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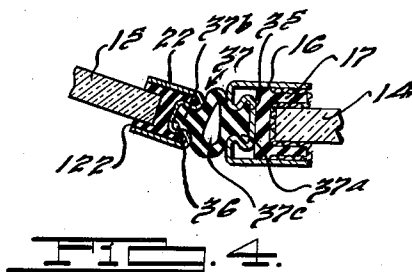
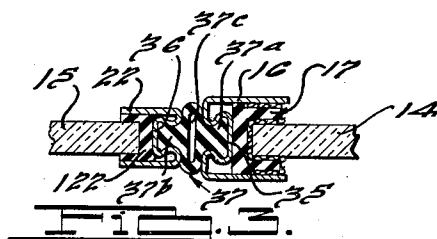
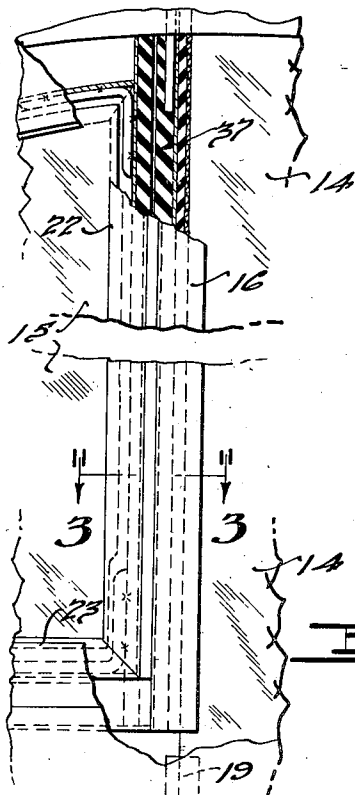
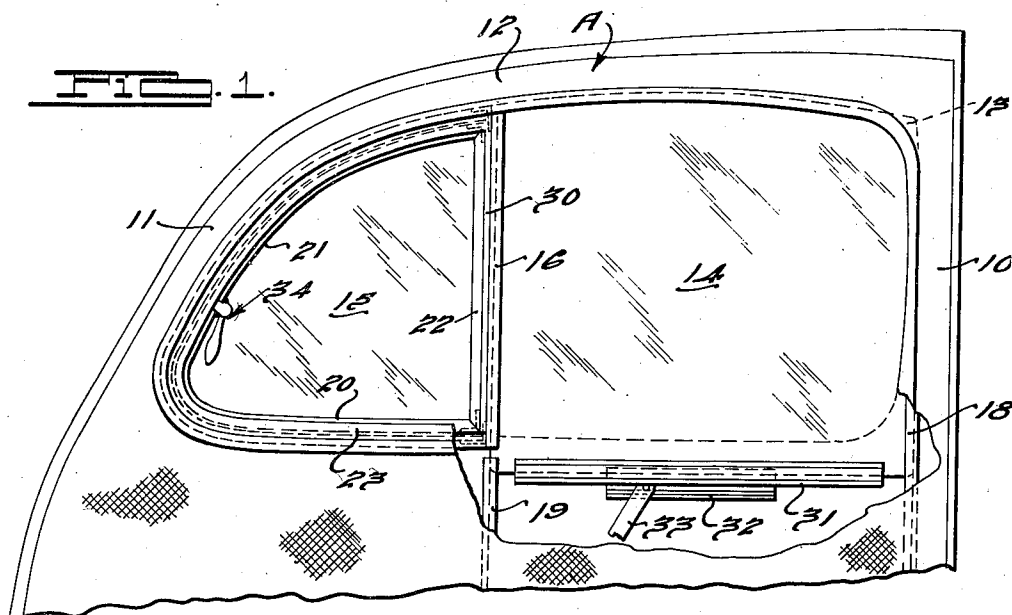
A. P. BALL

2,260,133

VENTILATING WINDOW

Original Filed April 27, 1936

2 Sheets-Sheet 1



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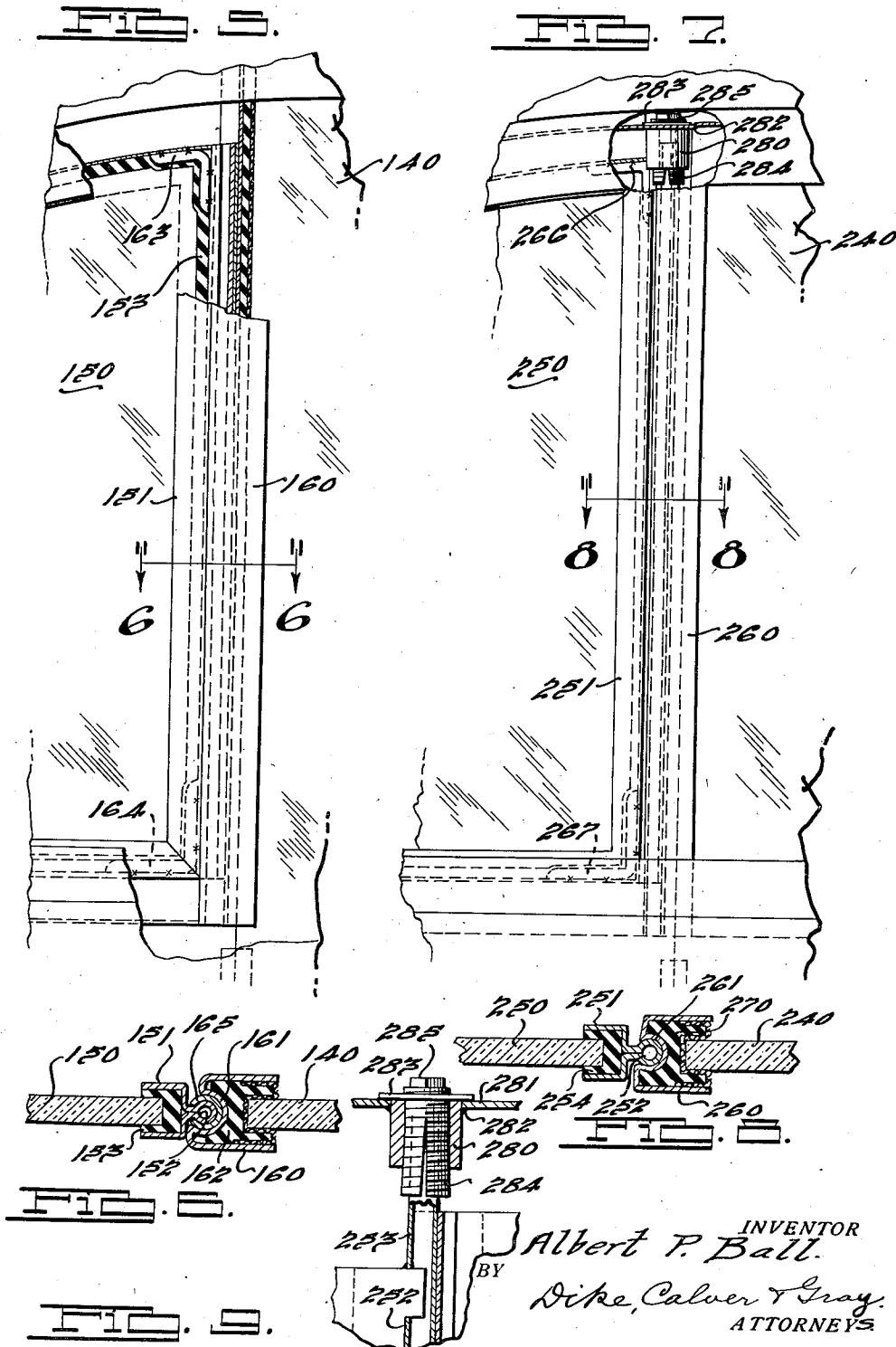
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UNITED STATES PATENT OFFICE

2,260,133

VENTILATING WINDOW

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Original application April 27, 1936, Serial No. 76,517. Divided and this application April 8, 1939, Serial No. 266,755

6 Claims. (Cl. 296—44)

This invention relates to ventilating windows for vehicle bodies or the like, especially door or side windows of automobile bodies, and particularly to that type of ventilating windows wherein it is desirable to close the window opening by means of separate glass panels capable of being moved in different planes and in different directions into closed and/or open position. The present application is a division of my co-pending application, Serial No. 76,517, filed April 27, 1936.

An object of the invention is to provide a ventilating window of the foregoing type wherein the rear portion of the window opening is closed by an adjustable glass panel which may be raised and lowered, and in which the remainder of the window opening is closed by a separate glass panel hinged at or adjacent its rear upright edge and capable of lateral or swinging movement into and out of closed position.

Another object of the invention is to provide a window of the foregoing character in which common means is provided for guiding the forward edge of the slidable glass panel and for pivotally supporting the swinging glass panel.

A further object of the invention is to provide a window having two panels for completely closing the window opening in which one of the panels is supported for swinging movement by means of a flexible, compressible, or deformable hinge or pivot member.

A further object is to provide a ventilating window having a rear vertically sliding section and a front pivoted section, the latter being mounted so that its forward upright edge will swing outwardly into one position to permit air to be exhausted from the interior of the body and thence into another position in the air stream to induce the flow of air directly into the car.

A further object of the invention is to provide a ventilating window of the aforesaid type in which the swinging glass panel is frictionally held in its various adjusted positions; another object of the invention being to provide flexible and compressible sealing means for interconnecting the swinging panel to its support.

Another object of the invention is to provide a swinging glass panel with hinge or pivot members and in which friction is applied directly to one or more of said members.

The above and other objects of the invention will appear from the following description and appended claims when considered in connection with the accompanying drawings forming a part of this specification.

In said drawings:

Fig. 1 is a fragmentary elevation of the inside of a vehicle door embodying a preferred form of the present invention.

Fig. 2 is a fragmentary elevation, partly in section, and partly broken away, on an enlarged scale, of a window corresponding to that of Fig. 1, and showing one form of hinge structure embodying the invention.

Fig. 3 is a horizontal fragmentary sectional view, on an enlarged scale, taken substantially along the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 but showing the swingable window panel in partially open condition.

Fig. 5 is a view similar to Fig. 2 showing a modified hinge structure.

Fig. 6 is a horizontal section taken substantially along the line 6—6 of Fig. 5.

Fig. 7 is a view similar to Fig. 5 showing a further modified hinge structure embodying the invention.

Fig. 8 is a horizontal section taken substantially along the line 8—8 of Fig. 7; and

Fig. 9 is a fragmentary vertical section through the adjustable means for applying friction to the hinge of Figs. 7 and 8.

Before explaining in detail the present invention, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

Referring now particularly to Fig. 1 of the drawings, there is shown therein the upper portion or section of a vehicle door A embodying the present invention. The door is provided with a rear pillar 10, an upwardly and rearwardly sloping front pillar 11, and a connecting header 12. The door has a window opening 13 formed therein which is adapted to be closed by means of separate glass panels, such as a vertically slidable glass panel 14 and a swinging glass panel 15. Located within the window opening between the adjacent inner edges of the glass panels 14 and 15 is an upright fixed post or partition 16, preferably in the form of a channel member having a similarly shaped lining of felt or other non-metallic material, not shown. As shown, the inner or front upright edge of the glass panel 14 is

adapted to slide in the lined channel 16 and thus the channel serves as an upper guide for this edge of said glass panel. The outer or rear upright edge of the panel 14 is adapted to travel and be guided in a suitable guide member or channel 18 carried by the rear pillar 10, this channel extending downwardly into the window well. An auxiliary guide member or channel 19 is located in the window well below and in alignment with the post or channel 16 and serves as a guide for the inner or forward upright edge of the glass 14 during the up and down movements of the glass panel in the window well.

The swinging glass panel 15 is mounted in a surrounding window frame of conventional construction having a base or bottom portion 20, a forward upwardly and rearwardly extending portion or section 21 and a rear upright or substantially vertical portion of section 22. The frame is sealed by means of a compressible weather strip 23 formed of rubber or the like which is carried by the window reveal and which extends around three edges of the glass panel 15, having a continuous outwardly projecting lip or extension which extends beyond the body portion thereof and projects into the area behind the window opening to engage the inner face of the frame portions 20 and 21 to seal the window opening at these points. The upright portion or section 22 of the panel frame is hingedly connected to the fixed post or guide member 16.

The lower edge of the slidable glass panel 14 is provided with a retainer channel 31 having a depending plate or portion 32 provided with a track or groove to receive a stud or roller carried by the outer end of a regulator arm 33. This arm is part of a conventional regulator mechanism (not shown) and functions to raise and lower the window glass panel 14 to close and open the rear portion of the window opening 13.

The swinging glass panel 15 is adapted to be moved outwardly about the hinge or pivot 30 and relative to the post 16 into various adjusted positions, one of which is shown in Fig. 4. A conventional latch member and handle structure for swinging and locking the panel 15 is shown as a whole at 34.

Referring now particularly to Figs. 2, 3 and 4, there is shown therein one form of hinge or pivotal connection for the swinging glass panel or wing 15 embodying the invention. In the present embodiment, the sliding glass panel 14 and the swinging glass panel 15 are in juxtaposition, the inner or front upright edge of the panel 14 being guided by the fixed post or guide member 16 of channel formation and having, as shown, a felt lined or faced rubber liner 17 of channel formation. Other materials than rubber and felt may be used. The outer face of the post, that is the face toward the swinging panel 15 is shaped to provide an undercut or dovetail longitudinal groove or channel 35. The frame portion 22 for the inner upright edge of the glass panel 15 is also preferably of channel shape and has a non-metallic lining 122 which receives the inner upright edge of the glass 15. The face of the frame portion 22, adjacent the post 16, is provided with an undercut longitudinally extending recess or groove 36. In this form of the invention, the glass panel 15 and its frame are attached to and movably connected with the post 16 by a compressible or elastic and deformable hinge member shown as a whole at

37, preferably in the form of a rubber strip provided on opposite sides or faces with longitudinally extending offset beaded portions 37a and 37b adapted to engage and fit snugly within the undercut channels or grooves 35 and 36, respectively. The hinge member 37 is formed in any suitable manner, as by molding, and has, as shown, a centrally disposed longitudinally extending space or slot 37c formed therein, this for the purpose of increasing the compressibility and flexibility of the member. The parts may be assembled by inserting the ends of the portions 37a and 37b of the hinge member into the corresponding channels 35 and 36 and sliding the hinge member 37 along the channels. The enlarged portions or beads fit relatively snugly within and interlock with the cut-back grooves 35, 36, to hold the parts together. As seen in Fig. 2, the hinge member 37 comprises a preformed or molded strip which extends from the top edge of the post 16 to the bottom edge thereof, the upper and lower ends or portions thereof projecting respectively, above and below the top and bottom edges of the frame of the window 15. An effective seal along the entire upright hinged edge of the swinging glass panel is thus provided. Thus it will be seen that the hinge 37 together with the weather strip or seal 23 serves to effectively weather seal all of the surrounding edges of the window, with the flexible hinge member 37 serving a dual purpose and performing a dual function. The rubber hinge member 37 effectively seals the joint at the upright adjacent edges of the frame members 16 and 22 in all positions of adjustment of the swingable glass panel 15, see Fig. 4. It will be understood that the weather strip 23 is sufficiently elastic to permit its deformation or displacement when the glass panel 15 is swung outwardly about the hinge members 30 of Fig. 1 or 37 of Figs. 1 to 4 inclusive.

Referring now particularly to Figs. 5 and 6, there is shown a somewhat modified hinge structure embodying the present invention. In the present form, a swinging glass panel 150 having a metal frame 151 is connected with a post or channel 160 which post serves as a guide for the sliding glass panel 140. The rear or inner upright edge portion of the metal frame 151 is formed to provide a longitudinally extending tubular or substantially cylindrical portion 152 which is located within a longitudinally extending channel or recess 161 formed in the adjacent edge of the post 160. A longitudinally split resilient or compressible friction tube or sleeve 165 is interposed between and frictionally engages the tubular rib-like portion 152 and the channel 161. The frame 151 has a rubber, felt or other non-metallic lining 153 which receives the upright edge of the glass 150. The channel member or post 160 contains a somewhat similar lining 162 to receive the upright edge of the sliding glass panel 140. As shown, the channel-like insert 162 may be formed of rubber which is felt lined at points which are contacted or engaged by the edge of the glass 140. The upper and lower corners of the frame 151 are preferably reinforced by angles or braces 163 and 164 respectively. These angles, as shown, are preferably secured to the frame members by spot welding and are concealed by the lining material 153 (Fig. 5). The split sleeve or tube 165 is preferably formed of brass and by reason of a relatively tight or snug fit exerts a binding action on the socket 161 and also grips the tube or bead 152 so as to produce the necessary friction be-

tween these parts and thereby maintain the swinging glass panel 150 in any of its adjusted positions without the aid of any auxiliary means such as adjustable brackets or other operating and holding means or mechanism. The swinging glass panel may be held in closed position in any suitable manner, as by means of a manually controlled latch member (not shown) similar to the latch 34 shown in Fig. 1. The assembled parts 152, 161 and 165 have a snug but sliding fit and are preferably assembled together by sliding the brass tube or sleeve 165 over the tube-like member 152 and then by inserting these assembled parts into the longitudinal recess 161 and sliding the parts relatively to one another. By virtue of the intermediate sleeve member 165 friction is constantly applied to the interfitting male and female members of the joint or hinge throughout substantially its entire length. Other than above described the construction of this embodiment is preferably the same as the preceding form.

A further modified form of hinge or pivot construction for the swinging window, embodying the present invention, is shown in Figs. 7 to 9 inclusive. In this form the swinging glass window 250 has a surrounding channel shaped metal frame 251 whose upright inner edge is formed to provide a tubular rib-like male member 252 which telescopes with and interfits a correspondingly shaped longitudinally extending female member or socket portion 261 formed in the adjacent upright face of the post or channel member 260. This post serves as a guide for the forward edge of the sliding glass panel 240. The frame or channel member 251 contains a felt, rubber or other non-metallic lining 254 to receive the rear edge of the glass 250. The post or channel member 260 contains a lining 270 similar to the liners 17 and 162 of the preceding views and receives the forward upright edge of the sliding glass panel 240. The parts 252 and 261 have a relatively snug fit and are in sliding engagement. They are preferably assembled by sliding the inner or male member 252 longitudinally in the female member 261. The joints at the upper and lower inner corners of the frame 251 are preferably reinforced by angles 266 and 267 respectively, which are secured to the frame by welding, or in any other suitable manner.

Referring now particularly to Figs. 7 and 9, it will be seen that the male tubular member 252 is extended upwardly at 253 beyond the upper edge of the frame 251 and is positioned within a guide sleeve or ferrule 280 located in an opening formed in the vehicle window member 281 and held in place therein by welding or soldering, as shown, at 282. An internally threaded ring or washer 283 is preferably secured to the top of the guide sleeve 280 and acts as a guide or locator for a removable externally threaded split sleeve 284 with telescopes over the end 253 of the male tube member. The sleeve 284 has a square or hex head 285 by means of which it is gripped by a wrench or other tool and threaded through the washer 283 and into the guide sleeve or ferrule 280. The internal diameter of the sleeve 284 is such as to fit snugly over the end 253 of the male tube member. By adjusting the sleeve 284 in one direction through the medium of its hex head or nut 285 it can be drawn upwardly and thereby caused to tighten its grip upon the tube 253. By rotating the nut 285 in the opposite direction the sleeve will loosen its grip upon the tube 253. In this manner the

frictional contact between the parts is increased or decreased dependent upon the direction of rotation of the nut. By thus applying friction directly to the internal or male member 253 of the hinge joint, the swinging panel will be caused to remain in any one of its adjusted positions without the aid of any auxiliary operating and fastening means or mechanism. By the foregoing means the frictional engagement of the parts can be adjusted as desired. As in several of the preceding views, a suitable hand operated latch or lock mechanism (not shown) may be employed for securing the panel 250 in its closed or non-ventilating position.

From the foregoing it will be seen that I have provided an improved ventilating window construction, which, as shown, has two glass panels which can be manipulated as desired to exhaust air from the vehicle or to direct air into the vehicle, and further a construction in which all joints between the glass panels and the fixed portions of the window frame are sealed.

I claim:

1. In a vehicle window structure having a window opening, a vertically slidable glass panel, an upright guide for said panel, a swingable glass panel, and resilient means interconnecting the adjacent edges of said last named panel and guide to provide a seal and also a hinge, said means comprising a rubber strip provided with an enlarged central body portion having a longitudinal slot formed therein and integral offset beaded portions at opposite sides of the body portion attached to said adjacent edges.

2. In a vehicle window structure having a window opening, a vertically slidable glass panel, an upright guide for said panel having an undercut longitudinal groove formed in an edge thereof, a swingable glass panel having a metal frame a portion of which is provided with a longitudinal undercut groove formed in one of its edges, and resilient means interconnecting the adjacent edges of said last named panel and guide to provide a seal and also a hinge, said means comprising a compressible and flexible rubber strip having an enlarged central body portion and integral offset beaded portions at opposite sides of the body portion, said beaded portions fitting within said undercut grooves.

3. In a vehicle window structure having a window opening, a vertically slidable glass panel, an upright guide for said panel having an undercut longitudinal groove formed in an edge thereof, a swingable glass panel having a metal frame a portion of which is provided with a longitudinal groove formed in one of its edges, and resilient means interconnecting the adjacent edges of said last named panel and guide to provide a seal and also a hinge, said means comprising a compressible and flexible rubber strip having an enlarged central body portion provided with a longitudinal slot and integral offset beaded portions at opposite sides of the body portion, said beaded portions fitting within said grooves, said longitudinal slot serving to increase the compressibility and flexibility of the said resilient means.

4. A vehicle body having a window opening therein, a vertically slidable glass panel for closing a portion of said opening, a swingable glass panel for closing the balance of said opening, a fixed post located between the adjacent upright edges of said panels, said post providing a guide for the slidable panel and a mounting for the adjacent upright edge of said swingable panel, and an elastic hinge connecting said swingable panel

and said mounting to permit said panel to be swung into and out of ventilating position, said elastic hinge comprising a rubber strip provided with an enlarged centrally disposed body portion having a longitudinal slot formed therein whereby to increase the compressibility and flexibility thereof.

5. A vehicle body having a window opening therein, a vertically slidable glass panel for closing a portion of said opening, a swingable glass panel for closing the balance of said opening, a post located between the adjacent upright edges of said panels, said post providing a guide for the slidable panel and a mounting for the adjacent upright edge of said swingable panel, and an elastic hinge connecting said swingable panel and said mounting to permit said panel to be swung into and out of ventilating position, said elastic hinge comprising a rubber strip provided with an enlarged body portion having a longitudinal slot formed therein whereby to increase the compressibility and flexibility thereof, said rubber strip also having integral offset beaded portions at opposite sides of the body portion connected

respectively to said swingable panel and to said mounting.

6. A vehicle body having a window opening therein, a vertically slidable glass panel for closing a portion of said opening, a swingable glass panel for closing the balance of said opening, a fixed post located between the adjacent upright edges of said panels, said post providing a guide for the slidable panel and a mounting for the adjacent upright edge of said swingable panel, an elastic hinge connecting said swingable panel and said mounting to permit said panel to be swung into and out of ventilating position, means for raising and lowering said slidable panel, and separate means for moving said swingable panel into and out of ventilating position, said elastic hinge comprising a rubber strip having an enlarged body portion provided with a longitudinal slot therein and integral offset beaded portions at opposite sides of the body portion connected respectively to said swingable panel and said mounting.

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