F. D. ROBINSON.

Latch for Doors, &c.

No. 161,705. Patented April 6, 1875.

Fig. 1.

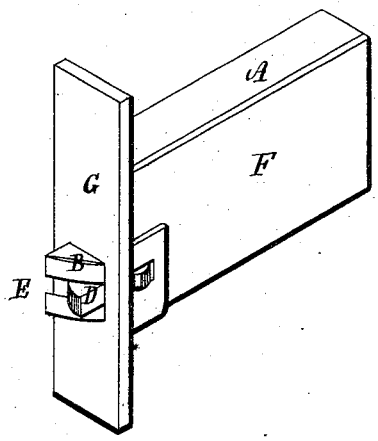
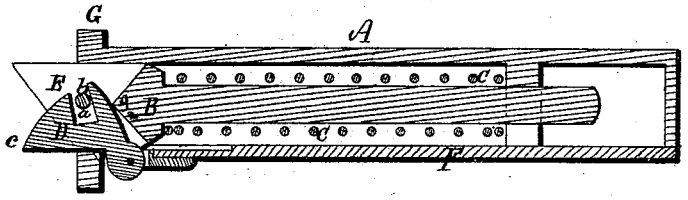



Fig. 2.

*Enlarged.*




WITNESSES.

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# UNITED STATES PATENT OFFICE.

FRANCIS D. ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALBERT M. ROBINSON, OF SAME PLACE.

## IMPROVEMENT IN LATCHES FOR DOORS, &c.

Specification forming part of Letters Patent No. **161,705**, dated April 6, 1875; application filed February 17, 1875.

*To all whom it may concern:*

Be it known that I, FRANCIS D. ROBINSON, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Locks or Latches for Doors, &c., of which the following is a specification:

This invention relates to means whereby the resistance offered by the bolt of a lock or latch upon the closing of the door or other object to which it is attached is very greatly reduced, and the bolt under all circumstances is compelled to recede upon abutting against the door-jamb.

The drawings accompanying this specification represent, in Figure 1, a perspective view, and in Fig. 2 a horizontal section, of a door-latch provided with my improvement.

In these drawings, A represents the case, and B the bolt, of an ordinary door-latch, the spring which advances the bolt in the usual manner being shown at C. In carrying out my improvement, I produce, from a flat block of metal, a lever, D, of the form shown in Fig. 2 of the drawings, and I dispose this lever within a horizontal furcation, E, made in the outer end of the bolt B, the inner end of the lever D being pivoted to the plate F of the case A a short distance in rear of the face-plate G of the latter, while the outer end or nose *c* of the said lever D protrudes beyond the said face-plate to an extent about equal to the projecting portion or nose of the bolt B. A bar, *a*, spans the furcation E of the bolt B at a point to intercept or enter a notch, *b*, created in the upper part of the lever D, the purpose of such bar being to enable the said bolt, when retracted by the knob, to compel the lever D to retreat within the interior of the case A. The rear side or spur *b* of the lever D abuts against the rear wall or boundary of the furcation E of the bolt B, and serves to retract such bolt, as hereinafter stated, and to lessen the friction between the lever and bolt as much as possible I reduce the portion of the bolt against which the spur abuts to an obtuse-angled edge, as shown at *g*.

As the door is closed, the nose *c* of the bolt D abuts against the door-jamb, and is turned upon its pivot in the arc of a circle, and pushed inward and rearward toward the handle of the latch, and, as a consequence, through the agency of the projection *b*, overcomes the stress of the spring C, and retracts the bolt without the latter coming in contact with the said door-jamb until it enters its socket in the latter.

The bolt D may be actuated by its handles and spindle without regard to the lever D.

As the door is being entirely closed the wiping effect of the door-jamb upon the lever D gradually increases, owing to the fact that the fulcrum of the lever recedes from such door-jamb, and by this means I obtain the greatest power over the bolt at the time most needed—that is, as its nose retreats within the case A, as it is at this time that the spring C offers the greatest resistance.

In the present construction of locks and latches for doors, &c., the action of the door-jamb upon the projecting nose of the bolt tends to crowd the body of the latter against the plate A of the latch, more power being required to overcome the friction between the bolt and case than to retract the spring which advances the bolt, and this resistance multiplies rapidly as the thickness of the bolt is reduced, and the angle of its slope becomes more obtuse.

In my invention, practically, the only power requisite to be overcome is the stress of the spring, and I provide a powerful and direct leverage to effect this compression of the spring, and, as before stated, automatically increase this leverage as the resistance of the spring increases.

A great advantage in my invention is seen in the fact that I am enabled to produce a mortise-lock of the thinnest class, and which contains a thin bolt, which shall possess all the advantages of a thick bolt whose nose is formed with an acute-angled slope. I also avoid much of the wear which now ensues between the bolt and door.

In conclusion, I would state that I do not claim, broadly, the use in a latch of an auxiliary lever to force back the bolt; but,

What I do claim, and desire to secure by Letters Patent, is—

The combination, with the sliding bolt, slotted at its front end, as described, of the notched or forked lever D, pivoted to the latch-case to work in the slot of the bolt, and engaging with its notched or forked part a transverse pin, *b*, extending across the slot, substantially as shown and set forth.

FRANCIS D. ROBINSON.

Witnesses:

FRED. CURTIS,

W. E. BOARDMAN.