No. 772,593. PATENTED OCT. 18, 1904.

P. A. WAGNER.

SCREW DRIVER.

APPLICATION FILED MAY 17, 1904.

NO MODEL.

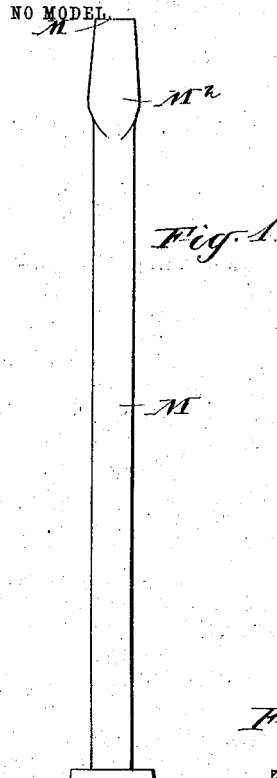


Fig. 1.

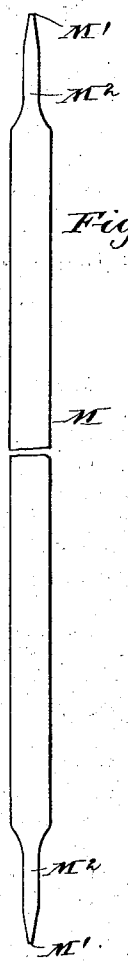


Fig. 3.

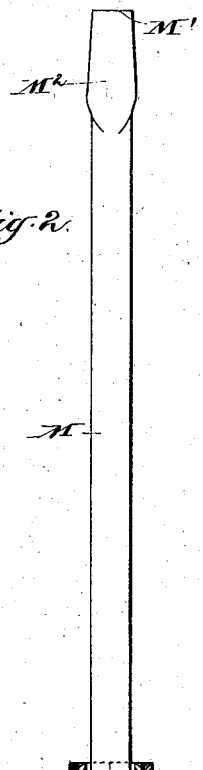


Fig. 2.

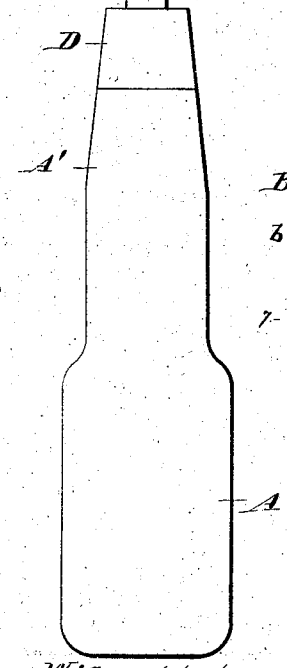


Fig. 5.

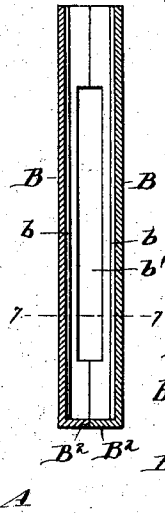


Fig. 6.

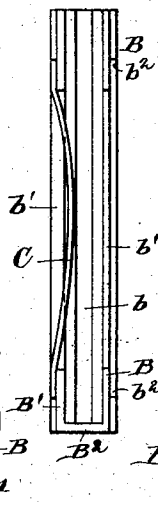


Fig. 4.

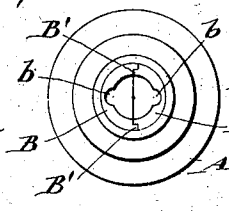
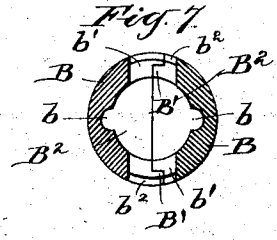
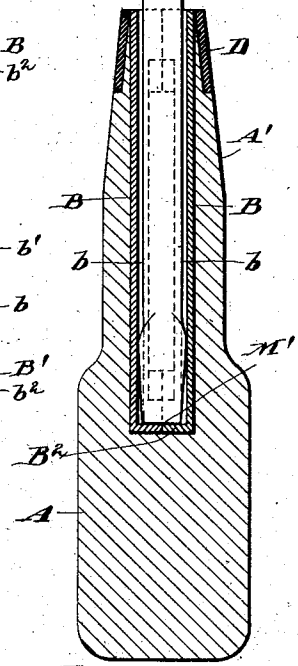


Fig. 7.





Witnesses:
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Charles K. Searle

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No. 772,593. Patented October 18, 1904.

UNITED STATES PATENT OFFICE.

PAUL A. WAGNER, OF CARLSTADT, NEW JERSEY.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 772,593, dated October 18, 1904.

Application filed May 17, 1904. Serial No. 208,384. (No model.)

To all whom it may concern:

Be it known that I, PAUL A. WAGNER, a citizen of the United States, residing at Carlstadt, in the county of Bergen and State of New Jersey, have invented a certain new and useful Improvement in Screw-Drivers, of which the following is a specification.

The invention relates to screw-drivers in which the blade is separable from the handle; and the object of the invention is to provide means whereby the blade shall be efficiently held to resist the torsional strains and end thrust to which a tool of this character is subjected and for permitting the easy separation of blade and handle when desired.

The invention consists in certain novel features and arrangements of parts by which the above objects are attained to be hereinafter described.

The accompanying drawings form a part of this specification and show an approved manner of carrying out the invention.

Figure 1 is a side elevation of the screw-driver in condition for service. Fig. 2 is a corresponding view showing the handle in longitudinal section. Fig. 3 is an edge view of the blade alone, and Fig. 4 is an end view or plan of the handle. Fig. 5 is a longitudinal section of the metal bushing forming the interior of the handle; and Fig. 6 is an elevation of one of the halves of the bushing, showing the holding-spring in position. Fig. 7 is on a larger scale and shows a cross-section through the bushing on the line 7 7 in Fig. 5.

Similar letters of reference indicate the same parts in all the figures.

A is the body of the handle, which may be of wood and of any preferred shape. It is formed with a cylindrical cavity extending through the neck A′ axially into the body, in which is received a tightly-fitting tubular bushing of metal, made preferably in longitudinal halves, each the counterpart of the other. Each semicylindrical half B is provided on its edges or margins with lips B′, matching to rabbets on the other, and with a wall B^2 at the lower end, forming when the halves are assembled a closed bottom for the tube or bushing. Extending longitudinally of the bushing along the central line of each half on its interior is a groove *b*. The two channels thus formed lie diametrically opposite each other and at a right angle to the line of junction of the halves. The bushing is also provided on each side with an open slot *b*′, formed by recessing the abutting edges of each half, and C is a flat metal or leaf spring of a width to match to the width of the slots and received in one of the latter. It is curved to project into the interior of the bushing at about the mid-length, the flat ends of the spring being received in cavities b^2 b^2, formed on the exterior of the bushing, as shown.

M is the shaft or blade of the screw-driver, cylindrical in cross-section and drawn or otherwise flattened at each end to form properly-shaped bits or points M′ M′, adapted to engage the usual slot in a screw-head. The engaging edges of the points may be each of the same length, as shown, but are preferably different to serve with different sizes of screws. In either case the flattened portion M^2 must be of a width to enter the grooves *b* *b* of the bushing and engage therein, and the shaft should fit the tubular interior of the bushing closely enough to be firmly supported thereby. The blade is engaged in the handle by forcing one of the points thus entered firmly home against the bottom of the bushing, the grasp of the spring C upon the shaft serving to hold the blade with sufficient force to prevent its accidental release, but permit its withdrawal when desired.

D is a ferrule driven upon the upper end or neck of the handle to reinforce this portion and provide an attractive finish.

Before inserting the bushing it may be coated with a suitable cement, aiding to resist the tendency to turn in the handle when the tool is in use. The slots *b*′ *b*′ serve usefully in this respect by permitting the material of the handle to expand therein when the bushing is driven home. The interlocking of the halves prevents the transmission to the wood of lateral strains which might otherwise tend to split the handle. The whole forms an eminently strong and efficient tool inexpensive to manufacture, and each handle may be supplied with several blades each offering two points for service.

Other means than the spring C may be employed to provide the required friction for holding the blade, and the slots *b'* may be omitted. The bushing may be cast in a single piece or may be cut from a suitably-formed tube, the bottom B^2 being simply a circular disk inserted in the recess in the handle below such tube. The grooves *b* may extend only part of the length of the bushing.

I claim—

1. A screw-driver blade comprising a cylindrical shaft having a flattened screw-engaging point at each end wider than such shaft, in combination with a handle having a longitudinal recess therein, a tubular bushing in said recess having a diameter to match to said shaft, and interior grooves receiving the widened portions of one of said points, and an abutment in said recess for receiving the end thrust of said blade.

2. A screw-driver blade comprising a cylindrical shaft having a flattened screw-engaging point at each end wider than such shaft, in combination with a handle having a longitudinal recess therein, a tubular bushing in said recess having a diameter to match to said shaft, and interior grooves receiving the widened portions of one of said points, an abutment in said recess for receiving the end thrust of said blade, and a spring in said bushing arranged to impinge against an inclosed portion of said blade.

3. A screw-driver blade comprising a cylindrical shaft having a flattened screw-engaging point at each end wider than such shaft, in combination with a handle having a longitudinal recess therein, a tubular bushing in said recess having a diameter to match to said shaft, and interior grooves receiving the widened portions of one of said points, an abutment in said recess for receiving the end thrust of said blade, the said bushing having a slot in its wall, and a curved leaf-spring lying in said slot and impinging against said shaft.

4. A tool-handle having a recess extending a portion of its length, a tubular bushing held in such recess and divided longitudinally into two parts, a longitudinally-extending groove formed on the interior of each of such semi-cylindrical parts, a longitudinally-extending slot in said bushing on the line of junction of said parts, formed partly in each, a lip on each edge of each of said parts matching to a rabbet on the other, a spring extending through said slot, and a closed bottom for said bushing formed partly on each of said parts, all arranged to serve with a screw-driver blade having a cylindrical shaft and a flattened screw-engaging point at each end adapted to engage in said grooves and abut against said bottom.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

PAUL A. WAGNER.

Witnesses:

CHARLES R. SEARLE,

F. E. ECCARTH.