Jan. 28, 1930. J. H. SHAW 1,744,988

LOCK

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Fig. 1.

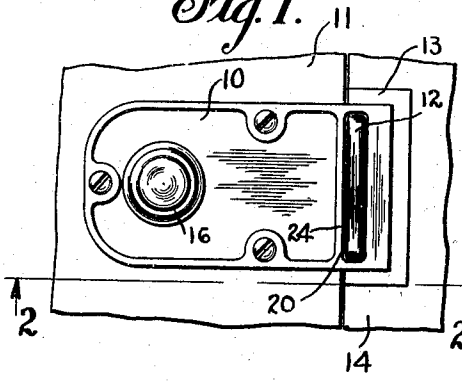

Fig. 2.

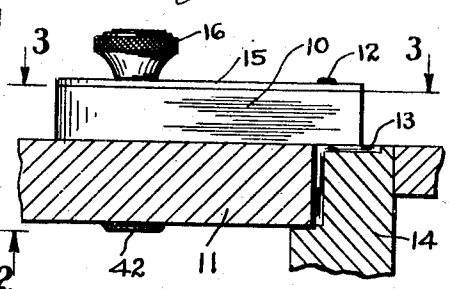

Fig. 3.

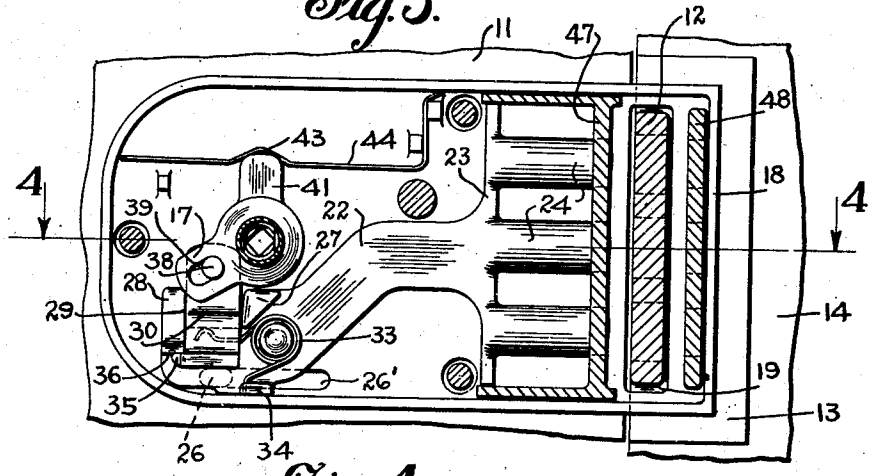

Fig. 4.

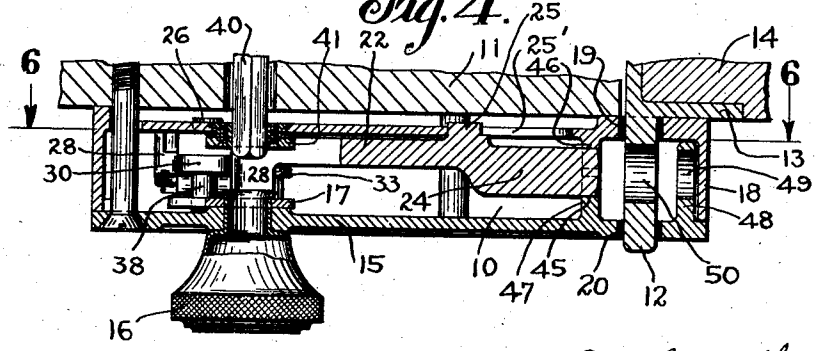

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Fig. 5.

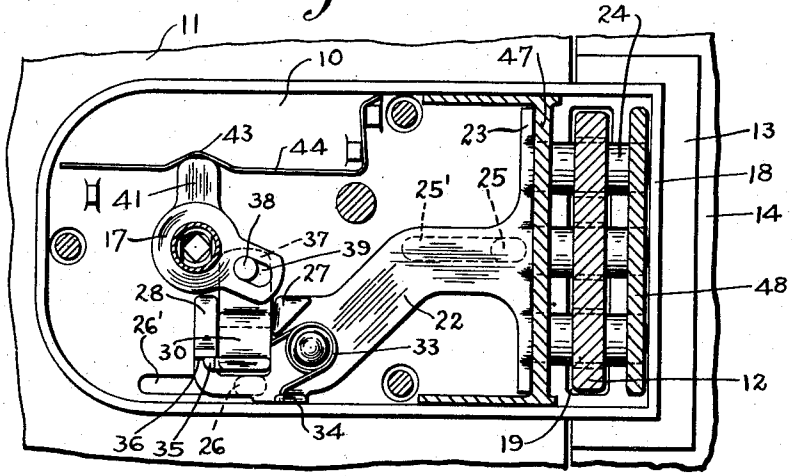


Fig. 6.

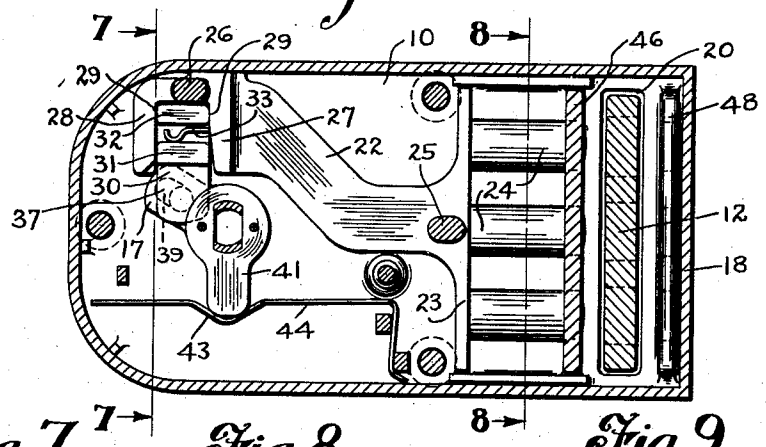


Fig. 7.

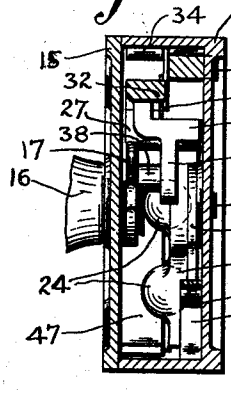


Fig. 8.

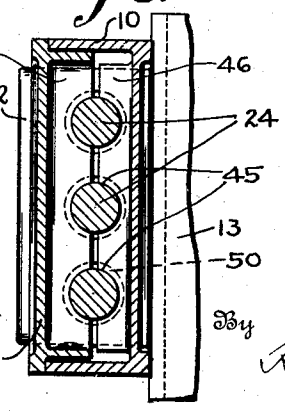
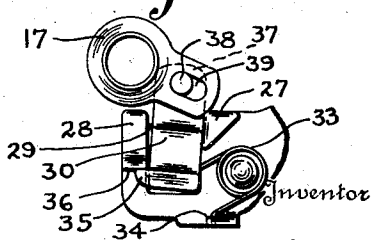


Fig. 9.



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Patented Jan. 28, 1930 1,744,988

UNITED STATES PATENT OFFICE

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LOCK

Application filed March 3, 1922. Serial No. 540,851.

My invention relates to locks and more particularly to so-called jimmy-proof locks which are usually provided with a reciprocable bolt to take into a keeper mounted upon the door frame in such a manner that the door and frame cannot be pried apart and the bolt thus released from the keeper. In the past such locks have been of more or less complicated construction and design and moreover the bolts of these locks have usually been entirely enclosed or hidden so that it has been impossible for the operator to see the operation of the bolt and thereby tell whether or not the door is properly locked without having to try the same.

It has, moreover, been the custom to provide some types of such locks with so-called roller bolts which are adapted to rotate into engagement with the keeper. For various reasons such locks have not been entirely satisfactory.

One object of my invention is to overcome the disadvantages referred to above and to construct a lock of this type which shall be provided with a reciprocable bolt which will be visible when protracted to locking position when the door is locked from one side thereof so that it will not be necessary to try the door to determine whether or not the bolt has been thrown.

Another object of my invention is to provide a part upon the lock case or upon the door which shall embrace or extend to the opposite side of the keeper and be provided with one of more openings into which the bolts will take when protracted to locking position.

Another object of my invention is to provide a lock of this character with operating mechanism of very simple construction without sacrificing any of the advantages now present in such locks. 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:

Fig. 1 is a shoulder elevational view of a lock embodying by improvements mounted in operative position on a door.

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

Fig. 3 is a sectional view on line 3—3 of Fig. 2.

Fig. 4 is a sectional view on line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 3 but showing the parts in the positions assumed when the bolt is thrown to locking position.

Fig. 6 is a sectional view on line 6—6 of Fig. 4 showing the mechanism from the side opposite that shown in Fig. 3.

Fig. 7 is a sectional view on line 7—7 of Fig. 6.

Fig. 8 is a sectional view on line 8—8 of Fig. 6.

Fig. 9 is a detail view of certain parts of the lock showing the positions assumed when it is attempted to force the bolt.

To illustrate a preferred embodiment of my invention I have shown a lock 10 of the type commonly known as a rim lock mounted in operative position upon a door 11 and adapted to cooperate with a keeper 12 mounted upon a base plate 13, L shaped in cross section, which is secured to the door jamb 14. It will be apparent, however, that some of the novel features embodied in my improved lock will not be limited to a rim lock but may be applicable to mortise locks and locks of other types as well.

The lock casing 10 is provided with a cover 15 upon which is mounted a thumb turn 16 carrying a roll-back 17. The casing is provided with an extension 18 which is adapted to project out over the door jamb and is provided with an opening 19 to receive the keeper 12. The cover, which is co-extensive with the lock casing, is likewise provided with an opening 20 through which the keeper 12 extends when the door is closed.

Within the case is reciprocably mounted a bolt comprising a stem 22 and a cross head 23 upon which may be mounted a plurality of bolt heads 24. While the number of these bolt heads is not important and may be varied as desired as shown in the drawings, three are provided. The stem of the bolt may be provided with projected lugs or pins 25 and 26 which are slidably received in guide slots 25′

and 26′ in the casing so that the bolt will be properly guided in its movement.

Upon the rear end of the bolt stem are provided talons 27 and 28 between which is a guide-way 29 which is adapted to slidably receive a tumbler 30. The tumbler is provided upon one side thereof with two shoulders 31 and 32 between which is received one end of a spring 33, the other end of which re-acts against a shoulder or lug 34 upon the stem. This spring is tensioned to urge the tumbler downwardly as shown in Fig. 6 or toward the roll-back 17. Upon the opposite side the tumbler is provided with a finger 35 which cooperates with a stop 36 upon the talon 28 to retain the tumbler in operative position in the guide-way formed in the stem between the two talons.

The tumbler is formed with a downwardly projecting portion 37 provided with a pin 38 which is received in a somewhat elongated slot 39 in the roll-back 17. It will be apparent that in this manner while the roll-back and tumbler are positively and permanently connected at all times during the operation of the lock, a lost motion connection is provided between them so that a certain amount of relative movement is permitted.

Through the back of the casing may be inserted a rod or stem 40 upon which is mounted a roll-back 41. This roll-back when rotated by the stem is in position to engage the lower portion of the shoulder 31 of the tumbler to move the same upwardly and also to engage between the talons 27 and 28 to operate the bolt. The stem 40 may be rotated by any suitable means such as a cylinder lock 42 of any desired type which may be mounted upon the side of the door opposite that upon which the lock case is mounted. When the roll-back 41 is in inoperative position it may be received in a recess 43 formed in a spring 44 whereby it will be yieldingly held in the position assumed when the key may be withdrawn from the lock 42.

The bolt heads 24 are adapted to be protracted through openings 45 in the casing which openings are formed partly in a transverse partition 46 upon the casing proper and a similar partition or web 47 formed upon the cover. The cover is also provided with a transversely extending wall or web 48 disposed upon the opposite side of the keeper 12 from the locking mechanism, which is provided with openings 49 into which the bolts take after being passed through the openings 50 provided in the keeper 12.

It will be obvious that by providing the lock with the portion 48 into which the bolts take after being passed through the openings in the keeper that I have arranged an extremely secure and strong construction and that also through the opening 20 an operator may be able to see whether or not the bolt has been thrown and will therefore not be put to the test of trying the door to see if it is locked.

In operation the lock case is usually mounted upon the inside face of the door and the bolt may be thrown by means of the thumb turn. When the knob 16 is rotated the roll-back 17 engages the talon 27 and throws the bolt to its protracted locking position. The parts are now in the position shown in Fig. 5. If it is attempted to force the bolt back without using the thumb turn or the lock stem 40 the parts will assume the position shown in Fig. 9 wherein the roll-back 17 binds against the edge of the talon 27 and prevents the retraction of the bolt. This is due to the fact that the guide-way 29 between the talons may be slightly larger than the tumbler 30 and permits it to swing slightly, as shown in Fig. 9, so as to allow the talon 27 to engage the roll-back 17 and prevent the roll-back being rotated by the pressure of the pin 38 to a position between the talons where the bolt may be forcibly retracted. When the thumb turn is operated to retract the bolt the roll-back is positively turned between the talons from the position shown in Fig. 5 prior to the engagement of the talon 27 with the edge of the roll-back and the bolt is thus easily retracted. If it is desired to retract the bolt by means of the lock 42 from the outside of the door the stem 40 is rotated by the proper key, thus turning the roll-back 41 into engagement with the lower edge of the shoulder 31 upon the tumbler and causing this tumbler to move upwardly against the tension of the spring 33 until the roll-back 17 by means of its pin and slot connection with the tumbler is carried past the corner of the talon 27 so that it cannot bind thereagainst as shown in Fig. 9. The bolt may then be readily retracted by a continued movement of the stem 40 and roll-back 41 by means of the proper key in the lock 42. When the bolt is protracted by means of the roll-back 41, the roll-back 17 is carried into the position shown in Fig. 5 by means of the pin and slot connection with the tumbler and is thus in position to bind against the talon 27 if any attempt is made by an unauthorized person to forcibly retract the bolt by means of a tool.

It will be obvious that while the tumbler 30 controls the operation of the lock bolt, it does not perform this function by engaging a lug or the like upon the lock case as is usual in such structures. The control is gained entirely through its connection with the roll-back attached to the thumb turn and the thumb turn alone is used to dog or to lock the bolt in protracted position. This will be obvious when it is considered that the bolt may be locked in its protracted position when the roll-back 41 controlled by the lock 42 is

in its inoperative position as shown in Figs. 5 and 6.

While I have shown and described a preferred embodiment of my invention, it will be understood it is not limited to all details shown but is capable of any modifications and variations which lie within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. A door lock comprising a casing adapted to project over the door jamb, a bolt reciprocably mounted therein, the bottom of said casing being provided with an opening, a keeper adapted to be mounted upon the door frame in position to be received in said opening and a cover for the casing, said cover being provided with a web extending into the lock casing and positioned at the side of said keeper opposite the bolt, said web being provided with an opening to receive the bolt.

2. In a door lock, a casing adapted to project over the door jam, a bolt reciprocably mounted therein, a cover for the casing, the bottom and cover of the casing being provided with aligned openings, and a keeper adapted to be mounted on the door frame in position to be received in said openings, said cover being provided with webs extending into the casing and adapted to engage the bolt at opposite sides of the keeper when the bolt has been shot.

3. In a door lock, a bolt provided with spaced talons, a roll-back on either side of the lock adapted to engage said talons, one of said roll-backs being arranged to bind against the bolt when it is attempted to force the latter from protracted position.

4. In a door lock, a bolt having spaced talons, a key operated roll-back and a freely rotated roll back to operate the bolt and means to connect said last mentioned roll back to the bolt whereby the parts become bound against movement by pressure on the bolt when the latter is in protracted position.

5. In a lock, a reciprocable bolt, a spring pressed tumbler mounted on the bolt, a roll back operable from each side of the door to move the bolt, and means whereby one roll back is moved by the tumbler when the latter is moved by the other roll back.

6. In a lock a reciprocable bolt, a tumbler slidably mounted on the bolt, a roll back operated from one side of the door to protract the bolt and adapted to hold said bolt in protracted position, and means operated from the opposite side of the door to cause said tumbler to move the roll back from holding position.

7. In a lock, a reciprocable bolt, a spring-pressed tumbler mounted on the bolt to slide transversely thereof, a roll back, and a positive connection between the roll back and tumbler, and means on the bolt engageable by the roll-back for operating the bolt.

8. In a lock, a reciprocable bolt, a roll back to operate the bolt and hold it in protracted position and a tumbler carried by the bolt and means to cause said tumbler to move the roll back from its holding position.

9. In a lock a reciprocable bolt, a tumbler to control the bolt and a roll back operated from each side of the door to move said tumbler, both of said roll-backs being adapted to engage directly with the bolt to operate the same.

10. In a lock a reciprocable bolt, a roll back adapted to operate the bolt and hold it in protracted position and a spring actuated tumbler connected to the roll back to insure its movement to a position to hold the bolt protracted.

11. A lock comprising a reciprocable bolt, a tumbler associated with the bolt, a roll back to protract said bolt and hold it in protracted position and a pin and slot connection between the roll back and tumbler.

12. A lock comprising a reciprocable bolt, a tumbler slidably carried by the bolt to move transversely thereof, a roll back operatively mounted upon the lock case and operatively connected with the tumbler, said tumbler being spring pressed into position to hold the bolt protracted.

13. In a lock, a reciprocable bolt, a roll-back for operating and a spring-pressed tumbler for controlling the bolt and a connection between the roll back and tumbler to retain the former in position to block the bolt against retraction.

14. In a lock, a reciprocable bolt, a roll-back for operating and a spring-pressed tumbler for controlling the bolt, a connection between the rollback and tumbler to retain the former in position to block the bolt against retraction, and means to move the rollback from blocking position.

15. In a lock, a reciprocable bolt, a roll-back for operating and a spring-pressed tumbler for controlling the bolt, a connection between the rollback and tumbler to retain the former in position to block the bolt against retraction, and means acting on the tumbler against the tension of the spring to move said rollback from blocking position.

16. In a lock, a reciprocable bolt, a roll-back for operating and a tumbler for controlling the bolt, a connection between the rollback and tumbler to retain the former in position to block the bolt against retraction, and means including another rollback upon the opposite side of the door acting upon the tumbler to move said rollback from locking position, and engaging said bolt to move the latter when freed from said first named roll-back.

17. A lock comprising a case, a reciprocable bolt mounted therein, a roll back to oper-

ate the bolt, said bolt being provided with a stem extending in proximity to the roll back, a member connected to the roll back guided for sliding movement on the stem and adapted to be actuated by the roll back during its rotation, and a spring to urge said member toward the roll back.

18. A lock comprising a case, a bolt reciprocably mounted in the case, said bolt having a stem with spaced talons provided thereon, a roll back in the case adapted to engage said talons, a member positively connected to the roll back and slidably mounted on the bolt between said talons and a spring to urge said member toward the roll back.

19. A lock comprising a case, a bolt reciprocably mounted in the case, said bolt having a stem with spaced talons provided thereon, a roll back in the case adapted to engage said talons, a member connected to the roll back and slidably mounted on the bolt between said talons, and a spring to urge said member toward the roll back, and co-engaging means on the bolt and member to limit the movement of the latter by the spring.

20. In a door lock, a bolt, a roll-back adapted to engage said bolt to protract it, said roll-back being arranged to bind against said bolt when it is attempted to force the latter from the protracted position, and means carried by the bolt and cooperating with said roll-back adapted to prevent movement thereof, due to the action of the bolt thereon when said roll-back is binding said bolt against movement, and means providing positive connection with the roll-back.

21. In a door lock, a bolt provided with spaced talons, a roll-back adapted to engage said talons to move said bolt to protracted and retracted positions, said roll-back being arranged to bind against the talons when it is attempted to force the latter from said positions, and means carried by the bolt and cooperating with said roll-back adapted to prevent movement thereof, due to the action of the bolt thereon when said roll-back is binding said bolt against movement, and means providing a positive connection with the roll-back.

22. In a door lock, a bolt, a roll-back adapted to engage said bolt to protract it, said roll-back being arranged to bind against said bolt when it is attempted to force the latter from the protracted position, and means carried by the bolt and cooperating with said roll-back adapted to prevent movement thereof, due to the action of the bolt thereon when said roll-back is binding said bolt against movement, said cooperating means acting to limit the movement of said roll-back during the normal operation of the latter.

23. In a door lock, a bolt provided with spaced talons, a roll-back adapted to engage said talons to move said bolt to protracted and retracted positions, said roll-back being arranged to bind against the talons when it is attempted to force the latter from said positions, and means carried by the bolt and cooperating with said roll-back adapted to prevent movement thereof, due to the action of the bolt thereon when said roll-back is binding said bolt against movement, said cooperating means acting to limit the movement of said roll-back during the normal operation of the latter.

In witness whereof, I have hereunto set my hand this 1st day of March A. D., 1922.

JOHN H. SHAW.