

H. E. RUSSELL, Jr.
Reversible Latch.

No. 218,455.

Patented Aug. 12, 1879.

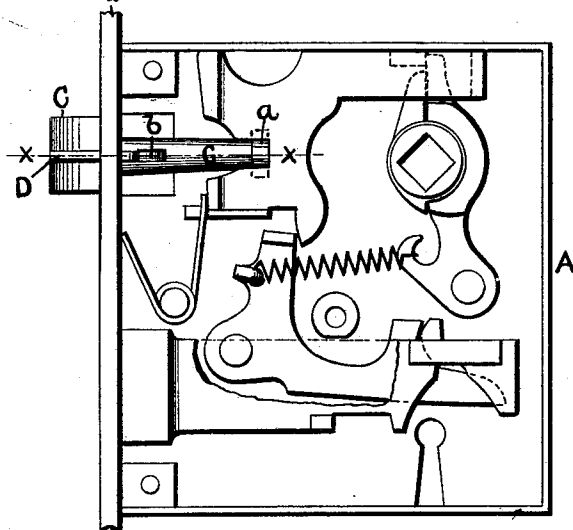


FIG. 1.

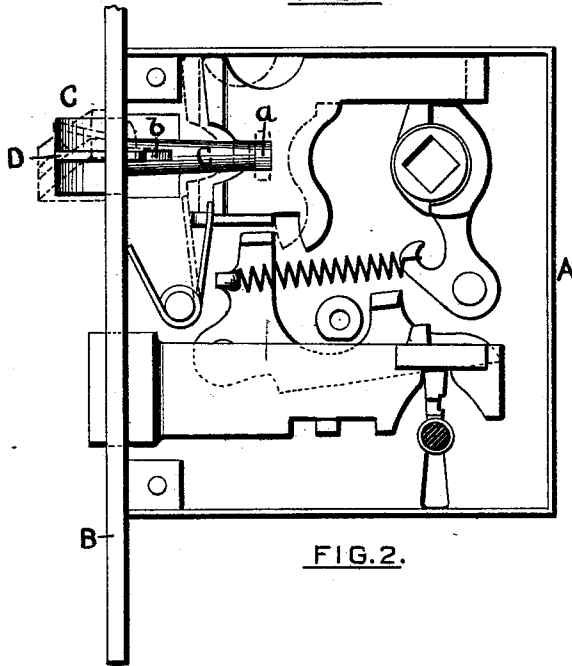


FIG. 2.

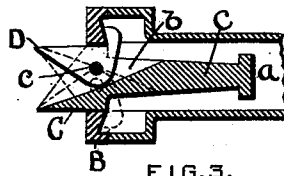


FIG. 3.

WITNESSES.

Theo E Smith
Mr. J. W. Ward

INVENTOR.

Harry Russell Jr

UNITED STATES PATENT OFFICE.

HENRY E. RUSSELL, JR., OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE
RUSSELL & ERWIN MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN REVERSIBLE LATCHES.

Specification forming part of Letters Patent No. **218,455**, dated August 12, 1879; application filed
April 21, 1879.

To all whom it may concern:

Be it known that I, HENRY E. RUSSELL, JR., of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Reversible Latches; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side view of a combined lock and reversible latch with the cap-plate removed. Fig. 2 is a similar view, showing the latch-bolt in position for reversal; and Fig. 3 is a longitudinal section through the axis of the latch-bolt, on the line *xx* of Fig. 1.

In the latch represented in the drawings, a lever pivoted to the latch-bolt is shown in combination with the back side of the face-plate. The acting face of this lever is parallel, or nearly so, with the straight face of the latch-bolt, and, coming into contact with the striker-plate when the door is closing, causes the latch to be moved backward. The construction of the latch in this respect is substantially the same as the reversible lever-latch shown in the Letters Patent numbered 195,270, granted to William F. and Henry J. Hall, September 18, 1877.

The invention consists in combining, with the face-plates of that variety of reversible latches which, when they are to have their swiveled jointed latch-bolts reversed, must have the squared parts of the latch-heads drawn out of the mortise through the face-plate; an operative bell-crank lever pivoted to the latch-bolt in a plane relatively to the boundary planes of the front and rear surfaces of the face-plates, which will enable the said lever to become bound and prevented from rattling when the latch is in use, but will not prevent the latch-bolt from being drawn forward for reversal, as hereinafter more fully described.

In the drawings, A represents the ordinary lock or latch case. B is the face-plate, and C is the beveled-face latch-bolt, connected by a swivel-joint, *a*, with the sliding follower or horseshoe-plate, which is worked by turning the knob-spindle in a well-understood way.

The particular arrangement of the parts of

the latch which enable it to be reversed so as to suit a right or a left hand door need not be specially described, as the same constitutes no part of my invention. The particular mechanism for that purpose shown in the drawings is a convenient one, but my improvement can be applied to any one of the many forms of latches which can be reversed without removing the cap-plate.

D represents a bell-crank lever, pivoted to the latch-head. That portion of its longer arm which projects beyond the face-plate B comes into contact with the striker-plate upon the door-jamb, and as the shorter arm of the lever takes a bearing against the back side of the face-plate as a fulcrum, whether the latch be arranged for a right or for a left hand door, the movement of the lever upon its pivot, induced by the door entering the rabbet of the door-frame in closing, will slide the latch-bolt backward.

In order to enable a latch-bolt with a bell-crank lever so combined with it and with the face-plate of the latch to be pulled outward far enough to allow of being reversed, the longitudinal axis of the shorter arm of the lever must be moved to a position nearly parallel to or nearly coinciding with the axis of the latch-bolt. I therefore cause the shank of the bolt to be slotted, as shown at *b* in Figs. 1 and 2, and in section at Fig. 3, and so that when the bolt is pulled forward, the lever, turning upon its pivot, will have its shorter arm moved entirely within the plane of the square latch-head mortise in the face-plate.

The construction described will accomplish the end desired in case the pivot upon which the operative bell-crank latch-lever D turns is located in front of a plane lying midway between the front and rear surfaces of the face-plate; but in order to prevent the short arm of the latch-lever from rattling disagreeably against the back side of the face-plate of the latch, as it would do if the pivot-pin were located in front of such central plane, as above supposed, and to hold the lever bound in position so as to be without noise from the cause mentioned, while at the same time it shall be practicable to pull the latch-bolt forward with its operative lever attached to the head clear

of the mortise in the face-plate, for the purpose of reversing the bolt, I locate the pivot-pin *c*, as shown in sectional view at Fig. 3, midway between the planes which bound the front and back surface of the face-plate B, and thus the meeting surfaces of the inner edges of the bell-crank lever D, which form the angle, respectively, have full bearings which are opposed to each other—that is to say, the edge of the longer arm rests against the edge of the latch-mortise, and the edge of the shorter arm rests against the rear surface of the face-plate.

It will be observed that if the pivot-pin *c* of the latch-lever D should be located in rear of the central longitudinal plane of the face-plate B, it would be practically impossible, if a proper workmanlike fitting of the parts be observed in construction, to pull the latch-head forward out of the mortise clear of the face-plate, for the purpose of reversing the latch-face.

It is preferable in latches of this class to locate the operative lever D midway between the two sides of the latch, for the reason that the lever will occupy in both right and left hand latches the same relative position to the latch; but if desired the lever may be pivoted to one side of the latch-bolt, in which case it will be in latches arranged for a right-hand door upon the upper side of the latch-bolt, and in latches arranged for a left-hand door upon

the lower side of the bolt, or vice versa. In such cases it will not be necessary to make a slot or recess in the shank of the bolt, as an unobstructed space will exist for the movement of the shorter arm of the lever when the latch is pulled forward. It will be equally necessary, however, to locate the pin upon which the operative lever turns in the position relatively to the plane of the front and rear surfaces of the face-plate, as above described, and not in a plane nearer to the rear surface than to the front surface, otherwise the latch will be prevented from being reversed.

I make no claim to have invented the particular combination and arrangement of parts shown, by which the latch is rendered reversible.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a reversible latch, the combination of the face-plate of the latch, an operative bell-crank lever pivoted to the latch-bolt at a point which lies in the plane midway between the planes of the front and rear surfaces of the face-plate, and a swivel-jointed latch-bolt, which, for reversal, must have its beveled head drawn out clear of the mortise in the face-plate, substantially as described.

HENRY E. RUSSELL, JR.

Witnesses:

THEO. E. SMITH,
M. S. WIARD.