Feb. 21, 1950 G. M. LANE ET AL 2,498,429

VENTILATOR WINDOW ASSEMBLY

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FIG. 1

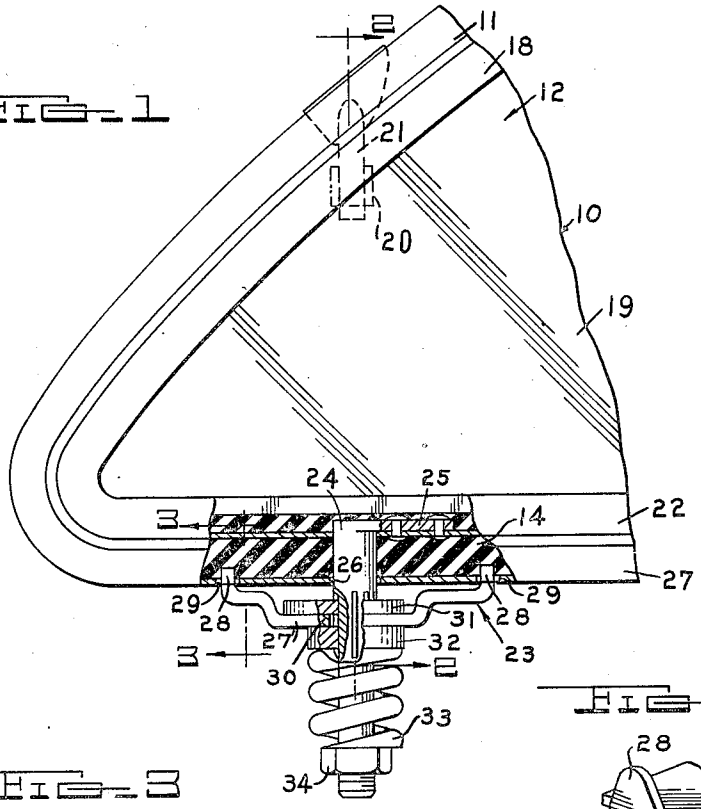


FIG. 4

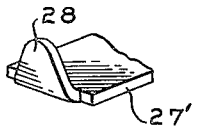
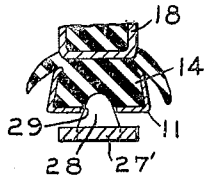


FIG. 3



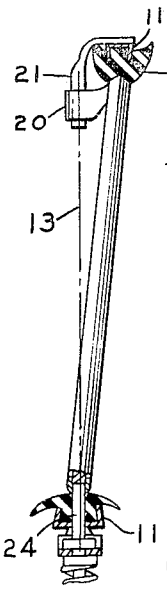


FIG. 2

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VENTILATOR WINDOW ASSEMBLY

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7 Claims. (Cl. 296—44)

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This invention relates to ventilating windows and refers more particularly to windows of this type designed for use in connection with vehicle bodies.

Ventilator windows of the type to which this invention pertains usually comprise a main frame adapted to fit in a window opening and a ventilator supported in the main frame for swinging movement about a generally vertical axis located between the front and rear edges of the ventilator. In one popular construction of ventilator window assembly, the bottom pivot is of the friction type adapted to resist swinging movement of the ventilator with sufficient force to insure holding the ventilator in any desired open position. Due to faulty assembly or inaccuracies that sometimes occur in mass production, the bottom pivot is not always precisely aligned with the top pivot and such a condition tends to produce a binding of the parts which increases the force required to manipulate the ventilator.

In order to overcome the above objection, the present invention has for one of its objects to provide, in effect, a floating friction pivot enabling the latter to adjust itself with respect to the cooperating pivot and thereby compensate for any misalignment that may exist between the pivots.

Another feature of this invention is to provide a ventilator assembly wherein the construction thereof is actually simplified by the design of the friction pivot and assembly of the parts may be accomplished more readily.

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 fragmentary side elevational view of a ventilator window assembly embodying the features of this invention;

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

Figure 3 is a sectional view taken on the line 3—3 of Figure 1; and

Figure 4 is a fragmentary perspective view of a part of the friction pivot assembly employed in the ventilator window.

In Figure 1 of the drawing, there is illustrated a part of a vehicle body ventilator window 10 comprising a main frame 11 and a ventilator 12 supported in the main frame for swinging movement about an up and down axis indicated generally by the numeral 13. The main frame 11 is substantially channel-shaped in cross section and is constructed with the channel opening inwardly

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with respect to the window opening. The usual flexible sealing strip 14 is secured in the channel of the main frame 11 and cooperates with the ventilator in the closed position of the latter to form a weather-tight seal around the same.

The ventilator 12 comprises a frame 18 also channel-shaped in cross section and constructed so that the channel opens inwardly with respect to the window opening. A glass panel 19 is supported in the frame 18 with the marginal edges projecting into the channel of the frame 18 in the usual manner.

In accordance with conventional practice, a journal or bushing 20 is suitably secured to the outer side of the front bar of the ventilator frame 18 adjacent the top of the latter for receiving a pivot pin 21 suitably secured to the adjacent bar of the main frame 11. The bottom bar 22 of the ventilator frame 18 is pivoted intermediate the ends thereof on the bottom bar of the main frame 11 by a friction type pivot assembly 23 having its axis of pivotal movement aligned with the pivot pin 21 to enable swinging the ventilator 12 to open and closed positions relative to the main frame 11.

In accordance with the present invention the ventilator 12 is held in any one of its various open positions by the action of the friction type pivot assembly 23. In detail this assembly comprises a pivot pin 24 which extends downwardly through the opening formed in the base of the channel bar 22 and is formed with a laterally extending projection 25 at the upper end. The projection 25 is seated in the channel of the bar 22 below the adjacent edge of the glass panel 19 and is riveted or otherwise permanently secured to the base of this channel. As best shown in Figure 1 of the drawing, the shank of the pin 24 extends downwardly through a suitable opening formed in the adjacent portion of the sealing strip 14 and projects through an opening 26 formed in the base of the bottom channel 27 on the main frame 11. The opening 26 is enlarged to provide sufficient clearance to enable lateral shifting movement of the pin 24 relative to the main frame.

The pivot pin 24 is rotatably supported on the main frame 11 by a bracket 27' having a body portion spaced below the channel bar 27 and apertured to permit free passage of the pivot pin 24 therethrough. Suitable lugs 28 project upwardly from opposite ends of the bracket 27' and extend into the channel of the bar 27 through slots 29 formed in the base of the channel bar 27. The lugs 28 are transversely curved with respect to the direction of length of the bar 27

and engage opposite ends of the slots 29 in the manner indicated in Figure 3 to enable limited rocking movement of the bracket transversely of the bar 27. It will further be noted from Figure 1 of the drawing that the width of the slots 29 is greater than the width of the lugs 28 to permit limited shifting movement of the bracket relative to the bar 27 lengthwise of the latter. As will be presently set forth, the pin 24 is clamped to the bracket 27' for movement as a unit with the latter, and as a result, the pivot 24 adjusts itself to compensate for any misalignment of this pivot with the pin 21 that may be caused by inaccuracies in manufacture or faulty assembly.

It will further be noted from Figure 1 of the drawing that the portion of the pin 24 which extends through the body of the bracket 27' is formed with a series of circumferentially spaced splines 30 and a correspondingly splined member 31 is sleeved on the pin 24. The member 31 assumes a position above the body portion of the bracket 27' and has a bearing engagement with the top surface of the bracket. A cooperating member 32 is sleeved on the pin 24 and assumes a position below the body portion of the bracket 27' in bearing engagement with the latter. The member 32 is splined to slidably engage the splines 30 on the pin 24, and like the member 31, is held against rotation relative to the pin 24. The two cooperating members are held in clamping engagement with opposite sides of the bracket 27' by means of a coil spring 33 surrounding the pin 24 below the member 32 with the upper end seated against the member 32 and with the lower end engaging an abutment 34 on the pin 24. The abutment 34 is in the form of a nut threaded on the lower end of the pin and is adjusted to hold the coil spring under compression. Thus the coil spring not only serves to resist swinging movement of the ventilator with sufficient force to hold the ventilator in any one of its adjusted positions, but also functions to hold the bracket in assembled relation with the bottom bar 27 on the main frame 11. It will be observed from Figure 1 of the drawing that the spring 33 actually urges the bracket 27' upwardly with sufficient force to enable the lugs to project into the flexible seal 14, and this is advantageous since it prevents rattling of the parts without interfering with the adjustment of the bracket to align the axis of the pin 24 with the axis of the pivot pin 20.

What we claim as our invention is:

1. A window assembly comprising a main frame, a ventilator having a frame supported in the main frame for swinging movement about an up and down axis, a pivot pin rotatably as a unit with the ventilator and extending downwardly from the bottom bar of the ventilator frame through a clearance opening provided in the bottom bar of the main frame, a bracket rotatably supporting the pivot pin on the main frame and spaced below the bottom bar of the main frame, upwardly projecting lugs at opposite ends of the bracket extending into slots formed in the bottom bar of the main frame and having arcuate portions engaging opposite ends of the slots enabling the bracket and pin to rock in directions transversely of the main frame, and spring means resisting rotation of the pin relative to the bracket and operable to retain the lugs in said slots.

2. A window assembly comprising a main frame, a ventilator having a frame supported in the main frame for swinging movement about an up and down axis, a pivot pin rotatable as a unit with the ventilator and extending downwardly from the bottom bar of the ventilator frame through a clearance opening provided on the bottom bar of the main frame, a bracket rotatably supporting the pivot pin on the main frame and spaced below the bottom bar of the main frame, lugs projecting upwardly from opposite ends of the bracket into slots formed in the bottom bar of the main frame, said slots having a width greater than the width of the lugs enabling shifting movement of the bracket lengthwise of the latter bar and said lugs having arcuate portions engaging opposite ends of the slots permitting rocking movement of the bracket and pin relative to the main frame, and spring means for holding said bracket in assembled relation with the main frame.

3. A window assembly comprising a main frame, a ventilator having a frame supported in the main frame for swinging movement about an up and down axis, a pivot pin rotatable as a unit with the ventilator and extending downwardly from the bottom bar of the ventilator frame through a clearance opening provided in the bottom bar of the main frame, a bracket rotatably supporting the pivot pin on the main frame and spaced below the bottom bar of the main frame, lugs projecting upwardly from opposite ends of the bracket into slots formed in the bottom bar of the main frame, said slots having a width greater than the width of the lugs enabling shifting movement of the bracket lengthwise of the latter bar and said lugs having arcuate portions engaging opposite ends of the slots permitting rocking movement of the bracket and pin relative to the main frame, a member secured to the pin and having a bearing engagement with the top of the bracket, a cooperating member slidably but non-rotatably mounted on said pin in a position to bear against the bottom surface of the bracket, an abutment at the lower end of the pin and a spring held under compression between said abutment and the second named member.

4. A window assembly comprising a main frame having a bottom bar substantially channel-shaped in cross section and positioned with the channel opening upwardly, a ventilator having a frame supported in the main frame for swinging movement about an up and down axis, a seal of flexible material secured in the channel of said channel-shaped frame bar and having portions engageable with the ventilator in the closed position of the latter to form a weather-tight seal between the ventilator and bottom bar of the main frame, a pivot pin rotatable as a unit with the ventilator and extending downwardly through the seal and through a clearance opening formed in the base of the channel-shaped frame bar, a bracket rotatably supporting the pin on the main frame below the channel-shaped bottom bar and apertured intermediate the ends to enable passage of the pin therethrough, lugs projecting upwardly from opposite ends of the bracket through slots in the base of the channel-shaped frame bar and engageable with the flexible seat, said lugs having portions curved transversely of the channel-shaped frame bar and engageable with opposite ends of the slot enabling limited rocking movement of the bracket and pin relative to said frame bar, an abutment on said pin spaced below the bracket, and a coil spring held under compression between the abutment and bracket.

5. A window assembly comprising a main frame, a ventilator having a frame supported in the main frame for swinging movement about an up and down axis, a pivot pin rotatable as a unit with the ventilator frame and extending downwardly from the bottom bar of said ventilator frame through an enlarged opening provided in the bottom bar of the main frame, a self-aligning mounting for the pivot pin on the bottom bar of the main frame, said mounting including a supporting part positioned at the underside of the bottom bar of the main frame and apertured to receive the pivot pin, means on the supporting part engaging the bottom bar of the main frame, the engagement being such as to afford a connection between said supporting part and said bottom bar, said connection permitting relative movement of said part with respect to the bottom bar in a direction normal to the axis of said pin while the window is being assembled, and means for yieldingly clamping the supporting part to the bottom bar of the main frame and for holding said pivot pin in assembly relationship to said part.

6. The window assembly set forth in claim 5 in which an abutment is fixed to the pivot pin at a point spaced below the supporting part, and in which a coil spring surrounds the pivot pin with the lower end engaging the abutment and

with the upper end acting on the underside of the supporting part to effect said clamping of said supporting part to the bottom bar of the main frame.

7. The window assembly set forth in claim 5 having a member secured to the pin and bearing against the top wall of the supporting part, a cooperating member slidably and nonrotatably mounted on the pin below said part and having a bearing engagement with the bottom surface of the part, an abutment at the lower end of the pivot pin, and a spring held under compression between the abutment and the second named member to effect said clamping of the supporting part to the bottom bar of the main frame and to retain the pivot pin in assembled relation to the supporting part.

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