

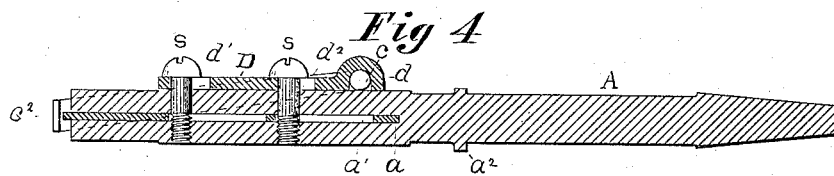
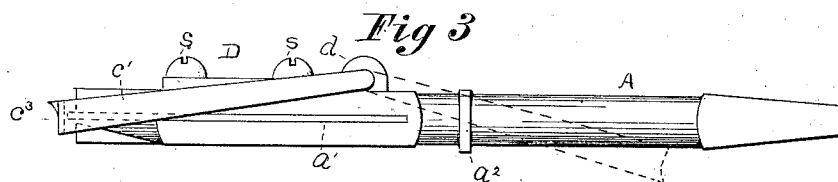
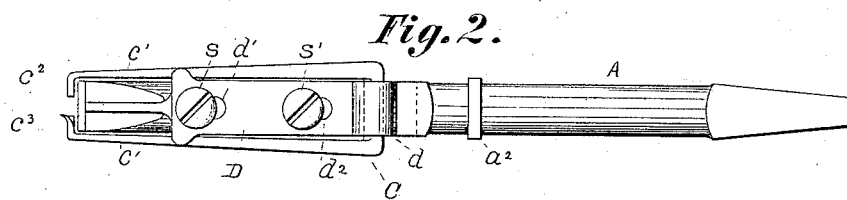
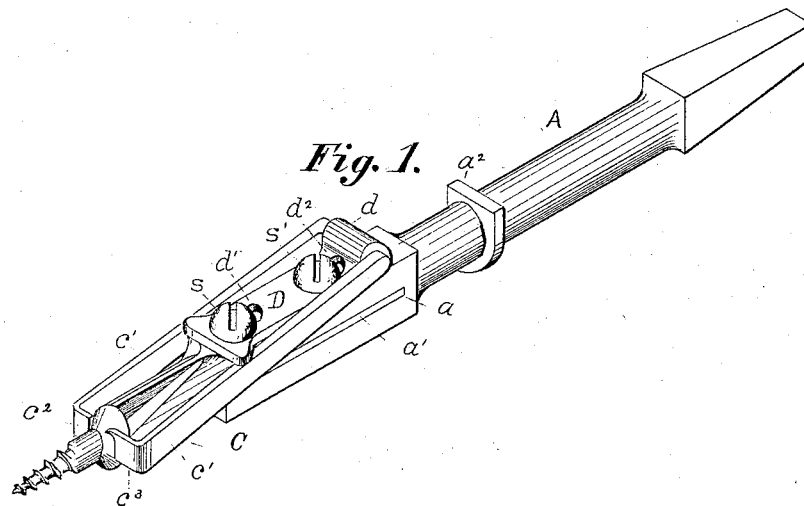
(No Model.)

G. W. HAEL.

SCREW DRIVER.

No. 306,394.

Patented Oct. 14, 1884.



*Witnesses:*

*Robt. Kalkhoff*  
*P. Hargrave*

*Inventor:*

*George W. Hael.*  
*By P. H. Gunkel*  
*Attorney.*

# UNITED STATES PATENT OFFICE.

GEORGE W. HAEL, OF MINNEAPOLIS, MINNESOTA.

## SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 306,394, dated October 14, 1884.

Application filed August 23, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. HAEL, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Screw - Drivers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings.

My invention relates to screw-drivers having clamps for holding the screw; and it consists in pivoting a spring-clamp, by means of a plate, to the side of a bit-shank, and in such construction and adjustment of the clamp to the bit that the clamp will automatically release itself from the screw when brought in contact with the wood.

In the drawings, Figure 1 is a perspective of a screw-driver with my improvement. Fig. 2 is a top view; Fig. 3, a side view, and Fig. 4 a vertical longitudinal sectional view of Fig. 3.

A is a bit-shank, which should be square for a distance of about two and a half inches from its head, and I preferably make the head stellated by channeling out the corners, in order that the operator can see the screw-head while operating the driver. In the head of the bit-shank is the central slot, *a*, extending, preferably, to about the end of the square portion of the shank, or nearly two and a half inches. In this slot is inserted a steel plate, *a'*, the length of the slot, and the plate has a longitudinal slot along its center from near the rear end for about an inch and a half, whereby it may be adjustably secured within the shank by means of the screws *s s'*. By this means the plate can be removed for sharpening, or adjusted to the proper distance beyond the head. The long slot in the shank gives springiness to the sides, enabling them to more firmly clamp the plate *a'*. It is desirable that the plate *a'* should project but a short distance beyond the shank-head, so that when inserted in a screw-head slit the screw-head will bear against the end of the shank of the driver.

C is a spring clamping device composed of the round middle portion, *c*, the two flattened arms *c' c'*, bent nearly at right angles to the pivoted part *c*, and the inwardly-bent clamping ends *c'' c''*. The end *c''* is slightly rounded

and beveled along the under edge. The end *c''* is also rounded and beveled at the under edge, and has an outwardly-projecting lip, for the purpose of throwing off the clamp when the projecting lip comes in contact with the material into which the screw is being entered. This lip should be on the side in the direction in which the clamp is turned in entering a screw. The clamps *c' c'* should be set quite close to the bit-edge, in order to clamp small screws firmly.

D is a plate provided with a bent end, *d*, which bent portion serves as a bearing for the pivot of the clamp C.

*d' d'* are slots in the plate D to receive the screws *s s'*. These slots should be slightly elongated, to allow longitudinal adjustment of the plate and clamp C. The forward end of the plate D is made sufficiently wide to prevent the clamp from turning back in that direction.

*a''* is a ring or enlargement on the shank A, tapering toward the lower side, and serves to hold the clamp when it is thrown back from the screw-head.

The clamp described can be attached to any well-known form of bit-shank by means of the plate D and screws *s s'* by providing holes or a suitable slot in the bit-shank.

In operating the tool, the slit of a screw-head is adjusted to the bit-edge, and the operator presses the clamps over the screw-head, which is thus firmly held against the head of the bit-shank, and the screw may be entered into wood without preliminary driving or boring to start it. As the screw enters and the lip of the clamp *c''* is brought in contact with the wood, the clamps are automatically released, and the elasticity of the clamping device swings it back to the ring *a''*, by which it is engaged and held out of the way of the operator.

In drawing a screw, it is first started in the usual manner far enough to receive the clamps. Then the clamps are pressed over the screw-head, and the screw can be drawn without pressure being exerted to keep the bit-edge in the slit, thus greatly facilitating the operation.

In a previous patent (No. 303,003) I have shown and claimed, in combination, a clamping device having notched clamps, but other-

wise similar to that herein shown, and I therefore do not claim, broadly, such combination; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination, with a screw-driver bit, of the spring clamping device C, adjustably secured at the side of said bit by means of the plate D and screws *s s'*, substantially as and for the purpose set forth.

2. The combination of the bit-shank A, provided with the slot *a*, bit-plate *a'*, and ring *a''* with the spring clamping device C, when pivoted at the side of the bit-shank by means as described, substantially as set forth.

3. The combination, with a screw-driver bit, of a spring clamping device, composed of the pivotal portion *c*, arms *c'*, and clamps *c'' c'''*, both of which clamps have rounded and beveled edges, and one of them an outwardly-projecting lip, when the said clamping device is pivoted at the side of said bit, substantially as described.

GEORGE W. HAEI.

Witnesses:

P. H. GUNCKEL,  
CHAS. WECHSLER.