Nov. 1, 1966 E. J. ADICKES 3,282,618

LOCKING MEANS FOR SLIDING DOORS

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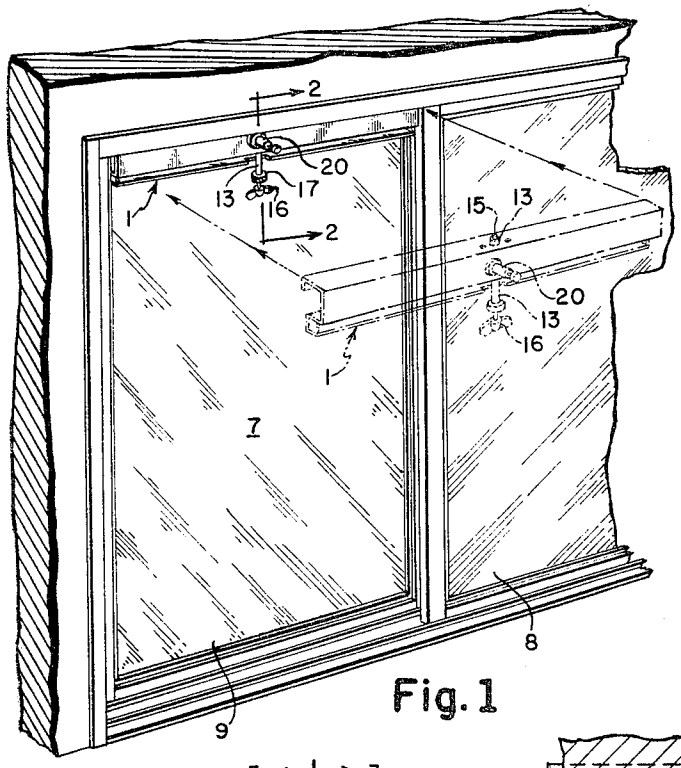

Fig. 1

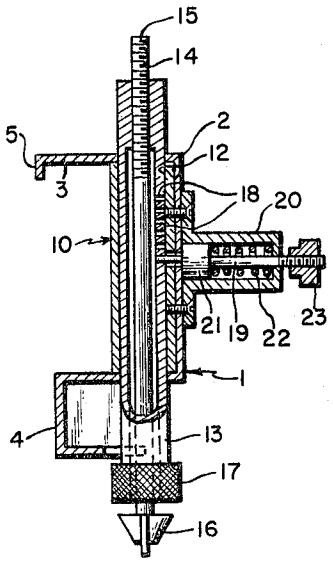

Fig. 8

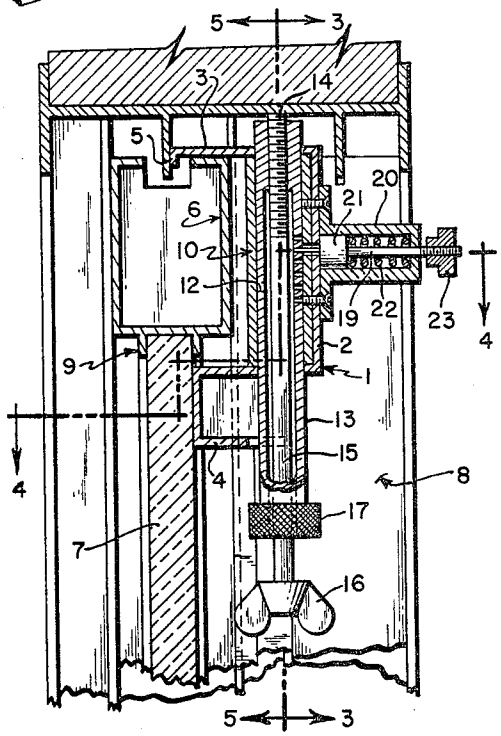

Fig. 2

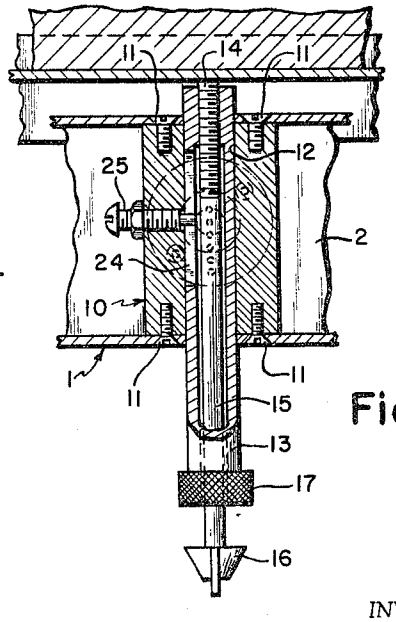

Fig. 3

INVENTOR

EDWARD JAMES ADICKES

BY Erwin A. Yaeger

ATTORNEY

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LOCKING MEANS FOR SLIDING DOORS

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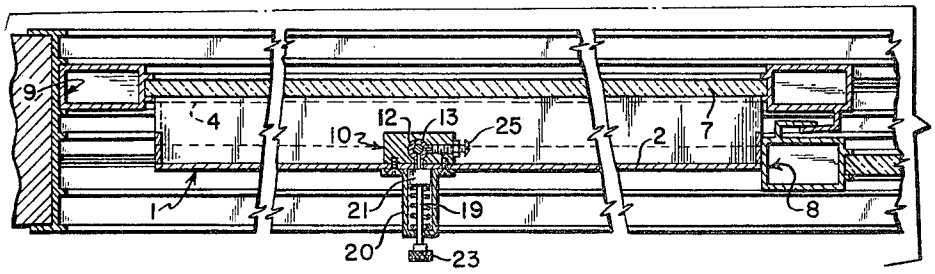

Fig. 4

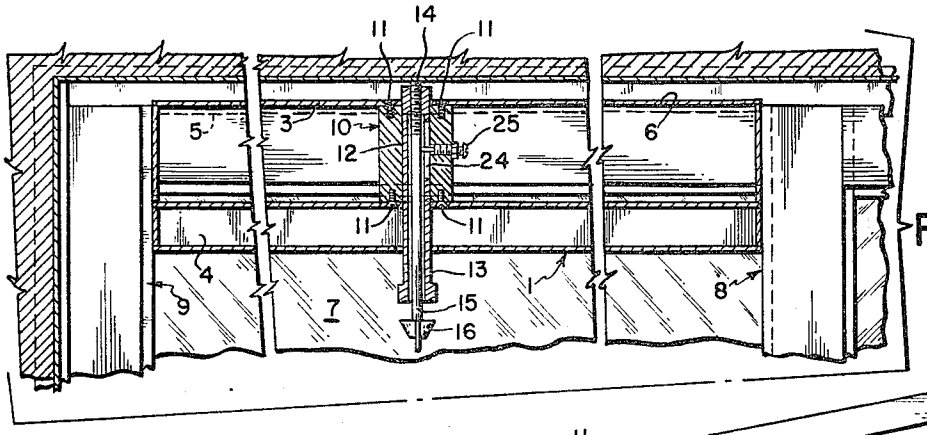

Fig. 5

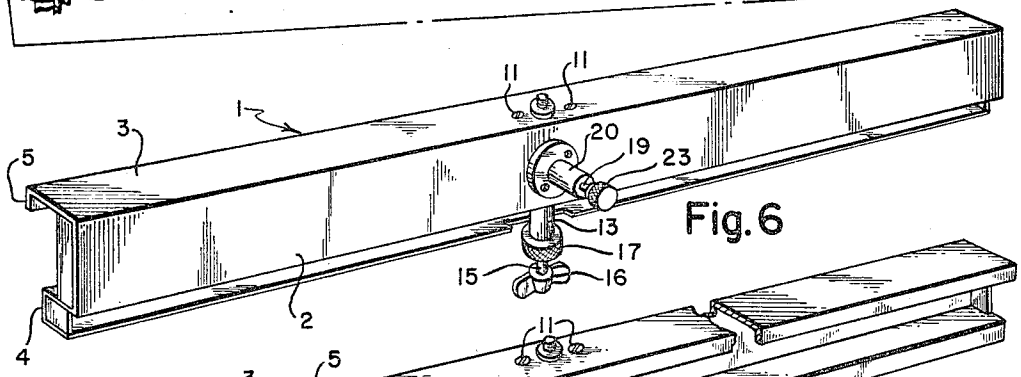

Fig. 6

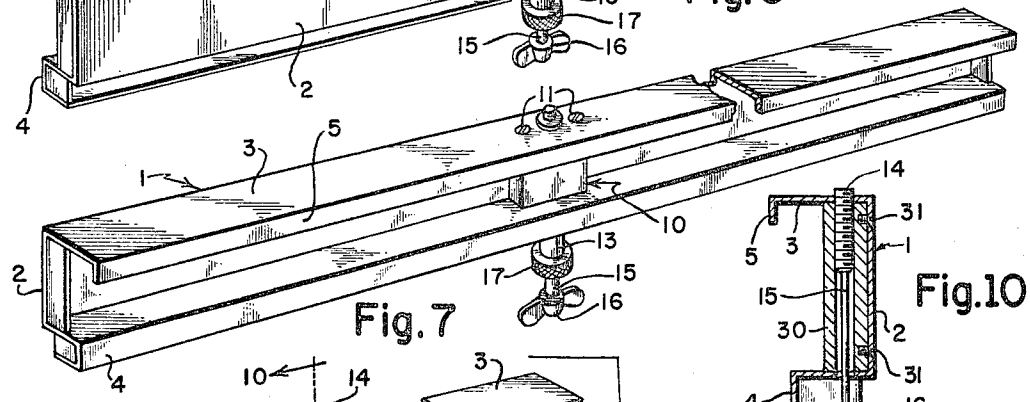

Fig. 7

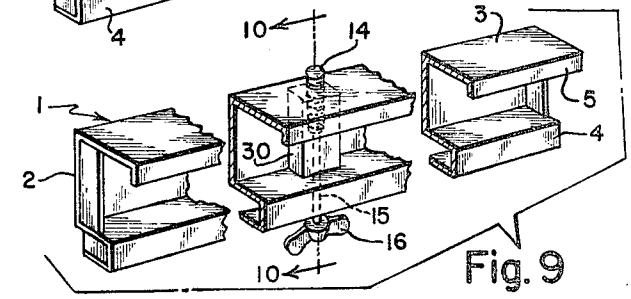

Fig. 9

Fig. 10

INVENTOR

EDWARD JAMES ADICKES

BY

Erwin A. Yaeger

ATTORNEY

United States Patent Office 3,282,618 Patented Nov. 1, 1966

3,282,618

LOCKING MEANS FOR SLIDING DOORS

Edward James Adickes, 425 5th Ave., Indialantic, Melbourne, Fla.

Filed Nov. 25, 1964, Ser. No. 413,701
8 Claims. (Cl. 292—258)

This invention relates to locking means for sliding doors and particularly the types of glass doors often provided on homes and buildings in southern climates.

Many homes and other buildings provided with this type of doors are often burglarized because of the ease with which the types of locks commonly employed on these doors can be opened.

It is, therefore, an object of the present invention to provide a locking device which can be applied to glass or other sliding doors and which will effectively prevent the doors from being opened by positioning a blocking means in the path of sliding movement of the doors.

It is another object of the invention to provide a locking means of this kind which can be quickly and easily placed in its operative position on a door without the use of tools; which requires no drilling of holes in the door or otherwise marring the door or detracting from its appearance, and which can be readily removed from its position on the door when its presence thereon is neither deemed necessary nor desirable.

More particularly, the invention contemplates the provision of a bar fitted detachably on the upper or lower rail of a sliding door and which, when so fitted, projects in a manner as to prevent the sliding movement of said door and its adjacent companion door. The bar so provided has bolt means, which in a simplified form, comprises a threaded rod or stem which is transversely adjustable through the bar and brought to bear against the door frame in the door track thereof to thereby hold the bar in its blocking position on the door.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described and more particularly pointed out in the claims appended hereto.

In the accompanying drawings, wherein an illustrative embodiment of the invention is disclosed,

FIG. 1 is a perspective view of an arrangement of sliding doors provided with the improved locking means;

FIG. 2 is a sectional view, taken substantially on the line 2—2 of FIG. 1, looking in the direction of the arrows;

FIG. 3 is a sectional view, taken substantially on the line 3—3 of FIG. 2, looking in the direction of the arrows;

FIG. 4 is a sectional view, taken substantially on the line 4—4 of FIG. 2, looking in the direction of the arrows;

FIG. 5 is a sectional view, taken substantially on the line 5—5 of FIG. 2, looking in the direction of the arrows;

FIG. 6 is a prespective view of the locking device as seen from the inside of the door to which it is applied;

FIG. 7 is a perspective view of the locking device, looking at the opposite side thereof;

FIG. 8 is a vertical sectional view through the locking device, along the line 2—2 of FIG. 1, but detached from the door;

FIG. 9 is a perspective view of a simplified embodiment of the invention; and

FIG. 10 is a sectional view, taken substantially on the line 10—10 of FIG. 9, looking in the direction of the arrows.

The improved locking device includes a support in the form of a bar 1, which can be composed of lightweight metal such as aluminum, said bar including a vertical

wall or web 2 provided along its upper end with an integral, laterally-projecting hooked flange 3. At its opposite or lower end the wall 2 is formed with an integral channel-shaped flange 4. The upper flange 3 is formed at its end, with a down-turned lip 5 which engages into the groove on the door into which the track of the door frame also fits. The part 4 of the bar extends under the rail 6 and contacts with the glass pane 7 of the door 9 and protrudes outwardly from the door with the remainder of the bar sufficiently to form a blocking element and prevent any sliding movement of the door 9 and its companion door 8 as long as the bar remains in place on the top rail 6 of the door 9.

Mounted between the upper and lower flanges 3 and 4 of the bar 1 is a housing 10, the same being secured to the flanges by means of screws 11 shown in FIG. 3. Said housing may be located substantially at a central position along the length of the bar 1 and it is provided with a vertical passage 12 through which a locking member or bolt 13 is vertical adjustable. Said bolt 13 is hollow for at least a portion of its length and is internally threaded adjacent to its upper end to thereby threadably receive the threads 14 provided on a threaded rod or stem 15 which extends axially through the interior of the bolt 13. Rod 15 is provided on its lower end with wings 16 by means of which it can be manually rotated to regulate the extent of its protrusion from the upper end of the bolt 13. The lower end of the bolt 13 is knurled as shown at 17 to enable the bolt to be readily shifted through the passage 12.

The bolt 13 is provided in its side wall with a number of spaced openings 18 for selective engagement by the end of a detent plunger 19 which is slidable within a cylindrical casing 20 mounted on the wall 2 of the bar 1. Said plunger includes a head 21 against which a coil spring 22, contained within the casing 20, is operative to bias the plunger toward the bolt 13 and cause the end of the plunger to enter one or the other of the holes 18 to thus maintain the bolt 13 in any selected position of vertical adjustment. A knob or finger piece 23 is provided on the outer or exposed end of the plunger to enable the plunger to be drawn outwardly and disengaged from the holes 18. A slot 24 is formed in the wall of the bolt 13 and a screw 25 through the housing 10 enters the slot and by its contact with one or the other of the ends of the slot, limits the sliding movement of the bolt 13 relative to the housing 10 and prevents the bolt from becoming separated from the housing.

In the installation of the locking device upon a door, such as that shown at 9, the bar 1 is fitted on top of the door within the track in which the door is slidable with the flange 3 of the bar 1 resting on the top of the door and the lower flange 4 below the upper rail of the door and resting against the glass. The plunger 19 can then be drawn out, against the bias of the spring 22, until its end is free of the holes 18, whereupon the bolt 13 can be pushed upwardly until it contacts with the under surface of the truck. The plunger 19 is then released and it will then enter the particular hole 18 with which it is then aligned. The rod or stem 15 is then adjusted by being rotated, to cause it to be urged upwardly and firmly engage against the under face of the door track. The device now fitted in place and held solely by the bolt and its rod 15, will prevent any sliding movement of the doors 8 and 9. To remove the bar from the door merely requires the drawing out of the plunger 19 to enable the bolt 13 to be lowered and the bar can then be lifted from off the door. The adjustment of the rod 15 when once made need not be changed.

The fitment of the locking device on the sliding door is such that it does not mar or damage the door; it requires no drilling of holes; it can be attached to the door without

the use of tools and can be instantly removed from the door whenever it is not required thereon.

In the simplified embodiment of the invention shown in FIGS. 9 and 10, a block **30** is mounted in the bar **1** between the FIGURES 3 and 4 thereof, by screws **31**. In this embodiment of the invention, the rod **15** is threaded directly into the block **30**, rather than into a separate bolt. In this construction, the bar **1** is fitted on top of the door in the manner described and the rod **15** is threaded upwardly until it firmly engages against the door frame to hold the bar in place. This embodiment is particularly useful for application on doors which have no track at the center at the top, but have a track at the bottom in the center.

It is an essential feature of my invention that the lip **5** fits into the groove on the door into which the track of the door frame also fits. This allows the locking device to be applied to or removed from the top of the door without disturbing the locking unit of the device, since the lip **5** on the flange **3** slips into the indentation or groove on the top of the door into which the track of the door frame also fits. The weight of the bar causes the lower flange **4** to lie flush with or against the glass. Each end of the lower flange **4** approximates the metal sidings of the door and because one end of the lower flange **4** also approximates a siding of the other door, both doors are prevented from moving. This means that the locking device can be simply and efficiently used for locking or unlocking two sliding glass doors merely by placing it on or off the top of the door having a groove into which a track on the door fits. In this manner a series of doors can be locked by applying one locking device for each two doors. The locking unit at the center of the locking device is primarily designed to firmly hold the locking device into position so that it cannot be lifted off by someone on the outside. Sliding doors having no grooves on the top for insertion of a track for the frame are best protected with the type of locking device shown in FIG. 9, the lip **5** entering the groove on the bottom when the locking device is turned upsidedown and the screw tightened to the point of forcing the lip **5** into the groove and the lower flange **4** against the glass.

While I have herein suggested that the described locking device is to be applied on the top of the door, it will be apparent that it can also be readily applied at the bottom without departing from the spirit of the invention.

Having thus described an embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. A locking device for a pair of sliding doors comprising, a door frame having two doors slidably mounted in it, a bar fitted on top of one of the doors in a position so that it blocks movement of the two doors relatively to one another, and an adjustable bolt member threadable through the bar and engaging against the inside of the door frame to maintain the bar in door-blocking position.

2. A locking device for a plurality of sliding doors comprising a channel in which the doors are slidably mounted, a bar fitted on one of the doors and projecting in the path of sliding movement of a second door, a bolt means threadably adjustable through the bar and engaging in the channel to hold the bar against displacement from its position on the door.

3. A locking device as provided for in claim **2**, wherein the bar is channel-shaped and has a top flange engaging over the top rail of the door on which the bar is fitted, said bar having a bottom flange engaging under said top rail, the bolt means including a rod threadable through it to firmly contact with the door channel.

4. A locking device for a pair of doors which are slidable relatively to one another, comprising a bar fitted on the top rail of one of the doors and projecting in the path of sliding travel of the second door, said bar being of channel formation in cross section and having a flange extending over the top of the door on which it is mounted, the bar having a lower flange extending under the rail of said door, a housing mounted in the bar between the flanges thereof, said housing having a bolt means passage extending transversely of the bar, a bolt means slidably adjustable through said passage and including a rod threadably adjustable axially through the bolt means, and locking means engaged with the bolt means to position it at various locations with respect to the housing.

5. A locking device as provided for in claim **4**, wherein the locking means comprises a spring-biased plunger and the bolt is provided with a plurality of apertures for selective engagement by the plunger.

6. A locking device for a pair of sliding doors comprising, a lengthy bar fitted on a horizontal rail of one of the doors and projecting so that it constitutes an obstruction in the path of sliding movement of the other door, and an adjustable bolt means extending transversely through the bar and being adjustable to engage with the door frame in which the doors are mounted.

7. A locking device as provided for in claim **6**, wherein the bar carries a housing, the bolt means being slidable therethrough, a rod threadable through the bolt means, means on the rod beyond the bolt means for rotatably adjusting the rod within the bolt means, and a spring-biased plunger for engaging the bolt means to regulate its position through the housing.

8. A locking device as provided for in claim **6** wherein the bolt means is threadable through a housing carried by the bar.

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EDWARD C. ALLEN, *Primary Examiner.*

R. E. MOORE, *Assistant Examiner.*