(No Model.)

J. SWAN.

SCREW DRIVER.

No. 265,712. Patented Oct. 10, 1882.

Fig. 1.

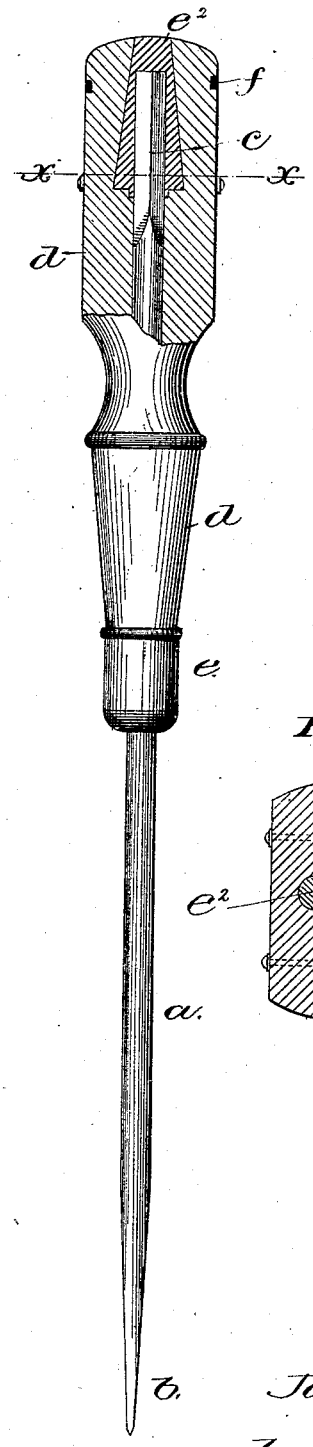
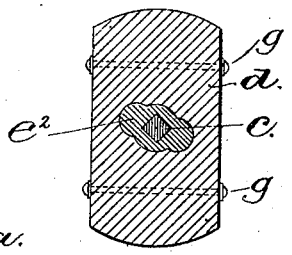


Fig. 2.



Witnesses.
John P. C. Trunkert
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UNITED STATES PATENT OFFICE.

JAMES SWAN, OF SEYMOUR, CONNECTICUT.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 265,712, dated October 10, 1882.

Application filed April 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES SWAN, of Seymour, county of New Haven, State of Connecticut, have invented an Improvement in Screw-Drivers, of which the following description, in connection with the accompanying drawings, is a specification.

My invention in screw-drivers has for its object to enable the use of a round rod for the shank of the screw-driver. The difficulty heretofore experienced has been to devise a method of holding the upper end of the shank in the handle with sufficient firmness. I have overcome this difficulty by providing the handle with an axial passage for the reception of the upper portion of the round shank or rod, and also with a space larger than that to be occupied by the upper flattened, squared, or angular end of the said shank or rod, then inserting the upper end of the said shank in the said passage, and filling the enlarged space between the handle and upper end of the shank with molten metal, preferably type-metal or lead, which adheres to the metal shank and forms for it an enlarged head which cannot turn in the handle.

In another application for United States Patent filed by me concurrently with this I have shown a socketed metallic receiver into which the upper end of the screw-driver may be inserted and from which it may be withdrawn at will.

Figure 1 represents a screw-driver embodying my present invention, the handle being partially broken out to show the head cast upon the upper end of the shank after inserting it in the handle; and Fig. 2 is a cross-section of the upper end of one of my screw-drivers on the dotted line *x x*, Fig. 1.

The shank *a*, a round rod of the proper size and length, is flattened at its lower end, *b*, to enter a nick in the head of a screw, and squared, flattened, or made of other than round shape at its upper end, *c*, so as to afford suitable sides, corners, or angles of resistance when the screw-driver is in use.

The handle *d*, provided with the usual ferrule, *e*, is bored axially from end to end, to form a central longitudinal passage for the reception of the upper end and portion of the shank *a*, and then the said handle, by means of a suitable bit or reamer, is bored or reamed out to form a passage of somewhat larger diameter or area than the diameter of the upper end of the shank, the said enlarged passage preferably being made tapering and of irregular cross-section. The handle having been bored and provided with a passage, such as described, the end and upper portion of the shank is inserted in the handle, as in Fig. 1, and molten type-metal, lead, or equivalent, is poured or put into the passage at the large or upper end of the handle, filling the space therein between the upper end of the said shank and the inner walls of the passage made in the handle, thus casting firmly upon the upper end of the shank a head or holder, e^2, of such shape, both as to its length and cross-section, (see Figs. 1 and 2,) as will prevent the head from being withdrawn from or rotated in the handle, and by reason of the angular or irregular shape of the upper end of the shank the latter cannot turn in the head or independently of it.

If desired, a metal band, *f*, may be shrunk upon or otherwise applied to the handle; or headed rivets *g* may be inserted through the handle from one to its other flat sides to give additional strength to the handle.

Instead of type-metal or lead, I may employ any other well-known material which run or put into the chamber in the handle will prevent the shank turning therein.

I am aware that it is old to secure cutlery handles and blades together by casting a metal head, bushing, and bolster in one piece about the flat tang of the blade; and I am also aware that flat blades of screw-drivers have been secured in the handles by casting metal around the recessed tangs of such blades when said tangs are placed in a socket in the lower end of the handle, the socket receiving the cast metal through a lateral opening in the handle. My invention differs from these in relating solely to round-rod screw-drivers, difficulty in securing which in the handle has always been experienced; and it further differs from these in the form and mode of casting the bushing, as hereinafter specifically claimed.

I claim—

A round-rod screw-driver blade, *a*, having the angular or other than round end *c*, and the handle *d*, bored longitudinally to receive said blade, and having the upper end of its said bore expanded or widened out downwardly into

the body of the handle to form an upwardly-tapering cavity or recess, into which cavity the end *c* of the blade projects, combined with the permanent metal bushing e^2, cast in the cavity of the bore of the handle and surrounding the end *c* of the blade, to securely retain the said blade in position in the handle, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES SWAN.

Witnesses:
G. W. GREGORY,
BERNICE J. NOYES.