

(No Model.)

H. F. HENRY.
SCREW DRIVER.

No. 572,800.

Patented Dec. 8, 1896.

Fig 1.

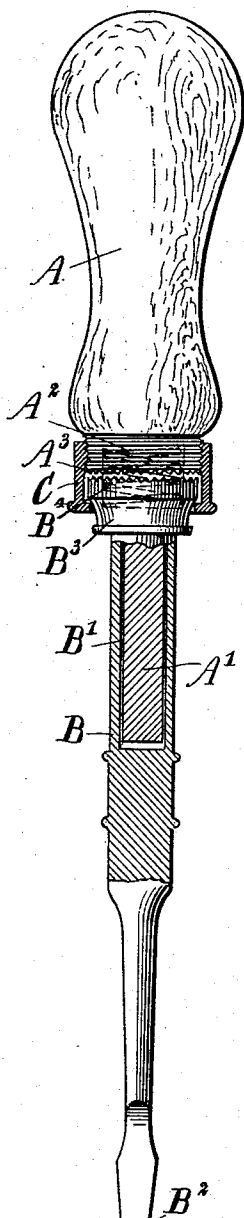


Fig 3.

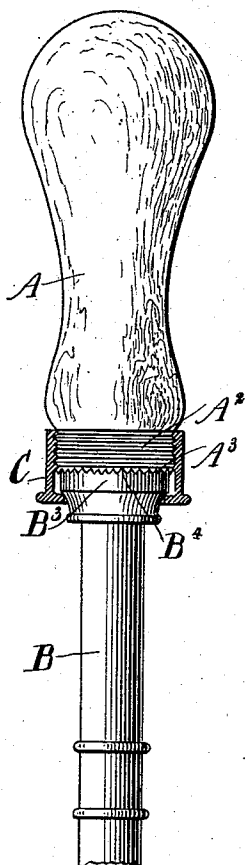


Fig 2.

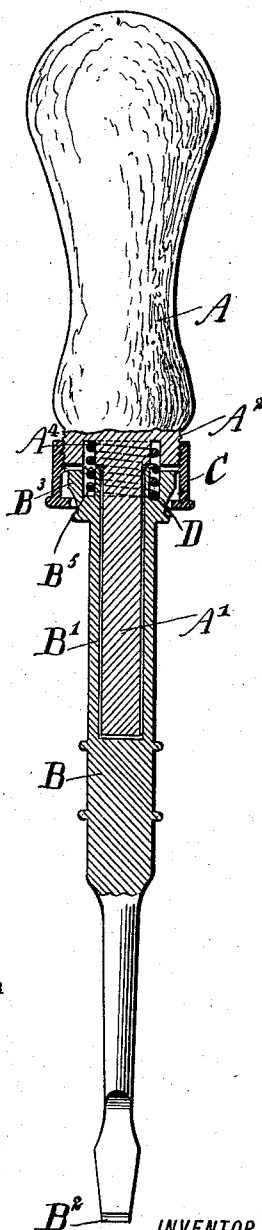
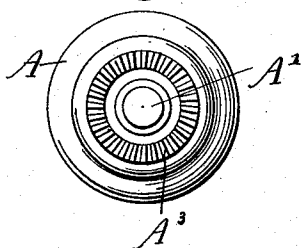


Fig 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HIRAM F. HENRY, OF CLEVELAND, OHIO.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 572,800, dated December 8, 1896.

Application filed March 25, 1896. Serial No. 584,864. (No model.)

To all whom it may concern:

Be it known that I, HIRAM F. HENRY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Screw-Driver, of which the following is a full, clear, and exact description.

The invention relates to ratchet screw-drivers; and its object is to provide a new and improved screw-driver which is simple and durable in construction and arranged to permit of working the handle rapidly and effectively forward and backward without disengaging the shank from the screw-slot and without requiring adjusting of the parts.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement, showing the parts in a normal or disengaged position. Fig. 2 is a sectional side elevation of the same with the teeth in mesh. Fig. 3 is a side elevation of the same with the cap in section, and Fig. 4 is an inverted plan view of the handle.

The improved screw-driver is provided with a handle A, formed at its lower end with a spindle A' and fitting into a correspondingly-shaped recess B', formed in the upper end of the shank B, provided at its lower end with the usual bit B² for engagement with the slot in the screw. The upper end of the shank B is formed with a head B³, made cylindrical and provided at the top with teeth B⁴, adapted to be engaged by correspondingly-shaped teeth A³, formed on the under side of the lower threaded part A² of the handle, said threaded part being engaged by a cap C, engaging the lower reduced part of the head B³ to hold the latter in place in the cap and to permit vertical movement of the head in said cap. The teeth A³ and B⁴ are held normally out of mesh, and for this purpose I employ a coil-spring D, set with its lower end in an annular recess B⁵, formed in the top of the head B³, the upper end of the spring extending into a similar recess A⁴, formed in the under side of the threaded

part A² of the handle A. Now it will be seen that by the arrangement described the spring D normally holds the handle A and shank B out of mesh at their teeth A³ and B⁴, respectively, but when the bit B² is engaged with the slot in the screw and a longitudinal pressure is given to the handle A then the teeth A³ are moved in mesh with the teeth B⁴, so that the operator upon turning the handle A rotates the shank B to drive the screw inward or outward, according to the direction in which the handle A is turned.

When the operator has given a turn to the handle A for screwing or unscrewing, and he desires to repeat it, then he slightly releases the longitudinal pressure on the handle without, however, disengaging the bit B² from the slot in the screw. As soon as the pressure on the handle is reduced the spring D forces the handle A outward to move the teeth A³ out of mesh with the teeth B⁴, to permit of returning the handle A to its former position without the operator releasing the grip on the handle and without disengaging the bit B² from the slot in the screw.

It will be seen that this screw-driver is very simple and durable in construction and permits of readily and effectively working the handle forward and backward without disengaging the shank from the screw-slot and without requiring an adjustment of the parts.

By forming the shank B with the recess B' the handle A may be left solid, thus preventing the weakening of the wooden handle by forming a recess therein. On the other hand, the metal shank B can well stand the weakening effect of producing the recess.

By fitting the opposite ends of the spring in annular recesses formed, respectively, in the handle and in the shank such ends of the spring are securely held and all breaking and bending of the spring is avoided, every coil being in the construction shown held at some part at all times in either the recess of the handle or that of the shank, as shown most clearly in Fig. 2.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The tool herein described consisting of the handle having at its lower end a central downwardly-projected spindle, having at its

inner or upper end an annular enlargement and an annular recess surrounding such enlargement and having surrounding such recess a flange having the series of teeth, the
5 tool-shank having in its upper end a socket to receive the spindle of the handle, having a flange surrounding the upper end of such socket and inclosing an annular recess separated from the socket and coincident with the
10 recess in the lower end of the handle, said flange having a series of teeth in position for engagement by those of the handle, the spring fitted at its opposite ends in the recesses in the handle and tool-shank and devices connecting the handle and shank, substantially
15 as shown and described.

2. The tool herein described consisting of the handle having at its lower end a central downwardly-projected spindle having at its
20 inner or upper end an annular enlargement and an annular recess surrounding such en-

largement and having surrounding such recess a flange having the series of teeth, the tool-shank having in its upper end a socket to receive the spindle of the handle, having
25 a flange surrounding the upper end of such socket and inclosing an annular recess separated from the socket and coincident with the recess in the lower end of the handle, said flange having a series of teeth in position for
30 engagement by those of the handle, the spring fitted at its opposite ends in the recesses in the handle and tool-shank and the tool-shank having an enlarged portion surrounding its upper end, and the cap held to the handle and
35 having an inwardly-extending flange fitting below such enlargement of the tool-shank, all substantially as shown and described.

HIRAM F. HENRY.

Witnesses:

GEORGE REXFORD,
JESSE C. MOORE.