

**Oct. 22, 1957**

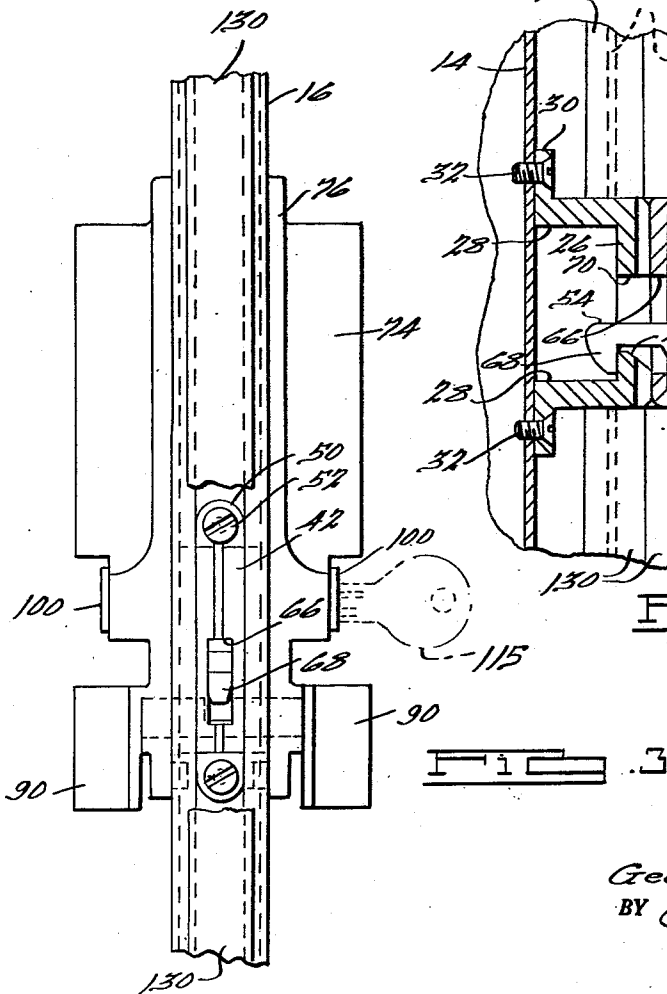
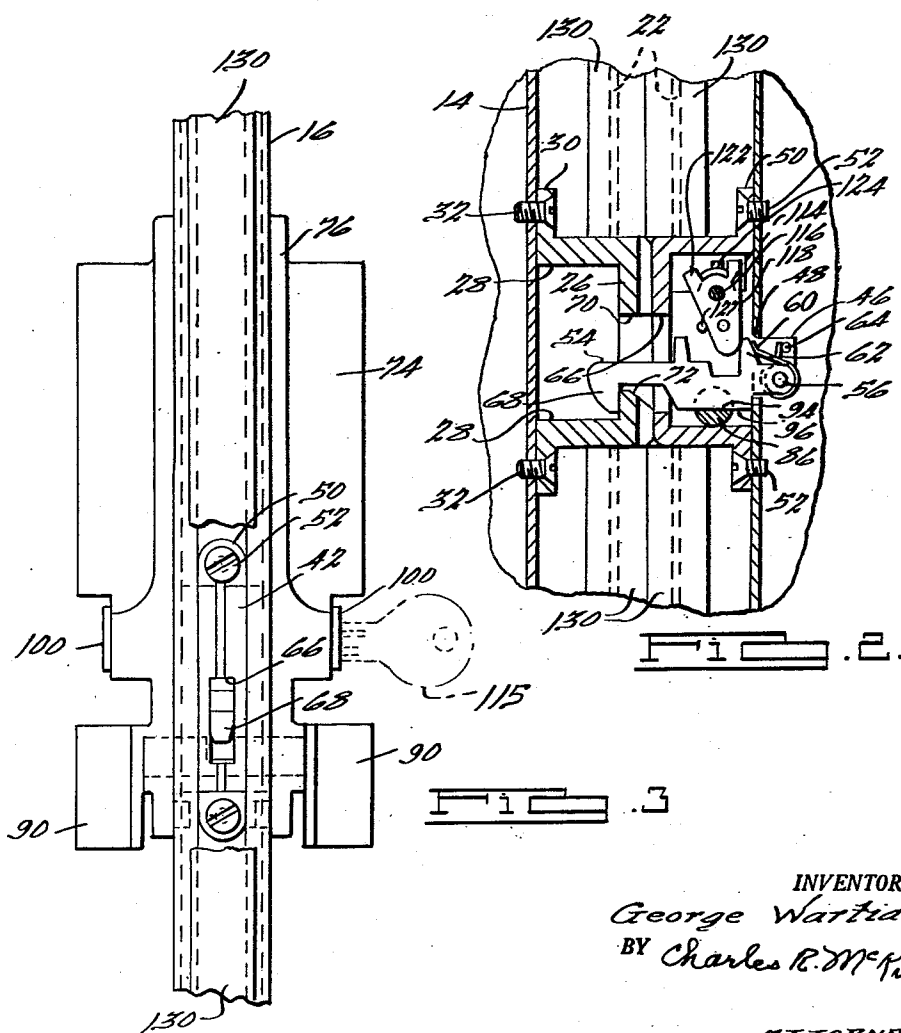
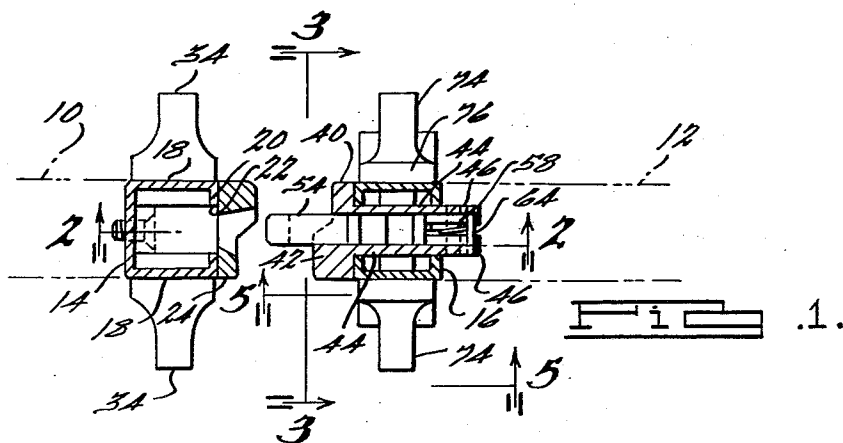
G. WARTIAN

**2,810,284**

LATCH FOR SLIDING DOORS

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

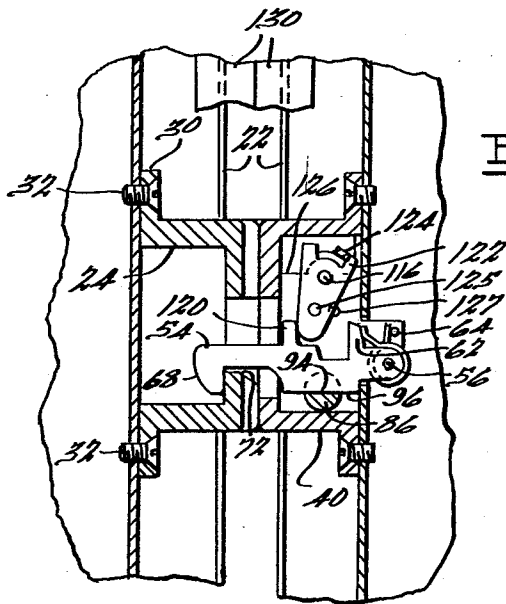


FIG. 4.

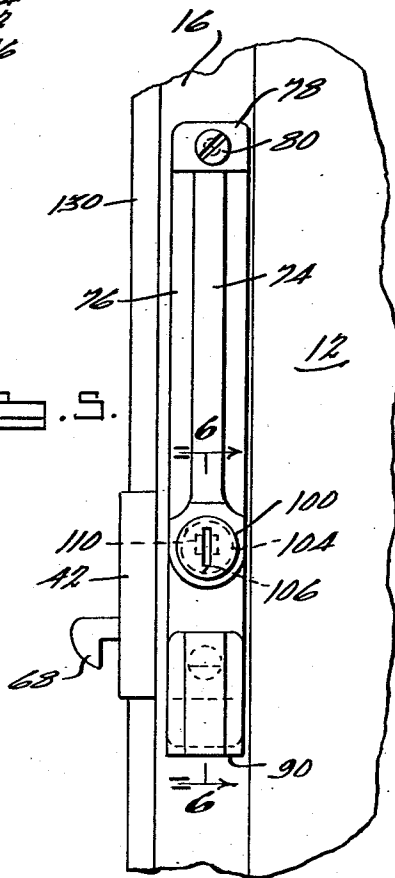


FIG. 5.

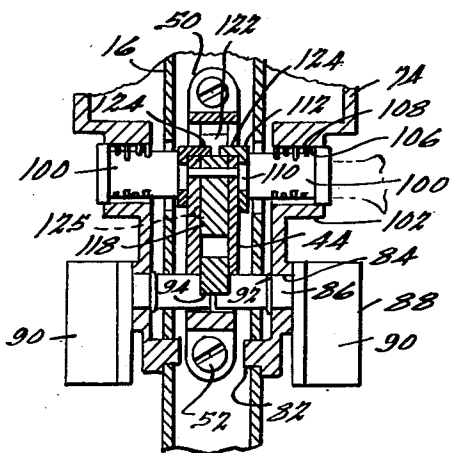


FIG. 6.

INVENTOR.

George Wartian  
BY Charles R. McKinley

ATTORNEY.

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2,810,284

## LATCH FOR SLIDING DOORS

George Wartian, Detroit, Mich.

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2 Claims. (Cl. 70—99)

This invention relates to latch mechanism and has particular reference to a combination latch and lock mechanism adapted for use on sliding doors or the like.

It is the purpose of the present invention to provide a latch for doors of the type comprising vertically disposed aligned relatively slidable door panels. The latch may be used in constructions of this type in which a single door is slidable against a fixed frame, as well as with two aligned doors, each of which is slidable. Slidable doors of the type in question are often employed in banquet or club rooms or the like, and the door panels may comprise flexible, corrugated fabric or other material, or the panels may be rigid and slidable within tracks at the top and bottom edges.

A principal object of the invention is to provide a new and improved latch mechanism for sliding doors.

Another object of the invention is to provide a combination latch and lock mechanism for a door in which the doors may be locked or unlocked from either side of the door.

A further object of the invention is to provide a latch mechanism of the type described which is simple in construction and economical to manufacture and install.

Other and further objects of the invention will be apparent from the following description and claims and may be understood by reference to the accompanying drawings, of which there are two sheets, which by way of illustration show a preferred embodiment of the invention and what I now consider to be the best mode in which I have contemplated applying the principles of my invention. Other embodiments of the invention may be used without departing from the scope of the present invention as set forth in the appended claims.

In the drawings:

Fig. 1 is a horizontal sectional view, with parts in elevation of my improved latch construction and showing the same applied to a pair of relatively slidable doors in an open position thereof;

Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1, but showing the doors in their latched position;

Fig. 3 is an end elevation view of a part of the latch mechanism and is taken on line 3—3 of Fig. 1;

Fig. 4 is a sectional view similar to Fig. 2, but showing the latch in its locked position;

Fig. 5 is an elevational view of a portion of the latch taken on line 5—5 of Fig. 1; and

Fig. 6 is a fragmentary sectional view taken on line 6—6 of Fig. 5.

Referring more particularly to the drawings, in Fig. 1, there is disclosed a pair of aligned relatively slidable door panels 10 and 12 having my improved latch mechanism secured to the opposing vertical side edges of the doors. The doors 10 and 12 are provided at their side edges with channel-shaped frame members 14 and 16, respectively. The frame 14 has a substantially square cross-section, and the opposing sides 18 thereof have inwardly turned edges 20 defining an opening 22 extending substantially

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throughout the height of the frame 14. The frame member 16 applied to the door 12 is substantially identical in construction to the frame 14, and the open side of the channel defined by the frame 16 faces the open side of the frame 14.

A strike plate 24 is secured to the channel frame 14 and, as illustrated more clearly in Fig. 2, the plate 24 comprises a vertically disposed portion 26 and inwardly extending legs 28 having attaching flanges 30 seated against the bottom of the channel 14 and secured thereto by screws 32. The portion 26 of the plate 24 projects outwardly from the open side of the channel 14 and is seated against the inwardly turned flanges 20 of the channel, as shown in Fig. 1. Suitable handle members 34 are secured to the opposing sides 18 of the channel 14 by any suitable means.

The latch mechanism is secured within the channel 16 forming the side edge of the other door 12 and comprises a latch housing 40 having a portion 42 projecting outwardly from the channel 16 and seated against the inwardly turned flanges 20 thereof. The exterior portions of the strike plate 24 and the housing 40 are complementary in shape, as shown in Fig. 1, and are adapted for engagement in the closed position of the doors. The housing 40 includes vertically disposed side walls 44 seated against the bottom of the channel 16 and having integral extensions 46 projecting through a suitable aperture 48 in the channel 16. Attaching flanges 50 engage the bottom of the channel 16 and the housing 40 is secured to the channel by means of screws 52.

A latch bolt 54 in the form of a lever is pivoted on a horizontal axis at one end thereof within the housing 40 by means of a pin 56 passing through aligned apertures in the projections 46 of the housing. A spring 58 is coiled around the pin 56 and has one end 60 reacting against a projection 62 extending upwardly from the lever 54 and its other end reacting against a pin 64 secured to the projections 46 of the housing 40. The spring 58 urges the lever 54 downwardly to its latched position.

The lever 54 projects through a vertically elongated slot 66 in the housing 40 and has a hook-shaped outer end 68 adapted for latching engagement with the strike plate 24. The plate 24 has a slot 70 therein through which the outer end of the lever 54 moves upon closing movement of the doors. The slot 70 has a cam surface 72 at its lower end adapted to be engaged by the curved outer end 68 of the lever 54 to pivot the lever upwardly against the force of the spring 58 to enable the hook-shaped end of the lever to pass behind the portion 26 of the strike plate to its latched position shown in Fig. 2.

Handles 74 are secured to the opposing sides of the channel 16 on either side of the door, and the handles comprise vertically elongated plate portions 76 having a flange 78 at its upper end provided with an aperture to receive a screw 80 having threaded engagement with the channel 16 for securing the handle in position. At their lower ends the handles are provided with projections 82 received within apertures in the sides of the channel 16 to properly position the handles against the channel 16. The screw 80 provides the sole fastening means for each handle 74.

The handles 74 are identical in construction and each is provided with a bore 84 adjacent its lower end adapted to receive the stem 86 of a bolt-operating member 88. The operating member 88 has a handle portion 90 which may be rotated in either direction to rotate the stem 86. The stem 86 has a peripheral groove adapted to receive a split washer 92 to secure the member 88 to the handle 74. The stem 86 projects through an aligned hole in the side wall of the channel 16, and its inner end is provided with a cam surface in the form of a flat 94 ex-

tending beneath the underside 96 of the lever 54. As will be seen from Fig. 2, when the handle 90 is rotated in either direction, the flat 94 on the end of the stem 86 will react against the underside 96 of the lever 54 to pivot the lever upwardly to its unlatched position in which the hooked end 68 of the lever will pass through the slot 70 in the strike plate.

A key-operated lock mechanism is secured to each of the handles 74, and such lock mechanism comprises a conventional cylinder type lock 100 extending through a boss 102 above the operating handle 90. The boss 102 has a hole 104 therethrough and intersecting keyways 106 to receive the locking fingers 108 of the lock mechanism.

The barrel 100 has a square end 110 and a lock operating element 112 having a square aperture is fitted on to the square end 110 of the barrel 100 so as to be rotated with the barrel upon turning of the key 115 in either direction.

The side walls 44 of the latch housing 40 are provided with integral lugs 114 adapted to receive a pin 116 on which a locking cam 118 is pivoted. The cam 118 is arranged above the latching lever 54 and is movable between locked and unlocked positions. The cam is shown in its unlocked position in Fig. 2 from which it will be seen that the lever 54 is free to pivot upwardly to its unlatched position. When the cam 118 is pivoted in a clockwise direction to the position indicated in Fig. 4, the cam is then disposed in the path of movement of a lug 120 formed on lever 54 so that the lever is locked in its latched position at such time. The cam 118 has a pair of spaced projections 122 at its upper end and the horizontally extending arms 124 of the actuating elements 112 project through cut-out portions 126 of the side walls 44 of the housing 40 into the space between the lugs or projections 122. Operation of either of the key-operated lock means 100 to rotate one of the actuating elements 112 so that its arm 124 engages one of the projections 122 to rotate the cam 118 in a clockwise direction, as viewed in Fig. 2, will move the cam to its locked position shown in Fig. 4. The lock 100 is of the type in which the key cannot be removed therefrom until the key is rotated back to a vertical position in which the locking fingers 108 project into the keyways 106 when the key is removed so that, after the cam is moved to its locked position and the key is withdrawn, the arm 124 will be returned to its central position between the projections 122 as illustrated in Fig. 2. With this arrangement it will be seen that the doors may be locked or unlocked from either side of the door independently of the other locking means.

If desired, the cam 118 may be provided with a detent means to yieldably retain the cam in both its locked and unlocked positions. As shown, the detent means comprises a ball 125 disposed within a socket formed on one side of the cam and cooperable with either of a pair of detents or recesses 127 formed in the adjacent side wall 44 of the latch housing 40.

The channel members 14 and 16 may have strips 130 of a suitable material secured thereto in opposing relation so that the strips 130 will completely close the space between the doors when the doors are closed. The strips 130 may be made of rubber or other suitable material and, if desired, a sealing strip 130 may be employed on one door only. The construction of the doors 10 and 12 may be as desired, although my latch mechanism is particularly suited for so-called flexible doors which comprise corrugated or pleated flexible panels secured to the frame members 14 and 16. The doors may be of rigid construction if desired and are guided in their sliding movements by suitable tracks at the top and bottom edges of the doors. It will be apparent that the strike plate 24 of the latch mechanism could be mounted in

a fixed frame in constructions in which only one door is slidable in which case the fixed handles 34 could be eliminated.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a sliding door construction of the type including relatively slidable vertically disposed panels, at least one of which comprises a door, said panels having opposed vertical side edges adapted for engagement in the closed position of the door, latch mechanism comprising a latch housing adapted to be secured to the side edge of one of the panels, a latch bolt pivoted on a horizontal axis in said housing and projecting therefrom for latching engagement with a strike plate, spring means urging said bolt to its latched position, a rotatable bolt operating member mounted on each side of said one panel, each of said members projecting into said housing and having a cam surface thereon engageable with said bolt for pivoting said bolt to its unlatched position, each of said bolt operating members being rotatable to pivot said bolt to unlatched position independently of rotation of the other bolt operating member, a locking cam pivotally mounted in said housing and movable into the path of said bolt to lock the latter in its latched position, and key-operated lock means on both sides of said one panel, said lock means each including a rotatable arm cooperable with said cam for moving the same into and out of the path of movement of said bolt, each of said arms being rotatable in either direction by its lock means to rotate said cam to either of its positions independently of rotation of the other arm by its lock means.

2. In a sliding door construction of the type comprising aligned, relatively slidable, vertically disposed door panels having their vertical side edges adapted for engagement in the closed position of the door, a latch housing adapted to be secured to one of said doors, a latch bolt pivoted on a horizontal axis in said housing and projecting therefrom for latching engagement with the other door, spring means urging said bolt to its latched position, fixed handle members secured to the opposite sides of said one door, a bolt operating member rotatably mounted on each handle and projecting into said housing and including a rotatable stem having a flat cam surface thereon engageable with the underside of said bolt for lifting said bolt to its unlatched position upon rotation of either bolt operating member, a locking cam pivotally mounted in said housing and movable into the path of said bolt to lock the latter in its latched position, and a key-operated lock means mounted on each handle, said lock means each including a rotatable arm cooperable with said cam for moving the same into and out of the path of movement of said bolt, each of said arms being rotatable in either direction by its lock means to pivot said cam into either of its positions independently of rotation of the other arm by its lock means.

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