March 16, 1965 C. SILVERS 3,173,716

SLIDING DOOR LOCK

Filed Aug. 19, 1963

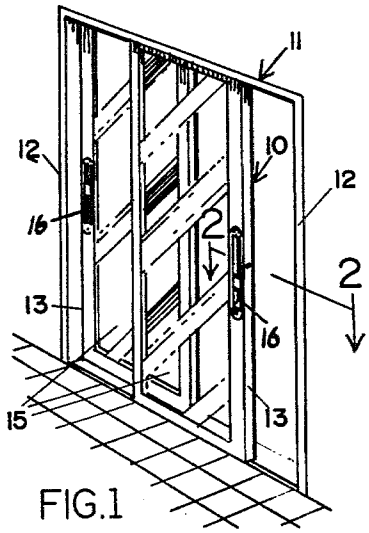


FIG.1

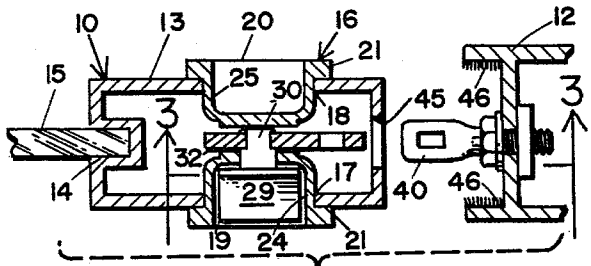


FIG.2

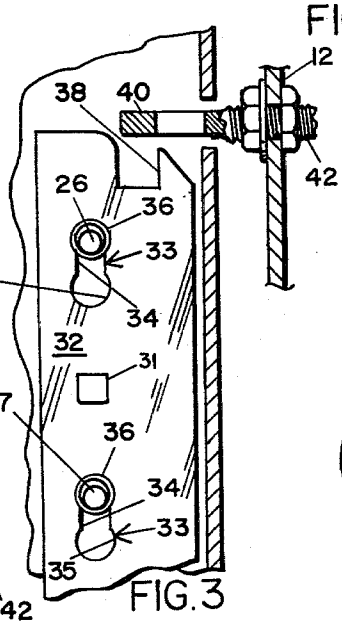


FIG.3

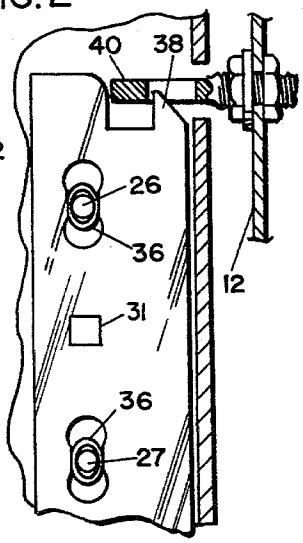


FIG.4

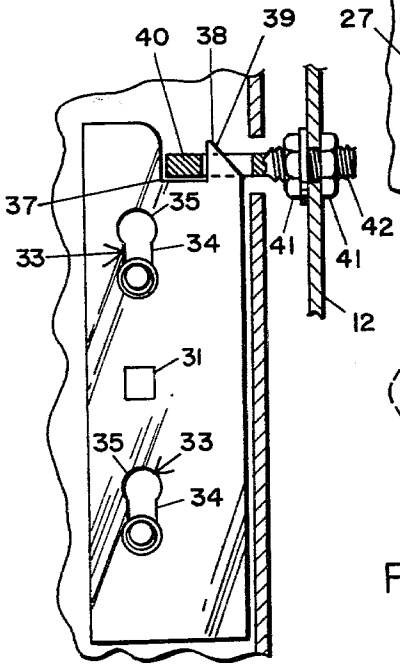


FIG.5

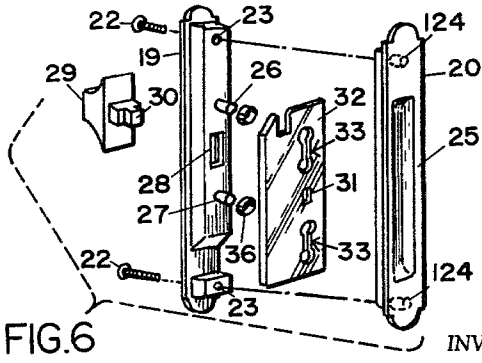


FIG.6

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SLIDING DOOR LOCK

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This invention relates generally to locks but is more particularly directed to a sliding door lock for narrow stile sliding doors.

A principal object of the present invention is to provide a glass sliding door with a latch that is simple in construction, extremely inexpensive in cost and most effective to lock and unlock a sliding door.

Another object of the present invention is to provide a door with a slide lock which is held in position without the use of springs and the like but instead utilizes a deformable plastic ring mounted on a pin slidably positioned in a slot that permits the ring to resume its normal shape at the extreme end position of the slot.

A still further object of the present invention is to provide a sliding door with a flush mounting having a recessed handle in which a lock and its operating mechanism are mounted.

Other objects of the invention will appear as the following description of a practical embodiment thereof proceeds:

In the drawing:

FIGURE 1 is a perspective view of a pair of sliding doors showing my door locks mounted thereon.

FIGURE 2 is a cross sectional view taken along the line 2—2 of FIGURE 1.

FIGURE 3 is a cross sectional view taken along the line 3—3 of FIGURE 2 showing the lock in its unlatched position.

FIGURE 4 is a similar view with the lock in its semi-latched position.

FIGURE 5 is a similar view with the lock in its completely latched position.

FIGURE 6 is an exploded view of the sliding door lock as seen removed from the door stile.

Referring to the drawing wherein like numerals are used to designate similar parts throughout the several views, the numerals 10 refer to sliding doors which are mounted on rollers (not shown) in a door frame 11 having jambs or stiles 12 against which the doors abut when in a closed position. The sliding doors 10 are of conventional construction consisting of an extruded frame member 13 which is substantially rectangular in cross section, being hollow and provided with a slotted portion 14 on its inner edge wall for receiving and sealing the edges of the pane of glass 15.

Each of the doors 10 is provided with a recessed handle and locking device 16 which is positioned in the upright door frame member 13 adjacent to the stiles 12. The aforementioned door frame member 13 is provided with a pair of elongated slots 17 and 18 that are in alignment with each other. Recessed handles 19 and 20 which are placed in the slots 17 and 18 are provided with recessed portions 24 and 25 and flanges 21 which bear against the frame member 13 when the handles 19 and 20 are fastened together by bolts 22 extending through bores 23 in the handle 19 and threaded into bores 124 in the handle 20.

The recessed portion 25 of the handle 20 is plain and void of any mechanism while the recessed portion 24 of the handle 19 is provided with a pair of pins 26 which extend into the hollow frame member 13. An elongated slot 28 is formed in the recessed portion 24 between the pins 26. A locking button 29 which is positioned in the recessed portion 24 is provided with a stem 30 extending through the slot 28 into a bore 31 of a latch plate 32. The end of the stem 30 is upset or peened to secure the

locking button 29 and the latch plate 32 together so that sliding movement of the locking button 29 effects a similar movement of the latch plate 32. The pins 26 are received by slots 33 formed in the latch plate 32. Each of the slots 33 having the general configuration of a figure 8, the mid-portion 34 of the slots 33 being slightly larger than the pins 26 while the ends 35 of the slots 33 are circular having a diameter slightly larger than width of the mid-portion 34. About the pins 26 are cylindrical plastic members 36 whose inner diameters are larger than the diameter of the pins 26 so as to fit loosely on the pins 26 while the outside diameter of the members 36 is approximately equal to that of the arcuate slots 35 so as to fit snugly therein. The upper edge of the latch plate 32 is slotted as at 37 to form a latch engaging projection 38 whose outer surface is bevelled as at 39. The projection 38 engages a latch member 40 which is secured to the jambs 12 of the door frame 11 by nuts 41 threaded on the latch stem 42. When the door 10 is brought to its closed position, the latch member 40 is received through an opening 45 in the door frame 13 to place the projection 38 in position to engage the latch member 40. Weather stripping 46 on the door frame 12 prevents the passage of air therealong.

When it is desired to lock the sliding doors 10 after the doors 10 have been brought to their closed positions, the locking button 29 is forced upwardly causing the latch plate 32 to slide upwardly. As the pins 26 slide from the lower arcuate ends 35 of the slots 33, the cylindrical members 36 are deformed as shown by FIGURE 4. A further upward force on the locking button 29 will compel the latch plate 32 to continue to slide upwardly until the pins 26 arrive at the upper arcuate ends 35 of the slots 33, the cylindrical members 36 resume their normal circular shape fitting snugly in the arcuate ends 35 of the slots 33 and the projection 38 is received by the latch 40 to lock the door 11. The latch plate 32 will remain in the locked position until the locking button 29 is forced downwardly to compel the latch plate 32 to slide downwardly and the latch engaging projection 38 to remove itself from engagement with the latch member 40. The pins 26 will be positioned in the lower arcuate ends 35 of the slots 33 with the cylindrical members 36 fitting snugly in the arcuate ends 35 to secure the latch plate 32 in its open position.

It is readily noted that the present locking mechanism obviates the need for springs or cams to maintain the mechanism in a locked position. Such mechanism either deteriorate or wear through constant use and thereby must be replaced in order to have an effective lock.

While I have in the above description taken in connection with the drawing disclosed what I believe to be a practical embodiment of the invention, it will be understood by those skilled in the art, that the specific details of construction and arrangement of parts, as shown and described are by way of example and not to be construed as limiting the scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States:

1. A door lock comprising a support member having an elongated slot, a pin mounted on said support member, an actuating member, a stem mounted on said actuating member and extending through said elongated slot, a latch plate secured to said stem, said latch plate having a slot receiving said pin, said slot having a portion substantially larger in width than said pin communicating with an arcuate end portion of said slot, a substantially resilient cylindrical member mounted on said pin and received by said slot, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portion of said slot whereby upon slid-

ing said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement.

2. A door lock comprising a support member having an elongated slot, a pin mounted on said support member, an actuating member, a stem mounted on said actuating member and extending through said elongated slot, a latch plate secured to said stem, said latch plate having a slot receiving said pin, said slot having a portion substantially larger in width than said pin communicating with an arcuate end portion of said slot, a substantially resilient cylindrical member mounted on said pin and received by said slot, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portion of said slot whereby upon sliding said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement and a latch engaging projection mounted on said latch plate for engaging a latch member for locking a door.

3. A door lock comprising a support member having an elongated slot, a pin mounted on said support member, an actuating member, a stem mounted on said actuating member and extending through said elongated slot, a latch plate secured to said stem, said latch plate having a slot receiving said pin, said slot having a midportion substantially larger in width than said pin communicating with arcuate end portions of said slot, a substantially resilient cylindrical member mounted on said pin and received by said slot, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portions of said slot whereby upon sliding said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement.

4. A door lock comprising a support member, a latch plate slidably mounted on said support member, means secured to said latch plate for sliding said latch plate on said support member, said latch plate having a slotted portion, a pin mounted on said support member and extending into said slotted portion, said slotted portion being slightly larger than the diameter of said pin and having an arcuate end portion, a resilient cylindrical member mounted on said pin, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portion of said slot whereby upon sliding said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement.

5. A door lock comprising a support member, a latch plate slidably mounted on said support member, means secured to said latch plate for sliding said latch plate on said support member, said latch plate having a slotted portion, a pin mounted on said support member and

extending into said slotted portion, said slotted portion being slightly larger than the diameter of said pin and having an arcuate end portion, a resilient cylindrical member mounted on said pin, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portion of said slot whereby upon sliding said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement and a latch engaging projection mounted on said latch plate for engaging a latch member for locking a door.

6. A door lock comprising a support member, a latch plate slidably mounted on said support member, means secured to said latch plate for sliding said latch plate on said support member, said latch plate having a slotted portion, a pin mounted on said support member and extending into said slotted portion, said slotted portion being slightly larger than the diameter of said pin and having arcuate end portions, a resilient cylindrical member mounted on said pin, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portions of said slot whereby upon sliding said latch plate said resilient cylindrical member is positioned in said arcuate end of said slot and said latch plate is maintained securely against inadvertent sliding movement.

7. In a sliding door structure having a door frame, a door slidably mounted in said door frame, said sliding door having a slotted frame member, a recessed handle mounted on each side of said slotted frame member, means securing said recessed handles together, a pin secured to one of said recessed handles and extending in a direction toward said other recessed handle, said one of said recessed handles having an elongated slot, a locking button, a stem secured to said button and extending through said elongated slot, a latch plate secured to said stem, said latch plate having a slot receiving said pin, said slot having a portion substantially larger in width than said pin communicating with an arcuate end portion of said slot, a substantially resilient cylindrical member mounted on said pin and received by said slot, said resilient cylindrical member having an inside diameter larger than that of said pin and an outside diameter substantially equal to that of said arcuate end portion of said slot, a latch engaging projection mounted on said latch plate, a latch member mounted on said door frame in proximity of said latch engaging projection whereby upon sliding said locking button and said latch plate said latch engaging projection engages said latch member to lock said door and said resilient cylindrical member is positioned in said arcuate end of said slot to prevent the inadvertent unlocking of said lock.

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