J. P. SILVA.

DOOR LATCH.

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1,301,326. Patented Apr. 22, 1919.

Fig. 1

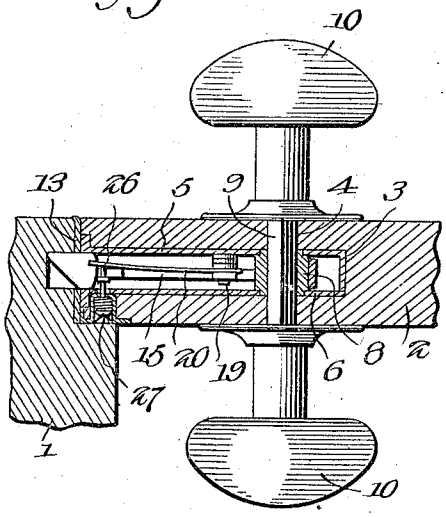


Fig. 2.

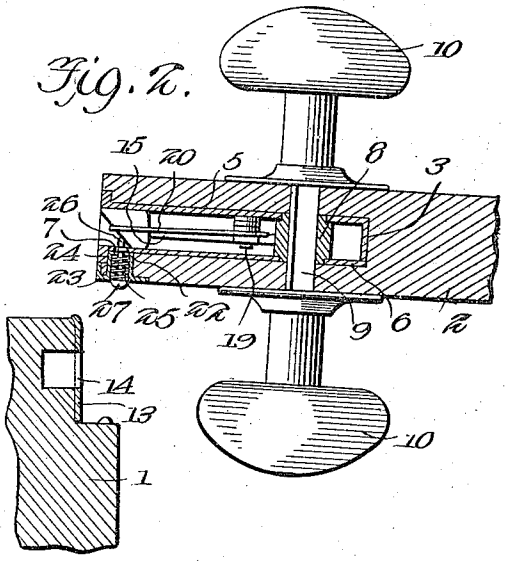


Fig. 3.

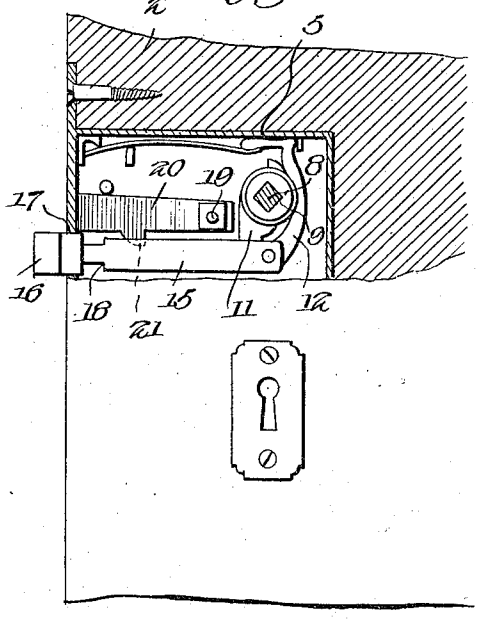
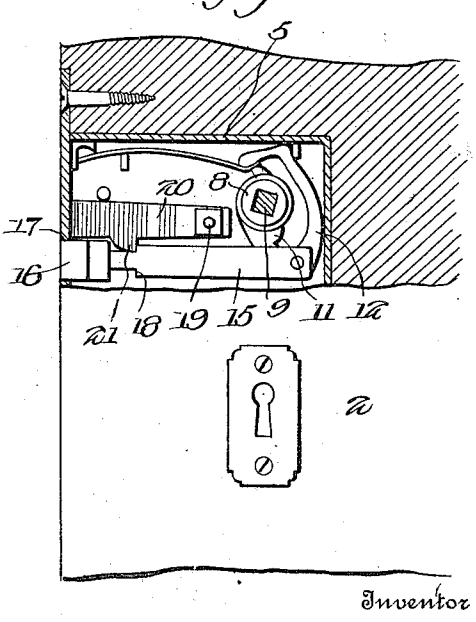


Fig. 4.



Witnesses

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DOOR-LATCH.

1,301,326. Specification of Letters Patent. Patented Apr. 22, 1919.

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To all whom it may concern:

Be it known that I, JOHN P. SILVA, a citizen of Republic of Portugal, residing at Rockport, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Door-Latches, of which the following is a specification.

This invention relates to a door latch and more particularly to that type of latch in which the latch bolt is withdrawn from the keeper on the door frame by means of the knob on the door.

The primary object of the invention is to provide a door latch having a spring detent arranged within the casing in such a manner that when the door knob is operated to retract the latch bolt, the detent will engage therewith and hold the latch bolt in retracted position while the door is open and upon the closing of the door will be released from the latch bolt through the contact with the door jamb of a spring controlled releasing pin carried by the door and having an end for contact with the spring detent.

Another object of the invention is to provide a door latch with a spring detent having a finger thereon so arranged with relation to a recess in the latch bolt forming a shoulder thereon that when the door is open the latch bolt contacts with said finger and places the detent under tension, so that as the latch bolt is retracted by means of the knob of the door and the recess brought into registration with the finger, the finger will be automatically moved into engagement with said shoulder to hold the latch bolt in retracted position.

A further object of the invention is to provide a spring detent for connection with the latch casing which may be applied to latch casings now in common use and is so constructed that it may be used in connection with the latch bolt in the casing if the same has been recessed to provide a shoulder.

With these and other objects in view, the invention resides in the novel combination and arrangement of parts, which will be hereinafter described and particularly pointed out in the claim.

The preferred embodiment of the invention has been illustrated in the accompanying drawing, although no restriction is necessarily made to the precise details of construction therein shown, as changes, alterations, and modifications within the scope of the claim may be resorted to when desired.

Like characters of reference denote corresponding parts throughout the several views in the drawing, in which:

Figure 1 is a horizontal transverse section through a portion of a door and a frame therefor and showing the improved latch bolt applied thereto.

Fig. 2 is a view similar to Fig. 1 showing the door in open position, the latch bolt being held retracted in the latch casing by a spring detent.

Fig. 3 is a side elevation partly in section of a latch removed from the door and showing the latch bolt in extended position.

Fig. 4 is a view similar to Fig. 3 showing the finger on the spring detent engaged with the shoulder on the latch bolt to hold the same in retracted position.

Referring now to the drawing in detail, the numeral 1 designates a portion of a door frame with which is hingedly connected a door 2, said door being recessed, as at 3, to provide a latch chamber intersected by the usual knob opening 4.

Received in the latch chamber 3 and secured to the door in the usual manner is the latch casing 5 having a removable cover plate 6 provided with an opening 7.

The usual barrel 8 is arranegd in the latch casing 5 and has passing therethrough a knob shaft 9 which extends beyond the ends of the opening 4 and receives the usual knobs 10.

The barrel 8 is provided with an arm 11 which when the knob is turned contacts with a spring controlled tumbler 12 by means of which the latch bolt may be moved to a retracted position within the casing.

The frame 1 has secured thereto a keeper plate 13 provided with an opening 14 in which may be received the head on the latch bolt when the door is in closed position.

As the construction thus far described is common in latches now in use, it is thought that further detailed description of the same is unnecessary.

A latch bolt 15 has one end connected with the tumbler 12 and its other end formed with a beveled head 16 normally received in an opening 17 in a side wall of the casing 5 and extending beyond the same to be received in the opening in the keeper plate 13, said latch bolt being recessed upon opposite sides adjacent the head 16 to form shoulders 18.

A stud 19 is detachably connected with a wall of the casing 5 adjacent the barrel 8

and has secured thereto one end of a plate 20 extending transversely of the casing above the latch bolt and formed from resilient material.

One side edge of the plate 20 is formed with a locking finger 21 adapted to engage with the shoulder 18 on the latch bolt when the same is retracted, thus enabling the plate 20 to serve as a spring detent.

Through the above described arrangement of the detent and latch bolt, it will be seen that when the door is open and the latch bolt in its normal position, the bolt will overlie the finger 21 and place the detent under tension, so that when the knobs on the door are operated to retract the latch bolt, one of the recesses will be caused to register with the finger 21, at which time the inherent resiliency of the material from which the plate 20 is formed causes the finger 21 to move into engagement with a shoulder 18 and hold the latch bolt in retracted position against the influence of the spring controlled tumbler 12.

An opening 22 is formed in the door 2 upon which is mounted a plate 23 having formed thereon to extend within the recess 22 a housing 24 having an open end. A coiled expansion spring 25 is arranged within the housing which has formed in its closed end an opening registering with the opening 7 in the cover plate 6.

A detent releasing pin 26 upon which is mounted the spring 25 extends beyond the closed end of the housing 24 through the opening therein, one end of said pin contacting with the plate 20, between which and the closed end of the housing is a collar rigidly secured to the pin. The other end of the pin is provided with a head 27 normally held by the spring 25 extending beyond the open end of the housing 24, so that when the door is closed the head will contact with the frame 1 and move the pin 26 longitudinally of the housing 24 against the influence of the spring 25.

When the latch is in use and the door is held in a closed position by the latch bolt 15 shown in Fig. 1 in the drawing, the knob may be operated to cause the tumbler 12 to move the latch bolt to a position within the casing in which the finger 21 will register with an opening 17 in the latch bolt, at which time the finger will engage with the shoulder 18 and hold the latch bolt retracted within the casing while the door is in open position.

As the door is moved to closed position, the head 27 on the pin 26 will contact with the door frame and move the pin longitudinally of the housing against the influence of the spring 25, so that the end of the pin which is arranged within the latch casing will contact with the spring detent and force the finger 21 out of engagement with the shoulder 18, at which time the spring controlled detent will move the latch bolt to extended position.

It will, of course, be understood that at any time when the door is open if it is desired to release the detent from engagement with the latch bolt pressure may be applied by means of the finger to the head 27 on the detent releasing pin to accomplish this purpose.

From the foregoing description, taken in connection with the accompanying drawing, it will at once be apparent that a latch has been provided which when applied to the door and the door is in open position will be held in retracted position thus preventing injury to persons passing through the opening which the door is adapted to close and upon the closing of the door, the latch bolt will be automatically moved to a position to hold the door closed.

Having thus described the invention, what is claimed as new, is:

In a door latch, a latch casing having parallel side walls, a sliding bolt including a head movable inwardly and outwardly through one end of the casing, and a shank carrying said head, said shank being provided in its upper edge with a transverse notch adjacent to the head, a plate spring secured at one end to one side wall of the casing so as to lie longitudinally above and in the vertical plane of the bolt, the opposite end of said spring plate being free for flexing movements transversely of the bolt, a finger depending from the plate spring at a point between its ends, said finger being arranged to be engaged by one side of the bolt when the latter is projected, whereby the spring is bowed laterally in one direction and placed under tension, and said finger being adapted upon the retraction of the bolt to aline with the notch and thereby relieve the spring from tension and to be moved by the spring reaction into locking engagement with the notch in the bolt, and a device operated by contact with a door frame and movable through an opening in the opposite side wall of the lock casing across the bolt shank into engagement with the free end of the spring plate and press said plate laterally to withdraw the finger from the notch, leaving the bolt free for retraction, and knob actuated means for both projecting and retracting the bolt.

In testimony whereof I affix my signature.

JOHN P. SILVA.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."