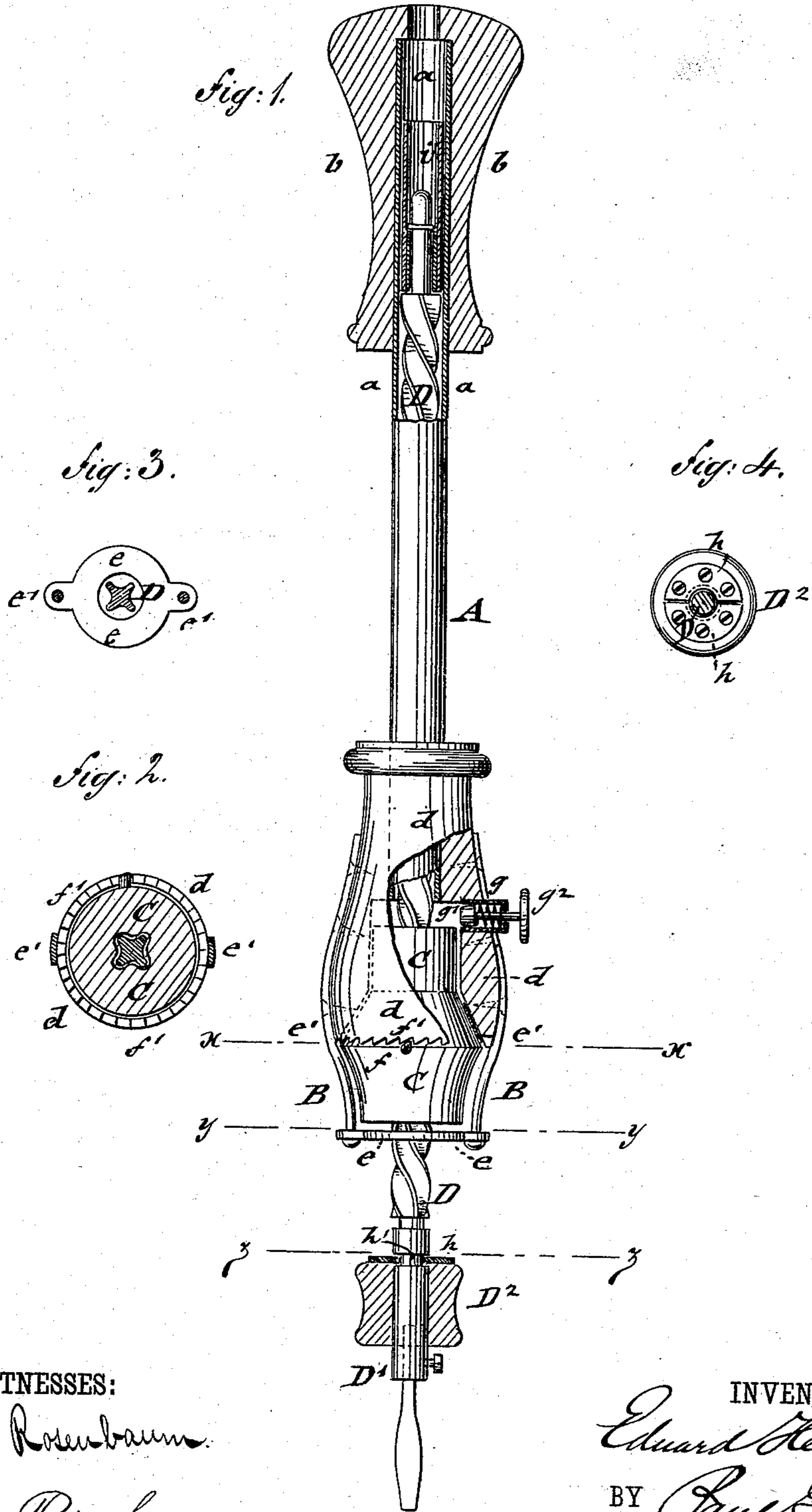


(No Model.)

E. HERZIG.  
SCREW DRIVER.

No. 261,925.

Patented Aug. 1, 1882.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDUARD HERZIG, OF JERSEY CITY, NEW JERSEY.

## SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 261,925, dated August 1, 1882.

Application filed May 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, EDUARD HERZIG, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Screw-Drivers, of which the following is a specification.

This invention has reference to an improved implement for quickly and reliably driving in screws, to be used in cases in which large numbers of screws have to be driven, as in machines for winding, twisting, and spinning silk and other fibers; and the invention consists of a tubular handle which is provided at the lower end with a fixed stirrup that retains the nut through which the spirally-twisted spindle passes. The nut is provided with a projecting-stop that engages a ratchet at the lower end of the handle. A spring-stop of the handle serves to retain the nut so as to prevent its engagement with the ratchet when the device is to be used for unscrewing screws. An axially-turning collar and a fixed clamp-socket are applied to the outer end of the screw-spindle for applying an interchangeable bit thereto, while the opposite end of the spindle has an interior bearing-sleeve, whereby the contact of the spindle with the tubular handle is prevented.

In the accompanying drawings, Figure 1 represents a side elevation, partly in section, of my improved screw-driving implement; and Figs. 2, 3, and 4 are respectively horizontal sections of the same on lines  $xx$ ,  $yy$ , and  $zz$ , Fig. 1.

Similar letters of reference indicate the corresponding parts.

A in the drawings represents the tubular handle of my improved screw-driver, which is preferably made of a tube,  $a$ , a wooden handle portion,  $b$ , at the upper end, and of a corresponding wooden portion,  $d$ , at the lower end. To the lower portion,  $d$ , is applied a fixed stirrup, B, the ring-shaped end plate,  $e$ , of which is supported by two fixed rods,  $e'$ , that are attached at diametrically-opposite points to the lower handle portion,  $d$ . The stirrup B serves to retain the nut C, whereby a spirally-twisted screw-spindle, D, arranged inside of the tubular handle A, is revolved when the handle, with the nut C, is moved forward toward the point where the screw is to be driven in. The nut C is provided with a projecting stop,  $f$ , at

its circumference, which engages the teeth of a ratchet,  $f'$ , formed at the lower end of the handle portion  $d$ . The nut C has sufficient play in the stirrup B, so that its stop  $f$  can clear the teeth of the ratchet  $f'$  and turn freely with the screw-spindle D during the backward motion of the handle when the bit is applied to the nick of the screw to be inserted and screwed in. The lower handle portion,  $d$ , is provided above the upper end of the nut C with a small guide-socket,  $g$ , that serves to guide a spring-pressed stop,  $g'$ , the shank of which has an exterior head,  $g^2$ . By pressing upon the head  $g^2$  and throwing the stop  $g'$  inward over the upper end of the nut C the same is retained and its stop  $f$  prevented from engaging the ratchet  $f'$  of the lower handle portion. The result is that the spindle is revolved around its axis in opposite direction by the return of the handle, and thereby the implement also adapted to withdraw screws quickly and conveniently. The lower exterior end of the screw-spindle D is provided with a socket,  $D'$ , and a clamp-screw for inserting therein bits of different sizes, and with a loosely-turning collar,  $D^2$ , that is secured by two semicircular washers,  $h$ , to a groove or throat,  $h'$ , of the end socket,  $D'$ , of the screw-spindle, as shown clearly in Figs. 1 and 4. The upper end of the screw-spindle D, which moves in the tubular handle A, is made of cylindrical shape and applied by means of the collar to a sleeve,  $i$ , of slightly larger diameter than the spindle D. The sleeve  $i$  has an interior stop-sleeve,  $i'$ , below the collar of the spindle end, so as to be retained thereon, and serves as a bearing for the screw-spindle in the tubular handle, so that the spindle itself is not brought in contact with the interior surface of the handle. By this arrangement the motion of the spindle in the handle is facilitated and rendered smooth and easy.

The screw-driving device is operated as follows: The bit is applied to the nick of the screw, which is held in position with the thumb and forefinger, while the remaining fingers and ball of the hand take hold of the loose collar  $D^2$ . The handle is now drawn back away from the collar, whereby as the spindle is retained by the screw the nut C is compelled to follow the spindle and rotate in the stirrup until the handle arrives at the uppermost end of

the spindle and is stopped by the interior sleeve-bearing of the same. By the forward motion of the handle the ratchet at the end of the handle engages the stop of the nut, so as  
5 to retain the latter in position and compel the screw-spindle to rotate, whereby the screw is quickly screwed in at the desired point simply by the quick forward motion of the handle. A screw may be withdrawn by the backward mo-  
10 tion of the handle, if the spring-stop is forced in over the nut so as to stop the same. In this manner a large number of screws can be screwed in or withdrawn at a considerable saving of time and labor, as the turning action is  
15 greatly facilitated and expedited by the use of this implement.

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

20 1. In a screw-driving implement, the combination of the tubular handle A, having a stirrup, B, with a nut, C, retained by said stirrup, and with a screw-spindle, D, passing through

said nut and revolving therein, the nut being arranged with a projecting stop, *f*, that engages a ratchet, *f'*, at the lower end of the  
25 handle, substantially as set forth.

2. In a screw-driving implement, the combination, with the tubular handle A, having a stirrup, B, at the lower end of a nut, C, that is adapted to engage by a stop, *f*, the teeth of a  
30 ratchet, *f'*, at the lower end of the handle, of a spiral screw-spindle, D, said spindle being guided at the upper end by a sleeve-bearing in the tubular handle, and provided at the lower end with a bit-socket and movable col-  
35 lar, substantially as set forth.

In testimony that I claim the foregoing as my invention have signed my name in presence of two subscribing witnesses.

EDUARD HERZIG.

Witnesses:

JOHN CATIN,

JACOB LUTHER.