

Nov. 20, 1951

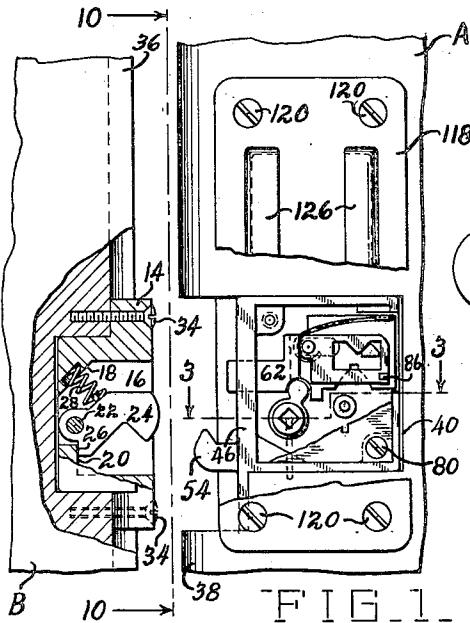
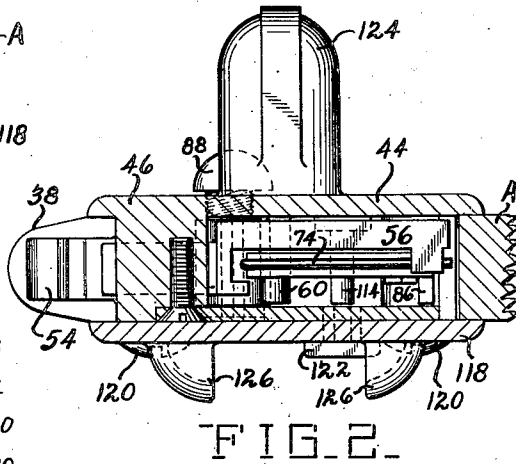
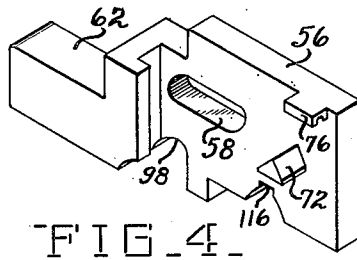
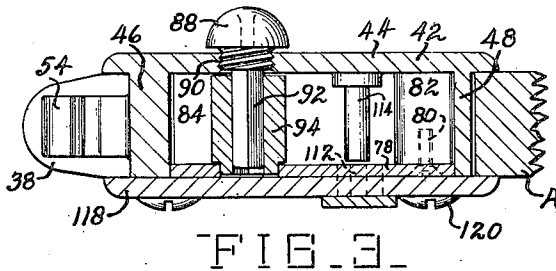
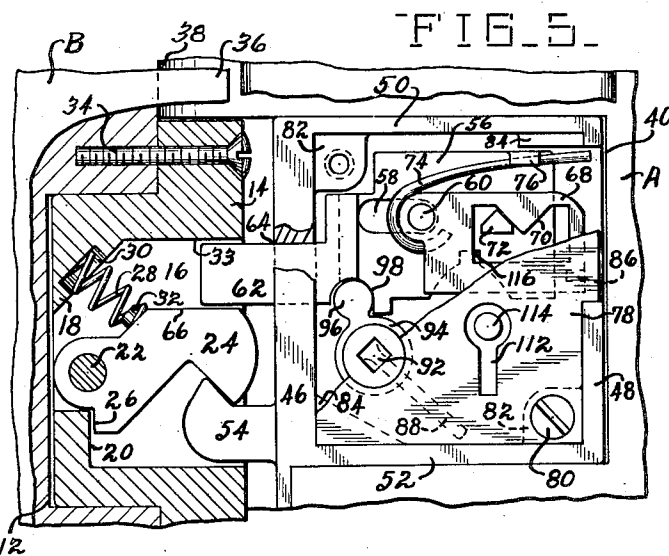
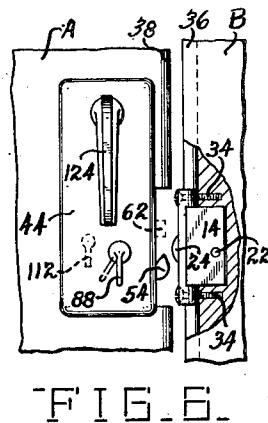
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2,575,465

LOCKING DEVICE FOR SLIDING DOORS

Filed Jan. 23, 1948

2 SHEETS—SHEET 1



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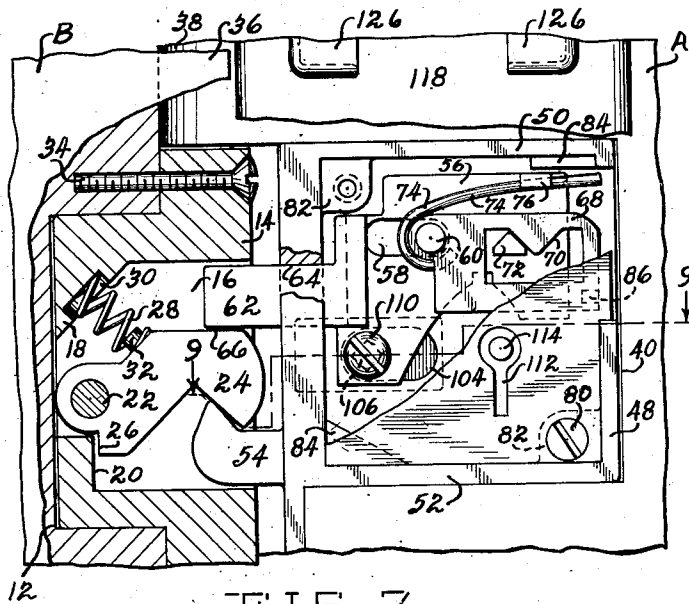
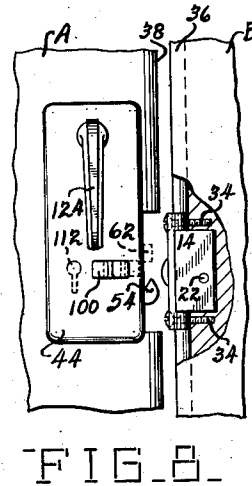
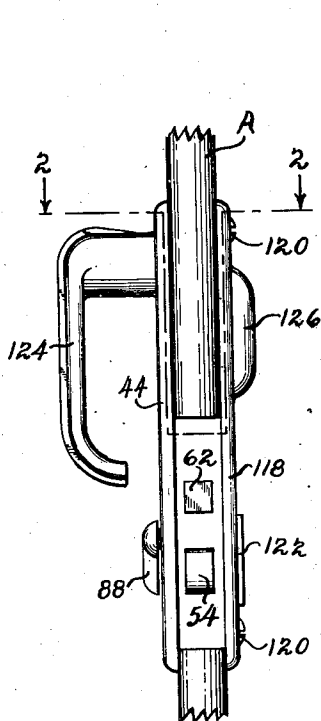
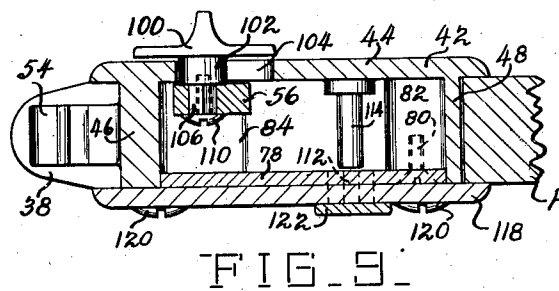
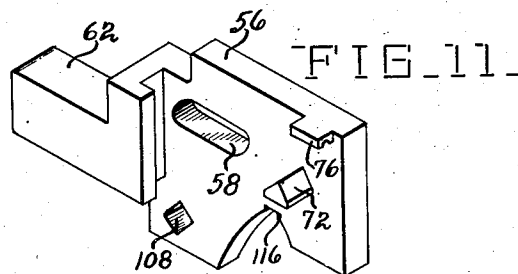
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LOCKING DEVICE FOR SLIDING DOORS

Filed Jan. 23, 1948

2 SHEETS--SHEET 2



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LOCKING DEVICE FOR SLIDING DOORS

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2 Claims. (Cl. 292—78)

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This invention relates to sliding door locking devices of the type in which latch mechanism normally engageable to yieldably hold the door closed is positively retained against disengagement by a slidable dogging bolt to lock the door.

This type of locking device is adapted for use generally on sliding doors, including sleeping car room doors. It is especially important in the case of sleeping car room doors to avoid possible injury to passengers and their clothing or luggage by parts of the locking device projecting into the doorway when open. Further, it is desirable that such devices be of simple construction, easy to operate and as nearly as possible failure proof. However, in the event of failure, quick and easy access to the interior of the device should be possible in order to permit operation from outside the room in cases of emergency.

It is an object of the invention to provide a locking device of the type described which will meet the aforementioned requirements.

Another object of the invention is the provision of such a device which is located substantially entirely within the edge outlines of the door and door frame to prevent injury to persons or objects passing through the open doorway.

A further object of the invention is to provide a locking device of the kind described, of simple construction and operation and in which the possibility of failure of the parts has been reduced to a minimum.

A still further object of the invention is the provision of such a locking device provided with an easily removable cover plate affording quick access to the interior of the device to permit emergency operation from outside of the door.

These and other objects of the invention will be apparent to those skilled in the art to which it appertains from a study of the following description and accompanying drawings in which:

Figure 1 is a broken sectional side view of the locking device with the door in open position.

Figure 2 is a sectional plan view of the device taken on the line 2—2 of Figure 10.

Figure 3 is a view taken on the line 3—3 of Figure 1.

Figure 4 is a detached perspective view of the slidable dogging bolt forming part of the locking device.

Figure 5 is a view similar to Figure 1, but showing the device in door locking position.

Figure 6 is a side elevational view showing the door in open position, a portion of the door jamb being removed to more clearly disclose other parts of the device.

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Figure 7 is a view similar to Figure 5, but showing a slightly modified form of the invention.

Figure 8 is a view similar to Figure 6 of the modification shown in Figure 7.

Figure 9 is a view taken on the line 9—9 of Figure 7.

Figure 10 is an end view of the door taken on line 10—10 of Figure 1 showing the locking device applied thereto; and

Figure 11 is a detached perspective view of the slidable dogging bolt used with the modification shown in Figures 7, 8 and 9.

Referring now more in detail to the drawings, the locking device is shown as applied to a door A adapted to slide to closed position against a door jamb B. The door jamb is cut away as indicated at 12 to receive a casting 14 having a recess 16 formed with an inclined wall 18 and an abutment 20. Pivotaly mounted on a pin 22 within the recess 16 is a hook-shaped latch member 24 formed with a shoulder 26 normally bearing against abutment 20 of the casting 14 to limit downward pivotal movement of the latch so as to retain it in operative position shown in Figure 1. The latch 24 is resiliently held against movement from its operative position by a compression spring 28 held in place between a spring seat 30 formed in the recess wall 18 and a boss 32 provided on the latch. The latch 24 is thus pivotaly mounted to swing downwardly by gravity, its movement in that direction being limited by abutment 20 and shoulder 26 acting as stop means while its upward movement is limited by the inclined wall 18 and top wall 33 of the recess 16. This arrangement assures that the latch 24 will always be retained in operative position even though the spring 28 should fail or be removed for any reason. The casting 14 is secured by screws 34 to the door jamb, which is grooved as shown at 36 to receive the tongued edge portion 38 of the sliding door A, thus forming a seal between the door and jamb.

The sliding door A is cut out as shown at 40 to receive a casting generally indicated at 42 having a side wall 44, front wall 46, short rear wall 48 and top and bottom walls 50 and 52, respectively. The casting 42 is fitted in place with its side wall 44 on the inside or room side of the door and forming the inside finish plate for that part of the locking device on the door. Formed integral with or otherwise secured to the front wall 46 of the casting 42 is a hoop-shaped bolt 54 of the proper size and shape to cooperate with and engage the pivoted latch 24 to yieldably hold the door A in closed position. When the

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door A is closed against the jamb B the bolt 54 will be engaged under latch 24, the weight of the latch and pressure of spring 28 acting to hold the door closed but yielding upon opening force being applied to the door.

The latch 24 and bolt 54 are locked against disengagement to hold the door in locked position by a slidable dogging bolt 56 shown detached from the device in Figure 4. The dogging bolt is formed with an elongated slot 58 through which extends a pin 60 carried by the side wall 44 of the casting 42, and a reduced end portion 62 extended through an opening 64 in front wall 46 of casting 42. The dogging bolt is thus slidably supported by pin 60 and front wall 46 of the casting, being movable between a withdrawn position and a position extending into the recess 16 of the door jamb B when the door is closed for engagement with the flat top surface 66 of latch 24 to lock it in engagement with the bolt 54. Pivotaly mounted on pin 60 is a check plate 68 formed with an opening of such shape as to provide a depending wedge-shaped detent 70 engaging a similarly shaped lug 72 projecting from the dogging bolt 56 through the opening in plate 68. The detent 70 and lug 72 are resiliently retained in operative engagement by a spring 74 having one end anchored to plate 68 and its other end portion restrained under a ledge 76 formed on the dogging bolt 56. It will be seen that during movement of the dogging bolt between withdrawn and extended positions the detent 70 will ride on lug 72 against the action of spring 74, the detent 70 being engageable with opposite faces of the wedge-shaped lug 72 to releasably retain the dogging bolt in either of its positions. The outer side of the casting 42 is closed by a removable cover plate 78 secured in place by screws 80 against ribs 82 and inset bearing portions 84 formed integral with the casting 42. The detent plate 68 is retained against displacement from operative position by a projection 86 formed on the plate and maintaining it in spaced relation to the cover plate 78.

The device as shown in Figures 1, 2, 3, 5 and 6, in which is used the type of dogging bolt shown in Figure 4, is operated from the inside or room side of the door A by a rotatably mounted knob 88. The knob has a shank 90 screw threaded into the side wall 44 of casting 42 and a square stem 92 non-rotatably engaged with a sleeve 94 journaled in cover plate 78. The sleeve 94 is formed with a radially extending cylindrical portion 96 received in a curved groove 98 formed in the dogging bolt 56. It will thus be seen that the dogging bolt 56 may be moved from one position to the other by turning the knob 88.

The device as shown in Figures 7, 8 and 9 is the same as previously described except that a different type of operating means is used, requiring a dogging bolt as shown in Figure 11. In this slight modification of the invention the dogging bolt 56 is actuated by a slidable knob 100 having a shank 102 slidably arranged in an elongated slot 104 formed in side wall 44 of the casting 42. A stem 106 projecting from the shank extends through a hole 108 in the dogging bolt and is secured thereto by a screw 110. The dogging bolt may thus be moved to and from door locking position by sliding of the knob 100.

Both types of dogging bolts as shown in Figures 4 and 11 may be unlocked from outside of the door by use of a key through the key hole 112 formed in the cover plate 78. The key is inserted over a stud 114 secured to side wall 44

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of casting 42 and turned until it engages the notch 116 formed in the dogging bolt. Further turning of the key will then withdraw the bolt from locking position.

A removable finish plate 118 is applied to the outside of the door A by screws 120 extending through the door and connected in any suitable manner to the side wall 44 of casting 42. The side wall of the casting serves as the inside finish plate for the locking device and since this is secured by the screws 120 to the removable finish plate 118 the casting or casing 42 housing the locking device is firmly held in position in the door. The finish plate 118 is of course also formed with a key hole aligned with the key hole 112 in cover plate 78, and which is enclosed by the key hole plate 122. The sliding door A is opened and closed from inside the room by a handle 124 and from the outside by the hand-grips 126.

It will be seen that a locking device for sliding doors has been provided which is of strong yet simple construction, easy to operate, and in which the parts are located substantially entirely within the edge outlines of the door and jamb, thus reducing to a minimum the likelihood of injury to persons or objects passing through the open doorway. The mounting of latch 24 with its downward pivotal movement limited by engagement of shoulder 26 with abutment 20 assures that the latch will be retained in operative position even though the spring 28 should fail. In addition, should it be necessary to quickly unlock the door from the outside, as in case of emergency, and the key is unavailable or fails to operate, the finish plate 118 and cover plate 78 are easily removable to permit direct manual withdrawal from locking position of the dogging bolt 56.

While the invention has been described more or less in detail, it will be obvious to those skilled in the art that various modifications may be made, and all such modifications are contemplated as will fall within the scope of the appended claims defining my invention.

What is claimed is:

1. In a locking device for sliding doors, means forming two separable casings, a rigid bolt fixed within one of said casings, a pivotally mounted latch housed within the other casing, said rigid bolt and latch having cooperating surfaces so formed as to be engageable to yieldably hold the door closed and disengageable by opening movement of the door, an abutment in the casing that houses the latch located below the pivotal axis thereof, a shoulder on said latch engageable with said abutment to prevent the latch from dropping below its operative position, resilient means seated in a wall of the casing above the latch constantly urging the latter towards operative position, a dogging bolt slidably mounted in said one casing horizontally movable between a withdrawn position therein and a position where it extends into the other of said casings when the door is closed to engage over the top of said latch, a check plate pivotally mounted on an inner wall of said one casing and associated with the dogging bolt and having an opening to provide a depending wedge-shaped detent, a wedge-shaped lug projecting from said dogging bolt through the opening in said check plate for slidable and cooperable engagement with the lug to releasably retain the dogging bolt in either of its said positions, said detent riding over said lug during movement of the dogging

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bolt from one position to the other to lift the check plate for selectively positioning the detent on either side of the lug, and resilient means constantly urging said detent and projecting lug into cooperative engagement.

2. A locking device for sliding doors comprising, means forming two separable casings, a rigid bolt located within one of said casings, a latch pivotally mounted in the other casing, said bolt and latch being adapted to engage upon closing movement of the door to yieldably hold the latter in closed position and to be disengaged by opening movement of said door, a dogging bolt mounted for horizontal sliding movement from a withdrawn position within said one casing to a position extending into the other casing when the door is closed to engage over said latch and lock it against movement, a check plate pivotally mounted on an inner wall of said one casing and being formed with an opening providing a depending wedge-shaped detent, said dogging bolt having a wedge-shaped lug projecting therefrom through the opening in said check plate to cooperatively engage said detent and formed with a ledge, said projecting lug sliding underneath

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said detent during movement of the dogging bolt from one position to the other to raise the check plate for selectively engaging said detent on opposite sides of the lug to releasably retain the dogging bolt in either of its respective positions, and a compression spring having one end anchored in said check plate and its other end engaged beneath said ledge on the dogging bolt for constantly urging said detent and lug into cooperative engagement.

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