(No Model.)

J. SWAN.

SCREW DRIVER.

No. 520,091. Patented May 22, 1894.

Fig. 1.

Fig. 3.

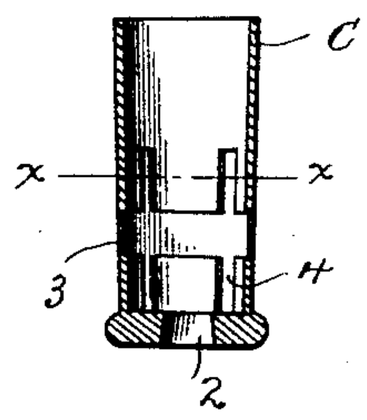


Fig. 2.

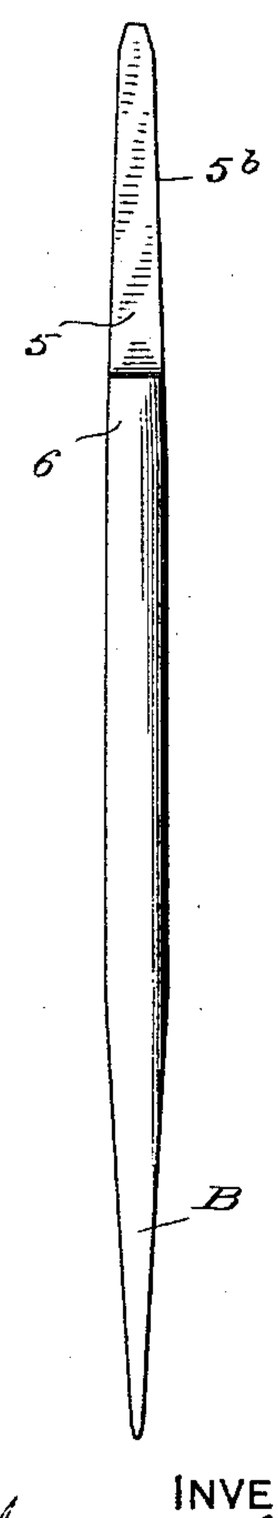


Fig. 4.

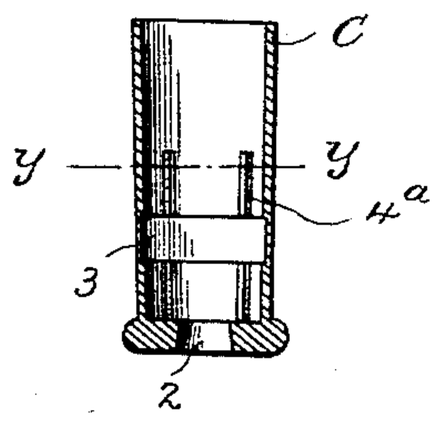


Fig. 5.

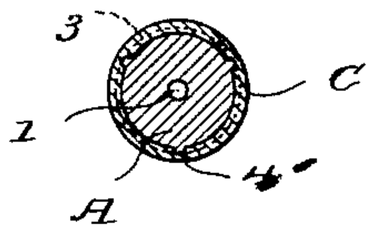
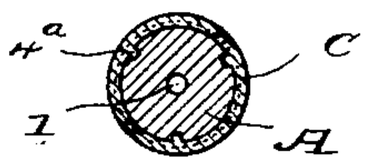


Fig. 6.



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SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 520,091, dated May 22, 1894.

Application filed February 5, 1894. Serial No. 499,075. (No model.)

To all whom it may concern:

Be it known that I, JAMES SWAN, a citizen of the United States, residing at Seymour, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Screw-Drivers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a screw-driver which shall be simple and inexpensive to produce and in which the tang of the blade and the ferrule shall be so constructed that when the ferrule has once been placed in position on the handle and the tang driven to place neither blade nor ferrule can be removed or become loosened until the wood is broken away.

With this end in view I have devised the novel construction which I will now describe referring by numbers to the accompanying drawings forming part of this specification, in which—

Figure 1 is an elevation partly in section of my novel screw-driver; Fig. 2 an elevation of the blade detached. Figs. 3 and 4 are sections of the ferrule showing a slight difference in the details of construction; Fig. 5 a section on the line *x x* in Fig. 3, and Fig. 6 is a section on the line *y y* in Fig. 4.

A denotes the handle which is made of wood, B the blade and C the ferrule. The handle may be of any ordinary or preferred construction and has a small central hole 1 bored into it longitudinally from the blade end. The ferrule covers the entire blade end of the handle, is made quite heavy at the extreme end and is provided with a central tapering opening 2 to receive the tang of the blade. Upon the inner side of the ferrule I provide one or more circular grooves 3 and one or more longitudinal grooves 4. If preferred in lieu of the longitudinal grooves longitudinal ribs 4^a may be formed therein as clearly shown in Figs. 4 and 6. In practice however, I ordinarily provide the ferrule with grooves 3 and 4 as shown in Figs. 3 and 5, the ferrule being made heavy so as to give great strength and also sufficient metal to allow for the grooves. The portion of the blade which is exposed to view in the completed screw-driver is of ordinary construction. The tang of the blade which is designated by 5 is flattened on opposite sides, both sides tapering slightly toward the tip of the tang as shown at 5^a in Fig. 1. Both edges of the tang are also tapered toward the tip as clearly shown at 5^b in Fig. 2. In addition to the tapers just described the round portion of the tang contiguous to the flattened sides thereof is tapered toward the tip of the tang as indicated at 6 this taper corresponding with taper opening 2 in the ferrule. In assembling the taper on the tang is driven into tapering opening 2 with a drive fit so that when the tang has once been driven to place the ferrule and tang become practically as solid as if made in a single piece. It will be noticed, see Figs. 5 and 6, that the handle is simply provided with a small round opening, the tip of the tang is inserted in this opening and it is driven into the handle until the taper 6 is driven firmly into the taper in the ferrule, a heavy blow or blows being required for the purpose. It will be seen that as the tang is larger than the opening in the handle the driving of the tang into the handle must compress the wood of the handle and compact it firmly together and furthermore force it into the grooves 3 and 4 on the inner side of the ferrule. Where ribs 4^a are used instead of longitudinal grooves these ribs are of course forced into the wood when the ferrule is driven to place and the driving in of the tang simply forces the wood of the handle into the circular groove or grooves.

Having thus described my invention, I claim—

1. The combination with a handle and a ferrule having longitudinal and circular grooves on its inner side and at its outer end a tapering opening 2, of a blade having a tang adapted to be driven through the opening in the ferrule and into the handle whereby the material of the handle is forced into the grooves thereby locking the ferrule to the handle said tang having also a tapering portion 6, corresponding to opening 2 in the ferrule whereby the tang is locked to the ferrule with a drive fit.

2. The combination with a handle and a

ferrule having at its outer end a tapering opening 2, of a blade having a tang adapted to be driven through said opening and into the handle and provided with a tapering portion 6 corresponding to opening 2, whereby the tang is locked to the ferrule with a drive fit.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES SWAN.

Witnesses:
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