Feb. 26, 1952 H. J. CHAPMAN 2,587,288

VENTILATOR WINDOW CONSTRUCTION

Filed Feb. 20, 1950

FIG. 1

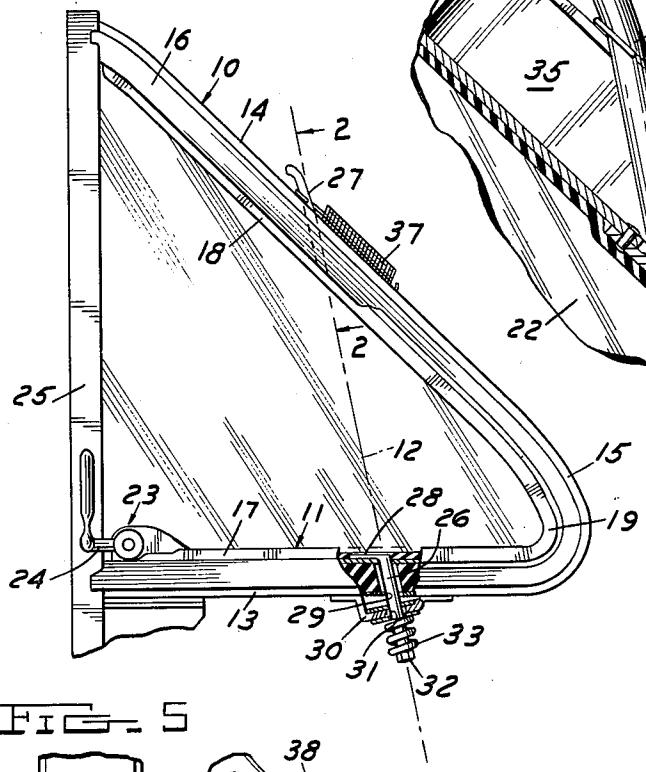
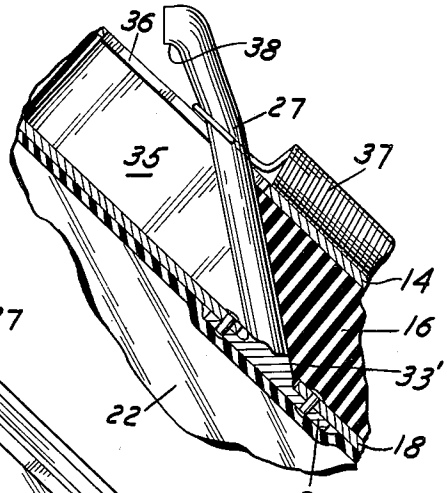


FIG. 3



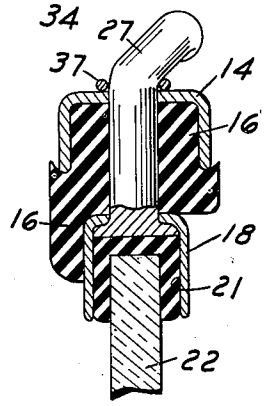


FIG. 5

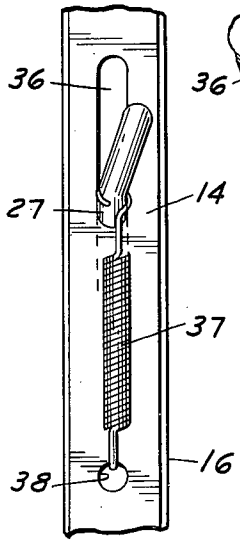


FIG. 4

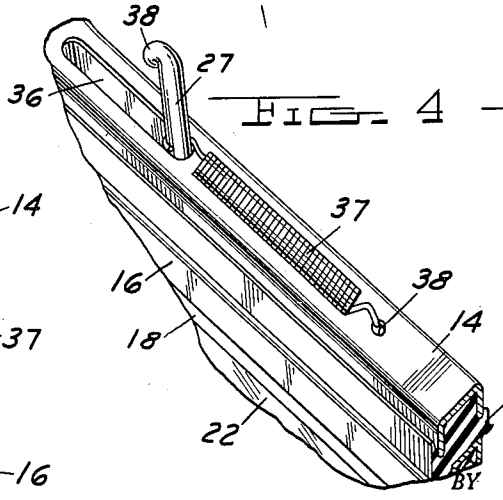


FIG. 2

INVENTOR.
HARRY J. CHAPMAN

BY

Whittemore, Hulbert & Belknap

ATTORNEYS

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VENTILATOR WINDOW CONSTRUCTION

Harry J. Chapman, Grosse Pointe, Mich., assignor to Motor Products Corporation, Detroit, Mich., a corporation of New York

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10 Claims. (Cl. 296—44)

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This invention relates generally to window assemblies, and refers more particularly to improvements in ventilator window assemblies of the type having a pivoted ventilator panel.

Ventilator windows of the type to which this invention pertains usually comprise a main frame and a ventilator frame supported within the main frame for swinging movement about a generally vertically extending axis. Both frames are ordinarily provided with a bottom inwardly opening channel-shaped bar and with a top inwardly opening channel-shaped bar which is inclined downwardly to the front end of the bottom bar. In accordance with orthodox practice a glass panel is fixed within the channel of the ventilator frame and a flexible weather sealing strip is secured in the channel of the main frame.

The axis of swinging movement of the ventilator frame is usually located between the front and rear ends of the ventilator frame, and is determined by aligned pivot pins respectively secured to the bottom and top bars of the ventilator frame. It has been the custom to weld, braze or otherwise secure the top pivot pin to the exterior surface of one side wall of the ventilator frame and to provide a journal for the outer end of the top pivot pin in the form of a bracket secured to the adjacent top bar of the main frame.

It is an object of this invention to improve the above construction by projecting the top pivot pin through an opening in the base of the channel-shaped top bar of the ventilator frame and by securing the inner end of the top pivot pin to the inner side of said base. Thus the securing means for the top pivot is concealed within the channel and the appearance of the ventilator frame is greatly improved.

It is another object of this invention to provide a slot in the base of the channel-shaped top frame bar for receiving the projecting outer end of the top pivot pin. This slot is elongated lengthwise of the top main frame bar, and is of sufficient length to freely receive the projecting end of the pivot pin during assembly of the ventilator frame into the main frame.

Still another object of this invention is to provide a coil spring having one end connected to the outer end of the top pivot pin and having the opposite end connected to the top main frame bar at a point spaced beyond the lower or front end of the slot. Thus the spring not only serves as a retainer for the ventilator frame, but also acts to yieldably urge the ventilator frame in sealing contact with the weatherstrip carried by

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the main frame. Also the above arrangement greatly simplifies the construction and method of assembly of the ventilator frame into the main frame.

The foregoing as well as other objects will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein:

Figure 1 is a side elevational view of a ventilator window assembly constructed in accordance with this invention;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a fragmentary sectional view showing the top pivot for the ventilator panel;

Figure 4 is a perspective view also showing the top pivot arrangement; and

Figure 5 is a plan view of the construction shown in Figure 4.

A typical window ventilator assembly is shown in Figure 1 of the drawing as having a main frame 10 and a ventilator frame 11 supported within the main frame for swinging movement about a generally vertically extending axis 12. In accordance with conventional practice the axis 12 of pivotal movement of the ventilator frame 11 is located intermediate the front and rear ends of this frame, so that the front portion of the ventilator frame moves inwardly, and the rear portion moves outwardly upon swinging movement of the ventilator frame to its open position.

The main frame 10 of the window assembly has a bottom bar 13 and a top bar 14. The top bar 14 is inclined downwardly to the front end of the bottom bar 13 and is integrally connected to the bottom bar by an intermediate portion 15. Both of the above bars are channel-shaped in cross section, and are arranged to provide a substantially continuous inwardly opening channel. A suitable flexible weather sealing strip 16 is secured within the channel of the main frame 10, and has portions respectively engageable with opposite sides of the ventilator frame 11 in such relation to the pivot axis 12 to enable the swinging movement aforesaid of the ventilator frame 11 relative to the main frame 10.

The ventilator frame 11 has a bottom bar 17 and a top bar 18. The top bar 18 is inclined downwardly toward the front end of the bottom bar 17, and is integrally connected to the bottom bar 17 by an intermediate portion 19. Both bars 17 and 18 are channel-shaped in cross section, and provide a continuous channel 21 for receiving the marginal edge portions of a suitable glass

panel 22. The size of the ventilator frame 11 is predetermined to fit within the main frame 14, and when in assembled relationship with the main frame, the top and bottom bars respectively assume positions adjacent the top and bottom bars of the main frame in the manner clearly shown in Figure 1 of the drawing. It will also be noted from Figure 1 that the ventilator frame is held in its closed position in the main frame by a manually operable latch 23. This latch comprises a lever 24 pivoted at one end on the bottom bar 17 of the ventilator frame adjacent the rear end of this bar, and having a portion engageable with the rear bar 25 of the main frame to hold the ventilator frame in its closed position.

The ventilator frame 11 is supported for swinging movement about the axis 12 by a pair of pivot pins 26 and 27. The bottom pivot pin 26 extends downwardly through an opening provided in the base of the channel-shaped bar 17, and is formed with a laterally extending attaching portion 28 at the top thereof. The attaching portion 28 is located within the channel of the bar 17, and is riveted, welded or otherwise permanently secured to the inner surface of this channel. The pivot pin 26 also extends downwardly into the channel of the bottom frame bar 13 and projects through an enlarged opening 29 formed in the base of the channel. In order to secure the pivot pin 26 to the main frame 10, a bracket 30 is secured to the underside of the bottom bar 13 and this bracket also has an enlarged opening 31 for receiving the pivot pin 26. The lower end of the pivot pin is threaded to receive a nut 32, and a coil spring 33 encircles the pivot pin between the nut 32 and the bracket 30. It follows from the foregoing that the pin 26 has a limited floating connection with the main frame 14, and enables the pivot pin to adjust itself to compensate for inaccuracies that may exist in the construction of the window assembly.

The top pivot pin 27 projects through an opening 33' in the base of the channel-shaped ventilator frame bar 18, and is formed at the inner end with an enlargement 34. As shown in Figure 3 of the drawing, the enlargement 34 is housed within the channel of the bar 18, and is riveted, welded or otherwise permanently secured to the inner surface of the base of this channel. It will be noted from Figure 3 of the drawing that the pin 27 projects upwardly through a slot 35 in the weatherstrip 16 and through a registering slot 36 formed in the base of the top channel-shaped main frame bar 14.

The slot 36 is elongated in the direction of length of the bar 14 and the length of the slot 36 is predetermined to receive the pivot pin 27 when the ventilator frame 11 is assembled into the main frame 10. During assembly the bottom pivot pin 26 is first engaged with the bottom main frame bar 13, and after this is accomplished, the ventilator frame is shifted forwardly to project the pivot pin 27 through the slots 35 and 36.

The pivot pin 27 is held in position relative to the main frame by a coil spring 37, having one end looped around the upper end portion of the pivot pin 27 and having the opposite end secured or anchored on the top main frame bar 14 at a point 38 spaced forwardly from the pivot pin 27. The coil spring 37 is normally under tension, and urges the pivot pin in a direction toward the front end of the slot 36. Also since the pivot pin 27 is anchored on the ventilator frame 11, it follows that this frame is yieldably urged forwardly in sealing engagement with the

weatherstrip 16. This is desirable in that it assists materially in preventing leakage around the ventilator frame when it is in its closed position.

The pivot pin 27 is, of course, secured to the ventilator frame in alignment with the pivot pin 26, although any slight misalignment between the pivots is compensated for by reason of the fact that both pivots are "floating," or in other words, may shift relative to the main frame 10. It will be noted that the upper end of the top pivot 27 is bent laterally in the manner shown in Figures 2 and 5 of the drawing. The reason for this configuration is to prevent binding of the pivot pin 27 against either side of the slot 36 during swinging movement of the ventilator frame 11. Attention is also called to the fact that the upper extremity of the pivot pin 27 has a hook portion 38 which prevents accidental disengagement of the rear end of the spring 37 from the pin 27 during swinging movement of the ventilator frame.

The top pivot arrangement previously described not only amplifies the construction by reducing the number of parts required, but in addition, facilitates assembly and assures maintaining a tight weatherproof joint between the ventilator frame and weatherstrip 16 in the closed position of the ventilator frame. Also by securing the inner or lower end of the pivot pin 27 within the glass retaining channel of the ventilator frame, it is possible to eliminate the usual unsightly bracket provided at the outer side of the top bar of the ventilator frame for supporting this pivot.

What I claim as my invention is:

1. A window assembly comprising a main frame having a bottom portion, a top portion and an intermediate portion connecting the top and bottom portions, a ventilator frame having portions corresponding generally to said main frame portions and positioned in the main frame with the corresponding portions of said frames adjacent one another, means pivotally supporting the ventilator frame in the main frame for swinging movement about an up and down axis, said means including a pin secured to the top portion of the ventilator frame and projecting through a slot in the top portion of the main frame, said slot being elongated in the direction of length of the top portion of the main frame to freely receive the pivot pin and permit shifting movement of the pin lengthwise of the top portion of the main frame, and yieldable means carried by the main frame and exerting a force on the pivot pin in a direction to shift the ventilator frame toward the intermediate connecting portion of the main frame.

2. The window assembly set forth in claim 1 wherein the top portion of the ventilator frame has an inwardly opening glass receiving channel and wherein the pivot pin extends outwardly through an opening in the base of the channel and has an enlargement at the inner end secured to the inner side of said base.

3. The window assembly set forth in claim 1 wherein the means acting on the pivot pin for urging the ventilator frame in a direction to maintain the connecting intermediate portions in contact comprises a coil spring connected at one end to the top portion of the main frame and having the opposite end connected to the pivot pin.

4. A window assembly comprising a main frame having top portion, a bottom portion and an