(No Model.)

I. M. FURBISH.

SCREW DRIVER.

No. 277,561. Patented May 15, 1883.

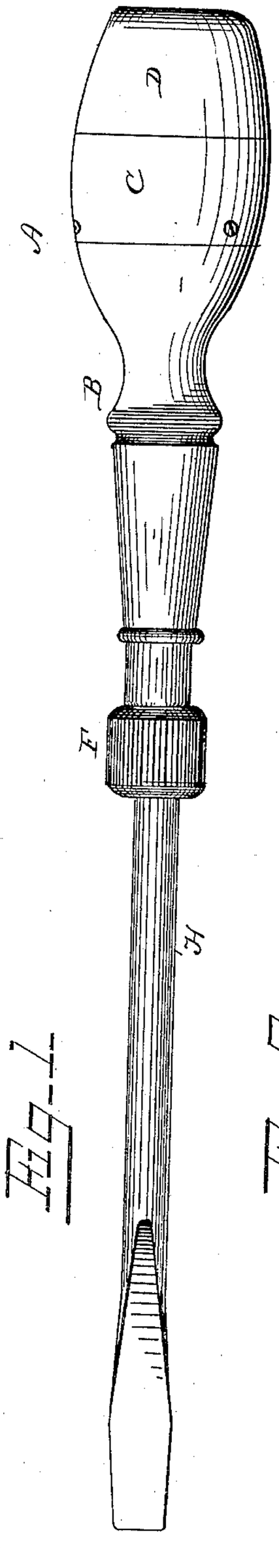

FIG. 1.

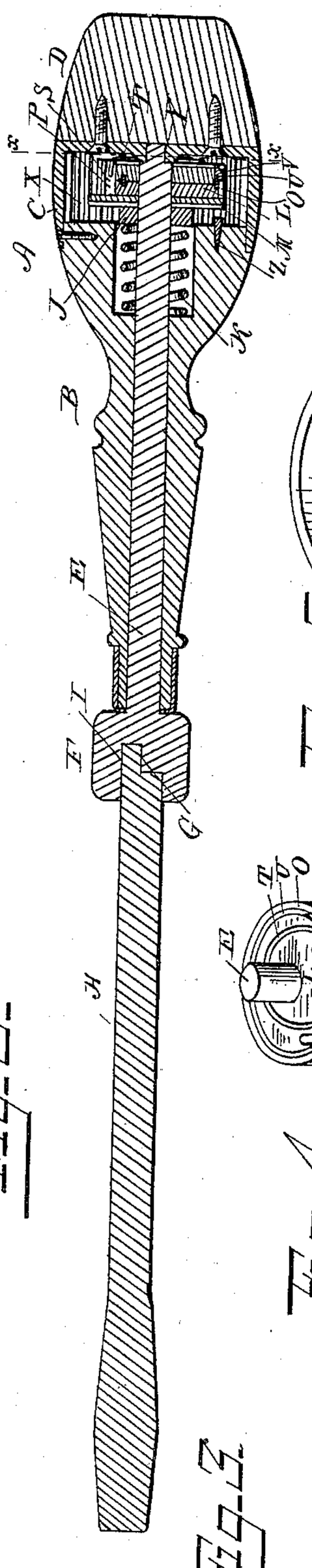

FIG. 2.

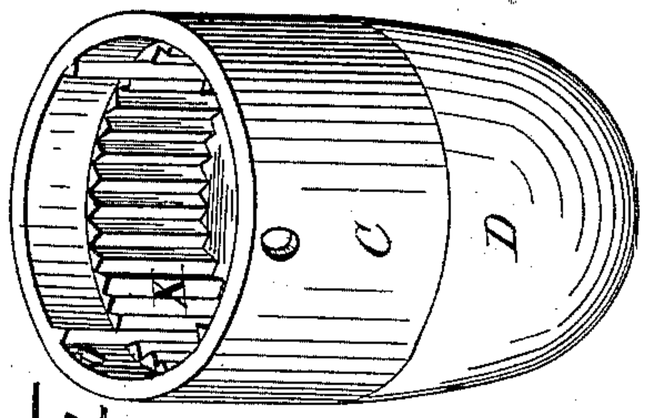

FIG. 3.

FIG. 4.

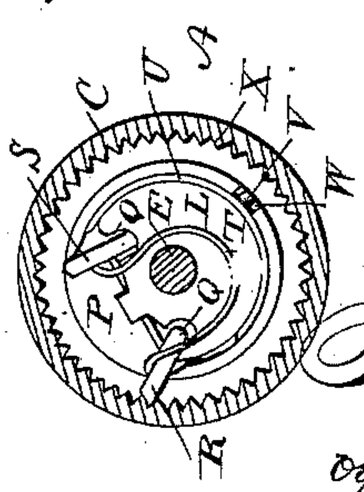

FIG. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

ISAIAH M. FURBISH, OF AUGUSTA, MAINE.

SCREW-DRIVER.

SPECIFICATION forming part of Letters Patent No. 277,561, dated May 15, 1883.

Application filed March 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, ISAIAH M. FURBISH, a citizen 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.

This invention relates to reversible screw-drivers; and it consists in certain improvements in the construction of the same, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side view of my improved screw-driver. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a section on the line *x x* in Fig. 2. Fig. 4 is a detail view, in perspective, of the operating mechanism; and Fig. 5 is a detail view, in perspective, of the cap or cover forming the end of the handle.

The same letters refer to the same parts in all the figures.

A in the drawings represents the handle, which comprises the outer portion, B, a cap or casing, C, (which will be hereinafter more fully described,) and a knob or butt, D. The part B is perforated longitudinally to accommodate the rod or spindle E, which carries at its outer end a socket, F, having a notch or recess, G, to receive and hold the screw-driver H, the inner end of which is correspondingly notched, as at I. It will be seen from this that the screw-driver may be readily detached whenever desired, and some other tool substituted in place thereof. The inner end of the rod or spindle has a collar, J, against which presses a spring, K, coiled around the said rod within the part B of the handle, and serving to force the said rod or spindle in an inward direction.

L is a disk, secured upon the inner end of the rod or spindle E, inside or beyond the collar J, and between the disk L and collar J is placed a loose disk, M, the outer side of which has a circumferential series of teeth, N, and the inner side of which is provided with a flange, O, encircling the disk L for about three-fourths of its circumference, more or less. The side of the disk L has a recess, P, provided with notches Q, in which two pawls, R and S, are pivoted in any suitable manner. T is a spring arranged to act against the said pawls in such a manner as to force them both laterally in an outward direction.

Between the disk L and the flange O is interposed a flat spring, U, having a stud, V, which enters a notch, W, in the said flange, thereby retaining in position the said spring, the function of which is to hold the disks L and M by friction in any position to which they may be adjusted in relation to each other.

The cap or casing C consists of a casting provided on its inner side with a circumferential series of V-shaped teeth, X. Said cap is fitted over the end of the part B of the handle, to which it may be secured by screws or in any suitable manner. The inside of the cap C has a bearing, Y, for the end of the spindle E. The knob or butt D may be secured to the cap C in any suitable manner; or it may be entirely dispensed with by making the said cap of a proper shape.

It will be observed by reference to Fig. 3 of the drawings that the flange O of the disk M covers one of the pawls R S, which is thus temporarily held out of operation, while the other is allowed to project and engage the teeth X of the casing. By turning the disk M slightly the position of the pawls may be reversed. This may be accomplished by means of a tooth, Z, projecting from the inner end of the part B of the handle, and adapted to engage the teeth N of the disk M, with which, however, it is normally held out of engagement by the action of the spring K.

The operation of my invention will be readily understood. One of the pawls, R or S, always engages the teeth X of the cap C, which, as stated, forms part of the handle. The handle may thus be turned in one direction upon the spindle. By pulling the latter slightly in an outward direction against the tension of the spring K, the tooth Z may be made to engage the teeth N, when, by slightly turning the spindle, the disk M may be turned and the pawls reversed, thus enabling the handle to rotate in the opposite direction upon the spindle.

It should be noticed that the teeth X are not ratchets, but are V-shaped in section. By this construction the pawls are caused to bear

squarely against the sides of said teeth and enabled to withstand greater strain than ordinary ratchets would admit of.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. The combination of the handle, a spindle journaled in the same and having a disk provided with a pair of pawls, a spring arranged to operate the said pawls, mechanism for reversing the said pawls, and a cap provided on its inner circumference with V-shaped teeth engaging the said pawls, as set forth.

2. The combination of the handle, the revolving spindle, a spring arranged to force the said spindle inwardly, a disk secured at the inner end of the said spindle and having a pair of pivoted pawls, a spring arranged to operate the said pawls, a disk mounted loosely on the spindle and having a flange inclosing partly the rigid disk and covering one of the pawls, teeth upon the outer side of the said loose disk, a tooth upon the end of the handle adapted to engage the teeth of the loose disk, and a cap provided with V-shaped teeth on its inner circumference, as set forth.

3. The combination of the revolving spindle having a disk provided with pivoted pawls, a loose flanged plate partly inclosing the said disk and covering one of the pawls, and a flat spring interposed between the said flange and disk, as set forth.

4. The combination of the handle, the revolving spindle having a disk provided with pivoted pawls, mechanism for reversing the said pawls, and a cap provided with a bearing for the inner end of the spindle, and provided on its inner circumference with V-shaped teeth to engage the said pawls, as set forth.

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

ISAIAH MILLS FURBISH.

Witnesses:
LENDALL TITCOMB,
FREDERICK E. PARTRIDGE.