T. LYON.
Reversible-Latch.

No. 218,293. Patented Aug. 5, 1879.

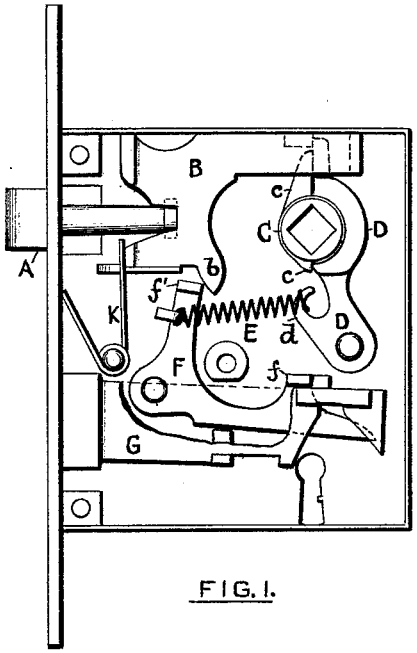

FIG. 1.

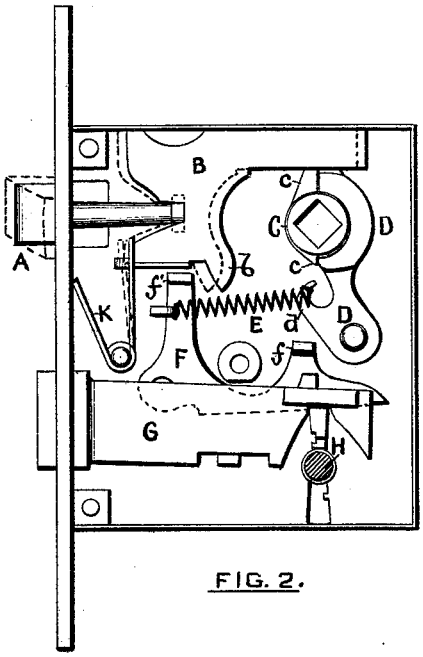

FIG. 2.

WITNESSES.

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IMPROVEMENT IN REVERSIBLE LATCHES.

Specification forming part of Letters Patent No. **218,293**, dated August 5, 1879; application filed March 19, 1879.

To all whom it may concern:

Be it known that I, THOMAS LYON, of the city and county of Hartford, and State of Connecticut, have invented a new and useful Improvement in Reversible Latches; and I do hereby declare that the following specification, taken in connection with the accompanying drawings, forming a part of the same, is a full, clear, and exact description thereof.

The improvement which is the subject of this patent relates to reversible latches; and consists in such a combination, with the follower or sliding plate to which the latch-bolt is connected, of a hub, a lever, and a spring that the latch-bolt may be easily operated by the knob-spindle, and yet be held against reversal by the full resistance of said spring; and it also consists in such a combination of a tumbler-lever with said follower and spring that when the said lever is properly moved the resistance of the spring to the reversal of the latch-bolt will be overcome, and said bolt can be easily reversed without removing the cap-plate of the latch.

Latches have been constructed heretofore the bolts of which could be reversed by pulling the head beyond the face-place against the resistance of a spring. In such case, however, the location of the spring relatively to the follower was such that, for easily operating the latch-bolt, the resistance of the spring could not be great with such light springs. Therefore there was considerable danger that the bolt would become reversed by accident or by careless handling.

In my improved latch the chief resistance to the reversal of the bolt is the tension of a spring; but such spring is so strong that it is practically impossible, by any manipulation of the latch-bolt with the fingers, to overcome said tension and reverse the bolt; yet by combining the spring with a lever and arranging the hub so as to obtain the aid of said lever I am able to work the latch-bolt easily.

Referring to the drawings, Figure 1 represents a side view of my improved latch provided with a locking-bolt, the cap-plate being removed and the locking-bolt cut away to show the underlying lever; and Fig. 2 shows the same with the lever moved by the key to allow the latch-bolt to be reversed.

As shown in each figure, A represents the latch-bolt, which is connected to the follower B by a swivel-joint. C is the hub, the arms *c* of which engage a lever, D, pivoted to the case of the latch. The free end of this lever engages the tail of the follower B for the purpose of moving the bolt A. To a hook portion, *d*, of the lever D is attached one end of a strong spring, E, the other end of which is secured to the short arm of a bell-crank lever, F, pivoted to the case. The long arm of this lever acts as a tumbler to the locking-bolt, G, a lug, *f*, on said arm resting against the bolt and preventing it from being moved until the tumbler-lever is raised by the lock-key. By this arrangement the long arm of the lever F is supported by the bolt G, which is kept in place and prevented from rattling by the force of the spring E.

As shown in Fig. 1, a lug, *f'*, on the short arm of the lever F engages an ear, *b*, on the follower B, so that, should an attempt be made to withdraw the bolt A with the fingers, the resistance of the spring E must be overcome. As above specified, however, the force of said spring is too great to allow of this. Therefore the lever F must be moved so that the short arm will not interfere with the forward movement of the follower B. This is accomplished by the use of the lock-key H, as shown at Fig. 2, which is turned sufficiently to raise and support the long arm of the lever F, the short arm being thereby moved out of engagement with the follower B. The only force now acting to prevent the advancement of the bolt and follower is the resistance of a light spring, K, which resistance is easily overcome. By seizing the head of the bolt A with the fingers it may be pulled out sufficiently to be turned, as shown by dotted lines in Fig. 2, the spring K carrying the follower and bolt back into their proper positions after the reversal has been effected. The key H is now withdrawn, and the parts assume the positions shown in Fig. 1.

Having shown how the latch-bolt can be reversed, it only remains to describe the means

employed for easily overcoming the resistance of the spring E in operating the latch-bolt by the door-knob. This is accomplished by attaching one end of the spring E to the lever D, as before described, and so arranging the said lever with reference to the hub C that one of the hub-arms *c* shall move the lever when the knob is turned. By the leverage thus obtained the resistance of the spring is easily overcome, and the latch-bolt is moved by the engagement of the free end of the lever D with the follower B.

Thus it will be seen that, although the force of a strong spring is always present to prevent the movement and reversal of the latch, yet the combination of the lever D with this spring, the hub, and follower is such that the latch-bolt can be easily worked by the knob-spindle; and the combination of the tumbler-lever F with said spring and the follower is such that when the tumbler is properly moved by the key the bolt can be easily reversed without removing the cap-plate of the latch.

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

The combination, in a reversible latch, of a swiveled latch-bolt, a sliding plate or follower connected therewith, a bell-crank lever worked by the turning hub and knob-spindle, a tumbler-lever, F, and a resisting-spring applied thereto, substantially as described, whereby a spring strong enough to prevent the latch from being pulled forward by the fingers can be easily overcome for working the latch by turning the knob-spindle.

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Witnesses:
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