(No Model.)

A. STEVENS.

SCREW DRIVER.

No. 371,225. Patented Oct. 11, 1887.

Fig. 2.

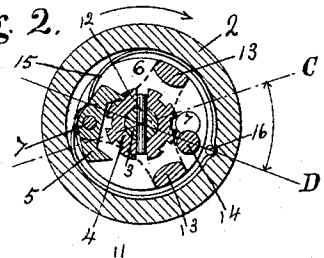


Fig. 3.

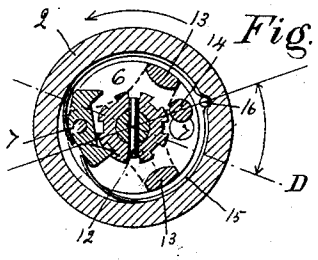


Fig. 1.

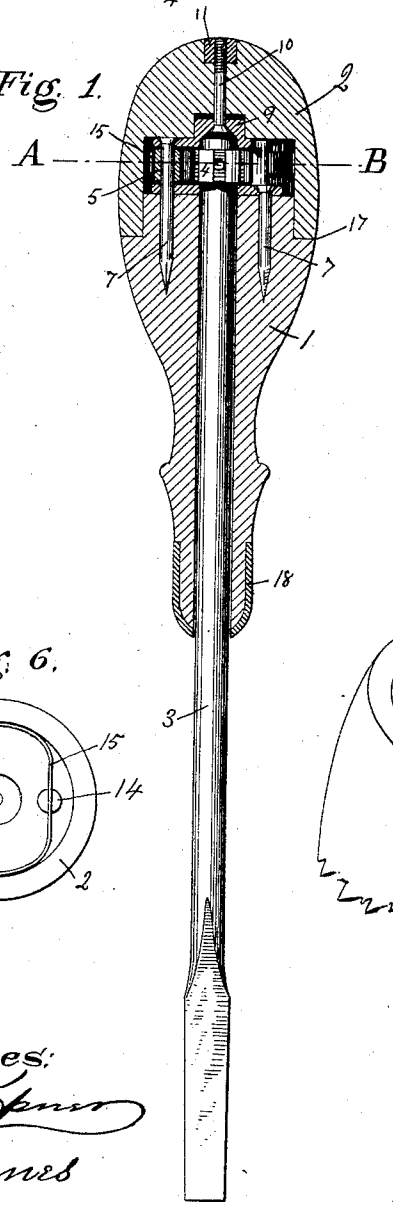


Fig. 4.

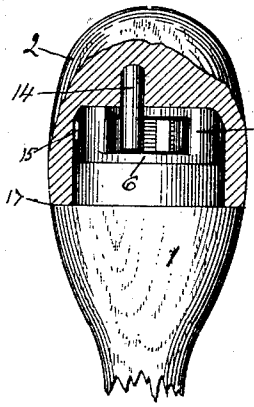
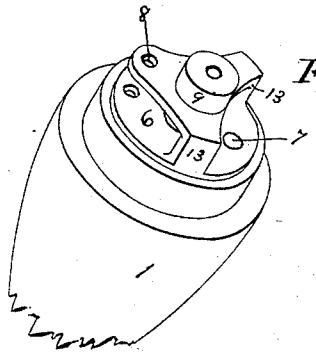


Fig. 6.

Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

AMOS STEVENS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM D. WOOLDREDGE, OF SAME PLACE.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 371,225, dated October 11, 1887.

Application filed June 2, 1887. Serial No. 240,019. (No model.)

To all whom it may concern:

Be it known that I, AMOS STEVENS, a citizen of the United States, residing at Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Screw-Drivers, of which the following is a specification.

My invention relates to that class of tools in which an intermittent rotary motion is imparted to the tool-bit by an intermittent to-and-fro motion of the handle; and the objects attained by my invention are, reliable action of the parts, enabling the tool-bit to be rotated in either direction, as desired, and capable of being used as a ratchet or a plain screw-driver, and simplicity and strength of construction. I attain these objects in the following manner:

Figure 1 is a longitudinal section through the handle of a screw-driver. Fig. 2 is a cross-section through line A B, showing the parts in the position to rotate the bit in the direction of the arrow or to drive a right-hand screw. Fig. 3 is a cross-section through same line, showing the parts in position to rotate the bit in opposite direction or to back a right-hand screw. Fig. 4 is a partial elevation with part of handle broken away, showing the stop-pin. Fig. 5 is a perspective view of one of the parts secured to the handle, and Fig. 6 is a view illustrating a mode of attaching the spring.

Similar figures apply to similar parts in the several views.

The handle is composed of two parts, 1 and 2. To 1 is attached the casting 6, consisting of two disks connected by the members 13. The upper disk is cut away on three sides, as shown in Fig. 5, and is provided with boss 9, having hole for the screw 10 and countersunk for the end of the spindle, as shown in Fig. 1. Casting 6 is secured to 1 by two or more nails, 7, one of them being inserted in hole 8, and forms a pivot for pawl 5. 1 is provided with ferrule 18, and has a hole through which the spindle or bit is thrust and free to rotate. A pinion, 4, is placed between the two disks of casting 6, and, secured to the spindle by pin 12, engages with pawl 5.

The part of handle numbered 2 has a spring, 15, attached by pin 16, with its two ends bent inward in contact with pawl 5. A stout stop-pin, 14, is inserted in this part of the handle. The two parts of the handle are secured together by the screw 10 and nut 11.

The various parts having been constructed and put together in the form and manner stated, and the nut 11 adjusted to give the desired friction between the two parts 1 and 2 at joint 17, the two parts of the handle may be grasped and the part 2 rotated through the arc C D, Figs. 2 and 3, in relation to 1. This movement is limited by stop-pin 14, bearing against casting 6. The office of this movement is to bring the points of spring 15 to bear on either side of the pawl 5, to engage either point with pinion 4. For instance, suppose it is desired to put the parts in position to drive a right-hand screw, which is the direction shown by arrow, Fig. 2. The parts are then put to the relative position shown in Fig. 2, with stop-pin on line D. The points of the spring now bear on one side of the pawl, and it engages one point with pinion 4. In this position the tool may be used as a ratchet or plain screw-driver to turn in the direction indicated.

The operation of turning the handle to and fro does not alter the relative position of the two parts 1 and 2, as the friction between them is considerable, and they rotate about spindle 3 as one piece. Moreover, the stop-pin 14, bearing against casting 6, receives the pressure from bit, and the direction it is rotated against pressure is the same as when put in position. When it is desired to rotate the bit in the opposite direction, the parts 1 and 2 are placed in the relative position shown in Fig. 3, or with stop-pin on line C. The points of the spring 15 are now bearing on the other side of the pawl, and the ratchet movement is in the opposite direction, as indicated by arrow.

The spring 15 may be attached, as shown in Fig. 6, by forcing it into a slot in the stop-pin 14.

Having described the construction and operation of my improved screw-driver, what I claim as my invention, and wish to secure by Letters Patent, is—

1. The combination of a handle made in two parts, said parts capable of being rotated one

upon the other, said rotary movement being limited by a stop-pin inserted in one of said parts, and a bearing-piece for same secured to the other part, said bearing-piece being adapted to retain a pawl, means for holding the parts together, and a pawl, pinion, and tool-bit, substantially as described, and for the purpose specified.

2. The combination of a handle made in two parts, a tool-bit with pinion secured thereto, and the casting 6, secured to one part of the handle, said casting being adapted to retain the pawl 5, and also having members 13, which serve as bearings for stop-pin 14, said stop-pin being secured to the other part of the handle, to which is also secured the spring 15, having inward-projecting points adapted to engage with said pawl, substantially as described, and for the purpose specified.

3. A ratchet screw-driver consisting of a handle made in two parts, designated by 1 and 2, a tool bit with pinion secured thereto, the casting 6, secured to part 1 of said handle, said casting having the pawl 5 pivoted between its members, and also serving as a bearing for stop-pin 14, and part 2 having inserted in it the said stop-pin and also having secured to it the spring 15, said parts 1 and 2 being secured together by screw 10 and nut 11.

4. A ratchet screw-driver consisting of a tool-bit with pinion secured thereto, a handle made in two parts and designated by 1 and 2, pawl 5, having two points, casting 6, having members 13 and secured to part 1 of said handle, stop-pin 14 and spring 15, secured to part 2 of said handle, and screw 10 and nut 11, for the purpose of holding the parts together, as described.

AMOS STEVENS.

Witnesses:
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