SECURITY DEVICE FOR SLIDING WINDOWS AND DOORS

Inventor: James M. Royer, 1634 Huntington Drive, Roseville, Calif. 95678

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Primary Examiner—George F. Mautz
Assistant Examiner—Edward J. McCarthy
Attorney—Lothrop & West

ABSTRACT

An elongated arcuate bar about 2 to 5 inches in length is provided along its bottom edge with at least one pair of transverse, spaced, parallel slots aligned on a chord of a segment of the arc to fit over one of the vertical walls of a track carrying a sliding window or door. A portion of the bar spanning the slots projects into the track into interfering relation with the adjacent corner of the window or door and prevents further movement in the direction of the stop. Clip members on top of the window or door preclude lifting movement of the window or door and removal thereof from the track.

3 Claims, 7 Drawing Figures
SECURITY DEVICE FOR SLIDING WINDOWS AND DOORS

The invention relates to improvements in security devices for sliding doors, windows and the like.


For the most part, however, the prior art devices are at least moderately complicated in structure and are, concommitantly, fairly expensive and possess moving parts capable of getting out of order.

It is therefore an object of the invention to provide an adjustable stop for sliding windows and doors which is reliable and efficient in operation, yet which is unobtrusive, inexpensive, compact in size and devoid of moving parts, and can readily be removed and relocated without the use of tools.

It is a further object of the invention to provide a generally improved adjustable stop for sliding windows, doors and the like.

Other objects, together with the foregoing, are attained in the embodiment described in the following description and illustrated in the accompanying drawings, in which:

FIG. 1 is a perspective view of a typical sliding glass window or sliding glass door installation showing a stop located therein;

FIG. 2 is a fragmentary perspective view, to an enlarged scale, showing the stop installed at a desired location on the slide track;

FIG. 3 is an elevational view, to an enlarged scale, of the concave side of the stop;

FIG. 4 is a fragmentary top plan view, to an enlarged scale, of the structure shown in FIG. 2;

FIG. 5 is a perspective view comparable to FIG. 1 but with the stop oppositely oriented, and showing the location of a pair of window lift preventers;

FIG. 6 is a top plan view comparable to FIG. 4 but with the stop oppositely oriented and showing a variant form of slot construction; and,

FIG. 7 is a fragmentary sectional view, to an enlarged scale, of a window lift preventer, the plane of the section being indicated by the line 7—7 in FIG. 5.

While the sliding window and door stop of the invention is susceptible of numerous physical embodiments, depending upon the environment and requirements of use, substantial numbers of the herein shown and described embodiment have been made, tested and used, and all have performed in an eminently satisfactory manner.

The sliding window and door stop of the invention, generally designated by the reference numeral 12, is customarily used with glass windows 13, or doors, the two words being used interchangeably herein to denote a structure typically including a first glass panel 14 which can be either slidable or fixed, and a second glass panel 16, which ordinarily is slidable.

Referring particularly to slidable panel 16, it is noted that a glass pane 17 is set in a picture-frame type of structure including a pair of vertical stiles 18, a top rail 19 and a bottom rail 21.

The lower surface of the bottom rail 21 is provided in some installations with an elongated recess 22 accommodating a central, longitudinal rail 23, or flange, upstanding from the bottom 24 of a track 26 defined by vertical, opposed sidewalls 27 and 28. The sidewalls 27 and 28 loosely confine and guide the bottom rail 21 as the window or door is slid to and fro in the track 26. It is noted that the central flange 23 is not essential, since the track sidewalls 27 and 28 are quite capable of guiding the window. In the case of large or heavy sliding doors, however, the central flange 23 provides an additional guiding effort.

Many window and door installations also include screened panels. In the interests of clarity, such panels are not included herein.

To provide ventilation, it is frequently desired to open the sliding glass panel 16 at least part way. Since this entails unlocking the lock 31, usually located adjacent the handle 32, and sliding the glass panel 16 away from the vertical casing wall 33, the resulting opening 34 impairs security against intrusion.

However, by placing the adjustable stop of the invention 12 at a suitable location on the track 26, the glass panel 16 is barred from being further opened.

As appears most clearly in FIGS. 2—4, the stop 12 comprises an elongated bar 41 having an upper edge 42, a lower edge 43, a pair of ends 44 and 45, an outer side surface 46 and an inner side surface 47.

The bar can be of any suitable material, preferably metal, such as aluminum, or it can be of plastic, or wood.

The bar is formed with a curvilinear configuration, the outer side surface 46 being convex, and the inner side surface 47 concave.

In order to locate the stop 12 in operative position on the track, as appears in FIGS. 1, 2 and 4, at least one pair of spaced, parallel slots 51 and 52 transverse to the elongated axis of the bar, is formed in the bottom edge 45, the slots 51 and 52 extending inward from the upper edge 42 of the bar, as appears most clearly in FIG. 3.

The slots 51 and 52 are aligned, as is clearly indicated in FIGS. 2 and 4, so as to receive the track sideway 28. The sideway 28 forms, in a geometrical sense, the chord of a segment of an arc 61, with the arc extending into the track and spanning a portion of the transverse width of the track.

The arcuate portion 61, in other words, projects into the track to interfering relation with the adjacent corner 62 (see FIGS. 2 and 4) of the sliding window panel 16.

The slots 51 and 52 are fairly snug on the sideway 28, and should the sliding panel 16 be pushed any further toward the left, as in FIGS. 1, 2 and 4, the abutting corner 62 tends, owing to a small but significant moment arm, to bend and slightly cock the curved portion 61 of the stop and thereby effect a seizure between the walls of the slots 51 and 52 and the track wall 28. In other words, the stop 12 cannot be translated longitudinally by the exercise of force against the door or window 16.

Thus, even though an opening 34 is afforded, security is maintained so long as the potential intruder is unable to reach and dislodge the stop.

In some cases, a second pair of slots 66 and 67 is provided. As before, these slots are parallel and aligned. The second pair of slots 66 and 67 can be different in size from the first slots 51 and 52 so that one stop 12 can serve sliding members in tracks of more than one size.

In fact, if desired, a plurality of pairs of aligned slots can be made, the resultant stop 12 somewhat resembling a curved comb, with the back 71, or ridge, of the comb having depending therefrom a plurality of teeth 72, defined by the various slots. With this structure, one stop is capable of serving in many environments.

Although, as stated above, the stop securely acts to limit further opening movement of the sliding panel 16, removal of the stop 12 is readily accomplished. Preferably, the stop is grasped with one of the end projections 76 and 77 in each hand, lifting vertically, without tilting, so as to avoid binding the slot walls against the interposed track wall portions. The reverse of the foregoing operation enables the user to reinstall the stop at any desired location.

It will also be noted that in the arrangement disclosed in FIGS. 1, 2 and 4, the arcuate portion 61 projects into the track; however, if preferred, the stop can be reversed, end for end, so that the arc 61 extends outwardly away from the track whereas the projections 76 and 77 extend inward from the track for interfering relation with the sliding door or window panel 16, as shown in FIGS. 5 and 6.
In the form of stop shown in FIG. 6 the aligned slots 81 and 82 are formed in the lower margin 43 of the bar at right angles to the bar stock. Consequently, the slots are delineated by right-angled corners. Thus, for example, the slot 82 affords two right-angled corners 83 and 84 on diagonally opposite corners. By appropriately dimensioning the slots 81 and 82 relative to the width of the track sidewall 28, the right-angled corners 83 and 84 of the slot 82 embrace and are substantially in engagement with the respective outer surface 87 and inner surface 88 of the sidewall 28. Thus, with the adjacent edge 89 of the window stile 18 abutting the corner 91 of the bar end 44 (see FIG. 6), any attempted movement of the window 16, or door, in an opening, left-hand direction will tend to deflect the bar end 76 in a counterclockwise direction, the binding force being transmitted through the top rib portion 71 (see FIGS. 3 and 5) and thereby causing the right-angled corner 83 (see FIG. 6) to “bite” into the adjacent wall surface 87 of the sidewall 28 and thereby resist further movement.

As an important adjunct of the stop bar 12 is a pair of window lift preventers 93 and 94 (see FIGS. 5 and 7) removably located on the top rail 19 of the window 16.

It is customary, when installing sliding windows, to provide sufficient clearance 95 between the top surface of the top rail 19 and the bottom surface of the upper window track 96 so that the window 16 can be installed and later removed from the upper track 96 and the lower track 26, if desired, in order to replace a broken window, for example. This capability, however, would enable a potential intruder to lift the slightly ajar window out of its tracks and thereby gain access to the inside. I have therefore provided the spaced pair of lift preventers 93 and 94 and have placed at least one of the members, for example, the member 93, far enough away from the adjacent window opening 34 so that the member 93 cannot be reached by hand from the outside.

As is shown most clearly in FIG. 7, each of the lift preventers 93 and 94 comprises an inverted U-shaped clip 97 with a downturned flange 98 on the nether side and a downturned flange 99 on the near side, the near flange 99 having an outwardly recurved portion 101 snugly underlying the lower edge 102 of the outer wall 103 of the track 96 and projecting outwardly therefrom, if desired, to afford a finger grip.

The clips 93 and 94 are inserted over the top of one of the ends, for example, the left-hand end 106 (see FIG. 5) of the upper rail 19, after the window is installed in position, and then slid endwise to the desired locations. Then, until such time as the clips 93 and 94 are removed from the top rail 19, the window 16 cannot be lifted out of its tracks.

As a consequence, a potential intruder is not only prevented by the stop bar from translating the window (or door) in an opening direction, but is also prevented from removing the window out of its tracks by lifting.

It can therefore be seen that I have provided a small, inexpensive stop, yet one which is reliable, durable, secure and efficient.

What is claimed is:

1. A security device for a window or door slidably mounted in an upper track and a lower track, each of said tracks including a horizontal portion and a spaced pair of sidewalls extending vertically from the lateral side edges of the horizontal portion, said security device comprising:
   a. an elongated bent strip of material including an upper edge, a lower edge, an inner sidewall and an outer sidewall, said lower edge being interrupted by at least one pair of aligned openings dimensioned to fit snugly on one of said vertical sidewalls of said lower track with a portion of said strip protruding into said lower track for interference with a sliding door or window in said lower track;
   b. a clip member interposed between the top of the sliding door or window and said upper track, said clip member having substantially an inverted U-shape configuration with a horizontal portion and a pair of depending flanges embracing the top of the door or window, at least one of said flanges including a projecting portion underlying the adjacent one of said vertical sidewalls of said upper track for interference therewith as said door or window is lifted vertically.

2. A security device for a sliding window or door as in claim 1 wherein said bent strip is comb shaped in elevation and includes along said lower edge a plurality of pairs of aligned openings capable of fitting a variety of track sizes.

3. A security device as in claim 2 wherein said bent strip is curvilinear, said outer sidewall being convex and said inner wall being concave.

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