March 14, 1933. W. A. RICHTER 1,901,412

LOCK

Filed July 10, 1931

Fig. 1.

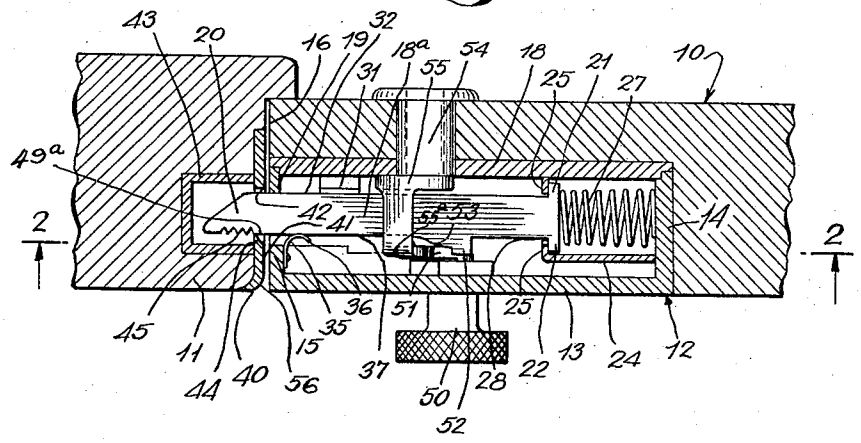
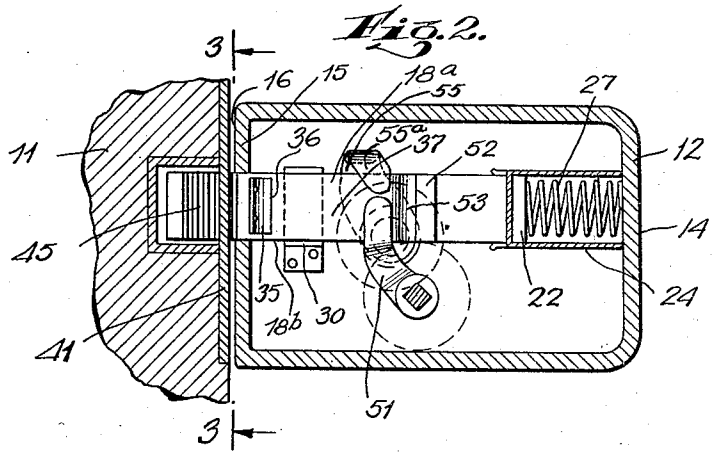


Fig. 2.



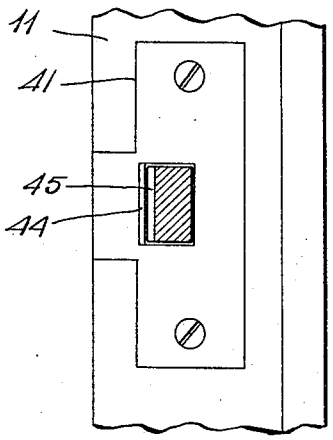


Fig. 3.

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UNITED STATES PATENT OFFICE

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LOCK

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This invention relates to locks.

An object of this invention is to provide a highly simplified jimmyproof latch lock comprising a single latch bolt and having means for preventing said bolt from being retracted by the use of a jimmy, regardless of manipulation of the door itself, the construction furthermore permitting the bolt to be readily actuated by the door knob or key tumbler.

A further object of this invention is to provide a neat, compact and rugged lock of the character described, which shall be comparatively inexpensive to manufacture, comprise relatively few and simple parts easy to assemble, and which shall yet be smooth and positive in operation and practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible embodiments of this invention,

Fig. 1 is a horizontal longitudinal cross-sectional view of a door provided with a lock embodying the invention;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1; and

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

Referring now in detail to the drawing, 10 designates a door or other member to be retained in closed position, and 11 represents the door jamb to which the member 10 is to be fastened. Attached to the door 10 in any suitable manner is a lock casing 12, here shown for the purpose of illustration only, as being embedded within a recess formed in the door, it being understood, however, that the lock may be attached to the outer surface of the door in the well known manner. The casing 10 is provided with a front wall 13, an end wall 14 and a second end wall 15, preferably flush with the outer edge 16 of the door. A cover member 18 may be attached to the rear of the casing in the usual manner, for retaining the contents thereof in proper position.

Mounted within the casing 12 is a single latch bolt 18*a* adapted to project through a suitable opening 19 in said end wall 15. The bolt 18*a* is preferably provided with a ramped surface 20 at the front end thereof, whereby the bolt may be retracted upon striking the keeper, described hereinafter.

The rear of the bolt is formed with a pair of ears or side extensions 21 and 22 extending within a housing 24 formed within said casing. Said housing is adapted to slidably receive the rear end of the bolt, and is provided with a pair of flanges 25 adapted to engage the ears 21 and 22, to limit the forward movement of the bolt 18*a*. A coil compression spring 27 suitably supported within the housing 24 rearwardly of said bolt 18*a*, serves to project the bolt to the position shown in Fig. 1, of the drawing. The opening 28 formed within the housing 24 and through which the bolt 18*a* projects, is preferably provided with some clearance to permit said bolt 18*a* to have a slight pivotal movement about the rear end thereof in a horizontal plane, for the purpose hereinafter appearing. The spring 27 obviously normally urges the extensions 21 and 22 into contact with the flanges 25 for retaining the bolt 18 in the position shown in Fig. 1.

Said bolt 18*a* may be supported on a horizontal ledge 30 fixed to the rear wall 18 in any suitable manner, and slidably contacting the undersurface 18*b* of said bolt. Extending upwardly from said ledge 30 is a wall portion 31 contacting the rear surface 32 of said bolt, and serving to limit the pivotal movement of said bolt toward the cover 18. A leaf spring 35 fixed to the inner surface of the front wall 15, or to any other suitable portion of the casing 12, is provided with an end portion 36 adapted to press against the front surface 37 of

said bolt for normally urging the bolt against said wall portion 31.

Attached to the door jamb 11 is a keeper 40 comprising a plate 41 attached to the outer edge of said door jamb, and having an opening 42 therein, for receiving the forward part of the bolt. Attached to or formed integrally with said plate 40 is a housing 43 into which the forward portion of said bolt is adapted to project. The plate 41 is provided with a projecting edge portion 44 and the front surface 37 of the bolt 18*a* is formed with a number of teeth 45 adjacent the outer end thereof adapted to engage said edge portion 44 for the purpose hereinafter appearing.

From the description thus far, it will be seen that if a jimmy were inserted between the door and the door jamb for retracting the bolt 18*a*, said jimmy would necessarily contact the rear surface of the bolt and press the same against the edge portion 44 to prevent further retraction of the bolt. It will be noted that the opening 19 in said front wall 15 is of sufficient width to permit a slight pivotal or lateral movement of the bolt necessary for causing engagement between the teeth 45 and the edge portion 44. The prevention of unauthorized opening of the lock by means of the jimmy is insured since the bolt can only be retracted by pressure exerted on the bolt, and such pressure necessarily causes interengagement between the teeth 45 and the edge portion 44. Thus, pulling the door rearwardly while actuating the jimmy will not permit the bolt to be retracted.

For normally retracting the bolt 18*a*, however, there is provided the usual knob 50 pivoted to the front wall 13 of the casing and provided with an arm 51 adapted to engage a projection 52 formed on said bolt, so that upon rotating the knob 50, said arm will engage said projection for retracting the bolt. The bolt is further provided with a slightly cammed portion 53 adjacent said projection 52, so that upon rotating the knob for retracting the bolt, engagement between the arm 51 and said cam 53 will push the bolt toward said wall 31 and away from the edge portion 44 to insure proper actuation of the lock, Obviously the spring 35 likewise retains the bolt out of engagement with said edge portion 44.

The usual key tumbler mechanism 54 may also be provided, whereby the bolt may be retracted by use of a key. The lug 55*a* of arm member 55 associated with said tumbler mechanism, is adapted to be rotated into contact with projection, 52 for retracting the bolt. The spring 27 insures proper projection of the bolt after the knob has been released or the key removed from the tumbler. Also the door may be slammed in the usual manner, the ramped portion 20 striking the curved portion 56 of the plate 44 to permit retraction until the bolt snaps into the housing 43.

It will be noted that the portion 49*a* of the bolt 18*a* opposite to edge 44, is smooth so that should the door be moved or pressed toward said edge upon opening the door with a key, the teeth will not engage said edge. It is only when continued pressure is applied to the bolt, for example by means of a jimmy, in attempting to retract the bolt therewith, that the teeth 45 will engage the edge portion 44 to lock the bolt against retraction. Upon inserting a key into the tumbler and turning the same, the bolt will be retracted without retardation since no external pressure need be extended to turn the key.

A dominant feature of the invention is the provision of a latch lock having a single bolt, which may be normally actuated by means of a knob or a key, and which will be jimmyproof, that is, the bolt will engage a fixed portion of the keeper to prevent the retraction thereof upon exertion of pressure on said bolt. The provision of the slight pivotal or transverse movement or play for the bolt itself permits engagement of the teeth 45 with the edge portion 44, and hence the application of a jimmy to the bolt will necessarily cause the locking of the bolt.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In a lock, a casing adapted to be mounted on a door, a keeper adapted to be mounted on a door jamb, a latch bolt slidably mounted for longitudinal movement within said casing, and having a ramped portion on one face thereof adapted to engage the keeper to permit the door to be slammed shut, said bolt being adapted to move transversely of said casing and having a portion on the opposite face thereof for engaging a portion of the keeper upon being transversely moved.

2. In a lock, a casing adapted to be mounted on a door, a keeper adapted to be mounted on a door jamb, a latch bolt slidably mounted for longitudinal movement within said casing, and having a ramped portion on one face thereof adapted to engage the keeper to permit the door to be slammed shut, said bolt being adapted to move transversely of

said casing and having a portion on the opposite face thereof for engaging a portion of the keeper upon being transversely moved, and resilient means for normally retaining the bolt out of engagement with said portion of said keeper.

3. In a lock, a casing adapted to be mounted on a door, a keeper adapted to be mounted on a door jamb, a latch bolt slidably mounted for longitudinal movement within said casing, and having a ramped portion on one face thereof adapted to engage the keeper to permit the door to be slammed shut, said bolt being adapted to move transversely and having a portion on the opposite face thereof for engaging a portion of the keeper upon being transversely moved, manual means for retracting the bolt, and means associated with said first mentioned means and bolt for moving the bolt transversely out of engagement with respect to said portion of said keeper upon actuating said first mentioned means.

4. In a lock, a casing adapted to be mounted on a door, a keeper adapted to be mounted on a door jamb, a latch bolt slidably mounted for longitudinal movement within said casing, and having a ramped portion adapted to engage the keeper to permit the door to be slammed shut, said bolt being adapted to be moved transversely of said casing and having means for engaging a portion of the keeper upon being transversely moved, resilient means for normally retaining said bolt out of engagement with said portion of said keeper, and manually actuated means for moving said bolt out of engagement with respect to said portion of said keeper.

5. In combination with a casing, a latch bolt mounted therein for longitudinal movement, said bolt having a ramped portion on one face thereof, a keeper adapted to be engaged by said ramped portion, said keeper being provided with an edge portion adapted to releasably engage a groove in an opposite face of said bolt, said bolt being movable transversely of said casing into engagement with said edge portion of said keeper.

6. In combination with a casing, a latch bolt mounted therein for longitudinal movement, said bolt having a ramped portion, a keeper adapted to be engaged by said ramped portion, said keeper being provided with an edge portion adapted to engage a portion of said bolt, said bolt being movable transversely into engagement with said edge portion of said keeper, a cam on said bolt, a knob slidably mounted on said casing, and arm on said knob for actuating said cam to move said bolt away from said last named portion of said keeper.

7. In combination with a casing, a latch bolt mounted therein for longitudinal movement, said bolt having a ramped portion, a keeper adapted to be engaged by said ramped portion upon slamming the door, said keeper being provided with a portion adapted to engage a portion of said bolt, said bolt being movable transversely into engagement with said last named portion of said keeper, a cam on said bolt, a knob mounted on said casing, means on said knob for actuating said cam to move said bolt away from said last named portion of said keeper, and resilient means within said casing for normally retaining said bolt out of engagement with respect to said last named portion of said keeper.

8. In a latch lock, a casing, a bolt within said casing, and projecting therefrom, means for supporting said bolt for sliding and pivotal movement of said bolt in a horizontal plane, said bolt having a ramped portion on one face thereof and a plurality of teeth on the opposite face thereof, and a keeper having an edge portion to engage said teeth to prevent retraction of said bolt into said casing.

9. In a latch lock, a casing adapted to be mounted on a door, a keeper adapted to be mounted on a door jamb, a bolt slidably mounted for longitudinal movement within said casing, and having a ramped portion adapted to engage the keeper to permit the door to be slammed shut, resilient means for normally retaining said ramped portion of said bolt in projected position whereby said ramped portion may be received within said keeper, said bolt being mounted for transverse movement with respect to the casing and having a portion adapted to engage an edge portion of the keeper upon being transversely moved, resilient means for moving said bolt transversely out of engagement with said edge of said keeper, manually actuated means for retracting said bolt, and cam means associated with said bolt and manually actuated means for moving the bolt out of engagement with said edge of said keeper prior to the retracting movement of said bolt.

In testimony whereof I affix my signature.

WILLIAM A. RICHTER.