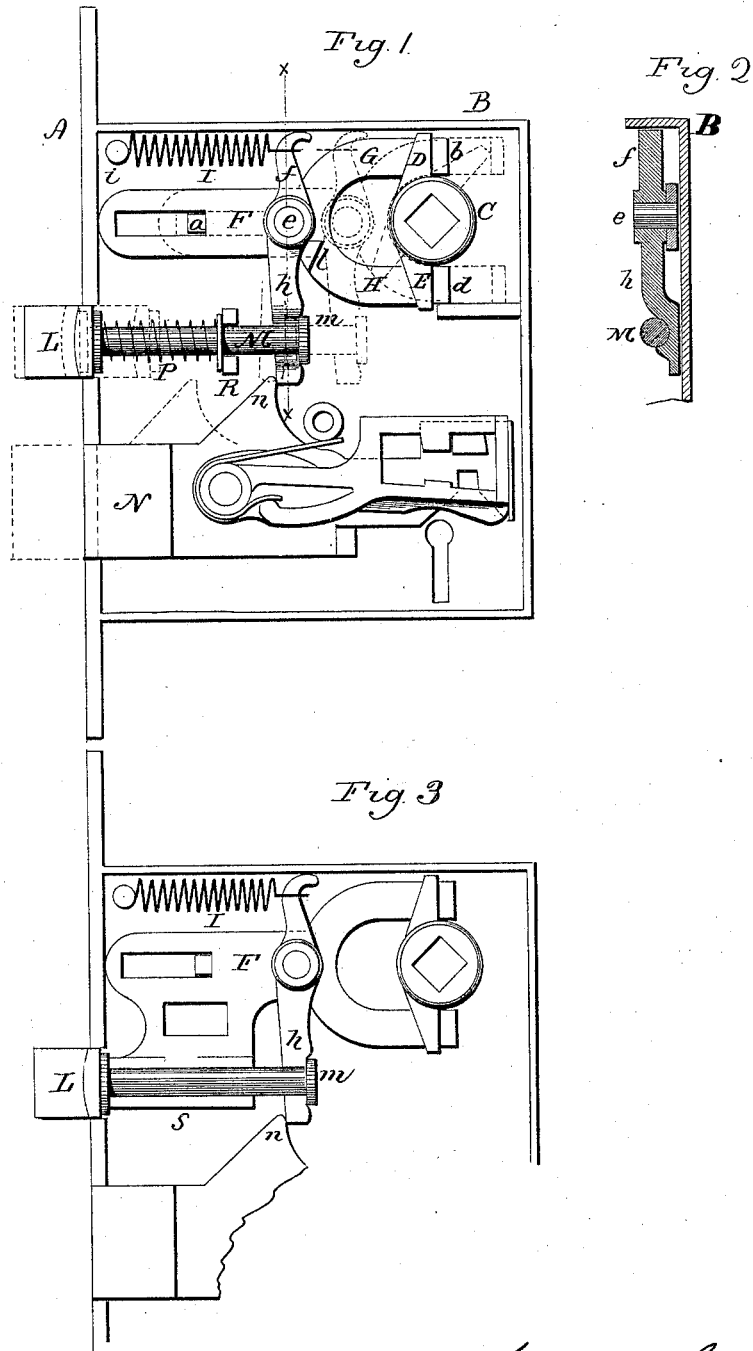


(No Model.)

W. E. SPARKS.  
REVERSIBLE LATCH.

No. 306,545.

Patented Oct. 14, 1884.



Witnesses.  
J. T. Murray  
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# UNITED STATES PATENT OFFICE.

WILLIAM E. SPARKS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO SARGENT & CO., OF SAME PLACE.

## REVERSIBLE LATCH.

SPECIFICATION forming part of Letters Patent No. 306,545, dated October 14, 1884.

Application filed May 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WM. E. SPARKS, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Reversible Latches; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the lock, the covering-plate removed; Fig. 2, a vertical section on line *x x*; Fig. 3, a modification.

This invention relates to an improvement in that class of latches which consists of a bevel-nosed bolt arranged to be forced into the case to close the door or drawn into the case for opening the door, and such as are constructed so that the bevel-nosed latch-bolt may be reversed to adapt the latch to either a right or left hand door; and the invention consists in the construction as hereinafter described, and more particularly recited in the claims.

A represents the face-plate; B, the case within which the mechanism is arranged; C, the hub through which the knob-spindle passes, and which is provided with arms D E—one upon one side and the other upon the opposite side of the axis—whereby the knob may be turned in either direction; F, a slide arranged within the case and guided longitudinally upon a stud, *a*, in the case, or otherwise. From this slide two arms extend rearward—the one, G, above the hub, and the other, H, below—provided, respectively, with lugs *b d*, with which the arms D E will engage in the usual manner for knob-latches.

On the slide F is a pivot, *e*, upon which is hung a lever, one arm, *f*, extending upward, the other, *h*, downward. To the upper arm, *f*, one end of a spring, I, is attached, the other end hung to a fixed point, *i*, in the case, the tendency of the spring being to draw that arm *f* of the lever forward that is toward the face-plate. On the slide upon the opposite side of the pivot is a lug, *l*, against which the other arm of the lever will strike and come to a bearing. The spring I, because of the bearing of the lever against the lug *l*, acts upon the slide F to draw that forward as if the lever

*f h* were a fixed part of the slide, and therefore holds the slide in its forward position with the lugs *b d* against the respective arms of the hub, as shown.

L is the latch-bolt, of the usual bevel-nose shape, extending through a mortise in the face-plate in the usual manner. Its tail M is constructed with a head, *m*, at its inner end. The arm *h* of the lever is constructed with a seat in which the tail of the bolt will rest, as seen in Figs. 1 and 2, the head *m* standing against the rear side of the arm *h*, as seen in Fig. 1. Now, if the knob be turned to rotate the hub, as indicated in broken lines, Fig. 1, the slide will be drawn inward, and with it the lever *h*, the spring I yielding in such movement. In this movement the arm *h* of the lever bears against the forward side of the head *m*, and therefore draws the bolt L inward, as indicated in broken lines, and substantially as if the lever were a rigid part of the slide F, but because the lever is pivoted to the slide and so that the arm may be turned forward, as indicated in broken lines, the bolt L may be drawn forward from the case so far that its head escapes from the face-plate, as indicated in broken lines, and in that condition the bolt is free to be turned to set it for the right or left position.

If the lever *h* were entirely free when in its normal condition, the bolt might be drawn out at any time, and thus the latch be unintentionally disarranged. To prevent such accidental or unintentional withdrawal of the latch-bolt, the lock-bolt N, which is provided with the usual mechanism for being thrown or drawn by the key, is constructed with an arm or shoulder, *n*, which, when the bolt is drawn into the case, stands in front of the arm *h* of the lever when that arm is in its normal condition with the bolt out, and as seen in Fig. 1. This shoulder *n* therefore prevents the latch-bolt from being withdrawn from the case so as to be reversed; but when the lock-bolt is thrown out, as in broken lines, Fig. 1, then the arm *h* is free, and the bolt may be withdrawn for reversal, as before described.

To relieve the latch-bolt from the power of the spring, and so that in closing the door little friction may be produced upon the nose of the bolt, I introduce a light spring, P, between

the head of the bolt and a stationary lug, R, in the case and forward of the arm *h*, so that when the bolt is forced in, as in the act of closing the door, the spring P is only acted upon, without reference to the spring I or effect upon the slide or knobs.

If preferred, the latch-bolt may be positively connected to the slide, so that the slide and bolt will move together as if a fixed part one of the other, and as seen in Fig. 3. In this case the slide is constructed with a seat, S, in which the tail of the bolt rests, and against the outer end of which the head of the bolt bears, the head *m* on the tail of the bolt bearing against the arm *h* of the lever, as before. In this case the lug *l* is dispensed with, the spring I causing the arm *h* to bear rearward against the head *m*, and draw the head L of the bolt against the seat S, as seen in Fig. 3; but in this case the bolt is reversible, as in the first illustration, it only being essential to the lever and bolt that there shall be some device to hold the bolt in connection with the lever against the action of the spring I, and so that the movement of the slide will be imparted to the lever, and thence to the bolt, but leave the lever free to be turned upon its pivot as the bolt is drawn outward.

While I prefer the hub with its two arms acting upon the two arms of the slide, any of the well-known mechanisms for imparting longitudinal movement to the slide F in latches may be employed.

I have represented the springs I and P as helical springs; but it will be understood that any of the known substitutes for lock-springs may be employed in place of either or both.

I claim—

1. In a latch, the combination of the slide F, mechanism, substantially such as described, to impart forward and back movement to said slide, a latch-bolt, a lever, one arm, *h*, of which extends into connection with the bolt forward of a shoulder on said bolt, and a spring in connection with said lever, and arranged to force the said arm *h* rearward against the said shoulder on the bolt, substantially as described.

2. The combination of the slide F, mechanism, substantially such as described, to impart reciprocating movement thereto, a lever hung upon said slide, and so as to partake of its forward and back movement, a spring in connection with one arm of said lever, a latch-bolt, L, in connection with the other arm of said lever, and a spring arranged to bear against said bolt independent of the spring connected to the one arm of the lever, substantially as described.

3. The combination of the slide F, two-armed lever *f h*, hung upon a pivot, *e*, on said slide, said slide constructed with a stop, *l*, the spring I, in connection with one arm of the lever, the latch-bolt in connection with the other arm of the lever, stationary stop R, and spring P between the head of the bolt and said stop, substantially as described.

4. The combination of the slide F, arranged upon guides for longitudinal movement in the lock-case, and constructed with the arms G H, the hub C, constructed with the arms D E, to engage the said arms of the slide, a lever hung upon said slide, and so as to partake of its longitudinal movement, a spring, I, in connection with one arm of said lever, the latch-bolt in connection with the other arm of said lever, and mechanism, substantially such as described, to hold the said bolt in connection with said lever, substantially as specified.

5. The combination of the slide F, mechanism, substantially such as described, for imparting a forward and back movement thereto, a lever hung upon said slide, and so as to partake of its forward and back movement, a spring in connection with one arm of said lever, and the latch-bolt in connection with the other arm, with the lock-bolt constructed with a shoulder, *n*, forward of said lever, substantially as described.

WILLIAM E. SPARKS.

Witnesses:

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