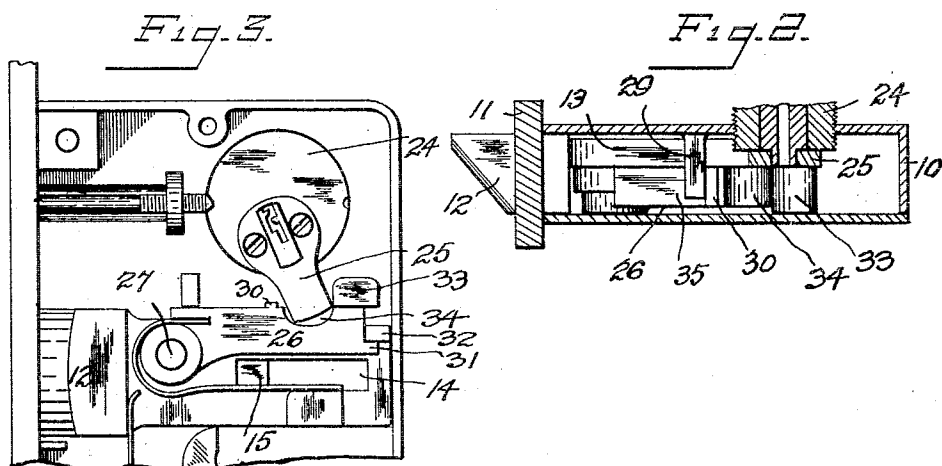
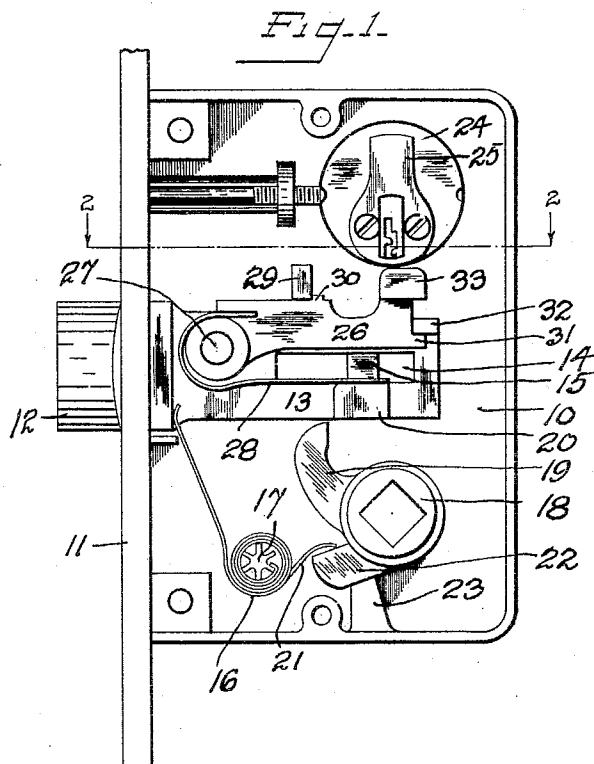


LOCK.

1,309,300.

Patented July 8, 1919.

2 SHEETS--SHEET 1.



WITNESSES:
F. A. Carlson

BY

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LOCK.

APPLICATION FILED OCT. 25, 1916.

1,309,300.

Patented July 8, 1919.

2 SHEETS—SHEET 2.

Fig. 4.

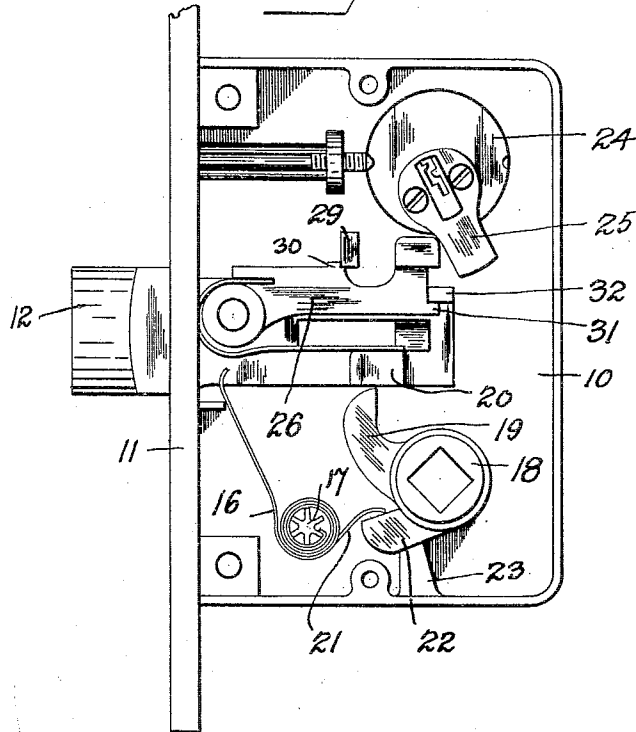


Fig. 5.

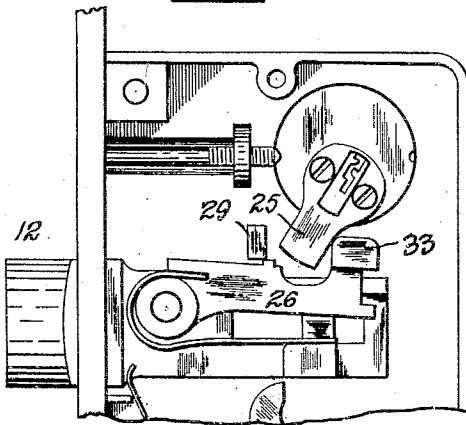


Fig. 6.

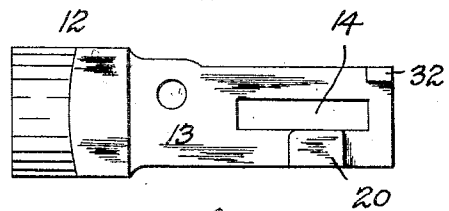
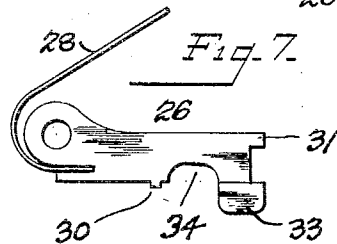


Fig. 7.



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UNITED STATES PATENT OFFICE.

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LOCK.

1,309,300.

Specification of Letters Patent.

Patented July 8, 1919.

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To all whom it may concern:

Be it known that I, ALBERT A. PAGE, a citizen of the United States, residing in East Haven, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

This invention relates to locks, and more particularly to those having a latch bolt which can be protracted beyond the normal latching position to an abnormally projected or double thrown position, and deadlocked in that position, so as to fulfil the function of a dead bolt, and thereby increase very materially the security of the lock. The invention relates especially to a mortise lock construction in which the latch bolt is controlled by a cylinder lock, as well as by suitable knob mechanism, but some features of the invention will be found advantageous in locks of other types.

The primary object of the invention is to furnish a very simple and inexpensive construction which is, nevertheless, extremely reliable and efficient.

The invention also aims to provide improved means for controlling a double throw latch bolt by the rollback or cam of a cylinder lock.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings,

Figure 1 is an elevation of a lock embodying my improvements, with the cap plate removed, the parts being in the normal position;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 shows the latch bolt retracted by the cylinder lock mechanism, the lower part of the lock being omitted;

Fig. 4 shows the latch bolt protracted to the double thrown position by the cylinder lock mechanism;

Fig. 5 is a view of the upper portion of the lock, showing the latch bolt intermediate the double thrown position and the normal latching position;

Fig. 6 is a detail of the bolt; and

Fig. 7 is a detail of the tumbler.

In the embodiment shown, a mortise lock case 10 of usual form, having a face plate 11, is equipped with a latch bolt 12 having

a flat shank 13. The shank 13 is provided with a slot 14 engaging a post 15 on the back of the case, so that the bolt is guided for longitudinal movement, and a leaf spring 16 coiled about a post 17, bears against the rear surface of the latch bolt head and resists repression of the latch bolt beyond the normal latching position shown in Fig. 1. A knob spindle hub 18, mounted in the lower part of the case to engage the usual knob spindle (not shown) is provided with an upwardly projecting wing 19 for retracting the latch by engaging a lug 20 projecting outward from the shank 13 at the lower part thereof. The hub 18 is normally held in the position shown in Fig. 1, which corresponds to the latching position of the bolt, by a spring 21 coiled about the post 17 beneath the spring 16 and engaging an arm 22 on the hub 18 in such a manner as to hold it against a stop lug 23. By this construction, the latch can be retracted by the rotation of the hub in a clockwise direction (Fig. 1) in opposition to the springs 16, 21, and when the knob is released, the hub is carried back to the initial position against the stop lug 23 concurrently with the protraction of the bolt.

The key mechanism for controlling the bolt comprises a pin tumbler cylinder 24 screwed into the lock case at the outer side of the door, and having a rotary cam or rollback 25 adapted to be rotated by the key in the usual manner. This cylinder lock mechanism is not only adapted to retract the latch bolt when the key is turned in one direction, but also to protract said bolt to an abnormally projected or double thrown position when the key is turned in the opposite direction. For this purpose, the bolt is provided with a swinging tumbler 26 bodily carried by the bolt and pivoted on a post 27 carried by said bolt. A spring 28 on the tumbler reacting against the lug 20 urges the tumbler in an upward direction into coöperation with a fence or stump 29 cast on the back of the case. The upper surface of the tumbler is provided with a lug 30, coöperating with the fence 29. When the latch is in the normal latching position, the projection or lug 30 is in engagement with the rear face of the fence, which prevents the latch from moving outward beyond said normal latching position. A rearward projection 31 on the lower part

of the tumbler underlies a lug 32 on the rear part of the bolt shank and limits the upward movement of the tumbler under the influence of its spring. By this means, the rear end, as well as the front end, of the tumbler, is connected with the bolt so as to lie normally in a substantially horizontal position parallel to the bolt. The tumbler cannot swing upward beyond this position, but its rear end portion may be swung downward by the cam or rollback 25, so as to disengage the lug 30 from the fence 29. At its upper rear extremity, the tumbler is provided with a transverse rounded projection 33 located beneath the cam and adapted to be engaged by the cam as the latter is rotated in either direction.

Supposing the parts to be in the normal position shown in Fig. 1, when it is desired to retract the latch by the key, the latter is turned in such a direction as to rotate the cam counter-clockwise (Fig. 3), so that its side will engage the front surface of the transverse rounded shoulder 33, while the extremity of the cam arm passes freely into a clearance opening 34 formed in the tumbler in front of the shoulder. In this manner, the latch is retracted, as shown in Fig. 3, through the action of the cam arm on the tumbler, which acts as a member for pulling the latch rearwardly. The tumbler is maintained substantially in alinement with the latch during this operation by the engagement of the projection 31 under the projection 32, as previously described. The upper surface of the tumbler in front of the lug 30 is smooth and flat and bears against the under surface of the fence 29 during this operation of the latch, so that in connection with the guide lug 15 the bolt mechanism is smoothly and effectively guided in a straight line. There is no pivotal movement of the tumbler during the retraction of the bolt.

When it is desired to give the bolt a double throw, the cam or rollback is rotated in a direction opposite to that first indicated, so that one side of the cam will engage the rear of the transverse shoulder 33. In this operation, the forward movement of the tumbler is resisted by the fence, and therefore as the cam is brought into contact with the shoulder 33, the tumbler yields and moves downward to disengage its lug from the fence, and on further movement of the cam the bolt is projected by means of the tumbler to the double thrown position shown in Fig. 4. The lug 30 snaps in front of the fence 29, and the bolt is thereby deadlocked in the double thrown position, so that it has all of the functions of a dead bolt. It will be observed that when the bolt reaches the fully projected position, shown in Fig. 4, the lug 20 on the bolt is disposed above the wing 19 of the hub 18. In this manner, the lug dogs the hub against rotation, and thus

when the bolt is in the double thrown position, the knob mechanism is not only ineffective to retract it, but all rotary movement or rattling of the knob is prevented.

Various changes may be made in the details of the construction without departing from the scope of the invention as defined in the claims.

What I claim is:

1. In a lock, a case, a latch bolt therein having a shank, means for guiding the latch bolt shank on the case, a tumbler for said bolt adapted to hold it in latching position or an abnormally protracted position, a fence formed upon said case coöperating with said tumbler, cylinder lock mechanism coöperating with said tumbler for retracting said bolt and for giving it an abnormal protraction, and a knob hub directly engageable with the bolt when the latter is in the latching position to retract the same; substantially as described.

2. In a lock, a case, a latch bolt therein having a shank guided on the case, a fence on the case, a single tumbler for said bolt coöperating with said fence to hold the bolt in the latching position or in an abnormally protracted position, a cylinder lock to operate said bolt through said tumbler for giving the bolt an abnormal protraction or for retracting the bolt, and manually operable means directly engageable with the bolt for retracting the same when the bolt occupies the latching position, said last named means being inoperative when the bolt occupies the abnormally protracted position; substantially as described.

3. In a lock, a case, a latch bolt therein having a shank for guiding the same, a spring urging said bolt in an outward direction, a pivoted tumbler carried by said bolt and having an outwardly projection lug on one edge thereof, a fence on the case coöperating with said lug to hold the bolt in the latched position or in an abnormally protracted position, a cylinder lock having a cam to engage the tumbler and thereby give the bolt an abnormal protraction or retract the same, a lug formed integral upon said shank, and a knob spindle hub having a projecting wing engaging said lug to retract said bolt.

4. In a lock, a case, a latch bolt slidably mounted therein, a spring urging said bolt in an outward direction, a pivoted tumbler carried by said bolt, a cylinder lock having a cam to engage the tumbler and thereby give the bolt an abnormal protraction or retract the same, a lug integral upon said latch bolt, and a knob spindle hub having formed thereupon an extension engaging said lug to retract said bolt.

5. In a lock, a mortise case having a lug, a latch bolt having a slotted shank guided on said lug, a spring urging said latch bolt

outward beyond the normal latching position, means below the latch bolt directly engaging the same to retract said bolt, a tumbler pivoted to the bolt and having a lug at its upper edge, a fence on the case cooperating with said lug to hold the bolt in the normal latching position or in an abnormally protracted position, a spring urging the tumbler upwardly toward said fence, means on the bolt for limiting the upward movement of the tumbler so as to hold it in substantial parallelism with the bolt, and a cylinder lock having a cam engageable with the free end portion of the tumbler for giving the bolt an abnormal protraction or retracting the same; substantially as described.

6. In a lock, a latch bolt movable from the normal latching position to an abnormally protracted position, a tumbler mounted upon said bolt for positioning the same, a fence cooperating with said tumbler, means out of engagement with the bolt for giving it a double throw by engagement with said tumbler, and means directly engageable with the bolt for retracting the same independently of the tumbler when the bolt occupies the latching position; substantially as described.

7. In a lock, a latch bolt movable from the normal latching position to an abnormally protracted position, a tumbler for positioning said bolt, a fence cooperating with said tumbler, means out of engagement with the bolt for giving it a double throw by engagement with said tumbler, and means directly engageable with the bolt for retracting the same independently of the tumbler when the bolt occupies the latching position, said last named means being inoperative when the bolt occupies the abnormally protracted position; substantially as described.

8. In a lock, a latch bolt movable from the normal latching position to an abnormally protracted position, a tumbler for positioning said bolt, a fence cooperating with said tumbler, means out of engagement with the bolt for giving it a double throw by engagement with said tumbler, and means directly engageable with the bolt for retracting the same independently of the tumbler when the bolt occupies the latching position, said last named means being inoperative when the bolt occupies the abnormally protracted position, said means comprising a rotary knob

hub and the bolt having an integral lug to cooperate with said knob hub; substantially as described.

9. In a lock, the combination of a latch bolt, key mechanism for retracting the same, or giving the same a double throw, and a knob hub to engage said bolt for retracting the same when said bolt is in the normal latching position, said bolt in the double thrown position being so located relatively to said knob hub as to block the movement of the latter; substantially as described.

10. In a lock, a latch bolt, key mechanism for protracting the same to an abnormally projected or double thrown position, and for retracting said bolt, a lug on said bolt, and a knob hub to engage said lug when the bolt is in the normal latching position, for the purpose of retracting said bolt, said lug in the double thrown position of the bolt being in a position to block the rotation of said hub; substantially as described.

11. In a lock, a bolt, a hub adapted to engage said bolt to retract the same, and means for projecting said bolt outwardly into a position wherein it dogs said hub against rotation; substantially as described.

12. In a lock, a latch bolt, means for giving the same a double throw, a retracting hub for said bolt, and a member on the bolt having a bolt-retracting relation to said hub when the bolt is in the normal latching position, said member so located that it occupies a dogging position relatively to said hub when the bolt is in the double thrown position; substantially as described.

13. In a lock, a latch bolt movable from the normal latching position to an abnormally protracted position, a tumbler for positioning said bolt, an integral lug upon said bolt, and means independent of said tumbler engageable with said lug for retracting the same, said lug being positioned to have one face thereof operatively engaged by said retracting means when the bolt is in its normal latching position, and to have another face thereof positioned to dog the operation of the retracting means when the bolt is moved to its abnormal protracted position.

In witness whereof, I have hereunto set my hand on the 23d of October, 1916.

ALBERT A. PAGE.