

No. 815,758.

PATENTED MAR. 20, 1906.

L. S. STARRETT.
SCREW HOLDING SCREW DRIVER.

APPLICATION FILED SEPT. 14, 1904.

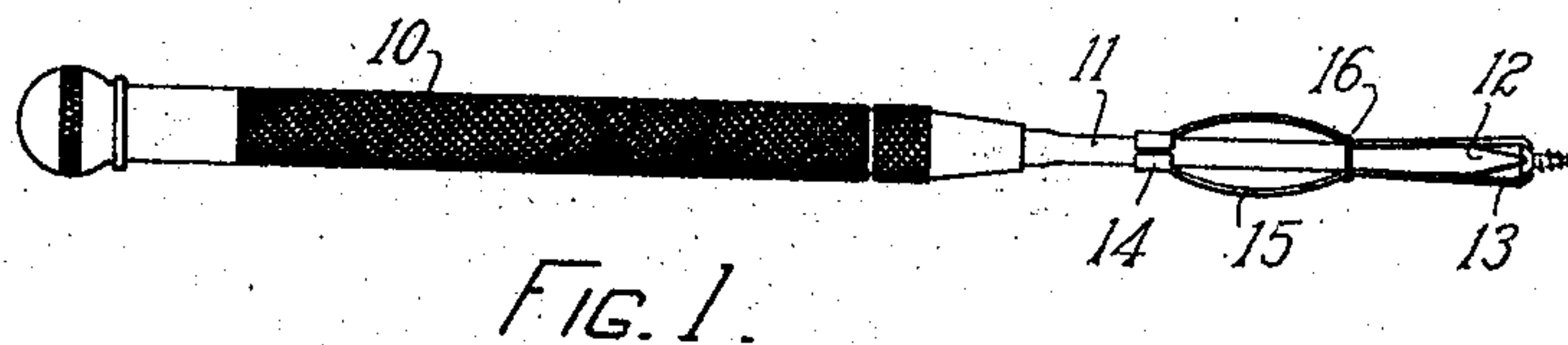


FIG. 1.

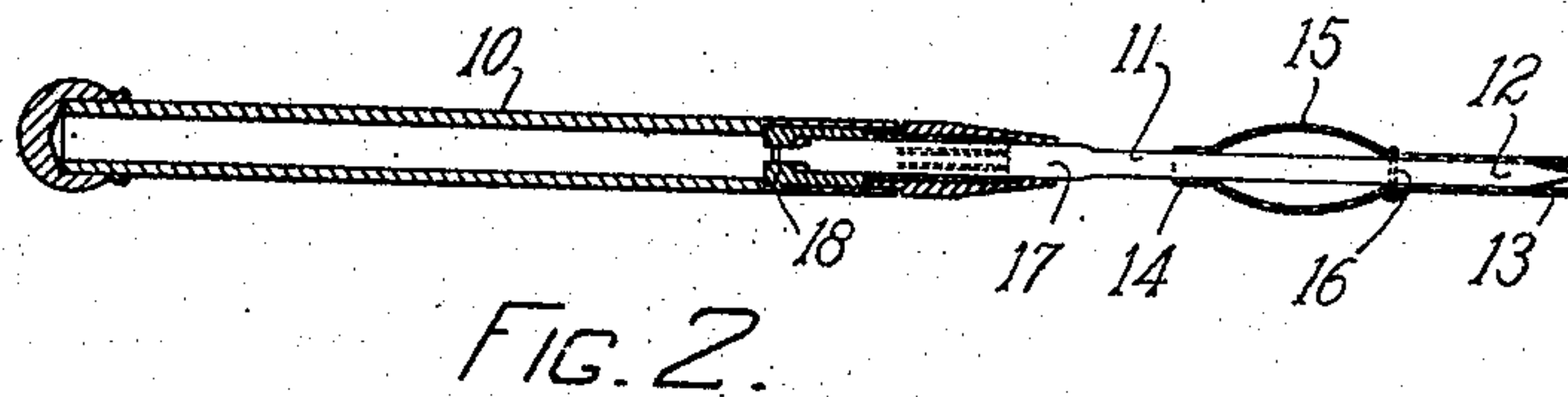


FIG. 2.

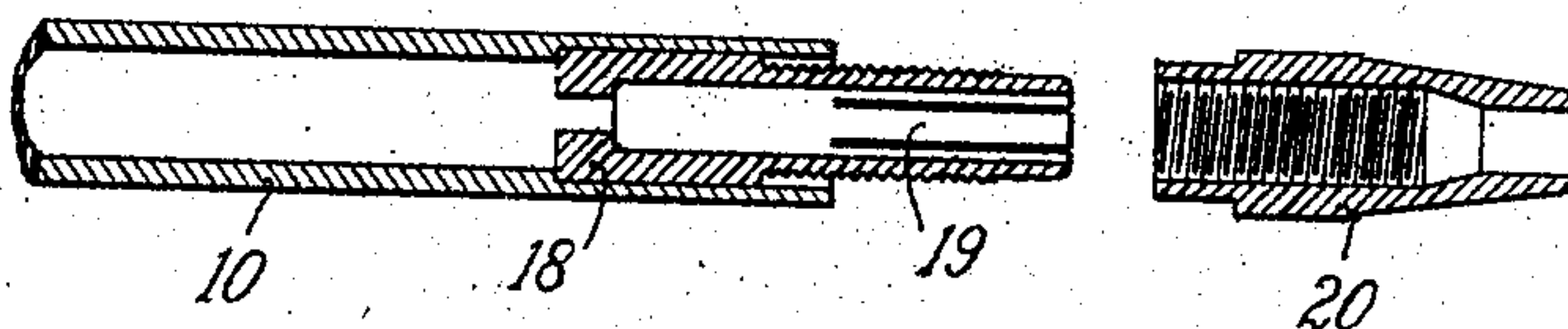


FIG. 3.

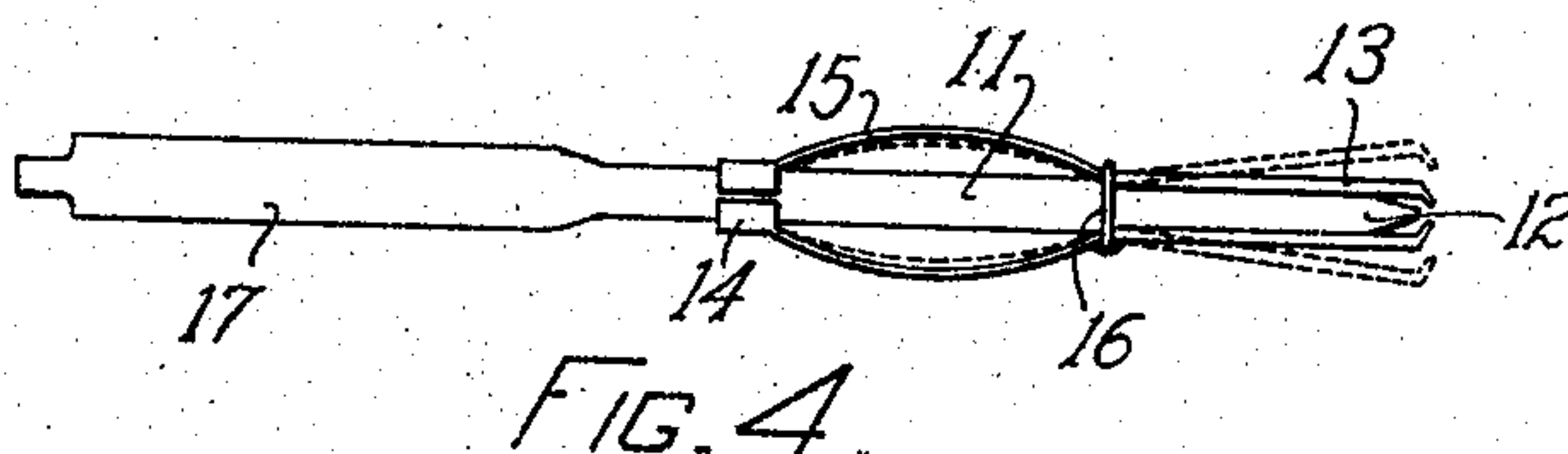


FIG. 4.

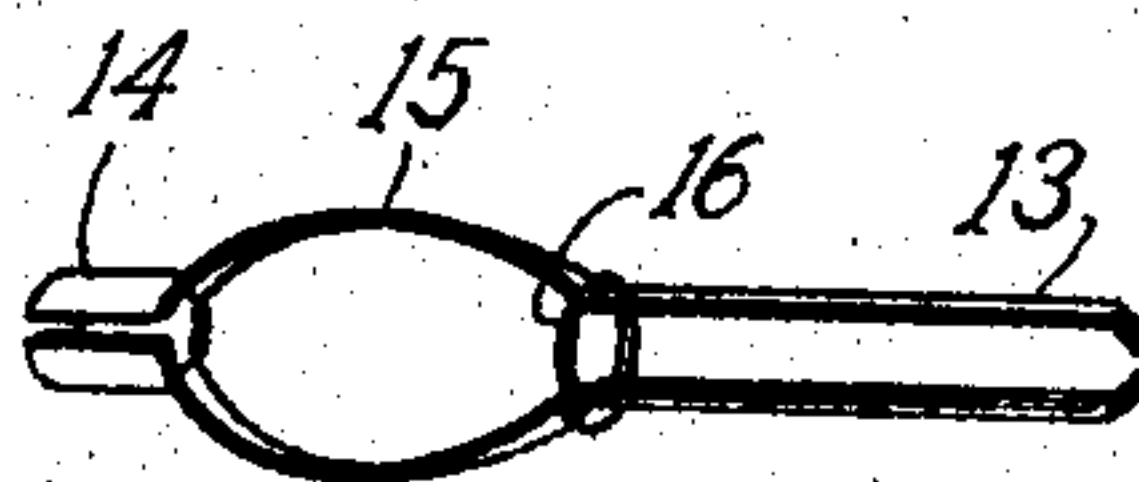


FIG. 5.

WITNESSES

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LARROY S. STARRETT, OF ATHOL, MASSACHUSETTS, ASSIGNOR TO THE
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SCREW-HOLDING SCREW-DRIVER.

No. 815,758.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed September 14, 1904. Serial No. 224,366.

To all whom it may concern:

Be it known that I, LARROY S. STARRETT, of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Screw-Holding Screw-Drivers, of which the following is a specification.

This invention is designed to provide a screw-driver especially adapted for use by opticians, watchmakers, and others using very small screws which cannot be readily held by the fingers or existing tools while being inserted.

My improvement furnishes a screw-driver operated by one hand to pick up, hold, and insert by rotation very minute screws, while the operator's other hand holds the watch or other article on which he is working.

In the drawings, Figure 1 represents the best form of my improved tool complete. Fig. 2 is a longitudinal section thereof. Fig. 3 is an enlarged sectional detail of the barrel, socket-piece, and clamping-nut. Fig. 4 represents, similarly enlarged, the spindle and bowed fingers removed from the barrel. Fig. 5 shows in perspective the fingers detached.

10 represents the barrel or hollow body of the tool, preferably milled or otherwise roughened externally to facilitate rotation and tapered at one end. From this tapered end the spindle 11 projects, terminating in the bit 12, which enters the slot of the screw-head.

The characteristic feature of this invention is the peculiar construction and operation of the pair of spring-fingers 13. Said fingers are preferably formed from a single piece of elastic metal integral with a neck portion 14, severed on one side and having a sliding frictional fit on the spindle. Such fingers along their outer portions or free ends lie normally parallel with and close to the spindle with inwardly-turned tips to engage the screw, and their inward portions near said neck are formed with integral convex bows 15, the extremities of which bear on the interposed spindle, so that when said bows are compressed on the spindle the free ends of the fingers open out, so as to pick up or release a screw. This peculiar action is illustrated in Fig. 4 in full and dotted lines, where it will be seen that inward pressure of the bows 15 toward the interposed spindle 11 flattens the arch of each bow somewhat and the spindle

becomes a movable fulcrum on which the free end of each finger is tilted outwardly. Releasing this pressure automatically closes the fingers. At such fulcrum-point I preferably place a ring 16 around the fingers, securing it by solder or otherwise to one of them. (See Figs. 4 and 5.) This ring confines the fingers at mid-length and reduces the danger of overstraining by any outward pressure at their tips when the bit of the spindle or head of a screw is protruded between and beyond them.

The spindle 11 is preferably made detachable with the fingers 13 14 15 from the barrel 10 for convenience in use for various purposes of the smaller but operative tool shown in Fig. 4, where the enlarged rear end 17 of the spindle may serve as a handle. The barrel has, therefore, within its open end a fixed internal socket-piece 18, shaped at its inner end to engage the flattened terminus of the spindle to insure its rotation with the barrel. There is also within the barrel a longitudinally-slitted friction-sleeve 19 to bear laterally on the inserted spindle to prevent it from dropping out. These two devices are preferably formed in one, as best shown in Fig. 3, and combined with a clamping-nut 20, adapted to screw upon the threaded exterior of the friction-prongs 19 and by an internal beveled shoulder to tighten them upon the spindle.

I claim as my invention—

1. In a screw-driver, the spindle with terminal bit, in combination with a pair of elastic fingers 13 connected by a neck 14 fitting adjustably on the spindle, such fingers at their free ends lying normally parallel with the spindle and having inwardly-turned tips, and being formed near said neck with convex bows 15, the extremities of which, when compressed, bear on the spindle and open said tips, substantially as set forth.

2. In a screw-driver, the spindle with terminal bit, in combination with a pair of elastic fingers connected by a cylindrical neck integral with said fingers and severed longitudinally along one side, such fingers having straight forward portions with inward-turned tips, a supporting-ring encircling them centrally, and convex bows between said ring and neck, said bows bearing terminally on the spindle and serving, when compressed

thereon, to spread or open out the free ends of the fingers, substantially as set forth.

3. In a screw-driver, the hollow barrel provided internally with a frictional device and
5 fixed socket-piece, to respectively secure the spindle frictionally to and for rotation with the barrel, in combination with a spindle removable from said parts and with a pair of elastic fingers mounted thereon, such fingers
10 having free ends normally parallel to the spindle, and convex bows the extremities of which bear upon the spindle, the tips of said fingers being adapted to be opened by compression of the bows, substantially as set
15 forth.

4. In a screw-driver, the spindle with a ter-

minal bit, in combination with a pair of oppositely-disposed elastic fingers slidably mounted on the spindle, such fingers having at their outer ends inwardly-turned tips, and
20 their inward portions being formed with integral convex bows, the extremities of which when compressed bear on the interposed spindle as a fulcrum, to open said tips, substantially as set forth.

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

LAROY S. STARRETT.

Witnesses:

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FRANK E. WING.