

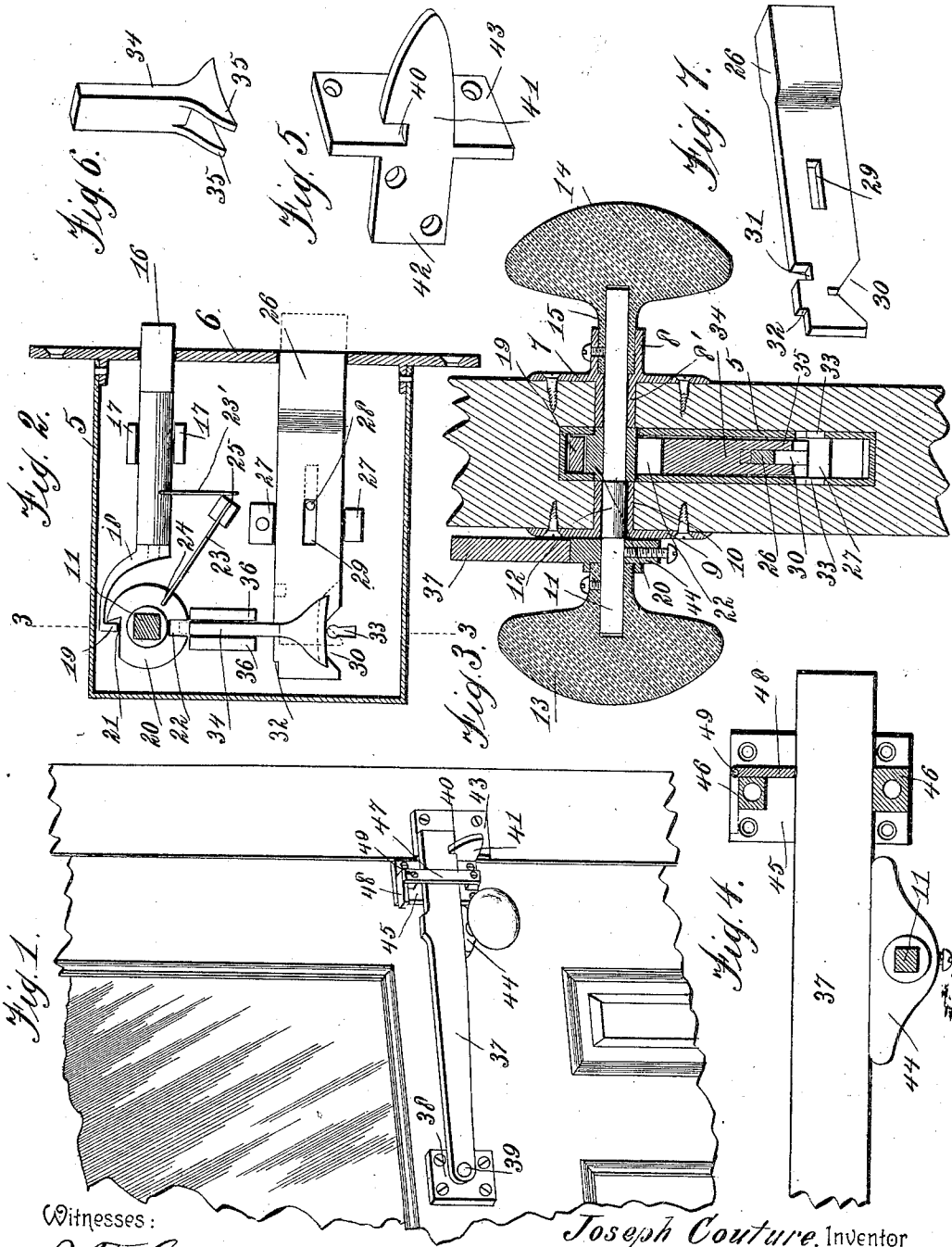
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J. COUTURE.  
LOCK AND LATCH.

(Application filed Feb. 18, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 688,933, dated December 17, 1901.

Application filed February 18, 1901. Serial No. 47,718. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH COUTURE, a citizen of the United States of America, residing in the city and district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Door Locks and Latches; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in door locks and latches combined; and the object that I have in view is to provide improved means operatively connecting the latch-bolt and the locking-bolt for the purpose of locking the former in its shot position and at the same time serving as a dog to prevent the locking-bolt from being retracted, whereby a single key-actuated element is adapted to lock both the latch-bolt and the locking-bolt.

With these ends in view the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

In the drawings hereto annexed, forming a part of this specification, Figure 1 is a perspective view looking at the inner side of a door and representing the application of a locking-latch thereto and in operative relation to a knob-spindle. Fig. 2 is a longitudinal sectional elevation through the lock. Fig. 3 is a transverse section in the plane of the dotted line 3 3 on Fig. 2 looking in the direction of the arrow. Fig. 4 is a detailed vertical section through the keeper for the locking-latch, the latter being shown in position relative to its cam-plate and the pivoted detent being dropped to its operative position, so as to prevent said locking-latch from being lifted from engagement with its catch. Fig. 5 is a detail perspective view of the catch for the locking-latch. Fig. 6 is a detail perspective view of the dog adapted to be associated with the latch and locking bolts. Fig. 7 is a detail perspective view of the locking-bolt.

The same numerals of reference denote like parts in each of the several figures of the drawings.

5 designates an ordinary lock-casing, having a face-plate 6 and adapted to be fitted

within a mortise of a door and to be secured in place in any usual way. To one side of the door is secured a washer or plate 7, having two short cylindrical sleeves 8 8', and to the other side of said door is fastened another washer 9, which is constructed with an inwardly-extending sleeve 10, the sleeve 8' of the washer 7 extending into the door, as shown by Fig. 3, while the other sleeve 8 of said washer 7 extends outwardly. The knob-spindle 11 is square or of any other angular form in cross-section except for a short length 12, which is cylindrical in form and is revolvably fitted in the sleeve of the washer 9, (see Fig. 3,) whereby the knob-spindle is mounted in the door and in the lock so as to turn freely on its axis. To the end portions of this angular knob-spindle are fastened the knobs 13 14, which may be of any usual construction, the latter having an extension 15, which is snugly fitted to the angular end portion of the knob-spindle and is of externally-cylindrical form, so that it may fit rotatably in the outwardly-extending short sleeve 8 of the washer 7. (See Fig. 3.)

The latch-bolt 16 may be fitted between suitable guides or ways 17, provided in the lock-casing 5, and to the inner end of said latch-bolt is secured a finger 18, the latter being preferably curved, as shown by Fig. 2, and terminating at its free extremity in a beak 19. The knob-spindle passes through the lock-casing 5, and within this casing a disk 20 is secured to said spindle, said disk being provided in its upper edge with a notch 21 and in its lower edge with a notch 22. The beak 19 of the latch-bolt finger is fitted loosely in the upper notch 21 of the disk, thus operatively connecting the disk and latch-bolt together, and to the disk is secured an impelling-spring 23, the latter being preferably of the leaf form and having one end received in a notch 24 of the disk, while its other end is secured at 25 within the lock-casing. Another spring 23' is attached to the latch-bolt and bears against the post 25, so as to normally project the latch-bolt.

26 designates the locking-bolt, which is slidably confined in the casing by and between the lugs 27 and by a screw or stud 28, which is received in the longitudinal slot 29 of the bolt. In the lower rear portion of this

bolt is the key-recess 30, while the upper edge of the bolt at the rear end thereof is formed with a notch 31, the innermost upper corner of the bolt being cut away, so as to form a locking-shoulder 32. As is usual in the art, the recessed portion 30 of the locking-bolt is disposed in such relation to the keyhole 33 that the key-bit may engage with the bolt for the purpose of shooting or retracting the same, and this key is also adapted to actuate a locking-dog, which in one position is adapted to have engagement with the latch-bolt-actuating disk 20 and with the shoulder 32 of the locking-bolt, so as to simultaneously lock both bolts 16 26 in their shot positions.

The locking-dog 34 is bifurcated or forked at its lower portion, so as to form the feet 35, separated by an intervening recess or space, and this locking-dog is disposed in a vertical position and between the guides 36, the latter serving to limit the locking-dog to rectilinear reciprocating play in a vertical direction. The locking-dog is arranged for its feet to straddle the locking-bolt, said feet arranged to span the recess 30 of the bolt and to lie in the path of the key-bit, whereby the key is adapted to lift the locking-dog before it actuates the bolt 26, said locking-dog arranged to drop in a downward direction by gravity. The lower portion of the dog 34 between the feet 35 is arranged to engage with the notch 31 or with the shoulder 32 of the locking-bolt, according to the position of the latter—that is to say, with the bolt in its retracted position and the dog lowered across the bolt, as shown by Fig. 2, the lower portion of the dog engages with the notch 31; but when the bolt has been advanced to the position shown by dotted lines in Fig. 2 and the key has been withdrawn from engagement with the bolt and from the feet of the dog the latter drops by gravity into engagement with the shoulder 32 of the bolt, thereby locking the same in its shot position.

The notch 31 of the bolt is cut into the same to a greater depth than the cut-away upper corner of the bolt forming the shoulder 32, and when the dog engages with the shoulder it occupies a somewhat higher position than when it engages with the notch 31. As shown by Fig. 2, the locking-dog is retained by the guides 36, so that it is in the plane of the lower notch 22 in the latch-bolt-actuating disk 20, and the engagement of the dog with the shoulder 32 of the bolt serves to raise the dog somewhat and makes its upper end enter the recess 22 in said disk 20, whereby the disk cannot be turned by the operation of the knob-spindle and the latch-bolt 16 is locked in its shot position.

I will now proceed to describe the locking-latch 37, the same being pivoted at its heel to a plate 38 by means of a pin or stud 39. The free end of this locking-latch is adapted to fit in a notch 40 of the catch 41, the same having a perforated plate 42 and another perforated

plate 43, said plates being arranged at right angles to each other and all the parts being cast in a single piece of metal. (See Fig. 5.) The catch is adapted to have its plates secured to the side and edge faces of the door-jamb, and this catch may be constructed for use in connection with right and left hand doors, as is evident to a skilled mechanic. The locking-latch is applied to the door in a position to extend across and above the knob-spindle, and this spindle is provided with a cam-plate 44, the same being secured within the knob 13 and arranged to engage with the under edge of the locking-latch 37, whereby the operator may turn the knob so as to retract the latch-bolt 16 and at the same time change the position of the cam-plate 44 in a manner to lift the locking-latch 37 from engagement with its catch 40.

45 designates a keeper-plate, which is secured to the door at a point near the knob-spindle and in a position for the locking-latch 37 to pass across the same. This keeper-plate is provided with the outwardly-extending posts 46, to which are secured a bridge-plate 47, and these posts are spaced, as shown by Fig. 4, away from each other for a distance greater than the width of the latch 37. The latch is thus free to be raised by the action of the cam-plate 44 between the posts 46, while the keeper-plate and the bridge-plate 47 cooperate with the sides of the latch to retain the latter in position. I also provide an auxiliary detent 48, which is pivoted to the keeper-plate at 49 and is arranged to be folded to an inoperative position across the upper post 46, as represented by Fig. 1; but this detent may be turned downwardly to the operative position shown by Fig. 4, thus bringing the lower end of the detent into engagement with the latch 37 and making the latter remain in engagement with the catch 40.

There is a particular relationship between the construction and location of the latch-bolt and the actuating means therefor and the latch 37. This is by reason of the fact that in mortise-locks the locking device is generally located along the edge of the door, and thereby necessitating the manipulating of the locking means prior to the closing of the door. In such cases where there is any tendency of the latch-bolt to stick when locked the door can only be closed with considerable force and by slamming. In such cases the knob manipulation permits of a free movement of the latch-bolt; but where the knob is locked by the locking means this free movement is lost. To remedy this, auxiliary means connected with the latch-bolt have been provided, insuring the proper retracting of the bolt when the door is closed. Such constructions are expensive, requiring special arrangements. By the construction shown, however, this is obviated, and the locking takes place after the door is closed, it being accomplished by the dropping of the detent 48 into a position above the latch 37. In this

position the latch 37 holds the knob-spindle from rotation, thus locking the latch-bolt 16 against movement. To accomplish this result, however, means must be provided which will insure that the knob-spindle be located in a certain predetermined position when the locking takes place in order that the latch-bolt may be projected into its keeper. This means is provided by having the cam-piece 44 extend on opposite sides of the knob-spindle, so that the latch 37 may force the spindle to its proper position, and the limiting of the movement of the latch 37, so that the spindle cannot be rotated a sufficient distance to permit the cam-piece to move to the opposite side of the knob-spindle. In the latter case the connection between the latch-bolt and spindle would be disturbed.

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

It is my practice to arrange the fasteningscrews or their equivalents for the catch, the keeper, and the locking-latch in such a way that neither of these parts can be taken off without having access to both sides of the door.

Having thus described my invention, what I claim as new is—

1. The combination of a knob-spindle provided with a notched disk, a latch-bolt operatively connected with said disk and moved in one direction thereby, a locking-bolt, and a gravity locking-dog disposed in the path of a key, normally having interlocking engagement with the upper face of the locking-bolt, and arranged, when lifted, to engage with said notched disk; said locking-dog adapted to hold the locking-bolt and notched disk locked against movement.

2. The combination of a knob-spindle provided with a notched disk; a latch-bolt operated in one direction thereby; a locking-bolt provided with a notch and a shoulder on its upper face, the lower face of said bolt having a key-recess; and a vertically-movable key-actuated dog straddling the locking-bolt and disposed on opposite sides of the key-recess, said dog having a portion adapted to engage either said notch or said shoulder to hold said bolt against movement, said dog having means for engaging with said notched disk for holding said disk locked against movement when the dog is in any position other than in engagement with the notch in said bolt.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEPH COUTURE.

Witnesses:

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