

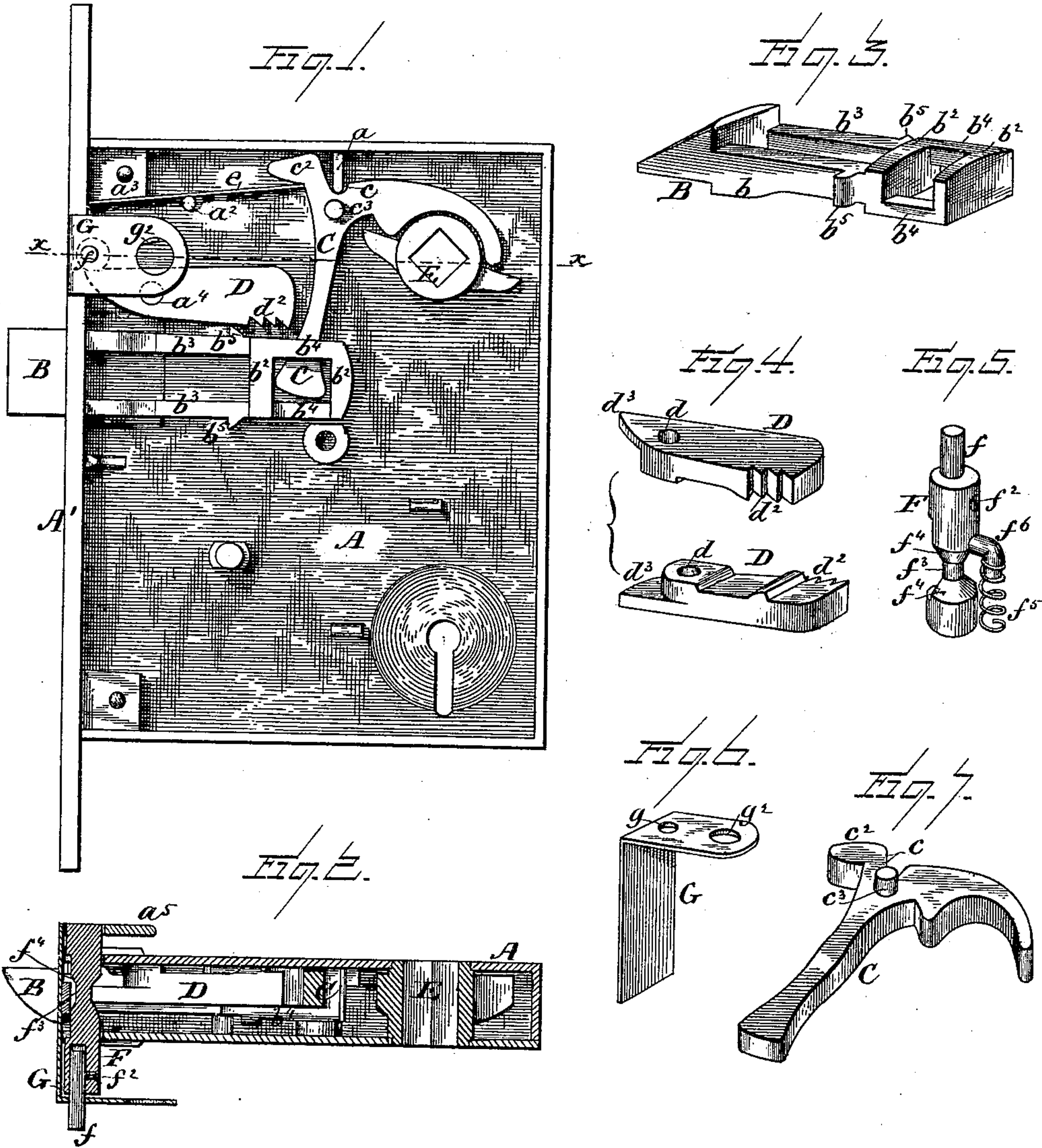
(No Model.)

W. B. CANTRELL.

LATCH.

No. 371,420.

Patented Oct. 11, 1887.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

WILLIAM B. CANTRELL, OF PORTLAND, OREGON, ASSIGNOR OF TWO-THIRDS TO ELIJAH Y. JEFFERY AND SYLVESTER W. RICE, BOTH OF SAME PLACE.

## LATCH.

SPECIFICATION forming part of Letters Patent No. 371,420, dated October 11, 1887.

Application filed January 31, 1887. Serial No. 225,998. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. CANTRELL, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Latches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in door-latches in which is used a spring-bolt, with hand-knobs and devices for holding the latch-bolt retracted while the door is open, to prevent the jar and noise incident to the forcing back of the latch, and also prevent injury to the latter and to the keeper while closing the door; and the objects of my invention are to permit the latch to be retained sufficiently retracted, whatever may be the distance between the edge of the lock and its keeper, and also to render the length of the bolt-releasing pin adjustable for doors of different thicknesses. I accomplish these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a mortise lock with the cover and bolt-operating devices removed, but showing the spring-latch having the locking and releasing devices constructed in accordance with my invention. Fig. 2 is a horizontal section on line *xx* of Fig. 1. Fig. 3 is a perspective view of the latch. Fig. 4 represents in perspective a top and bottom view of the latch-retaining catch. Fig. 5 is a perspective view of the latch-releasing pin and its spring. Fig. 6 is a detached view in perspective of the guide-plate for the latch-releasing pin. Fig. 7 is a perspective view of the intermediate lever between the latch and its operating-knob, spindle, and tumbler.

In said drawings, A represents the frame of the lock, and A' its front plate. Within said frame is retained the latch-bolt B, slotted as usual and adapted to retain in said slot an operating-spring, although other operating means are shown. The beveled end of the latch-bolt passes through an opening in the front plate, but is prevented from passing too far by shoulders *b* on said bolt abutting against the inner side of the front plate. The inner end of the latch-bolt has two transverse bars,

*b*<sup>2</sup>, between which is received the lower end of a bell-crank lever, C, and to prevent said lever from accidentally leaving the place made for its reception between the bars *b*<sup>2</sup> one of the side bars, *b*<sup>3</sup>, extends in front thereof, as shown at *b*<sup>4</sup>, whatever may be the side of the latch that is placed uppermost, the latch being reversible and adapted for use on a right-hand as well as on a left-hand door. The bell-crank lever is pivoted upon a lug or pin, *a*, projecting from the frame A into the interior of the case. Said lug *a* enters a recess, *c*, in the lever adjacent to its angle. On one side of the recess *c* the body of said lever is extended and has a lug, *c*<sup>2</sup>, against the underside of which one end of the flat spring *e* is made to bear. Its middle portion bears against the upper side of a pin, *a*<sup>2</sup>, projecting from the frame, and its opposite end bears against the lower edge of a lug, *a*<sup>3</sup>, projecting also from the frame, so that when the lever C is not kept retracted by the catch D, or by a person turning the door-knob and the latch-tumbler E, it forces the outer end of the latch out of the frame through the medium of the spring *e*. Said lever has a lug or lugs, *c*<sup>3</sup>, on its face, to retain it a proper distance from the lock-cover.

To retain the latch-bolt B retracted, the catch D is used. This catch is pivoted upon a pin, *a*<sup>4</sup>, projecting from the frame of the lock, and, passing through a perforation, *d*, near its outer end, it operates by gravity and has in its under edge a series of notches, *d*<sup>2</sup>, to engage an angular tooth or projection, *b*<sup>5</sup>, upon the top edge of the latch-bolt. Said projection *b*<sup>5</sup> is also upon the bottom edge, so that the latch can be kept retracted whatever edge may be uppermost.

The catch D is provided with a series of notches in place of only one, so that if on account of the shrinking or bad fit of the door there is a larger distance than usual between the edge of the lock and its keeper, and the bolt is not withdrawn entirely within the lock when the door is opened, the projection *b*<sup>5</sup> on the latch will still come into engagement with one of the notches and prevent the end of the latch from projecting too far or flying out until the heaviest end of the catch is lifted out of engagement. This is accomplished by the



end of the releasing-pin striking against the door-jamb. To render the length of this pin adjustable for doors of different thicknesses, it consists of two parts—viz., the body F and the pin  $f$ , inserted in one end thereof and retained adjustably therein by a set-screw,  $f^2$ , entering the side of said body. This body is reduced in diameter at  $f'$ , nearly half-way of its length, at a point opposite where it comes into engagement with the small end  $d^3$  of the catch D, and on each side of the reduced portion  $f^3$  the body F has a conical inclined surface,  $f^4$ , so that when it is pushed endwise this inclined surface  $f^4$  bears against the end  $d^3$  of the catch and forces it downward, thus elevating the opposite end having the notches and releasing the latch-bolt.

To retain the releasing-pin in a horizontal position and give thereto a bearing as near its end as possible, the front plate,  $A'$ , may be provided in the rear thereof with lugs, one of them being shown at  $a^5$ . To cause the releasing-pin to return to its normal position, with its reduced portion  $f^3$  opposite the small end  $d^3$  of the catch, after it has struck the door-jamb, said releasing-pin is provided with a coiled spring,  $f^5$ , parallel with its body and connected therewith by means of a radial pin,  $f^6$ . To prevent the releasing-pin from moving outwardly too far under the impulse of its spring, and at the same time furnish an additional guide for said pin, there is formed horizontally in the front plate,  $A'$ , a dovetailed groove, in which is inserted one end of the angular guide-plate G. It has in the opposite or bent end a perforation,  $g$ , for the passage of the pin  $f$ , and a perforation,  $g^2$ , to receive a screw, by which it may be secured to doors having a different thickness.

Having now fully described my invention, I claim—

1. The combination of a lock-case and a latch-bolt provided with an angular projection upon its top with a catch having a series of notches, a latch-releasing pin having inclined surfaces for engagement with one end of the catch, and an adjustable guide-plate, G, secured to the front plate of the lock, substantially as and for the purpose described.

2. The combination of a lock-case and a latch-bolt provided with an angular projection upon its top with a catch pivoted to said case and having a notch for engagement with the latch-bolt, a latch-releasing pin having inclined surfaces on its side for engagement with one end of the catch, an angular lever for engagement with the latch-bolt, and a flat spring bearing against a lug upon said lever, substantially as and for the purpose described.

3. The combination of a lock-case having the lug  $a$  projecting therein, a latch-bolt having side bars,  $b^3$ , two transverse bars,  $b^2$ , and longitudinal bars  $b^4$ , with the angular lever C, pivoted upon the lug  $a$ , and having one arm entering between the transverse bars  $b^2$ , and retained by one of the longitudinal bars  $b^4$  of the latch-bolt, a lug,  $c^2$ , upon one end of said lever, and a flat spring bearing under said lug, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM B. CANTRELL.

Witnesses:

K. J. L. ROSS,  
S. B. RIGGEN.