

(No Model.)

3 Sheets—Sheet 1.

A. WILDERN.
MORTISE LOCK.

No. 575,763.

Patented Jan. 26, 1897.

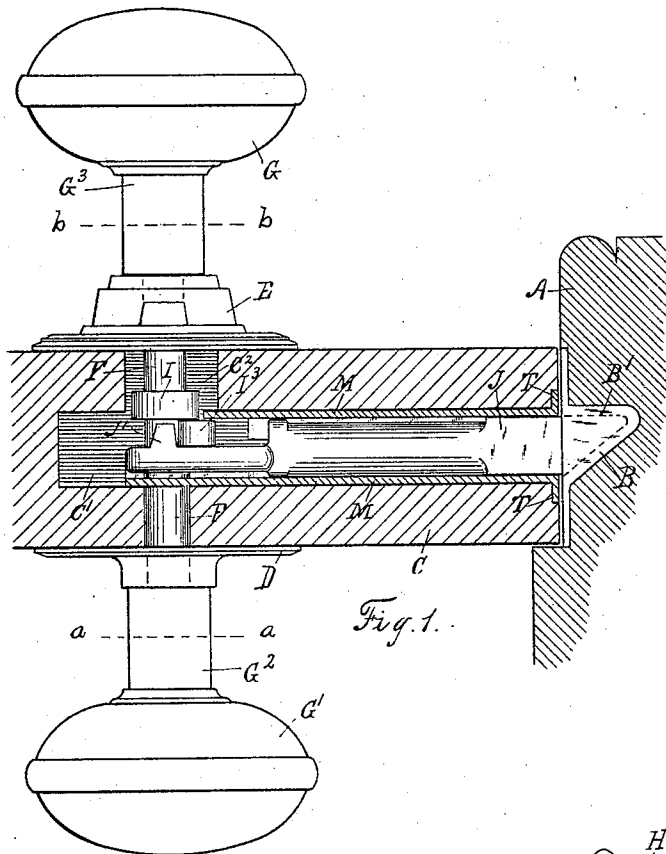


Fig. 1.

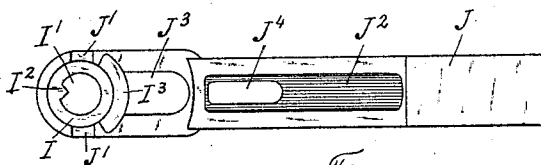


Fig. 3.

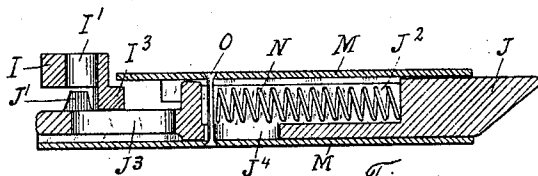


Fig. 4.

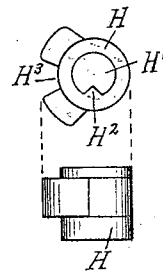


Fig. 12.

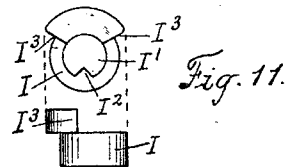


Fig. 11.

Witnesses
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(No Model.)

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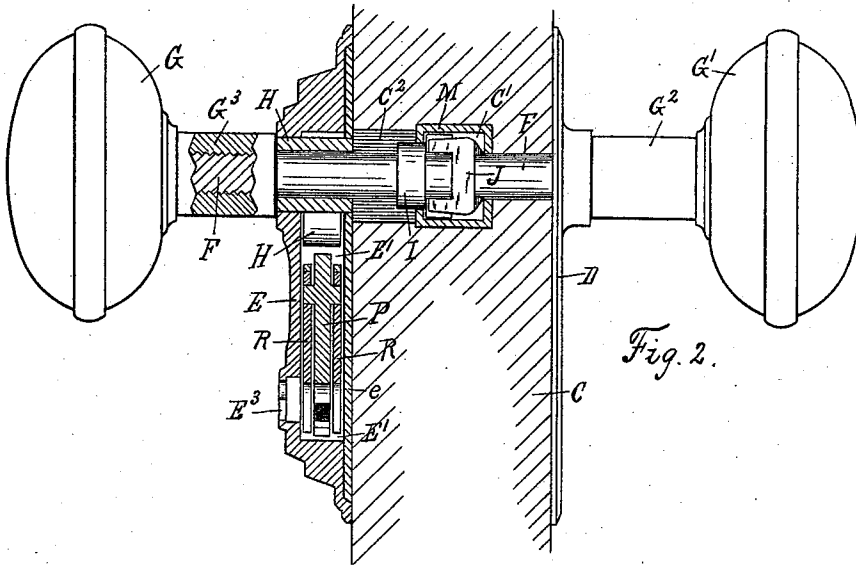


Fig. 2.

Fig. 5.

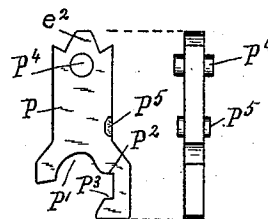
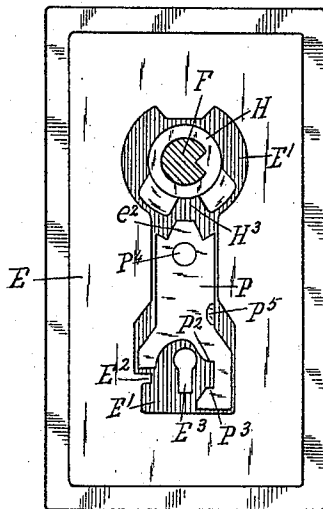


Fig. 9.

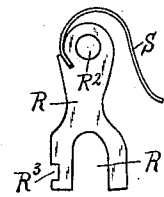


Fig. 10.

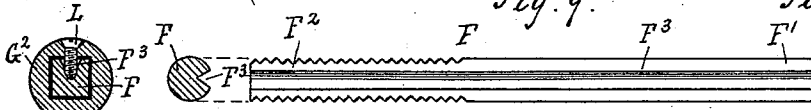


Fig. 13.

Fig. 15.

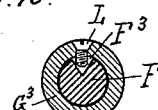


Fig. 14.

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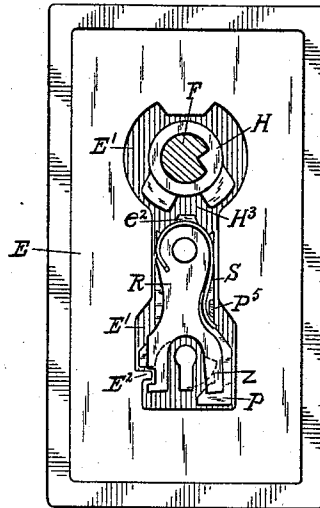


Fig. 6.

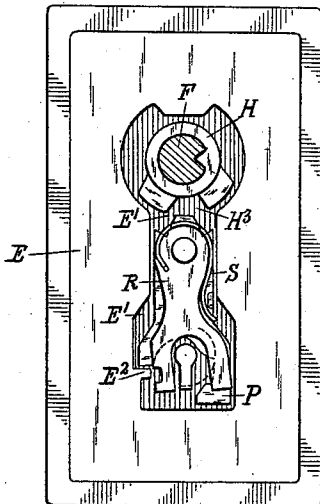


Fig. 7.

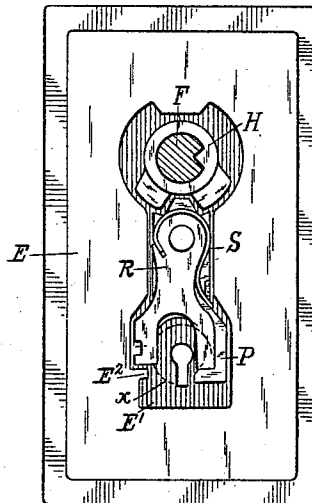


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

ADNA WILDERN, OF LONDON, CANADA, ASSIGNOR TO JOHN WILDERN, JOHN BROCKEST, GEORGE B. DEACON, AND DAVID C. WILSON, OF SAME PLACE.

MORTISE-LOCK.

SPECIFICATION forming part of Letters Patent No. 575,763, dated January 26, 1897.

Application filed May 11, 1895. Serial No. 549,024. (No model.)

To all whom it may concern:

Be it known that I, ADNA WILDERN, a subject of the Queen of Great Britain, and a resident of the city of London, in the Province of Ontario, Canada, have invented a new and useful Mortise-Lock, of which the following is a specification.

This invention relates to a door-fastening adapted to be inserted into a mortise in the edge of the door, whose locking-bolt is retracted by a key, the object being to provide a simple, cheap, inexpensive, and efficient device for fastening doors; and it consists of the improved construction and combination of parts of the same, as will be hereinafter first fully set forth and described and then pointed out in the claim.

In order that these improvements may be better understood, I have illustrated in the accompanying drawings a lock constructed according to my invention, in which drawings—

Figure 1 is a plan view of a mortise-lock and attachments embodying my invention. In this view portions of the door and frame and the lining of the spring-bolt mortise are shown in section. Fig. 2 is an end view of the mortise-lock, looking toward the tumbler of the spring-bolt. In this view a central section of the locking-bolt case and the parts contained therein is shown. The door and a portion of the spindle and one of the knob-shanks are also shown in section. Fig. 3 is a detail side view of the spring-bolt and its operating-tumbler. Fig. 4 is a detail central longitudinal sectional view of the spring-bolt, tumbler, and the lining of the mortise in which the spring-bolt is operated. Fig. 5 is a detail side view of the locking-bolt, its keeper, and the case in which these parts are contained. Figs. 6, 7, and 8 are detail views showing the operation by the key of the locking-bolt and lever when locking the door. Fig. 9 is a detail side and edge view of the locking-bolt. Fig. 10 is a detail side view of the lever and the spring connected therewith. Fig. 11 is a detail plan and side view of the tumbler. Fig. 12 is a detail plan and side view of the locking-bolt keeper. Figs. 13 and 14 are cross-sectional views on the line *a a* and *b b*, respectively, of Fig. 1. Fig. 15 is a detail side and end view of the spindle.

A designates a door-case, a portion only of

which is shown in Fig. 1, in which the door C swings; B, the spring-bolt keeper rigidly secured to said case, and C the door, in which is formed the mortise C' to receive the spring-bolt J. In this door C is also formed the opening C², at right angles to the mortise C' and communicating therewith. This opening C² receives the spindle F and is formed larger at one side of the door to permit of the insertion and engagement of the tumbler I with the spring-bolt J when the latter is placed in the mortise C'.

F designates a spindle, one end of which, F', is formed square and the other end with a screw-thread F², and F³ is a groove formed lengthwise in said spindle F.

G' designates a door-knob, in the shank G² of which a square socket is formed to receive the square end F' of the spindle, and G designates a knob, the socket in the shank G³ of which is screw-threaded to engage with the screw-threaded end F² of the spindle, and L L designate set-screws which extend through the shanks G² G³ and engage with the spindle F to rigidly secure said shanks G² G³, as well as the knobs G G', secured to or formed integral therewith, to said spindle.

I designates a tumbler in which the opening I' is formed, and this tumbler I is also provided with the interior tongue I² and the lateral arms I³.

J designates a spring-bolt which moves freely back and forth lengthwise in the mortise C', before referred to, and this mortise is provided with the lining M, of metal or other suitable material, to prevent the movement of the spring-bolt from wearing or injuring the door, and it also acts as a guide to conduct the spring-bolt to and hold it in line with the recess B' in the keeper B. This spring-bolt J is provided with laterally-projecting flanges J', with which the arms I³ of the tumbler engage, and with the recess J² to receive and hold the spring N, and in this spring-bolt J is formed the elongated openings J³ J⁴. Through the opening J³ the spindle F extends to operate the tumbler I, and said opening, being elongated, permits the spring-bolt J to move longitudinally independent of said spindle.

O designates a pin which projects through

the opening J^4 , the ends of said pin O being rigidly secured in opposite sides of the lining M to hold the lining together when formed in sections, and this opening J^4 is formed elongated to permit the spring-bolt J to move longitudinally independent of the pin O.

N designates a spring which is held in the recess J^2 between a shoulder on the spring-bolt J and the pin O, or, if preferred, the latter may be in the form of a shoulder on the lining M.

D designates a plate, and E a case, which are secured to the door around the spindle F. The case E is formed with the recess E' , with the shoulder E^2 , and with the keyhole E^3 .

P designates the locking-bolt, in which the recess P' is formed, and which bolt is provided with the shoulders P^2 P^3 , with the studs P^4 , and with the flanges P^5 .

R designates a lever, one or more of which may be used, in which is formed, near its upper end, the opening R^2 , while its lower end is forked, as shown, so as to form a recess R' between the arms of the fork, and a notch R^3 is formed in the outer edge of one arm.

S designates a spring connected with the lever R.

When placed in position, the lever or levers R are pivotally secured to and move longitudinally with the locking-bolt P by the studs P^4 engaging with the openings R^2 of said levers, and the spring S engages with the flange P^5 , as shown in Fig. 6, to act on the levers R in order to prevent the accidental disengagement of the notches R^3 from the shoulder E^2 , and by experiment I have found this construction to give the best results, although this flange P^5 may be formed on or be part of the case E.

H designates the locking-bolt keeper, in which an opening H' is formed, and this keeper H is provided with the interior tongue H^2 and the recess H^3 .

This lock is secured in and to the door as follows: The lining M is placed around the spring-bolt J, and the pin O is secured to said lining, as shown in Fig. 4. These parts are then inserted in the mortise C', and said lining M is prevented from moving longitudinally with the spring-bolt by screws or other securing devices extending through the flange T of said lining M into the door C. The tumbler I is then inserted in the larger end of the opening C^2 and the spring-bolt J pressed inward to permit the arms I^3 of the former to engage with the flanges J' of the latter. When in this position, on removing the pressure from the spring-bolt J the expansion of the spring N holds the tumbler I and spring-bolt J in contact.

The plate D is then secured to the door and the spindle F is inserted and projected through an opening in said plate D, through the opening C^2 in the door, through the opening J^3 of the spring-bolt, and through the openings I' and H' of the tumbler and locking-bolt keeper, respectively, and in order to

hold the tumbler I and locking-bolt keeper H in proper position and to prevent them from turning independently of the spindle F the tongues I^2 and H^2 are adjusted in the groove F^3 of the spindle F. The case E with its contained mechanism is then secured to the door, and the screw-threaded socket of the shank G^3 is engaged with and turned on the screw-threaded end F^2 of the spindle F until there is no movement lengthwise of said spindle, but at the same time permit the knobs and spindle to turn freely.

The operation is as follows: When in this position, by turning either knob slightly the end of the spring-bolt J is retracted and disengaged from the keeper B, which permits the door to be opened. When shutting the door, the end of the spring-bolt J abuts against the face of the keeper B. This moves the spring-bolt J longitudinally into the door C and compresses the spring N, so that the instant the end of the spring-bolt J comes opposite the recess B' of the keeper B the expansion of the spring N projects the bolt J into said recess B' and holds the door closed. When in this position and wishing to lock the door, the key is inserted in the keyhole E^3 , and by turning it in the direction of the dotted line x (shown in Fig. 6) the bit of the key engages in the fork of the lever R inside of the recess R' and moves the latter to the position shown in Fig. 7. This compresses the spring S and disengages the notch R^3 from the shoulder E^2 . The further turn of the key brings the bit thereof against the shoulder P^2 of the locking-bolt P and moves said locking-bolt in the direction of the keeper H until the end e^2 of the former is inserted in the recess H^3 of the latter. When in this position, the expansion of the spring S acts on the lever R and adjusts the end of one arm of the latter against and upon the shoulder E^2 , as shown in Fig. 8. This prevents the keeper H from being rotated, and the tongue H^2 of the latter engaging with the groove F^3 of the spindle F the latter is also prevented from turning, and the end of the lever R engaging with the shoulder E^2 , as shown in Fig. 8, the accidental disengagement of the locking-bolt P from the keeper H is avoided and completely prevented. This prevents the spring-bolt J from being retracted and thus securely locks the door, and also completely prevents the useless rotation of the spindle.

When the parts of the lock are adjusted as described and it is wished to unlock the door, the key is turned in the direction of the dotted line x shown in Fig. 8. By turning the key in this direction the bit thereof engages with the lever R and disengages the end of the latter from above the shoulder E^2 . The further turning of the key brings the bit against the shoulder P^2 of the locking-bolt P. The continuation of the turning of the key adjusts the locking-bolt and lever to the position shown in Fig. 6 and disengages the end e^2 of the locking-bolt P from the recess H^3 of

the keeper H, and the lever R being pivoted on the stud P⁴ of the locking-bolt P both the locking-bolt and lever are adjusted simultaneously to the position shown in Fig. 6.

5 When in this position, the door is unlocked and the spindle permitted to turn perfectly free.

In the annexed drawings a shoulder E² is shown on the case E, which engages with the 10 recess R³ of the lever R; but this may be vice versa, and instead of the opening R' in the lever R the former may be dispensed with and said lever provided with flanges or projections, the engagement of the bit of the key 15 with the latter operating said lever and locking-bolt, so that while I prefer the construction shown I do not limit myself to the details thereof, as they may be modified in various ways without departing from the spirit 20 of my invention.

Having thus described my invention, I claim—

In a lock of the character described, the combination with the bolt, a grooved spindle for 25 retracting the same, and a keeper mounted

on such spindle and having an interior tongue taking into said groove and an exterior recess; of a case secured to the face of the door and having a keyhole, a shoulder within the case projecting toward the side of such key- 30 hole, a locking-bolt sliding in the case and having an end for engaging the recess of said keeper, key-shoulders, and a flange; and provided with a stud; a lever having an opening in its upper end journaled on said stud 35 and a forked lower end with a key-receiving recess between the arms of the fork and a notch in the outer edge of one arm engaging said shoulder on the case when the locking-bolt is retracted; and a spring attached at 40 one end to the lever, bearing against said flange on the locking-bolt, and pressing the notched end of the lever normally toward said shoulder, as and for the purpose set forth.

In testimony whereof I have signed in the 45 presence of the two undersigned witnesses.

ADNA WILDERN.

Witnesses:

P. J. EDMUNDS,
S. MCBAIN.