(No Model.)

F. L. HAMLEN & Z. T. FURBISH.

SCREW DRIVER.

No. 307,187. Patented Oct. 28, 1884.

Fig. 1.

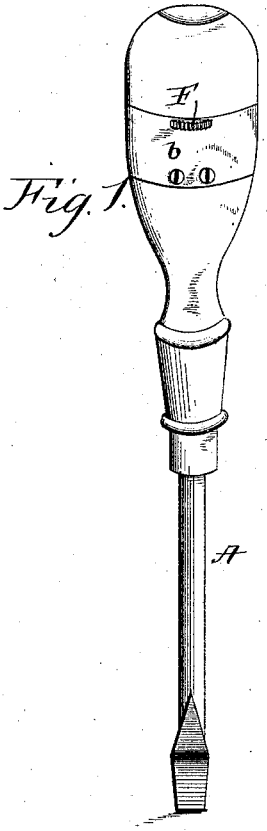


Fig. 2.

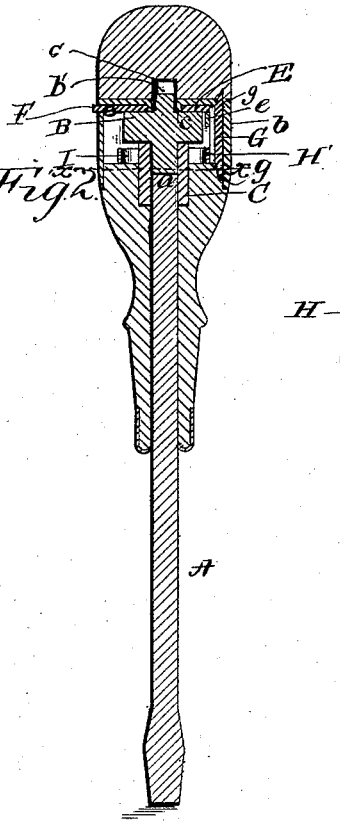


Fig. 3.

Fig. 4.

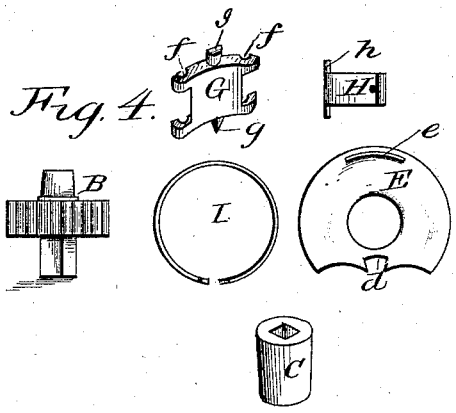
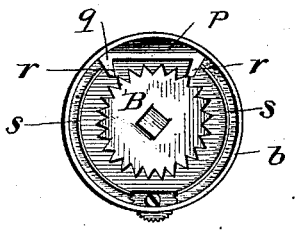


Fig. 5.



WITNESSES

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FRANKLIN L. HAMLEN AND ZACHARY T. FURBISH, OF AUGUSTA, MAINE.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 307,187, dated October 28, 1884.

Application filed July 28, 1884. (No model.)

To all whom it may concern:

Be it known that we, FRANKLIN L. HAMLEN and ZACHARY T. FURBISH, citizens of the United States, residing at Augusta, in the county of Kennebec and State of Maine, have invented a new and useful Screw-Driver, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to screw-drivers; and it has for its object to provide a device of this character which may be operated continuously to insert or withdraw a screw without removing the blade from engagement with the screw.

A further object of the invention is to provide improved means whereby the blade or spindle may be turned in either direction.

With these ends in view the invention consists in the improved construction and combinations of parts, hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a screw-driver constructed in accordance with our invention. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section on the line *x x* of Fig. 2. Fig. 4 is a perspective view of parts detached, and Fig. 5 is a modification.

In the accompanying drawings, in which like letters of reference indicate corresponding parts in all the figures, A represents the blade or spindle, which is squared at its upper end, as shown at *a*. The handle of the driver is constructed of two sections, which are connected by a metal band, *b*, which is let into the handle so as to be flush with the sides or walls of the same. In the upper end of the handle, or, more properly, the upper section is provided a cylindrical recess, *b'*, in which is seated a metallic tube or bushing, *c*. Adapted to bear in this tube or bushing is a pinion, B, the other end of which is provided with a squared shaft. Fitting upon this squared shaft of the pinion is a sleeve, C, which has a correspondingly-squared opening or passage. The upper end of the spindle A, which is squared, is seated in this sleeve, from which it will be seen that if said pinion is turned in either direction it will impart motion to the spindle by means of the squared connecting-sleeve. The upper end of the tube or bushing *c* projects a sufficient distance above the opening of the handle to serve as a bearing or shaft for a disk, E, which turns thereon. This disk is provided on its side or edge with a dovetailed slot, *d*, and the edges adjacent to said slot are recessed or cut away. On a line with this slot, at the opposite side or edge of the disk, is provided an upwardly-projecting lug, *e*, which, if desired, might be formed integral with the disk.

F represents a thumb-disk, which is pivoted to the lower side of the upper section composing the handle. A portion of this disk projects or extends through a slot in the side of the cap *b*. This disk F is cut away to form a dovetailed nib or lug, which when in its normal position fits in the dovetailed slot of the disk E. It will be seen that by turning said disk to the right the disk having the dovetailed slot will be moved in a reverse direction, and vice versa. Just in rear of the lug *e*, when in its normal position, is formed a recess or depression, in which is seated a pin, *g*, extending downwardly from a bracket, G, which is concave to conform to the shape of the cap-plate *b*. The ends of this bracket are cut away to form notched ears at each corner of the same.

H represents pawls formed with trunnions *h*, which are fitted in the notches of the bracket G, their free ends being adapted to engage with the teeth of the pinion B.

I represents a flat spring which fits around the pinion B and engages the outer or free ends of the pawls H H', from which it will be seen that when the shipping-disk is in the position shown in Fig. 3 the said pinion B cannot turn in either direction, as both of the pawls engage therewith.

In operation, if it is desired to insert a screw the shipping-disk is turned to the left, and thus throws the pawl H' out of engagement with the pinion, while the pawl H remains in engagement therewith. Thus the driver may be turned to the right to drive the screw, and in getting a fresh hold the pawl H slips over the pinion B until it is attempted to turn the driver to the right again, from which it will be seen that when the pawl H is in engagement with the pinion the handle is rigid with the pinion when turning to the right, but when turning

to the left the handle slides or turns without moving the pinion. When it is desired to remove a screw, the shipping-disk is turned to the right and disengages the pawl H and throws the pawl H′ into engagement. The driver may now be turned to the left and will hold rigid, but will turn loosely to the right, so that the driver may be operated without removing the hand from the same.

It will be seen that by the use of our improved screw-driver a screw may be either inserted or withdrawn by a continuous movement without removing the driver from the slit in the head of the screw or the hand from the handle of the same. The driver is also simple in its construction, may be manufactured and supplied at a slight cost, and is thoroughly effective in its operation.

In Fig. 5 we have shown a modified form of means for shipping the pawls. To reverse the movement of the blade in this case there is a strip of metal, *p*, having a rounded rear side which fits against the rear wall of the casing, its front side or wall being flat, as shown. Bearing against the flat side of the strip *p* is a strip, *q*, having at each end an outwardly-extending tooth or nib, *r*, either one of which is adapted to engage the teeth of the pinion. In this case the thumb-disk has two spring-arms, *s*, which bear upon the ends of the nibs or teeth. It will thus be seen that to ship the pawls to enable the blade to be moved in a reverse direction it is only necessary to move the thumb-disk, which will move the laterally-sliding bar, and one of the nibs or teeth thereof will engage the pinion-wheel.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a screw-driver, the combination, with the handle having a pinion loosely mounted therein, of a blade or spindle arranged to turn with the pinion, pawls adapted to engage the latter, a spring fitting around the pinion, a shipping-disk arranged to bear against the spring to throw either of said pawls into or out of engagement, and a thumb-disk or shifter arranged to rotate or turn the shipping-disk in either direction, as set forth.

2. In a screw-driver, the combination, with the handle having a pinion loosely mounted therein, of a blade or spindle connecting with the pinion, spring-pressed pawls engaging with the latter, a shipping-disk for throwing either of said pawls into or out of engagement, and a thumb-disk arranged to rotate or turn the shipping-disk in either direction, as set forth.

3. In a screw-driver, the combination, with the handle having a pinion mounted therein, of a blade or spindle connecting with the pinion, a bracket arranged within the handle and provided with notched ears, pawls having their trunnions fitted in the notches of said ears, a spring or springs operating upon the pawls, a shipping-disk for throwing the latter into or out of operation, and a thumb-disk arranged to rotate or turn the shipping-disk in either direction, as set forth.

4. In a screw-driver, the combination, with the handle having a pinion mounted therein, of a blade or spindle connecting with the pinion, pawls engaging with the latter, a spring operating against the pawls, a shipping-disk provided with a lug fitting between said pawls, and a thumb-disk arranged to rotate or turn the shipping-disk in either direction, as set forth.

5. The combination, with the pinion B, having a shaft turning loosely at one end within the handle, and having its other end squared, of the spindle or blade having its upper end squared, and a sleeve or collar provided with a square opening to receive the ends of the shaft and blade, as and for the purpose set forth.

6. In a screw-driver, the combination of a pinion mounted in the handle thereof, a blade or spindle rigidly connected therewith, pawls adapted to bear against said pinion, a spring bearing against said pawls, a disk having an upwardly-projecting lug fitting between said pawls, said disk having a slot, as shown, and a pivoted disk, F, projecting through an opening in the side of the handle and having a lug fitting said slot, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signature in presence of two witnesses.

FRANKLIN L. HAMLEN.
ZACHARY T. FURBISH.

Witnesses:
E. W. WHITEHOUSE,
L. M. PERCIVAL.