M. C. & S. S. NILES.
Latch.

No. 202,573. Patented April 16, 1878.

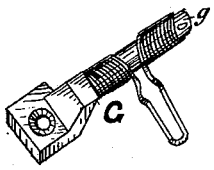

Fig. 4.

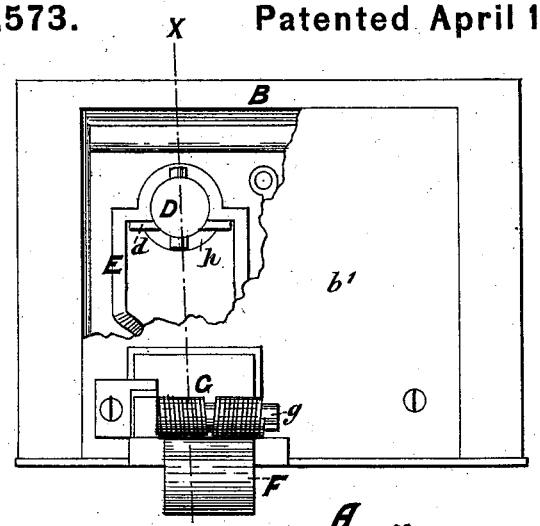

Fig. 1.

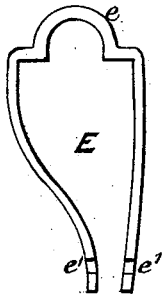

Fig. 5.

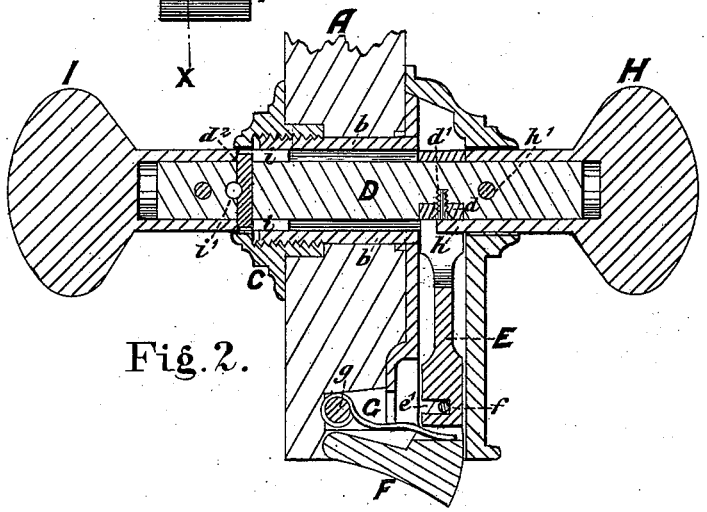

Fig. 2.

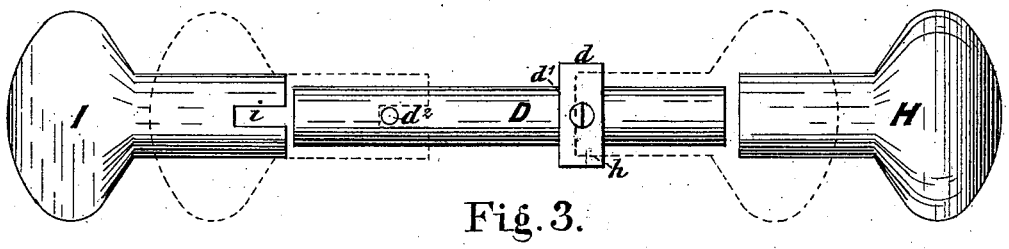

Fig. 3.

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UNITED STATES PATENT OFFICE.

MILTON C. NILES AND SIDNEY S. NILES, OF OAK PARK, ILLINOIS.

IMPROVEMENT IN LATCHES.

Specification forming part of Letters Patent No. **202,573**, dated April 16, 1878; application filed July 19, 1877.

To all whom it may concern:

Be it known that we, MILTON C. NILES and SIDNEY S. NILES, of Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Knob Latches and Locks, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of the back of the lock, a portion of the back plate being broken away; Fig. 2, a sectional view taken on the line *x x*, Fig. 1; Fig. 3, a side view of the knobs and spindle; Fig. 4, a detailed view, showing the bolt or latch spring; and Fig. 5, plan view of the bolt-talons.

The invention consists in special devices for attaching knobs to the spindle and holding them from turning.

It also consists in the combination of the spindle, lock-plate, tube, roses, and knobs, arranged so that the only bearing-points are the knob-shanks in the tube and front lock-case.

It also consists in the peculiar construction of the bolt-talons and the combination therewith of the spindle.

It also consists in the peculiar construction and attachment of the retracting-spring; and it further consists of various devices and combinations, all of which will be hereinafter more fully set forth.

In the drawings, A represents a portion of the door to which the lock is applied, and B a rim-lock of any ordinary construction, the back plate *b'* of which is provided with a tubular projection, *b*, which passes through a hole in the door, and has a screw-thread cut upon its outer end, and is held in place by means of a rose, C, which is threaded, so as to be turned upon the outer end of the tube, as shown in Fig. 2 of the drawings. The spindle D is round, and may be made of ordinary round bar-iron. It is enough smaller than the tubular portion *b*, through which it passes, to allow the inner end of the knob-shank to pass over it and have a bearing within the tube, and is provided with a cam-piece, *d*, for operating the bolt-talons. This cam is made separately from the spindle, and has its central portion made to fit the spindle, upon which it is placed, and secured by means of a screw or rivet, d^1, in position, its location being within the lock-case B, so as to operate the bolt-talons E, which are made, of the form shown in Fig. 5 of the drawings, from a single piece of metal bent into the desired shape. The inner ends of the talons are entire, and are placed around the spindle, by which construction they are kept in position on the cam, and may be made lighter and have greater strength, causing more freedom in the action of the bolt-talons. The forward or free end of the talons is provided with a notch, *e'*, which receives the pin *f* of a pivoted or swinging latch or bolt, F.

The retracting-spring G is coiled upon a rod, *g*, which is fastened to the outside of the back plate in such a position that the uncoiled portion of the spring will come down in front and bear against the inner face of the bolt F, as shown in Fig. 2 of the drawings. This spring is a double coil—that is, the two ends are coiled upon the rod, while the central portion extends out from the latter, to act as a retractor upon the swing-bolt whenever it is drawn inward by the reciprocation of the cam-talons E.

Upon the lock side of the door is a knob, H, the shank of which is fitted to the orifice of the lock-case, which forms a bearing for the shank. The knob-shank is also hollow, so as to fit over the end of the spindle, to which it is secured by means of a loose pin, *h'*, passing through the shank and spindle.

The inner end of the shank is flush with the inner face of the lock-case, except a small portion thereof, *h*, which extends still farther inward and passes over the outside of the cam-piece *d*, as shown in Figs. 2 and 3 of the drawings, thereby assisting to hold the latter in place, and also binding the knob-shank tightly upon the spindle. The pin *h'* is dropped in its place by pushing the end of the spindle inward, so that the hole therein will be inside the case, the back plate of which has been removed, and the knob and spindle are again drawn outward until the cam on the spindle strikes the case, when the pin will be within the bearing on the case for the knob-shank, and is thereby prevented from falling out. A knob, I, is also secured upon the rose side of the door. It is of similar construction, and its shank fits the orifice in the tube, which fur-

nishes a bearing upon which it may turn. The inner end of this knob-shank is provided with notches or slots *i*, which receive a stud, d^2, rigidly fastened in the spindle D, or cast therewith, and projecting far enough to engage with a knob-shank, but not so far as to prevent the insertion of the spindle through the tube *b*.

This device prevents the knob I from turning on the spindle, and it is secured to the latter by means of a pin, *i'*, which may be inserted in any one of a series holes in this end of the spindle, thereby enabling the rose and knob to be adjusted to suit doors of different thicknesses.

The cam *d* upon the spindle D is made of such width as to exactly fill the space between the two plates of the lock-case, and longer than the diameter of the orifices in the lock-case, and therefore, when in position and the back-plate is fastened in the usual manner, the spindle is secured to the case, so that it cannot slide therein or be removed therefrom.

It will be seen from the above description that the only bearing-points causing friction in turning the spindle are the knob-shanks upon the end of the tube and in the orifice in the outside of the lock.

The retracting-spring and other devices herein described are also applicable to straight as well as swinging bolts.

The advantage of the construction and arrangement of the spring herein described is that it gives a longer spring to act upon the bolt as compared with those usually employed, and thereby using less of the elasticity of the spring in each retraction of the bolt, by which fact greater durability of the spring and ease of action are secured.

The construction and arrangement of the spindle are applicable to a mortise-lock as well as a rim-lock, which is the kind shown in the drawings. We do not therefore limit ourselves to the particular kind of lock and bolt herein shown and described.

The peculiar means by which the knob-shanks are prevented from turning on the spindle effectually obviates all looseness of these joints, for as the devices make slip-joints they can be fitted much closer than pins passing through spindle and shanks.

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

1. The knob H, having an extension, *h*, at its inner end, in combination with the cam *d* on the spindle D, fitting closely under the extension on the knob-shank, substantially as and for the purpose set forth.

2. The spindle D, provided with a cam, *d*, in combination with the knob H and loose pin or piece *h'* resting in the outer lock-plate, whereby the parts are fastened together and held from slipping back and forth in the case, substantially as described.

3. The lock-case B, in combination with a spring, G, attached outside of the case, the free end of which is arranged to retract the bolt, substantially as and for the purpose set forth.

4. The spindle D, provided with a stud, d^2, in combination with the knob I, having slots *i* in the inner end of its shank, and the pin *i'*, substantially as described.

5. The lock-case B, in combination with the pin *g*, attached to the outside of the back plate, the spring G, and the pivoted bolt F, substantially as and for the purpose set forth.

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