Aug. 24, 1954 C. C. MOLER 2,687,320

LATCH BOLT ASSEMBLY

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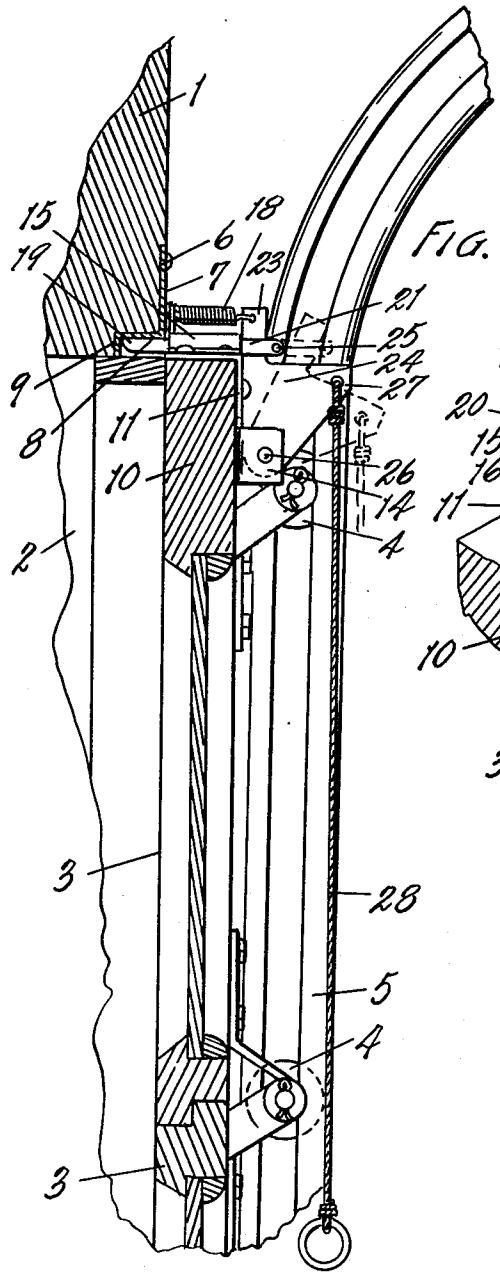


FIG. 1

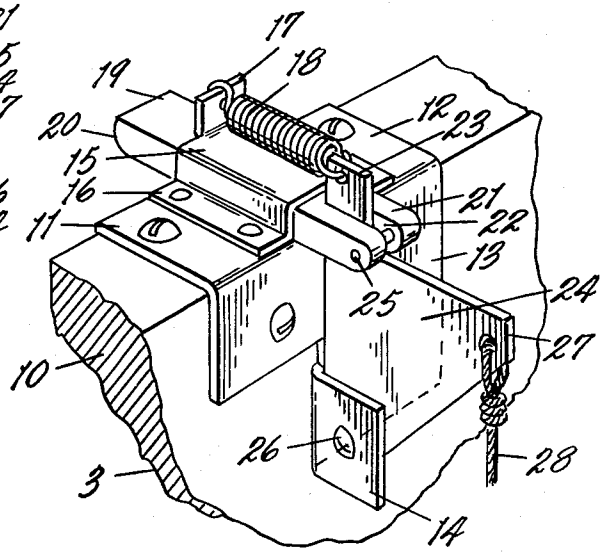


FIG. 2

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LATCH BOLT ASSEMBLY

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This invention relates to improvements in latch structure for vertically slidable doors.

The principal objects of this invention are:

First, to provide an extremely simple yet effective releasable latch for preventing the opening of vertically slidable doors.

Second, to provide an inexpensive latch structure which will prevent the opening of vertically slidable doors except when the latch structure is released from one side of the door.

Third, to provide latch structure including a horizontally slidable latch bolt which will automatically retract upon engagement with a vertical striker plate and then advance into locking engagement with a keeper plate after passing the striker plate.

Other objects and advantages relating to details of my latch will be apparent from a consideration of the following description and claims.

The drawings, of which there is one sheet, illustrates a preferred form of my latch.

Fig. 1 is a fragmentary vertical cross sectional view through the top of a door opening and vertically slidable door for closing the opening with my latch mechanism mounted thereon.

Fig. 2 is a fragmentary perspective view of the latch structure mounted on the door.

In many places where vertically slidable doors are employed, such as garages and service stations, it has been found desirable to lock or latch the vertically sliding doors so that they can be opened only from the inside of the building after initially gaining access thereto through a smaller conventional door. My latch mechanism is designed to accomplish this purpose with a minimum of structure and expense. The drawings illustrate a portion of a building 1 having a door opening 2 formed therein. The opening 2 is closed by a familiar type of vertically slidable door consisting of a plurality of horizontally hinged door sections 3. The door is guided in its movement by rollers 4 travelling in a channel shaped guide rail 5. In order to latch or lock the door in its lowered closed position, I provide an angle shaped keeper bracket 6 recessed into the inner edge of the top of the door opening. The bracket 6 has a vertically extending flange 7 forming a striker surface and a horizontally extending flange 8 forming a downwardly and outwardly extending keeper surface. An end flange 9 locates the bracket in the recess provided therefore in the wall 1.

Coacting with the keeper bracket 6 is the latch mechanism mounted on the top cross rail 10 of the door. The latch mechanism consists of an angle shaped mounting bracket 11 having a top

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flange 12 secured to the top of the rail 10. A downwardly extending vertical flange 13 is screwed to the inner surface of the rail 10 and is provided with an inwardly extending vertical ear 14 bent perpendicularly from the main portion of the flange 13. A downwardly opening channel shaped guide bracket 15 is provided with laterally extending flanges 16 riveted to the top flange transversely of the rail 10. The outer edge of the channel bracket 15 is provided with an upturned vertical ear 17 forming an anchor for the outer end of a coil spring 18. Slidably mounted in the channel shaped bracket 15 is the latch bolt 19 having a curved surface 20 on the under side of its outer end. The inner end of the latch bolt 19 is bifurcated as at 21, thus forming a slot 22 in which the upwardly extending arm 23 of a latch lever 24 is received. A pin 25 retains the arm 23 in the slot 22. The lower end of the latch lever 24 is pivoted as at 26 on the ear 14 and the lever 24 is provided with an inwardly extending portion 27 to which the depending latch cord 28 is attached. The inner end of the spring 18 is secured to the arm 23 on the latch lever to urge the lever and latch bolt to locked position.

The operation of my latch mechanism should be obvious from a consideration of its construction. Downward and outward movement of the top rail of the door 10 along the track 5 first brings the curved surface 20 of the latch bolt into engagement with the striker surface 7. The latch bolt is forced inwardly or rearwardly until the latch bolt clears the striker surface at which time the spring 18 and latch lever 24 will force the bolt outwardly into locking engagement with the keeper surface 8. In order to release the latch and open the door, a person must have access to the inner side of the door and the latch string 28. A downward pull on the latch string pivots the latch lever arm 33 rearwardly and inwardly to retract the latch bolt by engagement with the pin 25.

I have not attempted to illustrate all possible modifications of my latch structure as it seems obvious that others may adapt the structure to such specialized situations as is desirable from a consideration of the foregoing disclosure. For instance, the latch may be made releasable from the opposite side of the door by extending the lower end of the latch string outwardly through a latch string hole provided in the door.

Having thus described my invention, what I

claim as new and desire to secure by Letters Patent is:

1. A latch bolt assembly for a vertically slidable door comprising, an angle shaped stamping having a top flange adapted to engage the top edge of the door and an inner flange extending perpendicularly from said top flange adapted to engage the side of the door, an ear bent inwardly from said inner flange and perpendicular to the planes of both said flanges, a guide bracket comprising a channel shaped stamping with outwardly bent flanges on the sides thereof secured to said top flange and forming a bolt guide means extending transversely of the edge of the door, an anchor ear bent from the outer end of the web of said guide bracket, a latch bolt received in said guide means and projecting from each end thereof, a latch lever pivoted to said first ear and having an arm projecting through a hole in said bolt, a latch spring connected between the projecting end of said arm and said anchor ear, and a latch cord attached to said latch lever at a point spaced from the pivot of the lever and the connection of the spring thereto.

2. A latch bolt assembly for a vertically slidable door comprising, an angle shaped member having a top flange adapted to engage the top edge of the door and an inner flange extending perpendicularly from said top flange adapted to engage the side of the door, an ear extending inwardly from said inner flange and perpendicular to the planes of both said flanges, a channel shaped guide bracket secured to said top flange and forming a bolt guide means extending transversely of the edge of the door, an anchor ear on said guide bracket, a latch bolt received in said guide means and projecting from each end thereof, the inner end of said bolt having a vertical aperture therethrough a latch lever pivoted to said first ear and having an arm projecting through said aperture and engaging said bolt, a latch spring connected between the projecting end of said arm and said anchor ear, and a latch cord attached to said lever at a point spaced from the pivot of the lever.

3. A latch bolt assembly for a vertically slidable door comprising, an angle shaped member having a top flange adapted to engage the edge of the door and an inner flange extending perpendicularly from said top flange adapted to engage the inner side of the door, an ear extending inwardly from said inner flange and perpendicular to the plane thereof, a U-shaped guide portion on said top flange and forming therewith a bolt guide means extending transversely of the edge of the door, an anchor ear on said guide portion, a latch bolt received in said guide portion and projecting from each end thereof, a latch lever pivoted to said first ear and having an arm engaging said bolt, a latch spring connected between said arm and said anchor ear, and a latch cord attached to said lever at a point spaced from the pivot of the lever.

4. A latch bolt assembly for vertical sliding doors comprising an angled bolt supporting bracket adapted to engage the top edge of the door with one arm of the bracket depending at the inner side of the door and provided with a pivot ear, a bolt slidably mounted on said bracket to reciprocate transversely of the door, a latch lever pivotally mounted on said ear, said bolt being slotted and receiving the swinging end of said latch lever, a pin closing the end of the slot in said bolt behind said lever, and a bolt actuating spring disposed above said bolt with one end of the spring being connected to said latch lever and the other being connected to said bracket.

5. A latch bolt assembly for vertical sliding doors comprising an angled bolt supporting bracket adapted to engage the upper edge of the door with one arm of the bracket depending at the inner side of the door and provided with a pivot ear below said upper edge, a bolt slidably carried by said bracket to reciprocate transversely across the top of the door, a latch lever pivotally mounted on said ear and having its swinging end in operative engagement with said bolt, and a bolt actuating spring, one end of the spring being connected to said actuating lever and the other being connected to said bracket.

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