

[54] **READILY INSTALLED VENT FOR FLEXIBLE COVER PANEL**

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285/162; 285/200; 285/DIG. 22

[51] Int. Cl. **F24f 7/00**

[58] Field of Search 98/37, 42; 135/14 V, 6;
285/162, 200, DIG. 22

[56] **References Cited**

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2,839,986	6/1958	Herman	98/37
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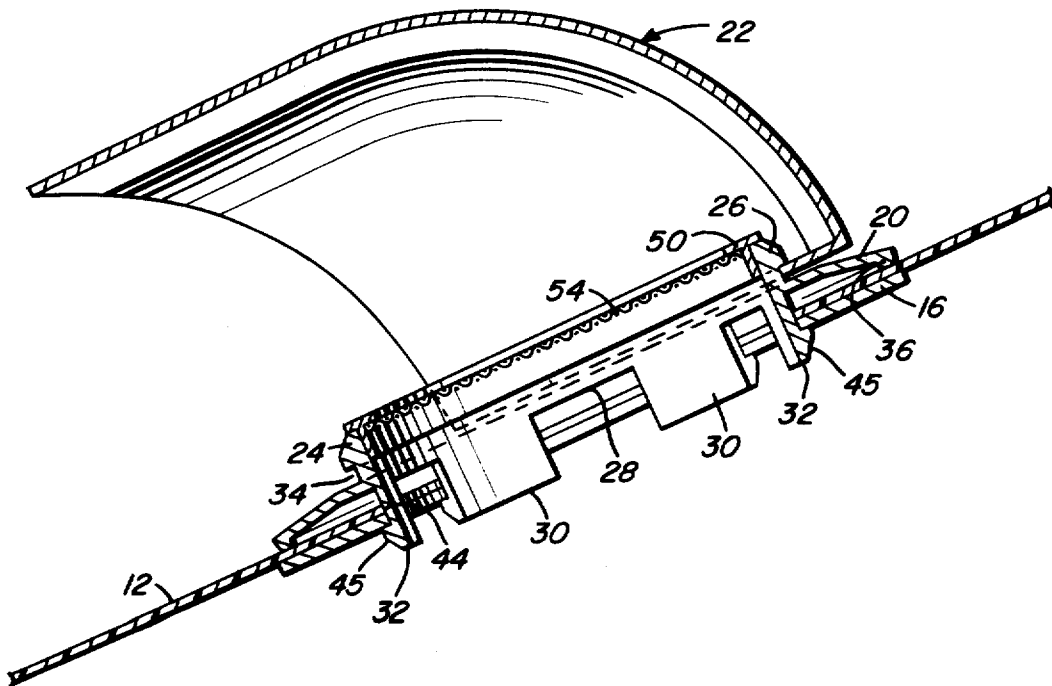
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[57]

ABSTRACT

A backing frame is provided for disposition about an opening provided for ventilation in a flexible cover panel with the backing frame disposed against the inside surface of the cover panel. A mounting body defining an opening therethrough and including a peripheral flange is disposed on the outer surface of the cover panel with the peripheral flange portion thereof extending about the opening in the cover panel and being inclined slightly toward the cover panel. The mounting body includes axial projections which are somewhat resilient and project through the opening and the backing frame at points spaced thereabout and the free ends of the projections disposed through the backing frame include outwardly projecting lugs engaged with the remote side of the backing frame with the associated cover panel compressively engaged between the outer peripheral portion of the peripheral flange of the mounting body and the backing frame disposed on the inner side of the cover panel. A scoop-type weather shield is rotatably supported from the mounting body and a removable screen closure is provided and removably supported from the mounting body. Also, an imperforate closure is provided and may be used in lieu of the screen closure whenever desired.

11 Claims, 6 Drawing Figures



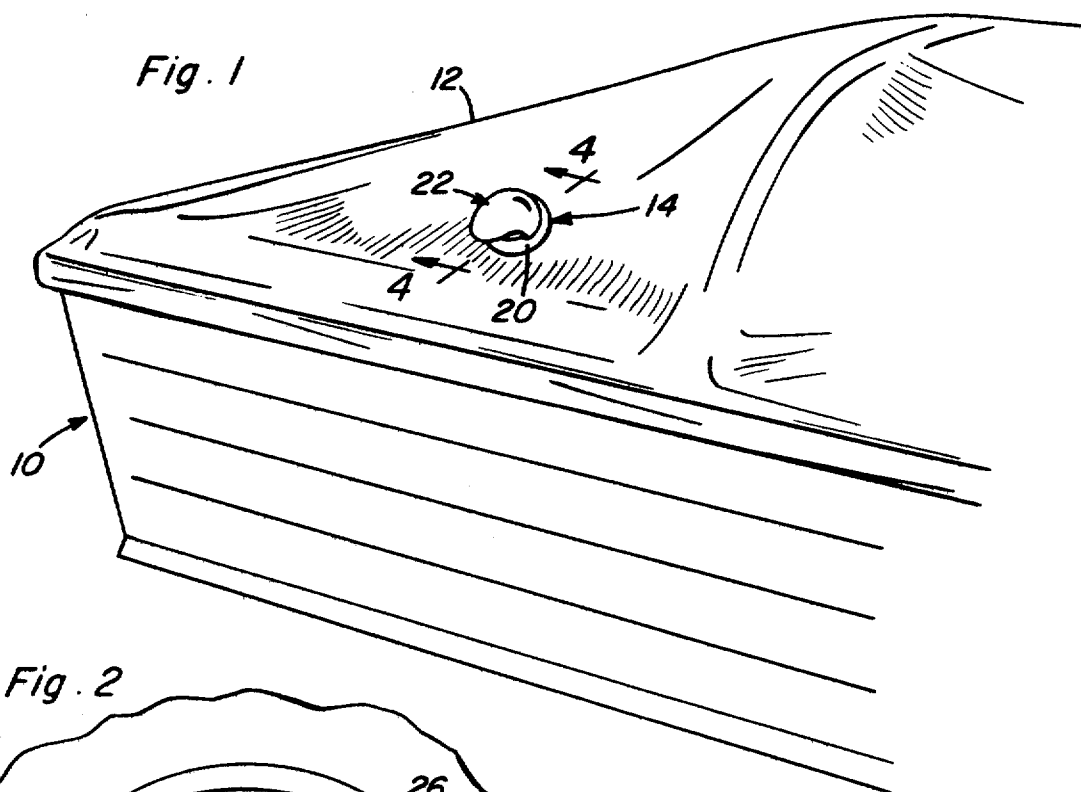
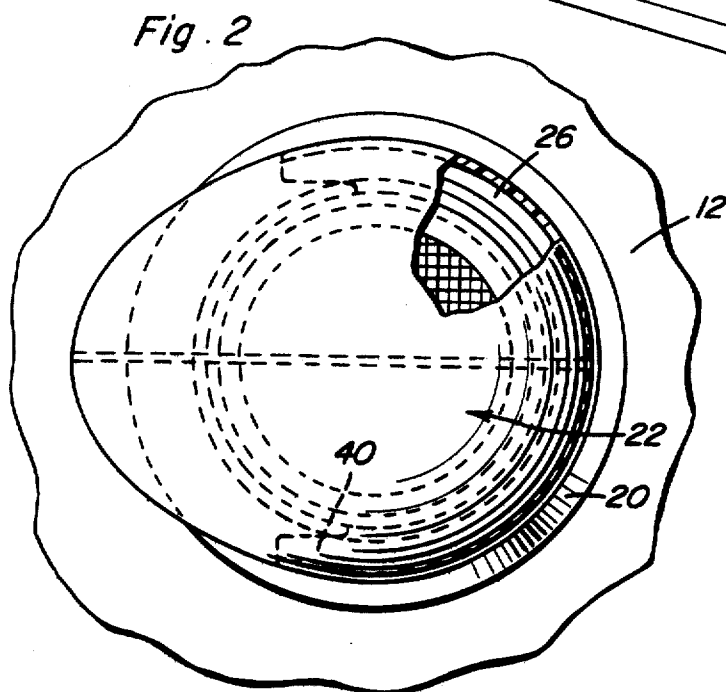
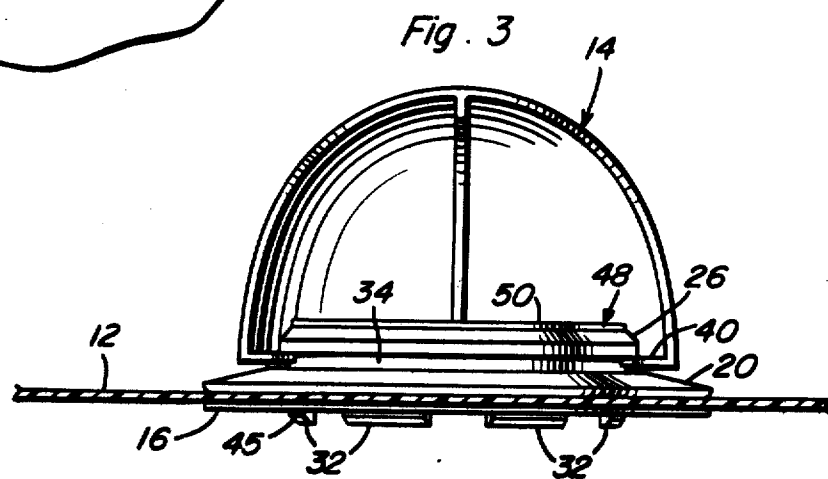


Fig. 4

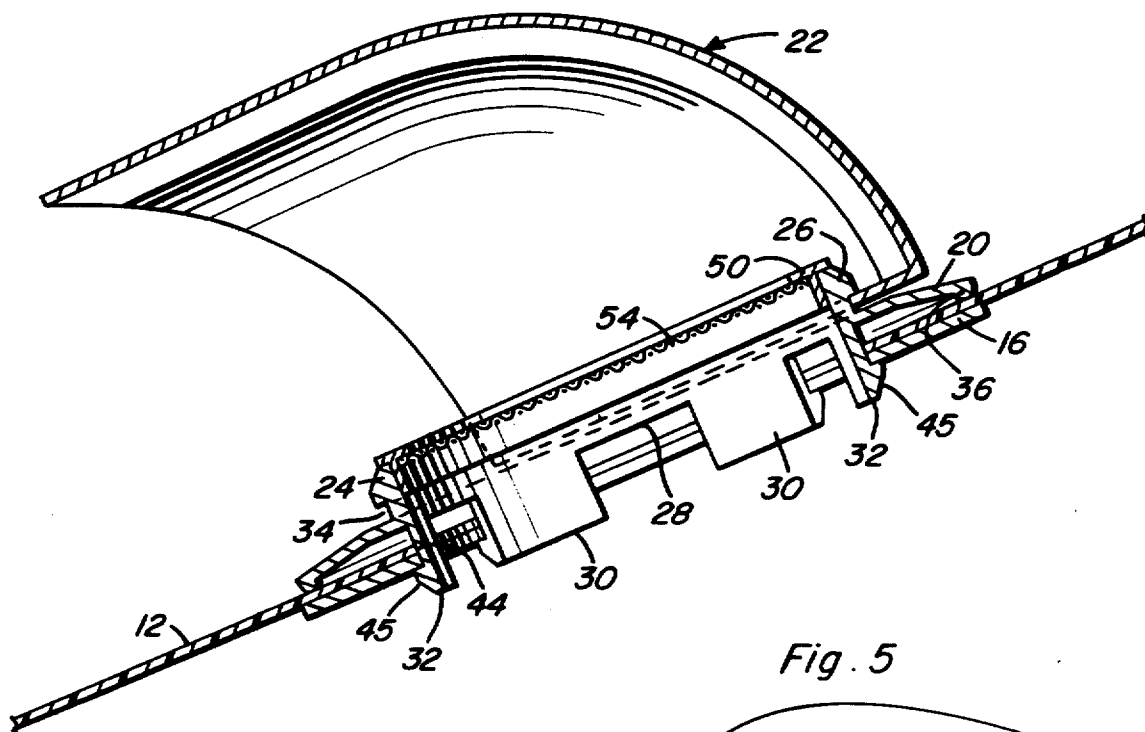


Fig. 5

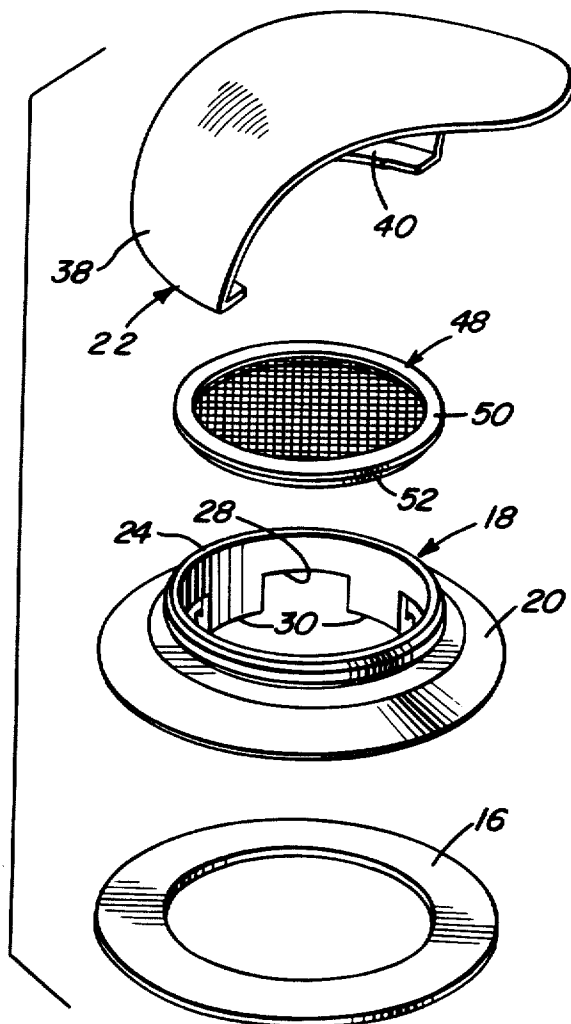
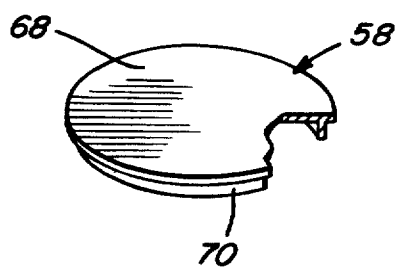


Fig. 6



READILY INSTALLED VENT FOR FLEXIBLE COVER PANEL

BACKGROUND OF THE INVENTION

There have been heretofore various types of ventilators constructed for use in conjunction with flexible covers. Some of these previous vent structures are disclosed in U.S. Pat. Nos. 2,839,986, to J. P. Herman, dated June 24, 1958, 3,013,483, to J. W. Knight, dated Dec. 19, 1961 and 3,024,717, to E. G. Rozek, dated Mar. 13, 1962.

However, these previous ventilators require the utilization of tools other than a cutting tool necessary to provide the desired ventilation opening in the flexible cover to be ventilated and rely upon stitching as well as mechanical fasteners requiring the utilization of tools to form a reasonably tight seal against water about the ventilating structures. Also, these previous ventilation structures are not readily adjustable, especially after shrinkage of the associated cover, and are not constructed in a manner whereby selectively usable imperforate and screen-type closures may be used in conjunction therewith.

BRIEF DESCRIPTION OF THE INVENTION

The vent construction of the instant invention is constructed in a manner whereby it may be installed on a flexible cover panel of substantially any type without the use of tools other than whatever tool is necessary to provide the desired ventilation opening in the cover panel. In addition, the vent construction may be installed by inexperienced persons with little effort and in such a manner as to maintain the cover panel substantially waterproof.

The main object of this invention is to provide a readily installable vent for a flexible cover panel.

Another object of this invention is to provide a vent construction which may be installed without the utilization of tools other than that which is necessary to form the desired ventilation opening in the associated cover panel.

Still another object of this invention is to provide a vent construction having a fully rotatably adjustable weather shielding air scoop.

A still further object of this invention is to provide a vent assembly including selectively usable imperforate and screen-type closures therefor.

A final object of this invention to be specifically enumerated herein is to provide a vent assembly for flexible cover panels which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part thereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective view of a boat cover with a vent assembly constructed in accordance with the present invention operatively associated with the boat cover;

FIG. 2 is a plan view of the cover vent illustrated in FIG. 1 and the surrounding portions of the associated boat cover, portions of the vent being broken away and illustrated in horizontal section;

FIG. 3 is an elevational view of the vent assembly as seen from the open side of the rotatable adjustable cover portion thereof and with the associated boat cover illustrated in vertical section;

FIG. 4 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of FIG. 1;

FIG. 5 is an exploded perspective view of the vent assembly; and

FIG. 6 is a perspective view of an imperforate cover for the vent assembly with portions of the imperforate cover being broken away and illustrated in vertical section.

DETAILED DESCRIPTION OF THE INVENTION

Referring now more specifically to the drawings the numeral 10 generally designates a boat having a flexible mooring cover panel 12 secured thereover. The cover panel 12 may be constructed of any suitable waterproof material such as canvas or nylon. Also, the vent assembly of the instant invention which is referred to in general by the reference numeral 14 may be used in conjunction with flexible cover panels constructed of other materials such as plastic.

The vent assembly 14 comprises an annular planar backing frame or washer 16, a mounting body referred to in general by the reference numeral 18 and defining a generally cylindrical collar including a radially outwardly projecting circumferential or peripheral flange 20 and a weather protective air scoop assembly referred to in general by the reference numeral 22.

The mounting body or collar 18 includes an outer end 24 including a beveled outer periphery 26 and an inner end 28 including six equally circumferentially spaced endwise outwardly projecting axial extensions or anchor prongs 30 including outer end outwardly projecting lugs 32. Also, the mounting body or collar 18 includes an outer circumferential groove 34 and the outer peripheral or circumferential flange 20 has an outer portion inclined slightly away from the outer end 24 of the collar 18. Also, the outer periphery of the flange 20 includes a circumferential axially projecting rib 36 on its inner face.

The weather protective air scoop 22 includes a base portion 38 provided with an intumed semi-annular mounting flange 40 whose inner periphery extends through an arc at least slightly greater than 180°. The scoop 22 is constructed of stiff but somewhat flexible and resilient material and accordingly, the opposite ends of the mounting flange 40 and the corresponding portions of the base 38 may be spread slightly apart in order to snap-fittingly engage the mounting flange 40 in the groove 34 with the scoop 22 rotatably supported from the mounting body or collar 18.

In operation, the backing frame or washer 16 is placed on the inner surface of the cover 12 in the area in which the desired ventilation opening is to be formed. Then, the inner periphery of the washer 16 may be utilized to guide a marking device in marking the inner surface of the cover 12 with a circular pattern having a diameter equal to the inside diameter of the washer 16. Thereafter, the washer 16 is removed and the area of the cover 12 within the boundaries of the

circular pattern are cut from the cover 12. Then, with the washer 16 held against the inner surface of the cover 12 about the opening 44 formed therein, the mounting body or collar 18 is moved toward the outer surface of the cover 12 so that the prongs 30 and lugs 32 will be passed through the opening 44 and the lugs 32, which include cam surfaces 45, will engage spaced inner peripheral portions of the washer 16 for camming the free end portions of the prongs 30 inwardly to allow the free end portions of the prongs 30 to pass through the washer 16 and the lugs 32 to thereafter be engaged with the inner surface of the washer 16 about the inner periphery of the washer. In this manner, the mounting body or collar 18 will be locked to the washer 16. Further, the rib 36, if the collar 18 is engaged with the washer 16 independent of the cover 12, contacts the surface of the washer 16 opposing the flange 20. Accordingly, the flange 20 is flexed from its normal position an amount determined by the thickness of the cover panel 12 whereby the cover 12 is frictionally gripped between the rib 36 and the washer 16 to form a watertight seal between the vent 22 and the cover 12.

After the mounting body or collar 18 and washer 16 have been secured together so as to clamp the cover 12 therebetween, the scoop 22 may be readily engaged in the groove 34.

With attention again invited to FIGS. 4 and 5 of the drawings, it may be seen that a screen type closure referred to in general by the reference numeral 48 is provided. The closure 48 includes an annular body 50 from which an axially short concentric sleeve portion 52 is supported. The sleeve portion projects from one side of the annular body 50 centrally intermediate the inner and outer peripheral portions thereof and a screen panel 54 is seated within the sleeve portion 52 against the inner side of the annular body 50. The screen closure 48 may be readily removably supported from the open end of the mounting body or collar 18 in the manner illustrated in FIG. 4 of the drawings with the sleeve portion 52 removably telescoped within the outer end of the mounting body or collar 18. Also, an imperforate closure referred to in general by the reference numeral 58 is provided and includes a circular closure wall 60 having an axially short sleeve portion 70 supported from and projecting outwardly of one side of the circular closure wall 68. Of course, the imperforate closure 58 may be supported from the mounting body or closure 18 in lieu of the screen closure 48.

The entire air vent 14 may be constructed of plastic material. By utilizing plastic materials in the construction of the vent 14 the associated cover 12 will not be rusted or stained. Also, the vent 14 may be readily produced at a low cost. Further, although there are six prongs 32 disclosed, there may be as few as three prongs 32 used.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A vent for a flexible panel, said vent comprising first and second separable members, said first member

defining a central opening and being adapted to abut the inner surface of a panel having a vent opening formed therethrough of a size and shape corresponding to the size and shape of the first mentioned opening and with said openings in registry, said second member defining a central opening and being adapted to abut the outer surface of said panel with said central openings registered, one of said members including a plurality of arms spaced about the central opening thereof and projecting outwardly therefrom and through the central opening in the other member, said arms being stiff but slightly flexible and resilient and including outwardly projecting outer end abutments overlying opposing surfaces of said other member disposed about its central opening and facing away from said one member, at least one of said members including an outwardly projecting stiff but flexible and resilient flange having first outer peripheral surface portions facing toward the other member extending continuously about the central opening thereof, said other member including second surface portions facing toward and opposing said first surface portions and extending continuously about the central opening of said other member, said first and second surface portions being adapted to clampingly engage said panel therebetween with said flange slightly flexed away from said second surface portions, said free ends of said arms being inwardly flexible toward each other sufficient to withdraw said abutments through the central opening of said other member, said first member further including weather protection means projecting outwardly from the side thereof remote from said second member and at least partially overlying the central opening therethrough and including means for inwardly deflecting air flowing across the last-mentioned opening into the latter.

2. The combination of claim 1 wherein said central openings are substantially circular and said arms equal six in number and are substantially equally spaced about the central opening of said other member.

3. The combination of claim 1 wherein said first member comprises a stiff panel member.

4. The combination of claim 3 wherein said first member is annular in plan shape.

5. The combination of claim 1 wherein said first member comprises a stiff panel member, said second member comprising a sleeve type body from one end of which said arms project.

6. The combination of claim 5 wherein said body includes a circumferential outwardly opening groove on the side of said flange remote from said first member, said weather protection means including a cover shroud having an open end and an adjoining open side, said open end of said shroud defining a concave arcuate edge of slightly greater than 180 degrees in angular extent, said arcuate edge being snap-engageable in said groove for removably rotatably supporting said shroud from said body.

7. The combination of claim 1 wherein said second member and flange are integrally formed.

8. The combination of claim 7 wherein said central openings are substantially circular and said arms equal four in number and are substantially equally spaced about the central opening of said other member.

9. The combination of claim 1 including a foraminated closure structure removably supported in the central opening of said second member.

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10. The combination of claim 1 including an imperforate closure structure removably supported in the central opening of said second member.

11. In combination, a flexible panel having a vent opening formed therethrough, a vent structure for said vent opening, said vent structure including first and second separable members, said first member being disposed on one side of said panel and defining a central opening therethrough registered with said vent opening, said second member being disposed on the other side of said panel and defining a central opening therethrough also registered with said vent opening, at least one of said members including an integral outwardly projecting stiff but flexible and resilient flange having first outer peripheral surface portions opposing and abutted against the corresponding side of said panel, the other member including second surface portions opposing and abutted against the adjacent side of said panel, said first and second surface portions extending continuously about said vent opening and being registered with each other on opposite sides of said panel, said first member including a plurality of

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lugs spaced about the corresponding central opening, projecting generally axially of said one member and extending through said vent opening and the central opening of the other member, the free ends of said lugs being at least slightly radially inwardly deflectable and including radially outwardly offset inwardly facing abutment surfaces engaged behind corresponding inner peripheral portions of the other member disposed about its central opening releasably securing said members together against relative separation and with said flange at least slightly flexed, whereby the portions of said panel extending about said opening and disposed between said first and second surface portions are clamped therebetween, said first member further including weather protection means projecting outwardly from the side thereof remote from said second member and at least partially overlying the central opening therethrough and including means for inwardly deflecting air blowing across the last-mentioned opening into the latter.

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