck-up spring 15 has the sharp edges 22, and is of sufficient width to cut into the opposite sides of the inner wall of the ferrule 11, as shown at 23 in Figs. 4 and 5 when the plug 12 and spring 15 are driven into place in the ferrule 11, thereby assisting in holding the plug 12 from turning, as well as holding the free ends 16 of the spring 15 firmly in position to insert in the slot 19 in the butt 18. A hole 21 is provided through the ferrule 11 and plug 12 above the spring 15 through which a rod or tool may be inserted to assist in starting a hard set or rusted screw.

The ferrule 11 has the holes 24 opposite the joint 25 between the butt 18 of the screw driver blade 13 so that a tool, as for example, a prick punch, may be inserted in the hole 24 into the joint 25 and a quick tap of the hammer starts the screw driver blade 13 should it become set in the socket 17.

In assembling the screw driver, the return bend end of the spring 15 is inserted in the open-ended slot 14, being driven firmly into place therein with the ends 22 extending slightly at each side. The plug 12 is then driven into the straight tubular portion of the ferrule 11, the edges 22 scoring into the inner wall of the ferrule 11 as shown at 23. The plug 12 is shaped to a close fit within the ferrule 11 and attached by spot welding or riveting in correct position so that the hole 21 in the plug 12 corresponds to the holes 21 at each side in the ferrule 11, and the lower end of the plug 12 centers the holes 24 at each side, thereby providing the socket 17 with the free ends 16 of the spring 15 extending

into said socket to be received into the open-ended slot 19 in the butt 18 of the screw driver blade 13, said free ends being spread slightly as stated to grip firmly against the walls of said slot 19, thereby holding the blade 13 firmly in position in the socket 17. The handle 10 is driven into the ferrule 11 preferably a tight fit, though it may be riveted or otherwise attached thereon.

The construction provides a simple and convenient spring retention for the blades 13, of which a series of different sizes may be provided, which may be quickly changed as desired.

What is claimed as new is:

1. A screw driver handle having a socket in one end thereof, a screw driver blade fitting in said socket, and resilient means rigidly secured to said handle within said socket, and partially enclosed by said blade for retaining the latter in said socket and for transmitting drive from said handle to said blade.

2. A screw driver handle having a socket therein, a flat U-shaped spring diametrically crosswise of said socket in said handle, and a screw driver blade having a crosswise open-ended slot in the butt thereof to be removably retained by the free ends of said spring within said socket.

3. In a screw driver handle, a ferrule having a solid plug attached therein to form a socket in one end of said ferrule, a return bent spring attached in said plug within said socket with free ends, and a screw driver blade having a crosswise slotted butt fitting in said socket and receivable in holding engagement on said spring ends within said socket.

4. A screw driver comprising a handle having a ferrule thereon, a plug attached in said ferrule to form a socket in one end, a screw driver blade having a crosswise open-ended slot in the butt thereof and fitting in said socket, a taper-ended return bend spring having its ends spaced apart and attached in said crosswise groove in said plug, said spaced ends free to be resiliently received in said crosswise groove in the butt of said screw driver in holding engagement.

In testimony whereof I have affixed my signature in the presence of two witnesses.

NELS A. JOHNSON.

Witnesses:
CORINNE V. SWANSON,
A. W. KETTLE.