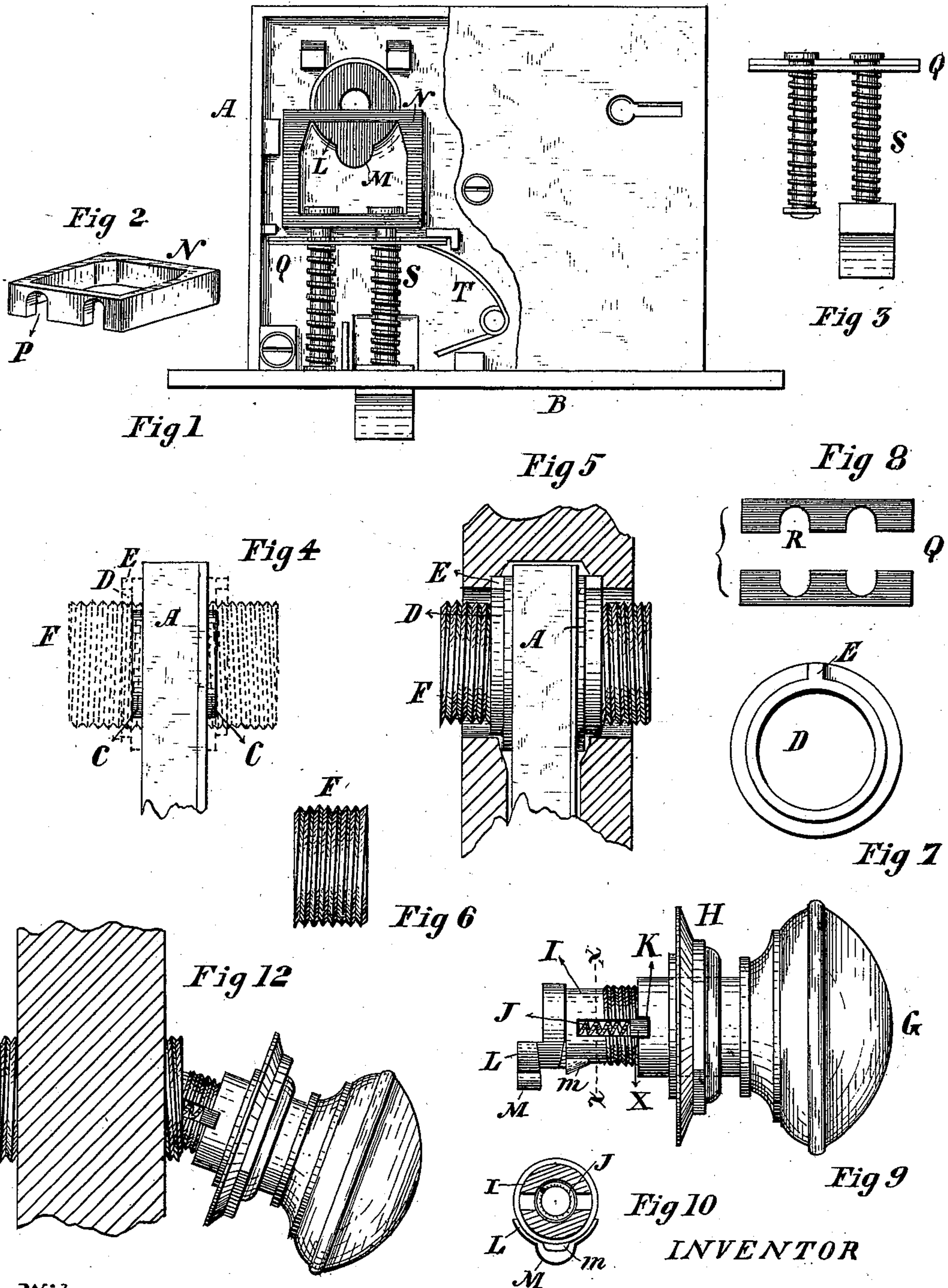


M. C. NILES.
Reversible Latch.

No. 227,642.

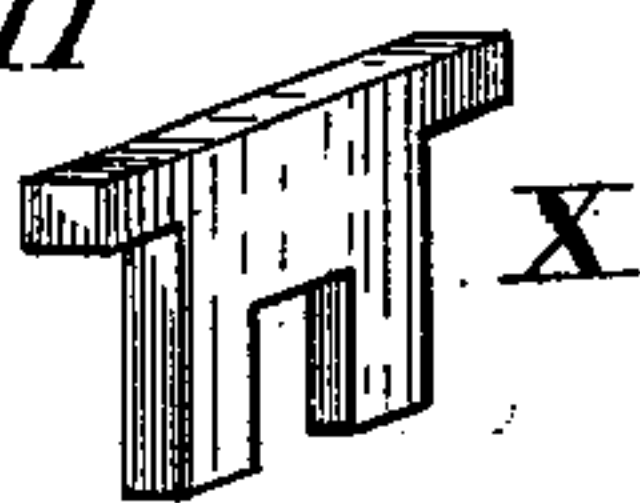
Patented May 18, 1880.



Witnesses

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Fig 11



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UNITED STATES PATENT OFFICE.

MILTON C. NILES, OF OAK PARK, ILLINOIS.

REVERSIBLE LATCH.

SPECIFICATION forming part of Letters Patent No. 227,642, dated May 18, 1880.

Application filed February 24, 1879.

To all whom it may concern:

Be it known that I, MILTON C. NILES, of Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Door-Locks, which is fully described in the following specification, reference being had to the accompanying drawings.

The object of my invention is to make a cheap and simple attachment for attaching the rose to the door in a firm and solid manner; to cause the hole through the rose, when upon the door, to be held directly in line with the holes through the lock when lateral pressure is applied by the shank of the knob; to make the lock rigid within the mortise of the door by thimbles passing against each side of the same, and also in the special construction of various parts of the lock, whereby its manufacture is simplified and cheapened, and certain objections are overcome which have existed in other locks.

In the accompanying drawings, Figure 1 represents a side view of the lock with one of the plates partly removed to show the interior of the lock. Fig. 2 is a perspective view of the slide N. Fig. 3 is a detached view of the latch-bolt and other parts immediately connected therewith. Fig. 4 is a side view of a portion of the lock, showing in dotted lines the projecting flanges of the lock-plates, with the screw-threaded thimble and flanged ring connected therewith shown in dotted lines. Fig. 5 shows the same view in full lines as placed in the mortise of the door. Fig. 6 is a detached view of the screw-threaded thimble. Fig. 7 is a side view of the flanged ring. Fig. 8 is a detached view of the notched or recessed washers. Fig. 9 is a side elevation of the knob, rose, and knob-shank. Fig. 10 is a section of the shank at the lines *x x*. Fig. 11 is a perspective view of the piece X; and Fig. 12 is a side elevation of a section of a door, showing the position that the knob must assume when being applied to the lock.

A represents a mortised lock, the front plate of which is shown at B.

C is a projecting flange on the side plate surrounding the opening in which the knob-shank is inserted.

D is a flanged ring, which is inserted into the mortise in the door before the lock is in-

serted, and is provided with an interior screw-thread, and is large enough to receive the projecting flange C of the lock-plate. The flange of this ring D rests on the inside of the mortise of the door, and is provided with a lug or projection, E, which passes into a recess in the wood of the door to keep it from turning.

F is a screw-threaded thimble, which screws into the interior of the flanged ring D, and passes over and closely fits the projecting flange C of the lock-plate, and is thus made concentric with the opening in the lock-plate and presses against the lock-case, and at the same time draws the flanged ring firmly against the door on the inside of the mortise, as clearly shown in Fig. 5.

G is a door-knob provided with a hollow shank with an interior screw-thread. H is a rose that slips over this shank, and is also provided with an interior screw-thread, which is made to engage with the screw-threaded thimble F. I is a hollow spindle, made to splice the knob-shank, or rather the knob-shank is made in two parts, so that it can be lengthened and shortened to be adapted to the thickness of the door.

The piece I has an exterior screw-thread, which engages with the screw-thread on the interior of the knob-shank proper, and it is held from turning when adjusted at any desired length by means of the piece X, which is in the interior of the supplemental shank I, and is pressed against the end of the knob-shank by means of a coiled spring, J, the narrow part of the piece X passing into the knob-shank proper, thereby holding the piece X from falling through the lateral slits in the supplemental shank I, and its projecting ends are forced into the slots K on the knob-shank, which prevent it from turning, and hold the knob-shank firmly fixed at any desired length.

L is a projecting cam occupying a part of the end and projecting out on two sides of the spindle or supplemental knob-shank I, and is provided with a lug, M, on one side of it, which lug, together with the shoulder *m* adjacent to it, prevents the shank from moving back and forth in the lock-plate when the shank is inserted into the opening in the lock by leaning the knob in the position shown in Fig. 12. This projecting cam L is received by the slide

N, when it is inserted into the lock, and engages directly with it when the knob is turned to draw back the latch-bolt.

The object of having the cam enlarged and projecting out beyond the place of bearing which the shank has in the lock-plate is to cause the spring which throws out the latch-bolt to have a greater leverage on the shank when turned in either direction. This construction also enables me to have the greatest breadth of cam with the smallest diameter of knob-shank at its bearing in the rose.

It will also be seen in Fig. 9 that the outside of the cam L is tapered from the center of the cam to its ends, thus preventing the laterally-projecting part of the cam from bearing against the inside of the lock-plate when standing at an oblique angle with the same.

The slide N is provided with one or more slots, P, which are placed over the head on the back end of the latch-bolt and guide-brace V, respectively, to which the slide is thus securely attached, when the cap-plate is screwed to the lock. This manner of making the slide with slots enables me to put the parts together with rapidity, and also to renew the coil-spring on the latch-bolt without unriveting or otherwise injuring the mechanism.

I also make the washer Q of two parts, each part having lateral slots R, which, when put over the latch-bolt from opposite directions, form a complete washer or stop, as is clearly shown in Fig. 1, against which one end of the coiled spring S rests.

The object of this construction is to enable me to form, substantially, a complete washer over the head on the back end of the latch-bolt without the process of riveting, and to be able to take the various parts of the latch apart for repairing the spring or springs without unriveting. This construction of the washer also cheapens the cost of manufacture. I do not limit myself to the use of two washers of this construction, for it is evident that one notched washer can be used alone.

T is a spring, one end of which presses against the washer Q and prevents the latch-bolt from being thrown forward through the front plate when the knobs are detached from the lock, and at the same time allows the latch-bolt to be pressed out through the front plate, for reversing the same, by pushing with the finger against the slide through the knob-shank opening in the lock-case. I have described and shown but one knob-shank attached to the lock on one side of the door. It will be understood, however, that a similar knob and shank are arranged on the other side of the door, constructed and attached to the lock in the same manner as above described.

It will be observed that by these various improvements which I have above described I have a lock in which the knob-shanks are readily adjusted to suit the varying thicknesses of doors, in which the rose is securely held from moving sidewise by lateral pressure on the knob-shank, in which, on account of the knobs acting independently of each other, and the peculiar construction of the ends of the same, there is no possibility of their binding, and in which, by the construction and arrangement of the inside portion of the latch, simplicity, durability, and cheapness are attained.

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

1. A screw-threaded thimble, F, and the flanged ring D, in combination with the lock A and rose H, for attaching the rose to the door, substantially as specified.

2. A screw-threaded thimble, F, and the flanged ring D, in combination with the projecting flange C on the lock-plate and rose H, all constructed and arranged to resist the lateral pressure of the knob-shank on the rose, substantially as described.

3. The cam L M, arranged upon the end of the knob-shank and projecting from the end and at one side of said shank, and forming both the cam to operate the bolt-talons and the fastening to secure the shank to the lock, substantially as described.

4. The latch O, in combination with the independent removable washer Q, provided with transverse notches to fit over the bolt, substantially as and for the purposes set forth.

5. The latch-bolt O, in combination with a slide, N, and the two washers Q, placed over the latch-bolt from opposite sides, substantially as described.

6. The latch-bolt O, in combination with the washer Q and the springs S and T, substantially as and for the purpose set forth.

7. The hollow slotted supplemental shank I and notched knob-shank, in combination with the sliding piece X, held against the shank by means of a spring, and constructed to be admitted laterally through the slots in the piece I, substantially as and for the purpose set forth.

8. The combination, with the door, of the lock A, the two screw-threaded thimbles F, the flanged rings D, and the roses H, whereby the lock is held rigidly within the mortise of the door, substantially as described.

MILTON C. NILES.

Witnesses:

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