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Raymon

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[54] **SLIDING PANEL LOCK**

[76] Inventor: **Raymond T. Raymon,** 11618 Highland Dr., Warren, Mich. 48089

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[51] **Int. Cl.** **E05c 5/02**

[58] **Field of Search** ..... 292/57, 58, 59, 60, 292/61, 67, 153, DIG. 46, DIG. 47, DIG. 53

[56] **References Cited**

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Primary Examiner—Robert L. Wolfe

Attorney—Philip V. W. Peck

[57] **ABSTRACT**

A pair of sliding panels, sashes or other closure means provided with locking means which is mounted on one closure and is operable when said closure is in closed or stationary position to releasably engage and lock the other sliding closure means to prevent said other sliding closure means from being moved to open or partly open position.

1 Claim, 4 Drawing Figures

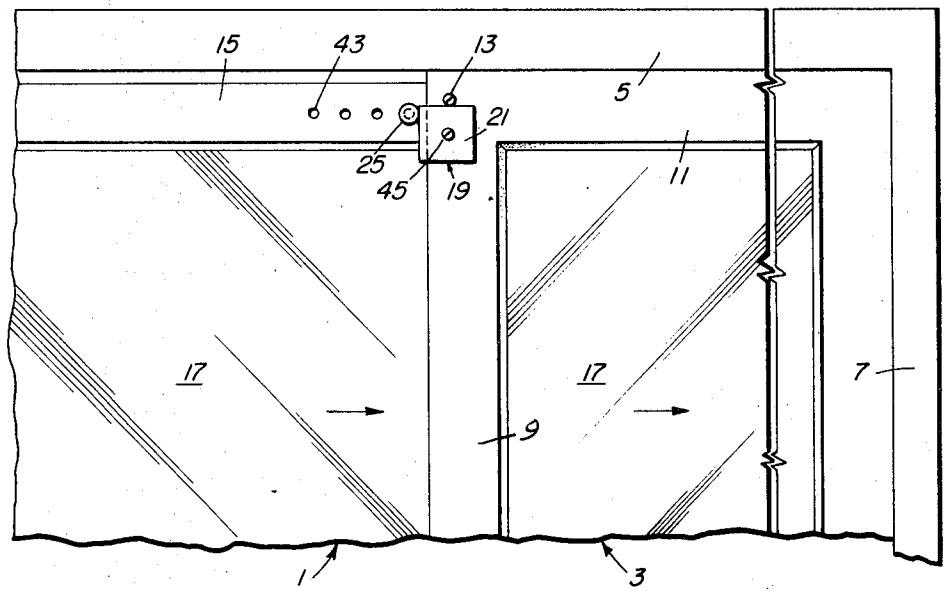


FIG. 1

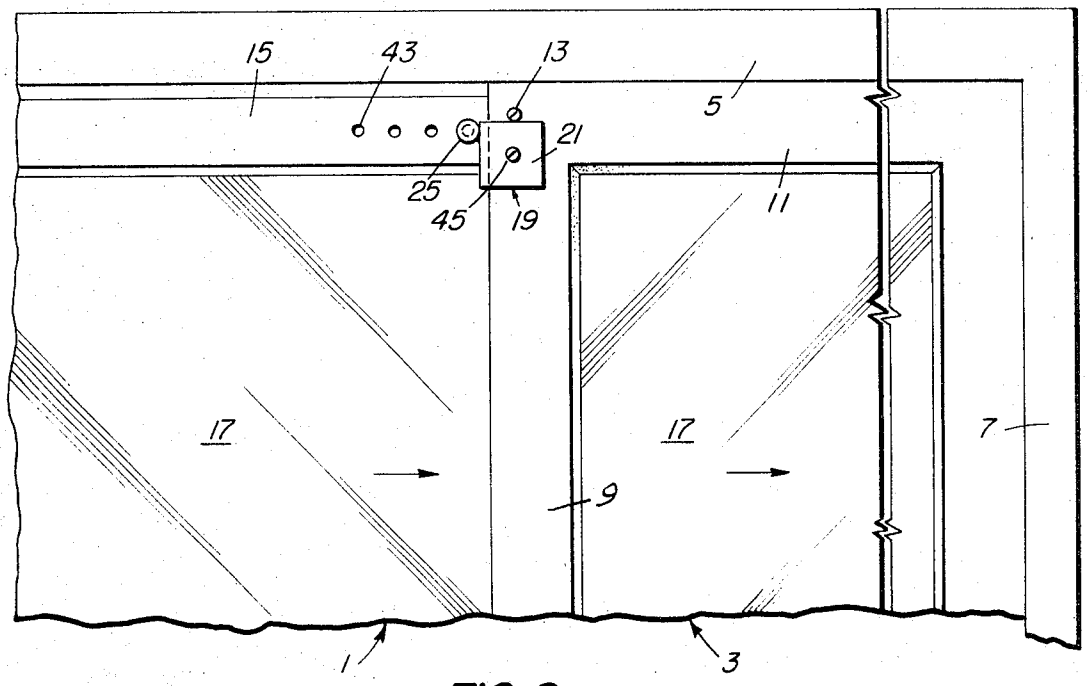


FIG. 2

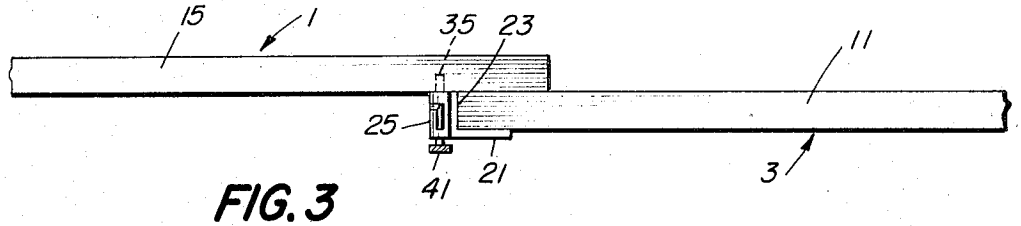


FIG. 3

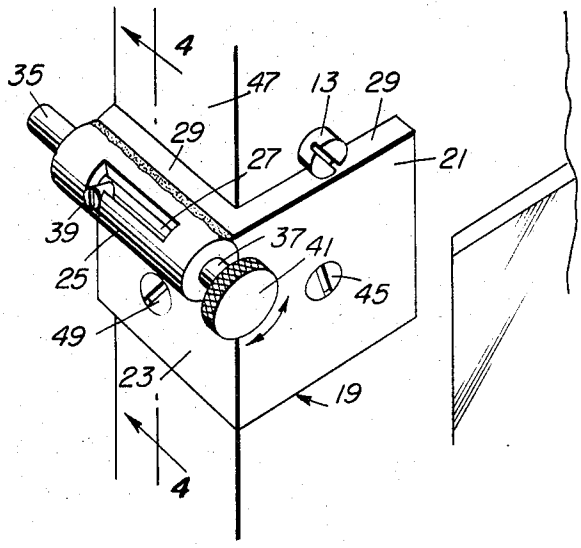
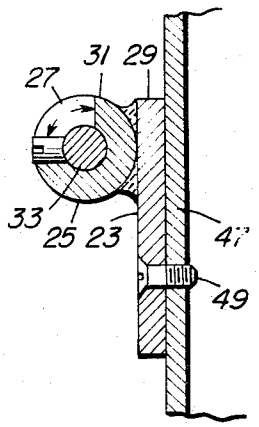


FIG. 4



SLIDING PANEL LOCK

BACKGROUND OF THE INVENTION

At the present time a substantial number of homes and other buildings are provided with pairs of sliding panels or doors, each of which comprises generally a frame in which is mounted plate glass, sliding panels of this general character in many instances open onto patios and the like.

In a closure arrangement comprising a pair of sliding panels where one of said panels is in locked, closed position, substantial difficulties have been encountered in providing easily accessible and operable means for locking the other sliding panel in closed or partly open position. It will be recognized that locking means of some character is essential in order to bar unauthorized access to the structure which is closed by the closure means.

A locking means of the character broadly outlined above must be so constructed and designed that it is not only accessible and may be operated with facility, but it must also be so configured and constructed that it may be affixed with substantially no difficulty on the panel of the pair of panels which is in closed locked position.

SUMMARY OF THE INVENTION

While I have illustrated this invention combined with sliding panel closure means which slide in a horizontal plane, it must be appreciated that the invention is applicable to window sashes, and the like, which slide in a vertical plane, and while I shall describe this invention as providing locking means for the outer panel of a pair of sliding panels it is within my contemplation to adapt this locking means to the inner panel of a pair of sliding panels, or sashes. In a pair of sliding panels within the purview of my invention, the panel which may be either the outer or inner panel and when in closed position is in abutment against a vertical frame of the opening, is utilized for affixation thereto of the locking mechanism which co-acts with the other panel, whether an inner or an outer panel, to lock the same in closed or partly open position.

One of the significant purposes of this invention is to simplify a locking arrangement for one of a pair of sliding panels, and as the description proceeds it will become apparent that the locking mechanism which I have devised may function with equal facility on either the inner sliding panel or the outer sliding panel. The basic concept which enables me to use the same locking mechanism for locking either the inner or the outer sliding panel, comprises the utilization of the stationary or closed panel of the pair of panels as the means which functions through the locking mechanism to lock the other panel in fully closed or partly open position.

Of further significance is the panel structure itself and the operating arrangement of the locking mechanism which is designed for relatively simple and easy mounting on the panel of a pair of panels which is in closed or stationary position so that the locking mechanism is co-active with the other panel and is manually adjustable to lock the other panel in closed or partly open position.

It is highly desirable that the locking mechanism be so affixed to the closed or stationary panel as to be co-active with a certain and specific area of the frame of the other panel which is to be locked in fully closed or

partly open position. This particular positioning of the locking mechanism relative to the panel to be locked is desirable and advantageous in the addition to the entire arrangement of substantial strength characteristics. The application of the locking mechanism to the sliding panels causes no weakening of the entire combination.

As will become clear in the following detailed description of my invention, certain structural characteristics of the sliding panels have been taken into consideration in the particular structure and configuration of the locking mechanism so that this structure of the panels will not be damaged by the affixation thereto of the locking mechanism, and yet the locking mechanism will co-act at the desired positions on the panel to be locked in closed or in partly open position.

With the foregoing general objects, features and results in view, as well as certain others which will be apparent from the following explanation, the invention consists of certain novel features in design, construction, mounting and combination of elements as will be more fully and particularly referred to and specified hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in elevation, with parts thereof broken away, of a pair of sliding panels with the locking mechanism affixed to one of said panels for co-action with the other of said panels.

FIG. 2 is a top plane view of a pair of sliding panels illustrating the locking mechanism affixed to one of said panels for coaction with the other said panel.

FIG. 3 is a detailed view in perspective of the locking mechanism affixed to a panel.

FIG. 4 is a view taken on the line 4—4 of FIG. 3.

DESCRIPTION OF THE INVETION

In the accompanying drawings I have used the numeral 1 to designate generally one panel of a pair of sliding panels and the numeral 3 to designate generally the other sliding panel of the pair of sliding panels. Such panels 1 and 3 are slidably operable within the usual horizontal frame 5 and vertical frame 7, both of which are fixed members. Since in FIG. 1 of the drawings parts thereof are broken away, only the upper section 5 of the frame is illustrated and only one vertical section 7 thereof is illustrated. As is conventional, the panels 1 and 3 slide in laterally spaced guide tracks (not shown), which are provided in the horizontal or upper and lower sections 5. The panel 3 is provided with a vertical frame member 9 and an upper horizontal frame member 11 which is fixed to the vertical frame member 9 by means of a screw or the like 13. It will be recognized that there is also a rear vertical frame in the panel 3 which is similar to the vertical frame 9 and a lower horizontal frame which is similar to the upper horizontal frame 11. The sliding panel 1 is also provided with a framework generally similar to that provided for the panel 3, the upper horizontal panel 15 being shown in the drawing. Plate glass or the like 17 is mounted within the framework of each sliding panel.

Merely by way of example, and not as a limitation, I have illustrated the sliding panel 1 as being the outer panel of the pair of panels and the sliding panel 3 as comprising the inner panel of the pair of panels.

The locking mechanism comprises a base designated in its entirety by the numeral 19 and this base consists

of a pair of plates 21 and 23 which are combined at substantially right angles to one another, as is clearly illustrated in the drawings. The plates 21 and 23, which form the base of the locking mechanism, may be integrally formed or may be attached together in any suitable manner, as by welding. The plates 21 and 23 are preferably though not necessarily dimensionally similar. Fixed to the plate 23 of the base 19, in any suitable manner, is a sleeve, barrel or the like 25, the sleeve 25 being provided with a bayonet slot 27 therein for a purpose which will be hereinafter described. The sleeve 25 is mounted on the exterior side of the plate 23 in position thereon with respect to the upper edge 29 of the plate 23, so that the upper arcuate edge 31 of the sleeve 25 is slightly above a horizontal plane projected from the edge 29 of the plate 23. The purpose of this relative positioning of the sleeve on the plate will become apparent as this description proceeds. Operatively mounted within the sleeve 25 is a locking pin 33 which is of greater length than the length of the sleeve so as to provide portions 35 and 37 extending beyond the ends of the sleeve 25. Affixed to and extending radially from the locking pin 33 is a pin 39 which, as will be explained, is operable within the bayonet slot 27. Fixed to the extending portion 37 of the locking pin 33 is a knurled operating head 41. The locking pin 33 is movable axially and is rotatable in the sleeve within the limits defined by the bayonet slot.

The upper horizontal frame 15 of the openable panel 3 is provided with a series of spaced-apart holes 43 therein. These holes, as will be explained are provided to receive the extending locking portion 35 of the pin 33. The openings 43 in the horizontal frame 15 do not extend entirely through said frame and it is important for a variety of reasons that these openings 43 be positioned substantially intermediately of the transverse dimension of the frame 15.

The locking mechanism 19 is mounted on the vertical frame 9 of the stationary panel 3, the plate 21 of the base of the locking mechanism is attached to the vertical frame 9 by means of a screw or the like 45. Consideration particularly of FIG. 1 of the drawings indicates that the locking mechanism is affixed to the vertical frame 9 in position below and not covering the screw 13 which is utilized in the construction of the panel 3. This particular disposition of the locking means is of significance for it is undesirable to cover the screw 13.

The other plate 23 of the locking mechanism is secured to the vertical edge 47 of vertical frame 9 of panel 3 by means of a screw 49, and it will be observed that the width of the plate 23 is substantially equal to the width of the edge 47 of the frame so that no portion of the plate 23 extends beyond the edge 47.

With the locking mechanism mounted as described it will be recognized that the extending locking portion 35 of the pin 33, when the pin is projected extends beyond the edge of the frame 47 and is operable to be received in any one of the openings 43 in the horizontal frame 15 of the panel 1. In order to withdraw or retract the locking extension 35 into the sleeve 25 the knurled operating head 41 is grasped and rotated to the right as FIG. 3 is viewed, so that the pin 39 is moved from the transverse locking portion of the bayonet slot, whereupon the operating head 41 is moved producing axial movement in pin 33 until the pin 39 reaches the end of the longitudinal portion of the bayonet slot. In this position the locking portion 35 is retracted into the sleeve 25 and the sliding panel 1 may be opened. When it is desired to lock the sliding panel 1 in closed position the reverse action is followed by using the operating head and disposing the pin 39 in the transverse portion of the bayonet slot to thereby project the locking extension 35 into the end hole of the holes 43. In this position the panel 1 is soundly locked in closed position and may not be moved to open position in the direction of the arrow since in order to accomplish this the panel 3 would have to be moved in the direction of the arrow on it, and this cannot be accomplished in view of the abutment of a vertical edge of the panel 3 against the fixed vertical frame member 7, making panel 3 immovable in the direction of the arrow. In order to maintain and lock the panel 1 in certain partly open positions, the locking extension 35 is retracted from its hole 43 and the panel 1 is slid in the direction of the arrow until one of the desired other holes 43 is in line with the extending locking pin 35 so that it may be projected into such hole.

Since the holes 43 must be positioned midway of the transverse dimension of the frame 15 and since the extending locking pin 35 must be in line with these holes, and in order to position the base of the locking mechanism so that the screw 13 is not covered, the upper arcuate surface of the barrel 25 must be positioned slightly above a projected horizontal plane of the upper edge 29 of the plate 23.

It is within my contemplation to position the locking mechanism which has been described above at the bottom rather than the top of the frames of the sliding panels. It will also be appreciated since the openings 43 are positioned intermediate the longitudinal edges of the frame 15 that the locking pin 35 will operate not only in the center of frame 15 but also in the center of frame 11.

I claim:

1. Locking mechanism for one panel of a pair of panels, wherein one of said panels is openable and the other of said panels is immovable in the direction of opening movement of said openable panel, said immovable panel being provided with a frame having vertical and horizontal members and connecting means for said members, said connecting means extending through the face of said vertical frame member and being exteriorally accessible for manipulation, said locking mechanism including a base and said base comprising a pair of plates, said plates being angularly related to one another and the said angle being substantially the same as the angle between the face and edge of said vertical frame member, one of said plates being fixed to the edge of the vertical frame member of said movable panel which is adjacent to said openeable panel and the other of said plates being fixed to and extending over a part of the adjacent face of the said vertical frame member and extending over a part of the face of said upper horizontal frame member of said immovable panel, said second mentioned plate being fixed to said vertical and horizontal frame members adjacent to but downwardly removed from said connecting means, the upper horizontal edge of said second mentioned plate being below a horizontal plane extending midway between the longitudinal edges of said upper horizontal frame member of the immovable panel, said openable panel being provided with a frame comprising horizontal and vertical frame members and the upper horizontal frame member thereof being provided with stop

means positioned thereon midway between the longitudinal edges thereof and in the same horizontal plane as a horizontal plane extending through the plane midway between the horizontal edges of said upper horizontal frame member of the immovable panel, said locking mechanism including means retractable into and projectible from said locking mechanism, said locking mechanism being fixed to said first mentioned plate providing a portion thereof extending above the upper edge of said second mentioned plate, said retractable and projectible locking means being aligned with said stop means and said locking means when in projected position being co-active with said stop means of said openable panel to lock said panel in closed position against opening movement.

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