Sept. 29, 1959 A. BRENNER 2,905,981

AWNING WINDOW

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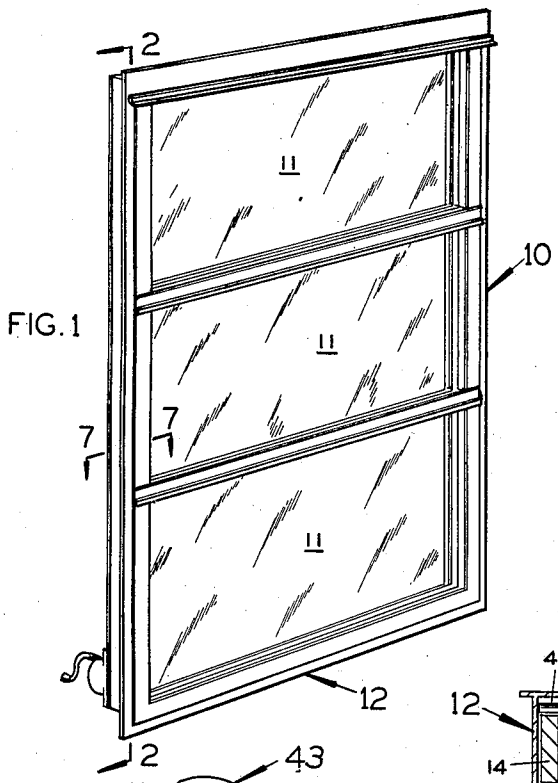


FIG. 1

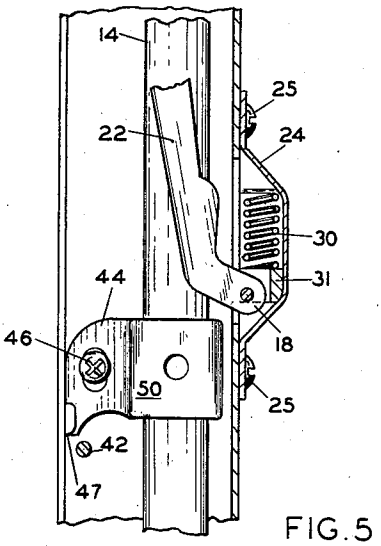


FIG. 5

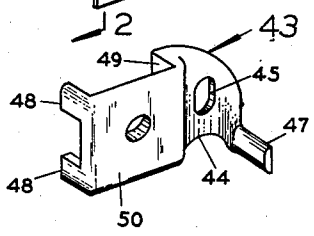


FIG. 8

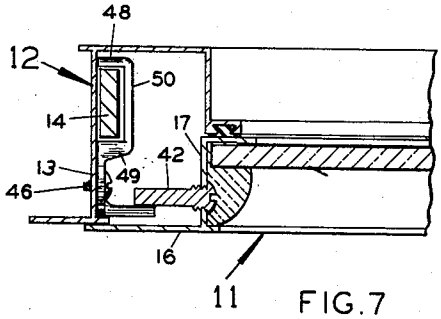


FIG. 7

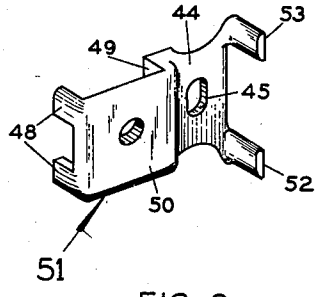


FIG. 9

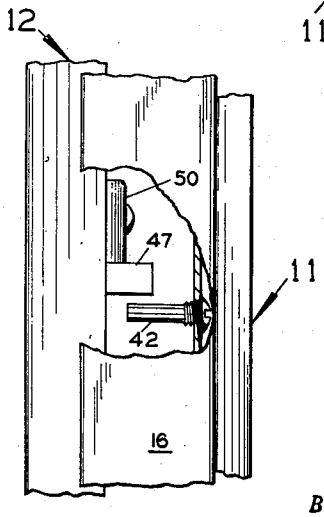


FIG. 6

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AWNING WINDOW

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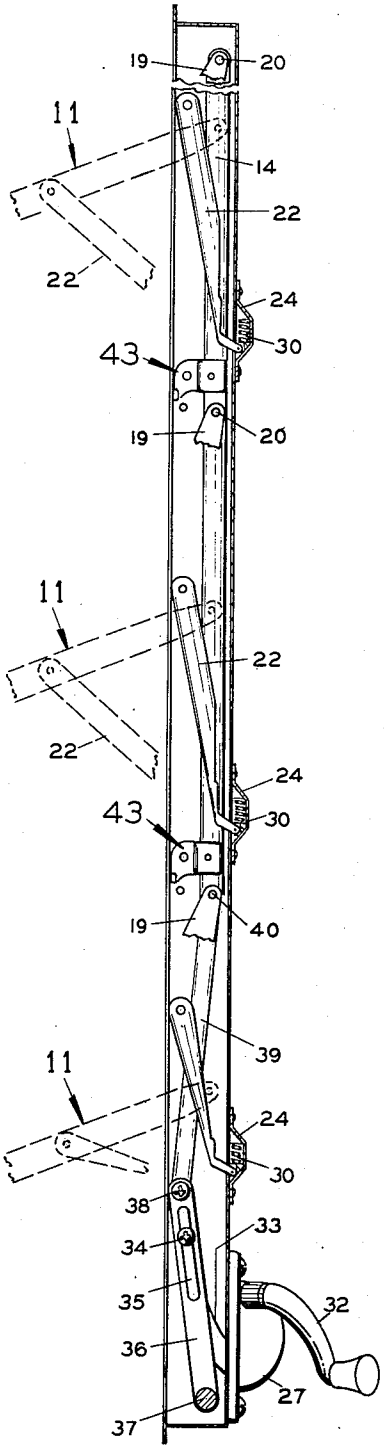


FIG. 3

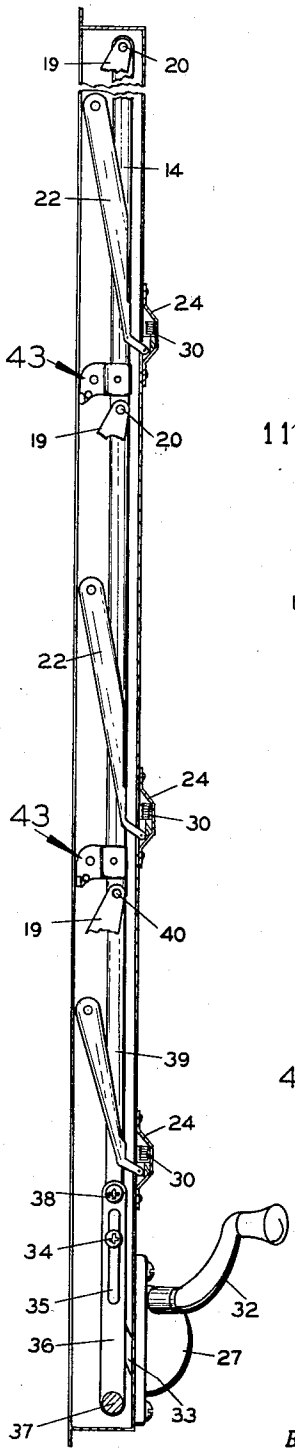


FIG. 2

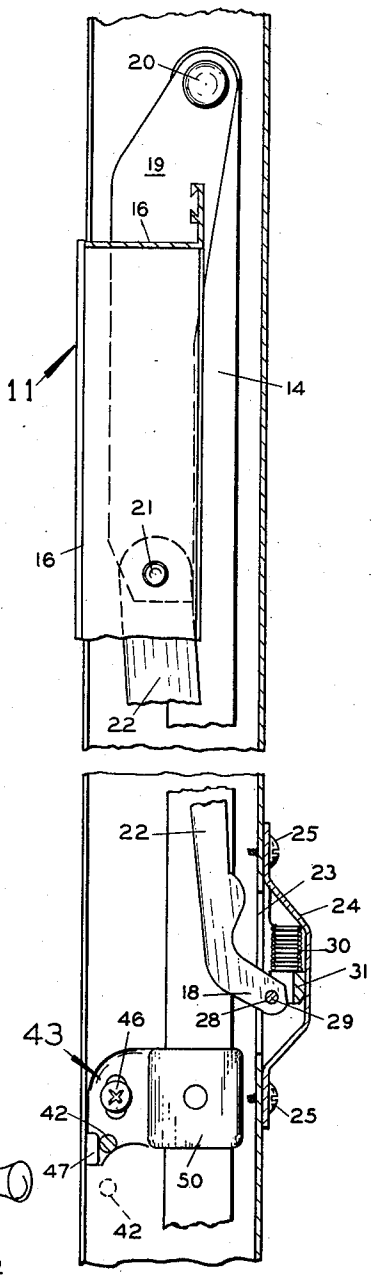


FIG. 4

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AWNING WINDOW

Al Brenner, Miami Beach, Fla.

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2 Claims. (Cl. 20—42)

This invention relates to awning windows and is more particularly directed to locking mechanisms for awning windows.

In my Patent No. 2,693,622 entitled Awning Window Structure, I show and describe an awning window whose vents may be swung to their closed and air-tight position in spite of the failure of the vents to arrive simultaneously to their closed positions on the window frame. In this window I provide a slidable rather than a fixed pivot pin for the vent links with a resilient member yieldingly urging the pivot pins to a position at the lower portion of the pivot pin housing so that as the first vent arrives at its closed position, the resilient member becomes compressed to permit the other vents to arrive at their closed position. In this manner, the linkage of first vent that was closed is not placed under an undue strain or stress.

The present invention contemplates the further improvement of the aforesaid awning window by providing a locking device for locking the awning window when the vents are closed.

Therefore, a principal object of the present invention is to provide an awning window with vents which are locked to the window frame when the vents are brought to their closed position.

Another object of the present invention is to provide an awning window with a locking mechanism which is simple and inexpensive in construction and readily mounted in the window frame.

A still further object of the present invention is to provide a locking device for awning windows which utilizes the vertical sliding movement of the vents to lock same, which movement is necessary to bring all the vents to their closed position.

With these and other objects in view, the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a perspective view of an awning window which embodies my invention showing its vents in a closed position.

Figure 2 is a longitudinal cross-sectional view taken along the line 2—2 of Figure 1 with the vents shown in their closed and locked position.

Figure 3 is a similar view with the vents in their closed but unlocked position with the dotted lines showing the position of the vents when in the open position.

Figure 4 is an enlarged detail view of the locking mechanism.

Figure 5 is a fragmentary view of locking mechanism shown when the vents are closed but unlocked as shown by Figure 3.

Figure 6 is a fragmentary elevational view showing the locking mechanism after the vent is closed and prior to its becoming locked.

Figure 7 is a transverse sectional view of the window frame showing the locking mechanism in the locked position as shown in elevation by Figure 2.

Figure 8 is a perspective view of a vent catch.

Figure 9 is a modified construction of the vent catch adapted to be used on either jamb of a window frame.

Referring to the drawings wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers to an awning window having a plurality of vertically swingable vents 11 in a frame 12, although the awning window 10 shown has only three vents 11, any number of vents may be provided as will be readily ascertained upon an understanding of the present invention.

The frame 12 is provided with vertical jambs 13 along which a slide bar 14 is slidably mounted and held in approximately closed contact relationship with the inner surfaces of the jambs 13 by guide brackets not shown. The vents 11 are each provided with frames 16 having side walls 17 along which are secured hinge members 19 which extend beyond the top edge of the vent frames 16. The free ends of the hinge members 19 are pivotally secured to the slide bars 14 by pivot pins 20.

At the lower end of the hinge members 19, a pivot pin 21 pivotally mounts one end of a vent link 22 whose lower end 18 extends through a slot 23 in the window frame 12. A housing 24 is secured to the face of the frame 12 by screws 25 enclosing the slot 23 and the free end 18 of the vent link 22. Means are provided for preventing the free end 18 from being pulled through the slot 23 comprising a bore 28 through which a transverse pin 29 extends in contact relation with the face of the frame 12 mounted within the housing 24. Above the pin 29 is a coil spring 30 positioned between the top portion of the housing 24 and a spring support member 31 slidably mounted in the housing and secured to the pin 29 to slide therewith.

Means are provided for opening and closing the vents comprising an operator handle 32 mounted on an operator housing 27 secured to the inner wall of the frame 12, in which housing 27 a segment gear (not shown) is pivotally mounted in mesh engagement with a gear secured to the handle 32. The segment gear is provided with a power arm 33 at whose free end a pin 34 is securely mounted. The pin 34 is slidably positioned in a slot 35 formed in a cross shaft lever 36 whose lower end is secured to a cross shaft 37. The cross shaft extends along the sill of the window frame 12 to the jambs 13 where the ends are normally journalled. Cross shaft arms 36 which are secured at one end to each end of the cross shaft 37 are pivotally attached as at 38 to the lower end of a link 39 whose upper end is secured by a pivot pin 40 to the slide bar 14. The pivot pin 40 also pivotally mounts the hinge members 19 of the lower vent 11 to the slide bar 14.

It is readily seen that upon the actuation of the operator handle 32 to open the vents 11, the power arm 33 swings outwardly of the window frame 12 causing the cross shaft arm 36 to likewise swing outwardly and the cross shaft 37 to rotate thereby effecting a similar swing movement of the other cross shaft arm 36. The outward swinging movement of the cross shaft arms 36 compels the links 39 and the slide bars 14 to slide downwardly and carrying along the pivot pins 20 which pivot the hinge members 19 of the vents 11 to the slide bars 14. As the slide bars 14 continue to slide downwardly, the vents 11 are swung opened with the vent links 22 pivoting

on their pivot pins 29 and their upper ends swinging away from the window frame 12.

In the closing of the vents 11, the reverse operation occurs. The slide bars 14 slide upwardly carrying the hinge members 19, pivot pins 20 and causing the vent links 22 to swing back toward the window frame 12. When the vents 12 have first reached their closed positions simultaneously, the operating mechanism will have assumed the position shown by Figure 3 and all of the vent frames 16 will have come into approximate contact with the window frame 12. As the operator 32 is continued to be rotated, the cross shaft arm 36 will continue to swing inwardly and the slide bar 14 will slide upwardly carrying the pivot pins 20 and hinge members 19 along. Since the vents 11 were in their closed position, the vents 11 have ceased swinging inwardly, but the vent links 22 now slide upwardly since their pivot pins 29 are not fixed, but rather slide upwardly with the vent links 22 against the spring pressure 30. In Figure 4 the distance between the solid lines and the dotted lines indicate the amount of vertical sliding movement of the vents 11 along the frame 12.

This sliding movement is used to lock the vents 11. At the lower edge portion of the side frames of each of the vents 11 there are provided locking pins 42 which extend in the direction of the window frame 12. The pins 42 are secured in the vent frame 17 by threading the pins 42 in bores formed in the vent frame 17. Mounted on the window frame 12 adjacent the slide bars 14 are latch plate members 43 consisting of a base portion 44 having a bore 45 for securing the member 43 with a screw 46 to the frame 12. At one end of the base portion 44 there extends a shoulder 47 at right angle thereto and along the opposite side a slide bar guide is mounted thereon. The slide bar guide consisting of leg portions 48, a side wall 49 extending from the base portion 44 with a wall 50 joining the legs 48 and wall 49 to form an arch for the slide bar 14 as is best shown by Figure 7.

As is readily noted by Figures 5 and 6, the locking pins 42 are mounted on the vent frames 16 in close proximity of the latch plate members 43 which are secured to the inner portion of the window frame 12. Their relative positions, as indicated by Figures 5 and 6 occur when the vents 11 have been first brought to their closed position, prior to any upward vertical movement of the vents 11 which occurs when the operator 32 is actuated to further close the vents 11. This same relative position is shown by the dotted lines in Figure 4. Now as the operator 32 is actuated to further close the vents 11, the vents 11 will commence to slide upwardly as caused by the vent links 22 which compress the coil springs 30 until the position as shown by the solid lines is assumed. At this position, the locking pins 42 will have slid upwardly behind the shoulders 47 thereby preventing any swinging movement of the vents 11 if an external pulling force were applied on the lower portion of the vents 11.

In order to open the vents, the operator handle 32 is rotated in a reverse direction, the slide bars 14 slide downwardly carrying along with them the vent links 22 which are under spring pressure 30 and the vents 11. The vents 11 and the vent links 22 will slide downwardly until the lower ends 18 of the vent links 22 engage the bottom portion of the housings 24 as shown by the dotted line position. At this time the vent locking pin 42 has moved downwardly from behind the shoulder 47 to a position clear of the latch plate member 43 as shown by the dotted line position of the locking pin 42. Any further actuation of the operator handle 32 will cause the vents 11 to swing outwardly to their open position.

Since the shoulders 47 must be positioned at the lower portion of the latch plate members 43 when mounted in position on the window frame 12, the member 43 as shown by Figure 5 can be used only on the right jamb 13 while the member 43 shown by Figure 8 can be used only on the left jamb 13.

A universal latch plate member 51 is shown by Figure 9. This member 51 can be used on either jamb of a window frame and is of identical construction as the member 43 except that there is provided a pair of shoulders 52 and 53 mounted on both upper and lower sides of the base portion 44. When the latch plate member 51 is mounted on the right jamb of a window frame, the shoulder 52 is adapted to become engaged by the locking pin 42 while the other shoulder 53 is superfluous, while when mounted on the left jamb, the shoulder 53 is engageable by the locking pin 42 while the shoulder 52 becomes superfluous. If desired, the lowermost vents 11 of the window 10 may be provided with herein described locking devices 42, 43.

Having described my invention, what I claim as new is:

1. An awning window having a frame, a slide bar slidably mounted along said frame, a vent, pivot means pivotally mounting said vent to said slide bar, a vent link, pivot means securing one end of said vent link to said vent, slidable pivot means securing the other end of said vent link to said frame, resilient means mounted on said slidable pivot means urging said slidable pivot means in one direction, a locking pin mounted on said vent and extending in a direction of said frame, latch plate means mounted on said frame above and adjacent to said locking pin and extending in the direction of said vent whereby upon the closing of said vent and the further sliding of said slide bar against said resilient means said locking pin slides upwardly and behind said latch plate means, engaging said latch plate means and locking said vent.

2. An awning window having a frame, a slide bar slidably mounted on each side of said frame, a plurality of vents mounted in a tier on said frame, pivot means pivotally mounting said vent to each of said slide bars, vent links, pivot means securing one end of each of said vent links to said vents, slidable pivot means securing the other end of said vent links to said frame, resilient means mounted on said slidable pivot means urging said slidable pivot means in one direction, a locking pin mounted on each side of said vents and extending in the direction of said frame, latch plate means mounted on said frame above and adjacent to each of said locking pins and extending in the direction of said vents whereby upon the closing of said vents and the further sliding of said slide bar against said resilient means said locking pins slide upwardly and behind said latch plate means, engaging said latch plate means and locking said vents.

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