

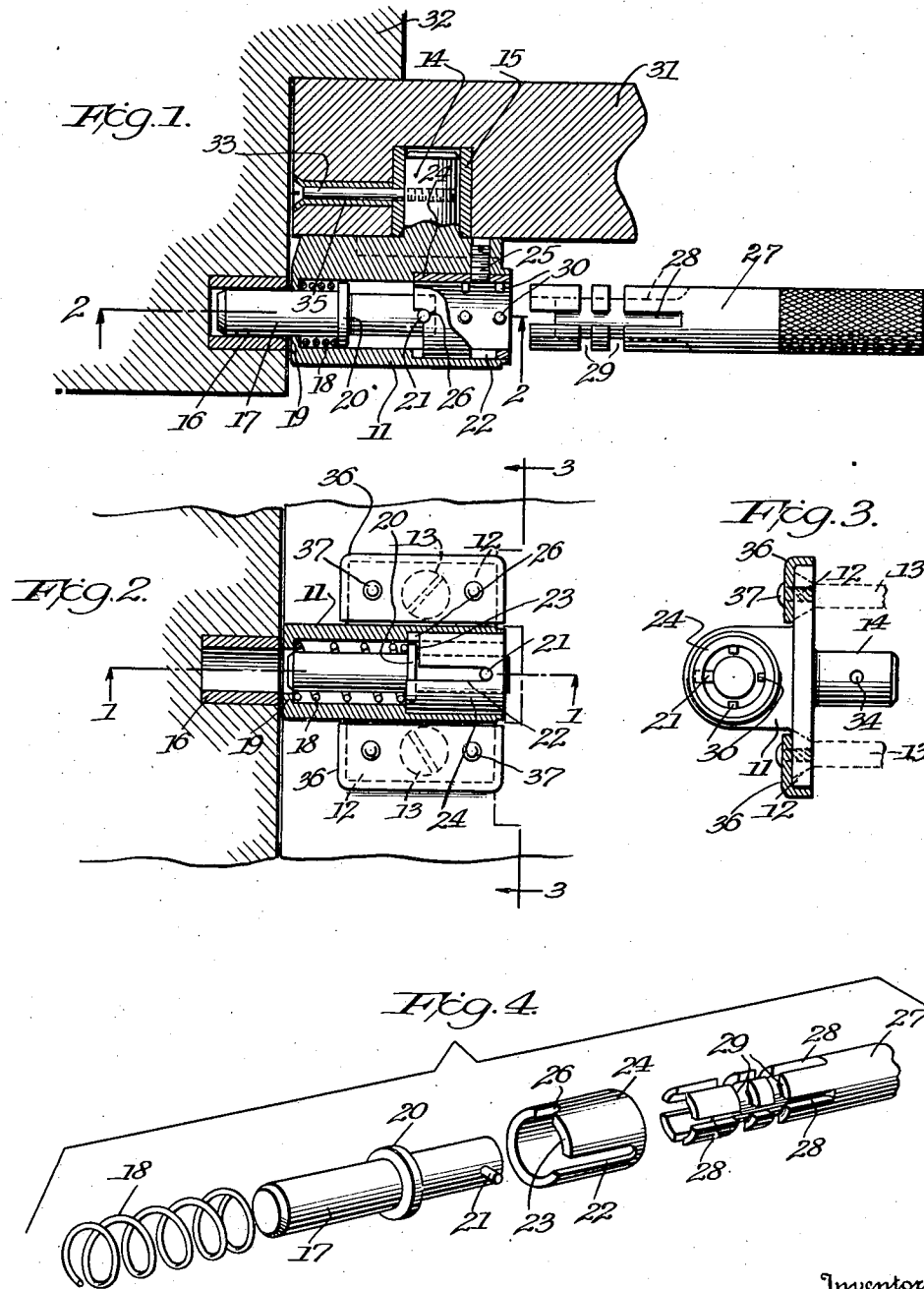
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UNIVERSAL BOLT LOCK

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UNIVERSAL BOLT LOCK

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This invention relates to rim locks for interior and exterior doors and windows, bolt locks for double-hung sliding windows, and sliding bolt locks of both the rim and mortise type for French doors and casement windows, and aims to improve the construction and extend the field of use of locks of these types.

The invention particularly relates to key-actuated locks of the sliding bolt type, and aims to strengthen and simplify the construction and mode of attachment of the lock to the door or window and to provide adequate safeguards against picking and jimmying locks of this type from either side of the door or window to which the lock may be affixed.

An object of the invention is to make the bodies and small operating parts of such locks as die castings and stampings thereby reducing the machine work and cost and insuring uniformity and interchangeability of the product.

A further object of the invention is to provide a removable rim lock that can readily be changed from one location to another when unlocked but which cannot be removed when locked in place.

Other aims and advantages of the invention will be apparent from the description of the illustrative embodiments shown in the accompanying drawing, wherein

Fig. 1 is a sectional view through a door and jamb on the longitudinal axis of a lock of the sliding and rotating bolt type on the line 1—1 of Fig. 2, showing an actuating key in side elevation;

Fig. 2 is a part section and part face view of the door and jamb at the lock, showing a cross-section of the lock on the line 2—2 of Fig. 1;

Fig. 3 is an end view of the lock shown in Figs. 1 and 2, looking at it from the direction of the arrows, showing the caps in cross-section on the line 3—3 in Fig. 2;

Fig. 4 is a perspective view of the working parts of the lock shown in Figs. 1, 2 and 3, and the key, disassembled from the casing;

In the form of the invention shown in Figs. 1 to 4 inclusive, of the drawing, the lock body 11 is provided with a pair of flanges 12, which may be secured to the face of a door frame or jamb, window rail or stile, or other swinging or sliding closure or closure frame by suitable means, as the screws 13. The lock body is also provided with a stud 14 which fits into a thimble 15 or similar recess in the member to which the body is secured. This stud prevents removal of the lock by any means when it is in locking position without destroying the door or frame or other part to which it is secured. A similar thimble 16 may be

let into the jamb, window frame, sill or other fixed part of the closure or closure opening to receive the end of the locking bolt 17 in locking position.

The bolt is normally held in retracted position by a coil spring 18 which is disposed within the body surrounding the bolt between a flange 19 at the locking end of the body and a flange 20 on the bolt intermediate its ends. The bolt is held in projected or locking position by a pin 21 in its inner or key end which works in a slot or groove 22 terminating in an abutment 23 in a fixed part of the body. In the form of device shown, the slot and abutment are formed in a sleeve 24 which is secured in place in the body by a screw 25, normally concealed in the flanged base of the body where it cannot be removed when the body is fastened to its support. A notch 26 at the end of the abutment 23 away from the slot 22 cooperates with the pin 21 to retain the bolt in locked position.

The operating device or key 27 is of a size to enter the open end of the bore in the body, sliding within the bushing 24, and is socketed at its ends to fit over the inner end of the bolt and provided with circumferentially spaced grooves 28 adapted to straddle the pin 21 so that the bolt may be engaged by the key and pushed into projected position until the pin registers with the abutment 23, whereupon the key and bolt may be turned to engage the pin in the recess 26 in locking position of the bolt. The key is also provided with spaced circumferential grooves 29, which register with spaced wards or pins 30 in the bushing 24 or fixed part of the body in the locking position of the key, thereby preventing the key from turning except when fully pushed in to lock or unlock the bolt. The pins 30 are circumferentially spaced to correspond with the longitudinal grooves 28 in the key so as to permit the key to be inserted in the open bore of the lock body.

These wards or pins interfere with the insertion of a knife blade or other picking implement for engaging the pin 21 and manipulating the bolt to unlock it, and thus increase the security afforded by the lock against opening by other means than the right key. It is obvious that the number and spacing of the pins 30 may be changed to provide different combinations to prevent the same key from opening other locks than those having the corresponding pin combination.

In the form of the invention shown in Fig. 1, the door 31 closes against a stop 32, which prevents it from pulling away from the stud 14 so that there is no need for securing the latter in

the thimble 15. But for outwardly swinging French doors and other uses, it may be necessary to secure the stud 14 against pulling out of the thimble 15 or style of the door if no thimble is used, and for this purpose a screw 33 is provided, extending through a hole drilled from the outer edge of the door style and through the thimble 15 into a threaded hole 34 extending through the stud. A bushing 35 surrounds the screw and

abuts against the thimble 15, so that when the screw is brought to a firm bearing against the end of the bushing, the stud will be firmly clamped against the thimble, preventing the lock body from turning or moving in any direction.

To provide added security against removal of the lock body from French doors and other outwardly swinging closures, plates 36 are placed over the screw flanges 12 covering the screws 13 and are secured by drive screws 37 or rivets, which when set in place can only be removed by shearing them off or drilling them out. These plates are not necessary for locks secured to the inner side of inwardly opening doors as the stud 14 and bolt 17 (when shot to locked position) prevent removal of the lock.

The operation of the lock herein described is simple, the parts are small but sufficiently strong for the purpose, and are easy to install.

The body, sleeve and key are readily made by die-casting processes to the necessary degree of accuracy for this type of lock cheaply and in a large number of combinations. The bolt is preferably made of a grade of steel that can be hardened, as slight warping will not interfere with its proper operation. The bolt and body are strong and the bearings of the bolt in the body and socket or thimble in the door frame are substantial; and the body is firmly seated in the sockets or thimbles in the door style by the studs so as to prevent jimmying or forcing by means ordinarily available.

The invention is not restricted to the uses, construction details and materials described.

I claim the following as my invention:

1. A rim lock comprising a body having a cylindrical stud projecting from its base and adapted to fit in a corresponding hole in the door style, and a sliding bolt projectable from the body at one side in a direction at right angles to the axis of said stud to engage in a corresponding shaped socket in the door frame, said stud and bolt being of substantially equivalent bending and shearing strength, whereby said body is fixedly secured to the door and frame by its stud and said bolt when the bolt is in projected position.

2. A rim lock comprising a body having a cylindrical stud projecting from its base and adapted to fit in a corresponding hole in the door style, and a sliding bolt projectable from the body at one side in a direction at right angles to the axis of said stud to engage in a corresponding shaped socket in the door frame, and means for retaining said bolt in projected position, said body being fixedly secured by its stud and said bolt when the bolt is in projected position.

3. A sash-lock comprising a tubular casing having an internal shoulder at its sash meeting end, a sleeve secured in the casing at its other end and providing an internal abutment spaced from said end, said sleeve being channelled to provide a generally longitudinal slot terminating at said abutment to serve the purpose of a bayonet slot, a bolt proportioned to lie within said casing and projectable through said shoulder to

bolting position, an abutment on said bolt lying in spaced relation to said shoulder internally of said casing, a coiled compression spring between said last named abutment and shoulder, a pin in said bolt positioned for movement in the slot and into engagement with the abutment provided by said sleeve, retracting movement of said bolt being stopped by interengagement of said pin and said abutment, and means providing for said interengagement by a turning means to effect alignment or misalignment of the pin with the slot to retain said bolt in or release it from retraction from its projected position.

4. A sash-lock according to claim 3 in which said sleeve is channelled substantially throughout its length and provides said internal abutment by its inner end.

5. A sash-lock according to claim 3 in which said abutment is formed with a notch adapted to be engaged by a part of said bolt assembly to limit turning movement of said bolt in projected position.

6. A rim lock comprising a body provided with a base, a stud projecting from the base, a barrel having its axis transverse to that of the stud, a bolt slidable and rotatable in said barrel and projectable from one end thereof, the other end of the barrel being open to receive actuating means, a sleeve secured within said barrel surrounding the inner end of the bolt, and means carried by said bolt cooperating with said sleeve for locking said bolt in projected position, whereby said body is secured by said bolt and stud against removal when said bolt is in projected position.

7. A rim lock comprising a body provided with a base, a stud projecting from the base, a bolt guide having its axis transverse to that of the stud, a bolt slidable in said bolt guide and projectable from one end of said body, the other end of the body being open to receive actuating means, a sleeve secured within said body surrounding the inner end of the bolt, and means carried by said bolt cooperating with said sleeve for locking said bolt in projected position, whereby said body is secured by said bolt and stud against removal when the bolt is in projected position.

8. In a universal rim lock of the character described for securing two relatively movable members, a body having a stud projecting therefrom adapted to fit snugly all around its side walls in a corresponding socket in the lock supporting member, a bolt projectable from said body in a direction transverse to the axis of said stud to engage in a corresponding socket in the other member, and means for locking said bolt in projected position, whereby when said bolt is in projected position said lock is irremovably secured both to said supporting and other member.

9. In a universal rim lock of the character described for securing two relatively movable members, a body having a stud projecting therefrom adapted to fit snugly all around its side walls in a corresponding socket in the lock supporting member, a bolt projectable from said body in a direction transverse to the axis of said stud to engage in a corresponding socket in the other member, and key actuated means for locking said bolt in projected position, whereby when said bolt is in projected position said lock is irremovably secured both to said supporting and other member.

10. A rim lock for doors comprising a body provided with a base, a stud projecting from the base and adapted to fit snugly in a corresponding

opening in the door, a bolt guide having its axis
transverse to that of the stud, a bolt slidable in
said bolt guide and projectable from one end of
said body, the other end of the body being open
5 to receive actuating means, means within said
body adjacent to the inner end of the bolt, and

means carried by said bolt cooperating with said
means for locking said bolt in projected position,
whereby said body is secured by said bolt and stud
against removal when the bolt is in projected
position.

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