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LATCH DEVICE FOR SLIDING DOOR STRUCTURE

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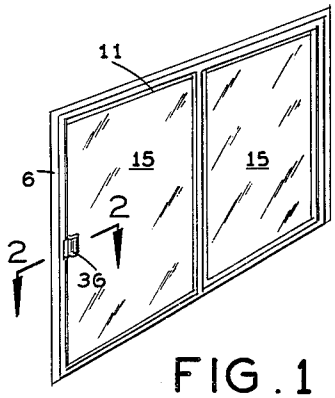
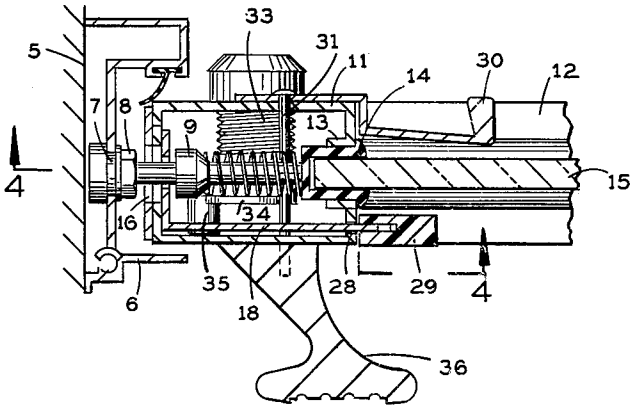


FIG. 1

FIG. 2



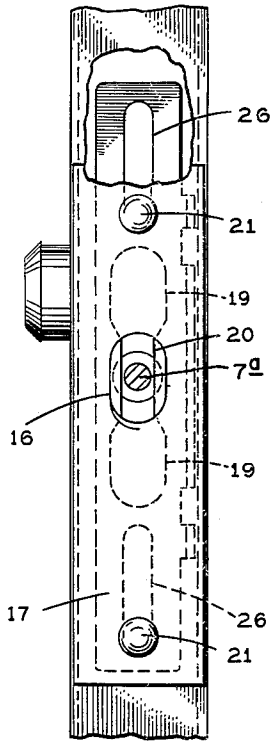


FIG. 3

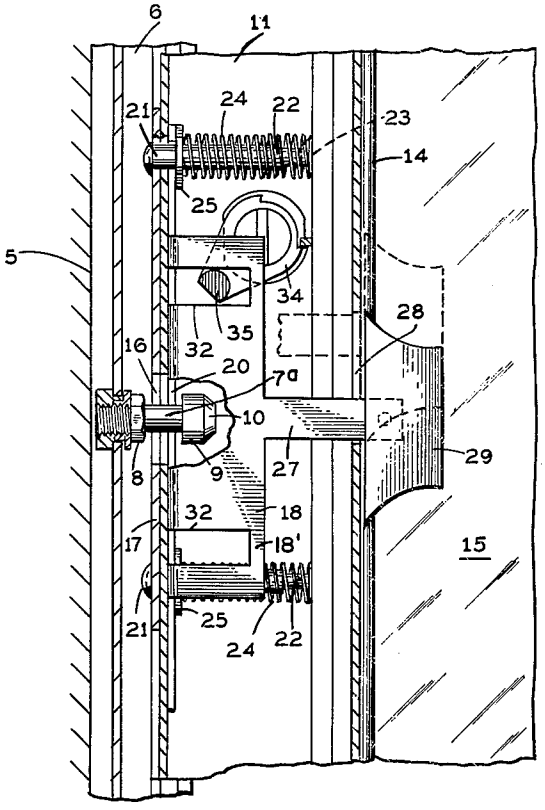


FIG. 4

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LATCH DEVICE FOR SLIDING DOOR STRUCTURE

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This invention relates to a lock and latch mechanism for sliding glass doors of the type that are mouthed within a main frame situated in a wall opening and with the frame carrying trackways upon which the doors slide and preferably doors that open and close in overlapping relation.

The invention contemplates a glass door having an extruded open frame for the support of glass panels and with the frame including a leading stile wherein is disposed a vertically slidable latch plate adapted to have interlocking relation to a fixed keeper carried by the main frame and with the latch plate being movable to and from a latched position by an externally disposed handle and in addition the latch plate to be moved to and from a latched position with respect to the keeper by a key actuated cylinder bolt.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a perspective view of a pair of sliding glass doors having the invention applied thereto,

FIGURE 2 is a fragmentary horizontal section taken substantially on line 2—2 of FIGURE 1,

FIGURE 3 is a front elevational view of the door stile, parts being broken away for purpose of illustration, and

FIGURE 4 is a section taken substantially on line 4—4 of FIGURE 2.

Referring specifically to the drawings, a main frame is disposed within a wall opening 5, the main frame including extruded jamb members 6 that are connected in the usual manner by header and sill rails, not shown. The jamb member 6 is provided with a keeper 7 that is locked to the jamb member by a nut 8 and the keeper 7 terminates in an outwardly extending cylindrical head 9, having a beveled forward end 10.

The stile 11 of the door 12 is generally rectangular in cross section and is slotted upon its inner edge as at 13 to receive a vinyl weather strip 14 in which is fitted the marginal edges of the glass panel 15. The forward or leading edge of the stile 11 is provided with an elongated opening 16 having a transverse width corresponding to the head 9 of the keeper and a cover plate 17 also having an elongated slot corresponding to the slot 16.

Slidable within the stile 11 is an L-shape latch plate 18. One leg of the L for a substantial length is provided with slots 19, being of the same width as the slots 16 and the slots 19 are connected by a relatively narrower slot 20, said slot being of such width as to receive the reduced portion 7a of the keeper 7. The latch plate 18 is adapted to be released from the keeper 7 in either of its maximum upper or downward movement. Passing through openings formed in the cover plate 17 and the forward wall of the stile are upper and lower tapped rivets 21 telescoping over threaded screws 22. The screws 22 have heads 23 forming a stop for springs 24. The springs 24 also bear against washers 25 that bear against the inner face of the latch plate, causing the latch plate to be held in frictional engagement with the inner side of the leading edge of the stile 11. The latch plate is also slotted at 26 to override the rivets 21. The other leg of the latch

plate is provided with a tongue 27 that slidably engages a slot 28 formed adjacent the marginal edge of the rear wall of the stile 11. The tongue 27 is riveted or otherwise connected to a handle 29 and whereby the latch plate may be shifted in either an upward or downward movement an in each of its maximum positions of movement, either one of the slots 19 will have alignment with the slots 16 so that the head 9 of the keeper may be released with respect to the door. Upon the outer side of the door, there has been provided a pull handle 30, held to the side of the stile 11 by rivets or screws 31. The leg 18' of the latch plate is transversely slotted at 32. Fitted in the outer wall of the stile 11 is a key actuated cylinder lock mechanism 33. The cylinder may be held in connection with the stile 11 in any suitable manner. Fastened upon the cylinder of the lock is a key lock dog 34. The dog 34 has a right angle arm 35 that fits into the upper slot 32 and whereby the latch plate may be locked or unlocked with respect to the keeper 7. The arm 35 of course has a cam action in the slot 32. The plate 18 can only be shifted by the handle 29 while the lock 33 is in its unlocked condition. Also by turning the key in the lock the arm 35 may be swung to shift the plate 18.

One side of the door may be provided with a pull handle 36 of any desirable configuration and the handle 36 may be omitted and cups or the like inserted within suitable openings in the sides of the stile 11 to be substituted to shift the door manually.

It will be apparent from the foregoing that a very novel and simple construction has been provided to effectively lock or latch the sliding door with respect to the main frame jamb. The latch plate having been slotted at 32, both its upper and lower presents a structure that may be inverted at such times as the device may be assembled with respect to an opposite stile of the door. The device has few and simple parts not calculated to give any trouble from a mechanical standpoint and is quickly and easily assembled with respect to the stile of the door. It may be found desirable in certain instances to omit the cylinder lock 33 and to depend entirely upon the handle 29 for latching and unlatching the door.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claims.

I claim:

1. The combination with a closure device that includes a fixed frame mounted in a wall opening and with the frame having a latch keeper, shiftable panel doors slidable in the frame and movable toward and from the keeper, the shiftable panel door having a rigid frame for supporting a glass panel and with the last-named frame including a hollow extruded leading stile, a forward wall of the stile being slotted for the passage of the keeper, a latch plate disposed within the stile and biased toward the forward wall of the stile, the latch plate being slotted to form upper and lower relatively wide slots and a connecting slot and whereby to receive an enlarged head portion of the keeper, the latch plate having a tongue that extends through a slot in a rear wall of the stile and carrying a handle outwardly of the stile whereby to shift the latch plate to and from an interlocking engagement with the keeper, a key actuated cylinder lock projecting through an opening in one side of the stile and with the lock having a rotatable dog that engages a slot formed in one wall of the latch plate whereby to also shift the latch plate to and from an interlocking engagement with the keeper.

2. A lock and latch device for sliding doors compris-

ing, a door frame having a projecting keeper provided with an enlarged head on the end of a cylindrical smaller-diameter stem, a hollow stile on a sliding door, said stile containing an L-shaped slidable latch plate, said latch plate having a first leg disposed against a forward wall of the stile, spring means contained within the stile for biasing said leg of the latch plate into contact with said wall of the stile, the first leg of the latch plate having an elongated slot provided with enlarged portions at its opposite ends and through which the enlarged head of the keeper can be passed, the enlarged portions of said slot being connected by a narrower portion through which only the stem of the keeper can be passed, the latch plate having a second leg provided with a part projecting out of the stile and carrying a hand piece by which the latch can be slidably moved to register either of the enlarged portions of the slot with the head of the keeper, said second leg of the latch having a notch, and a cylinder lock mounted in the stile and provided with an actuator engaging in the notch to slidably move the latch on key-operation of the lock.

3. A lock and latch mechanism for a glass panel door that has slidable engagement within a fixed metallic frame in a wall opening, a door having a hollow extruded stile member at its leading edge, the stile member being generally rectangular in cross-sectional shape and having a forward web defining the forward end of the stile member, said web being provided with an elongated opening, a keeper fixed upon and projecting from the frame, said keeper having a head portion entering through said opening in the web of the stile, an L-shaped latch plate slidably mounted within the stile, said plate including a leg extending toward the forward web of the stile, spring means for biasing the said plate toward the forward end of the stile, said spring means permitting sliding movement of the latch plate relatively to the stile, said latch plate including an extended tongue portion projecting out of the stile and receiving a knob for effecting manual sliding movement of the latch plate, a face plate attached on the face of the web, said face plate having an opening overlying the slot in the forward web of the stile so that the head of the keeper can pass through both the slot and opening, the forward leg of the latch plate including a part disposed flatly against the rear face of the forward web of the stile, said part of the latch plate having a slot provided with a narrow central part and widened end parts, with the central part of said slot being of less width than the head portion of the keeper and the wider end portions of said slot being wider than the width of the

head on the keeper, the latch plate having another slot, a key-actuated lock in the stile having a crank engaging the last-mentioned slot so that rotation of the crank will cause the latch plate to be shifted in a manner to bring one or the other of the wider portions of the first-mentioned slot in the latch plate in a position to permit the passage of the head of the keeper through such wider portion of the slot.

4. A lock and latch device for sliding doors in which said sliding doors are shiftable within a fixed frame, and with said frame having at least one jamb and the jamb being provided with an outwardly-directed headed keeper, a door including a forward hollow stile member, the stile member having a front web provided with a flat face having an aperture through which the keeper can extend, a face plate disposed over said face and having an aperture in registry with that in the web, with said apertures being of a size to permit of the passage of the head of the keeper through them, an L-shaped latch plate within the stile, said plate including a part disposed against the inner face of the front web of the stile, said part of the latch plate having a slot formed with widened ends through which the head of the keeper can pass and with a narrower part between said widened ends through which the head of the keeper cannot pass, spring means for maintaining said part of the latch plate against the rear face of the front web of the stile but permitting sliding movement of the latch plate to allow the registry of the head of the keeper with either of the wide parts of the slot in the latch plate or with the narrower part of said slot, the latch plate having a tongue extending out of the stile and terminating in a knob by which the latch plate can be shifted to locate either of the wider parts of its slot in registry with the keeper, a cylinder lock having a swingable arm engaging the latch plate and movable by key operation of the lock to shift the latch plate to regulate the position of its slot relative to the keeper.

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