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(54) Title:  VEHICLE SIDE DEFROSTER STRUCTURE

(57) Abstract:  A side defroster structure for a vehicle comprising a flow path 40 that is provided at a vehicle width direction outside in a front pillar trimming and that is formed along a length direction of the front pillar trimming that is oriented with the length direction in a vehicle up-down direction; and an air blower outlet 54 that is provided at a vehicle width direction inside of the flow path in the front pillar trimming, that is in communication with the flow path, and from which air is blown towards a vehicle front-rear direction rear side.
DESCRIPTION

VEHICLE SIDE DEFROSTER STRUCTURE

Field of the Invention

[0001] The present invention relates to a vehicle side defroster structure.

Description of the Related Art

[0002] Japanese Patent Application Laid-Open (JP-A) No. 11-91512 discloses a side defroster structure for a vehicle with a blower outlet that blows out curtain shaped air provided at a rear face portion of a front pillar. The side defroster removes fogginess from a side window, and an already-provided front defroster removes fogginess from a front windshield.

[0003] There is accordingly a need to increase the flow rate of air blown out from the respective blower outlets in order to rapidly clear fogged regions on respective windows.

SUMMARY OF THE INVENTION

Technical Subject

[0004] In consideration of the above circumstances, the present invention obtains a vehicle side defroster structure capable of rapidly clearing a fogged region at a lower area in a vehicle width direction end portion of a front windshield.

Solution Addressing to the Subject

[0005] A side defroster structure for a vehicle of a first aspect of the present invention includes: a flow path that is provided at a vehicle width direction outside in a front pillar.
trimming and that is formed along a length direction of the front pillar trimming that is oriented with the length direction in a vehicle up-down direction; and an air blower outlet that is provided at a vehicle width direction inside of the flow path in the front pillar trimming, that is in communication with the flow path, and from which air is blown towards a vehicle front-rear direction rear side.

[0006] In the side defroster structure for a vehicle of the first aspect, the flow path is formed at the vehicle width direction outside in the front pillar trimming. The air blower outlet is provided at the vehicle width direction inside of the flow path in the front pillar trimming, and is in communication with the flow path. Configuration is made such that air is blown out from the air blower outlet towards the vehicle front-rear direction rear side.

[0007] A front windshield is generally provided at inside in a vehicle width direction of a front end portion of the front pillar trimming. When air is blown out from the air blower outlet, air on a front windshield side is thereby drawn and guided towards the vehicle front-rear direction rear side. Air blown out from a front defroster is accordingly drawn towards a front pillar trimming side (vehicle width direction end portion of the front windshield) and guided towards the vehicle front-rear direction rear side.

[0008] A side defroster structure for a vehicle of a second aspect of the present invention is the vehicle side defroster structure of the first aspect wherein: a design face of the front pillar trimming is a curved face that bulges towards a vehicle compartment side, and the curved face is formed such that air blown out from the air blower outlet flows around the curved face.

[0009] In the vehicle side defroster structure of the second aspect, the design face of the front pillar trimming is configured by the curved face that bulges towards the vehicle compartment side. The air blower outlet is provided at the front pillar trimming, and the
curved face is formed such that air blown out from the air blower outlet flows around the curved face. Air from the air blower outlet is accordingly guided around the curved face towards the vehicle width direction outside.

[0010] A side defroster structure for a vehicle of a third aspect of the present invention is the side defroster structure for a vehicle of the second aspect wherein: the curved face is split in the vehicle front-rear direction as viewed in a cross-section taken along a direction orthogonal to the length direction of the front pillar trimming, and the air blower outlet is configured by a gap at an overlapping portion where respective end portions of the split curved face overlap with each other in the vehicle width direction.

[0011] In the side defroster structure for a vehicle of the third aspect, the curved face of the front pillar trimming is split, and is provided with the overlapping portion where respective end portions of the split curved face overlap with each other. The air blower outlet is configured by a gap formed at the overlapping portion. Air blown out from the air blower outlet accordingly passes through the gap at the overlapping portion. Namely, the air is blown out in a regulated flow state.

[0012] A vehicle side defroster structure of a fourth aspect of the present invention is the vehicle side defroster structure of the second aspect or the third aspect further including: a blower outlet for changing flow direction that is provided at the front pillar trimming at a rear side in the vehicle front-rear direction of the air blower outlet, and an airflow from the blower outlet for changing flow direction intersects with an airflow blown out from the air blower outlet and changes the direction of the airflow from the air blower outlet.

[0013] In the side defroster structure for a vehicle of the fourth aspect of the present invention, the blower outlet for changing flow-direction is provided at the front pillar
trimming at the rear side in the vehicle front-rear direction of the air blower outlet, so as to intersect with the airflow from the air blower outlet and change the direction of the airflow. When the blower outlet for changing flow-direction is not provided, the airflow blown out from the air blower outlet is guided around the curved face towards the vehicle width direction outside. However, by making an airflow blown out from the blower outlet for changing flow-direction intersect with the airflow blown out from the air blower outlet, the direction of the airflow from the air blower outlet can be changed towards the vehicle width direction inside.

Advantageous Effects of Invention

[0014] By configuring the present invention as described above, the side defroster structure for a vehicle of the first aspect exhibits the excellent advantageous effect of enabling rapid clearing of a fogged region at a lower portion in a vehicle width direction end portion of the front windshield.

[0015] The side defroster structure for a vehicle of the second aspect exhibits the excellent advantageous effect of enabling a fogged region at a vehicle front-rear direction front portion of a side door windowpane to be rapidly cleared by guiding an airflow blown out from the air blower outlet towards the vehicle width direction outside.

[0016] The vehicle side defroster structure of the third aspect exhibits the excellent advantageous effect of enabling blowing noise to be suppressed since air from the air blower outlet is blown out in a regulated state due to the overlapping portion.

[0017] The vehicle side defroster structure of the fourth aspect exhibits the excellent advantageous effect of enabling air to be conveyed towards an occupant side as required.
BRIEF DESCRIPTION OF THE DRAWINGS

[0018] Fig. 1 is a perspective view illustrating a front pillar applied with a side defroster structure for a vehicle according to a first exemplary embodiment of the present invention, as viewed from the vehicle compartment inside;

Fig. 2 illustrates a cross-section state taken along a direction orthogonal to a length direction of the front pillar applied with the side defroster structure according to the first exemplary embodiment of the present invention;

Fig. 3 is an explanatory diagram illustrating a structure of the front pillar applied with the side defroster structure according to the first exemplary embodiment of the present invention;

Fig. 4 is an explanatory diagram to explain operation of the front pillar applied with the side defroster structure according to the first exemplary embodiment of the present invention;

Fig. 5A is a schematic diagram illustrating a clear region on a front windshield in general;

Fig. 5B is a schematic diagram illustrating a clear region on a front windshield applied with the side defroster structure according to the first exemplary embodiment of the present invention;

Fig. 6 is schematic diagram sequentially illustrating the progression over time of a clear region on a side door windowpane in general;

Fig. 7 is schematic diagram sequentially illustrating the progression over time of a clear region on a side door windowpane applied with the side defroster structure according to the first exemplary embodiment of the present invention;

Fig. 8 is a perspective view illustrating a front pillar applied with a side defroster structure for a vehicle according to a second exemplary embodiment of the present invention as seen from the vehicle compartment inside;
Fig. 9 illustrates a cross-section state taken along a direction orthogonal to a length direction of a front pillar applied with the side defroster structure according to the second exemplary embodiment of the present invention; and

Fig. 10 is an explanatory diagram illustrating a structure of the front pillar applied with the vehicle side defroster structure according to the second exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Explanation follows regarding a defroster structure for a vehicle according to exemplary embodiments of the present invention, with reference to the drawings. Note that in the drawings, an arrow FR indicates the vehicle front side, an arrow UP indicates the vehicle upper side, and an arrow OUT indicates the vehicle width direction outside, as appropriate. Unless specifically stated otherwise, front, rear, left and right indicate the front, rear, left and right from the point of view of an occupant seated inside a vehicle compartment facing towards the vehicle front.

[0020] First Exemplary Embodiment

Vehicle Defroster Structure Configuration

[0021] Explanation is first given regarding a configuration of a vehicle defroster structure according to a first exemplary embodiment. As shown in Fig. 1 and Fig. 2, a front windshield 20 is provided at a front section of a vehicle compartment 11 of a vehicle 10. Front pillars 12 that are disposed at both vehicle width direction edge portions of the front windshield 20 are configured including a pillar inner panel 14 disposed on a vehicle width direction inside and a pillar outer panel 16 disposed on a vehicle width direction outside.
The pillar inner panel 14 and the pillar outer panel 16 are both formed with substantially
elongated strip shapes, with length directions disposed in the up-down direction. Note that
only the vehicle right hand side front pillar 12 is illustrated in the drawings, however the
vehicle left hand side front pillar has a similar configuration to the vehicle right hand side
front pillar 12.

[0022] As shown in cross-section in Fig. 2, a main body portion 14A of the pillar inner panel
14 is disposed substantially along the vehicle front-rear direction. A joining flange 14B that
is bent towards the vehicle width direction inside with respect to the main body portion 14A is
provided to a front end portion of the pillar inner panel 14. The joining flange 14B extends
along a length direction of the pillar inner panel 14. A joining flange 14C that extends
towards the rear side with respect to the main body portion 14A is further provided to a rear
end portion of the pillar inner panel 14. The joining flange 14C extends along the length
direction of the pillar inner panel 14.

[0023] A main body portion 16A of the pillar outer panel 16 is formed so as to adopt a
bulging state towards the vehicle width direction outside. A joining flange 16B that is bent
towards the vehicle width direction inside with respect to the main body portion 16A is
provided to a front end portion of the pillar outer panel 16. The joining flange 16B extends
along a length direction of the pillar outer panel 16. A joining flange 16C that is bent
towards the rear side with respect to the main body portion 16A is further provided to a rear
end portion of the pillar outer panel 16. The joining flange 16C extends along the length
direction of the pillar outer panel 16.

[0024] The joining flange 14B and the joining flange 16B, as well as the joining flange 14C
and the joining flange 16C, are respectively joined together by for example welding. The
front pillar 12 accordingly configures a closed cross-section portion 15 with the main body portion 14A of the pillar inner panel 14 and the main body portion 16A of the pillar outer panel 16.

[0025] A molding 22 is attached to the front pillar 12, disposed between the front pillar 12 and the front windshield 20 so as to close off a gap between the front pillar 12 and the front windshield 20. A weather strip 26 is further attached to a front door 24 so as to close off a gap between the front pillar 12 and the front door 24 when an entrance of the vehicle body is closed. A front pillar trimming 28 made of a resin is disposed on the vehicle compartment side of the pillar inner panel 14. The front pillar trimming 28 covers the front pillar 12 from the vehicle compartment side, with a length direction of the front pillar trimming 28 extending in the up-down direction and configuring a portion of the interior decor of the vehicle compartment 11.

[0026] A front face (design face) of the front pillar trimming 28 is configured by a curved face 30 that bulges towards the vehicle width direction inside. A space 32 is provided between the front pillar trimming 28 and the pillar inner panel 14, with members including a wire harness 34, a drain hose 36 and a curtain airbag device 38 housed inside the space 32. The front pillar trimming 28 is moreover branched so as to project towards the pillar inner panel 14 side to form a flow path 40 that extends along the length direction of the front pillar trimming 28. Note that the front pillar trimming 28 forms the flow path 40 in such a way so as not to interfere with the members such as the curtain airbag device 38.

[0027] As shown in Fig. 1, an air conditioning device 44 is provided at a back side of an instrument panel 42. Plural ducts 46 are connected to the air conditioning device 44 (note that only a duct 46 connected to a front defroster 48 is illustrated). A temperature of air is
regulated by the air conditioning device 44 and the air is guided through the ducts 46 to for example a center register (not shown in the drawings) and the front defroster 48.

[0028] In the present exemplary embodiment, an additional duct 50 is connected to the air conditioning device 44. A leading end portion of the duct 50 is connected to a pressurizing device 52 configured including for example a fan and a motor. A duct 51 that is connected to one end portion (on a vehicle up-down direction lower portion side) of the flow path 40 inside the front pillar trimming 28 is also connected to the pressurizing device 52. Air that has been pressurized by the pressurizing device 52 is conveyed into the flow path 40 through the duct 51. Note that in the present example, a duct 53 branches from the duct 51 to convey the air to the vehicle left hand side front pillar.

[0029] As shown in Fig. 2, an air blower outlet 54 that is in communication with the flow path 40 is formed extending along the length direction of the front pillar trimming 28. The air blower outlet 54 is formed on the vehicle width direction inside of the flow path 40. The air blower outlet 54 splits the curved face 30 in the vehicle front-rear direction as seen in cross-section of the front pillar trimming 28. The curved face 30 is accordingly divided into a front curved face portion 56 positioned on a front portion side, and a rear curved face portion 58 positioned on a rear portion side.

[0030] The front curved face portion 56 forms a curved face that approaches the vehicle width direction inside on progression towards the vehicle rear side. The rear curved face portion 58 forms a curved face that approaches the vehicle width direction outside on progression towards the vehicle rear side. A rear end portion 56A of the front curved face portion 56 overlaps in the vehicle width direction with a front end portion 58A of the rear curved face portion 58 (an overlapping portion 60). The front end portion 58A of the rear
curved face portion 58 is disposed to the vehicle width direction outside of the rear end portion 56A of the front curved face portion 56.

[0031] A gap 62 provided between the mutually overlapping rear end portion 56A and the front end portion 58A configures the air blower outlet 54. Note that, the radius of curvature is smaller at the front end side of the rear curved face portion 58 than at other portions of the rear curved face portion 58 heading towards a rear end side such that the profile of the curved face of the front curved face portion 56 continues to extend on progression towards the rear, whereby an apex portion 30A of the curved face 30 of the front pillar trimming 28 is provided.

[0032] Operation and Advantageous Effects of Vehicle Defroster Structure

Explanation follows regarding operation and advantageous effects of the vehicle defroster structure according to the first exemplary embodiment. As shown in Fig. 2, in the present exemplary embodiment the flow path 40 is formed along the length direction of the front pillar trimming 28 at the vehicle width direction outside of the front pillar trimming 28. The air blower outlet 54 is provided on the vehicle width direction inside (front windshield 20 side) of the flow path 40 at the front pillar trimming 28.

[0033] Accordingly, when the air conditioning device 44 illustrated in Fig. 1 is actuated, and air is conveyed inside the flow path 40 by the pressurizing device 52, the air conveyed inside the flow path 40 is blown out from the air blower outlet 54. As shown in Fig. 2, air that has been blown out from the air blower outlet 54 flows towards the rear side around the curved surface of the rear curved face portion 58 (airflow A).

[0034] The front windshield 20 is provided to extend from a front end portion of the front pillar trimming 28 toward the vehicle width direction inside. Air on the front windshield 20
side is thereby drawn and guided towards the front pillar trimming 28 side (airflow B) when air is blown out from the air blower outlet 54. As shown in Fig. 1, air that has been blown out from the front defroster 48 (airflow F) is accordingly drawn towards the vehicle width direction outside towards the front pillar trimming 28 side (airflow B), and is guided around the curved face 30 of the front pillar trimming 28. A flow rate of air from the front defroster 48 towards the vehicle width direction outside is accordingly increased, and as shown in Fig. 5B, a fogged region A can be cleared rapidly on both lower portions in vehicle width direction end portions of the front windshield 20 (clear region B).

[0035] As shown in Fig. 5A, in the event the present exemplary embodiment is not applied, a fogged region A’ of the front windshield 20 is cleared slowly, centered on a vehicle width direction central portion (clear region B’), by the airflow blown out from the front defroster 48. That is to say, it takes time for the fogged region A’ to be clear on both lower portions in vehicle width direction end portions of the front windshield 20.

[0036] However as shown in Fig. 1, in the present exemplary embodiment, air blown out from the front defroster 48 (airflow F) is drawn towards the front pillar trimming 28 side (both edge sides in the vehicle width direction of the front windshield 20) (airflow B). The fogged region A (see Fig. 5B) can accordingly be cleared rapidly on both lower portions at the vehicle width direction sides of the front windshield 20.

[0037] In the above explanation, the airflow at the front windshield 20 side has been described. Next, explanation is given regarding the airflow at a side door windowpane 64 side. As shown in Fig. 2, the rear curved face portion 58 of the curved face 30 of the front pillar trimming 28 forms a face curved so as to approach the vehicle width direction outside on progression towards the vehicle rear side. The airflow (airflow A and airflow B are
joined) is accordingly guided towards the side door windowpane 64 that is provided to the front door 24 (airflow C).

[0038] As shown in (A), (B) and (C) in Fig. 6, in the event that the present exemplary embodiment is not applied, the airflow blown out from the front defroster slowly clears a fogged region (the dotted region) from a front side at a lower portion of the side door windowpane 64. A clear region is changed from C1 to C2 and further to C3.

[0039] However as shown in Fig. 1, in the present exemplary embodiment air blown out from the air blower outlet 54 (airflow A) is guided towards the side door windowpane 64 around the rear curved face portion 58 (curved face 30) (airflow C). Moreover, air that has been blown out from the front defroster 48 and drawn towards the front pillar trimming 28 side (airflow B) is also guided towards the side door windowpane 64 around the rear curved face portion 58 (airflow C). A flow rate of the air that is guided towards the side door windowpane 64 is accordingly increased, and as shown in (A), (B) and (C) in Fig. 7, a fogged region is cleared from a front portion towards a rear portion at the side door windowpane 64. A clear region is changed from D1 to D2 and further to D3. Namely, the fogged region (illustrated by the dotted region) of the side door windowpane 64 can be cleared rapidly.

[0040] Supplementary explanation follows regarding the operation and advantageous effects of the vehicle defroster structure according to the present exemplary embodiment. As shown in Fig. 1, in the present exemplary embodiment the air blower outlet 54 is provided to the vehicle width direction inside of the flow path 40 in the front pillar trimming 28. The fogged regions of the front windshield 20 and the side door windowpane 64 can be cleared rapidly utilizing the airflow blown out from the air blower outlet 54. From a design perspective, the present configuration is preferable compared with, for example, a case in
which a side defroster is disposed at an upper face on both sides in the vehicle width direction of the instrument panel in order to rapidly clear the fogged regions.

[0041] Moreover, as shown in Fig. 2, in the present exemplary embodiment the air blower outlet 54 is configured by the gap 62 provided between the mutually overlapping rear end portion 56A of the front curved face portion 56 and the front end portion 58A of the rear curved face portion 58. Air blown out from the air blower outlet 54 is accordingly regulated by the overlapping portion 60 and flows around the rear curved face portion 58 provided at the surface of the front pillar trimming 28 (airflow A). Air from the air blower outlet 54 is accordingly blown out in a regulated state by the overlapping portion 60, enabling blowing noise to be suppressed.

[0042] As shown in Fig. 4, in the present exemplary embodiment the air blower outlet 54 is provided on the vehicle width direction inside in the front pillar trimming 28. The apex portion 30A of the curved face 30 of the front pillar trimming 28 is further provided at the front end side of the rear curved face portion 58 that forms a portion of the air blower outlet 54. Accordingly, as the front pillar trimming 28 is viewed by an occupant P, the air blower outlet 54 is hidden by the apex portion 30A and is not visible from the occupant P. This is preferable from a design perspective.

[0043] As shown in Fig. 2, the space 32 is provided between the front pillar trimming 28 and the pillar inner panel 14, with members including the wire harness 34, the drain hose 36 and the curtain airbag device 38 housed inside the space 32. Although a space remaining apart from these members is small in the space 32, in the present exemplary embodiment, only the flow path 40 is formed inside this remaining space, and any negative impact on for example the size of the other members is avoided.
Second Exemplary Embodiment

Explanation follows regarding a vehicle defroster structure according to a second exemplary embodiment. Note that elements similar to those of the first exemplary embodiment are allocated the same reference numerals and detailed explanation thereof is omitted (including explanation of the common operation).

As shown in Fig. 8, in the present exemplary embodiment a blower outlet 72 for changing flow direction is provided at a rear side of the air blower outlet 54 in a front pillar trimming 70, so as to extend along a length direction of the front pillar trimming 70. In other words, a flow path 74 that is in communication with the air blower outlet 54 and the blower outlet 72 for changing flow direction is provided in the front pillar trimming 70.

As shown in Fig. 10, the flow path 74 is formed in a substantially U-shape that is open towards a vehicle up-down direction upper portion side, and is configured including a first flow path 74A, a second flow path 74B, and a third flow path 74C. The first flow path 74A extends along the length direction of the front pillar trimming 70 and is in communication with the air blower outlet 54. The second flow path 74B is connected to the first flow path 74A and extends in a direction orthogonal to the length direction of the front pillar trimming 70. The third flow path 74C is connected to the second flow path 74B, is in communication with the blower outlet 72, and extends along the length direction of the front pillar trimming 70. Note that a duct 51 is connected to a vehicle up-down direction lower portion of the first flow path 74A, and air inside the duct 51 is guided in sequence through the first flow path 74A, the second flow path 74B and the third flow path 74C (indicated by the arrows).

As shown in Fig. 9, by providing the blower outlet 72 for changing flow direction, a
curved face rear portion 76 that configures a portion of a curved face 30 of the front pillar
trimming 70 is split in the vehicle front-rear direction into a first curved face 76A positioned
at a front portion side, and a second curved face 76B positioned at a rear portion side.
Namely, the blower outlet 72 is configured by a gap 78 provided between the first curved face
76A and the second curved face 76B.

[0048] A guide part 80 is provided to a rear end portion of the first curved face 76A, and
extends substantially parallel to a wall face 74C1 configuring the flow path 74 as well as the
third flow path 74C. Air that has been guided inside the third flow path 74C is blown out
from the blower outlet 72 between the guide portion 80 and the wall face 74C1 in a regulated
flow state.

[0049] Air blown out from the air blower outlet 54 (airflow A) flows around the surface of
the curved face rear portion 76 of the front pillar trimming 70. However air from the blower
outlet 72 (airflow D) is blown out in a direction intersecting with the airflow A.

[0050] A damper, not shown in the drawings, is provided to the second flow path 74B,
enabling regulation of a flow rate of the air that is guided into the third flow path 74C. More
specifically, in a fully open state of the damper, a portion of the air that flows into the first
flow path 74A is blown out from the air blower outlet 54, and another portion of the air flows
through the second flow path 74B into the third flow path 74C. The air that has flowed into
the third flow path 74C is then blown out from the blower outlet 72. The air blown out from
the blower outlet 72 (airflow D) accordingly heads towards the vehicle width direction inside,
merging, from the side, with the airflow A and the airflow B which has been drawn by the
drawing in effect caused by the airflow A. As a result, the direction of the airflow A and the
airflow B is changed (airflow E). Namely, the airflow E directed towards an occupant P (see
In a fully closed state of the damper, air that has flowed into the first flow path 74A does not flow into the third flow path 74C. The amount of air blown out from the air blower outlet 54 accordingly increases. In this state, the airflow A and the airflow B are guided around the curved face 30 of the front pillar trimming 70, and flow towards the side door windowpane 64 (airflow C). Note that when the amount of air blown out from the air blower outlet 54 increases, the flow rate of air drawn by the airflow A increases. Namely, the combined flow rate of airflow A and airflow B can be varied by opening and closing the damper.

In the present exemplary embodiment, the direction of the airflow can accordingly be changed by regulating the amount of air that is blown out from the blower outlet 72. Air can therefore be conveyed to the occupant P side if needed.

Supplementary Explanation of Exemplary Embodiments

As shown in Fig. 2, the above exemplary embodiments are provided with the overlapping portion 60 where the rear end portion 56A of the front curved face portion 56 and the front end portion 58A of the rear curved face portion 58 overlap with each other. However, the overlapping portion 60 does not necessarily have to be provided as long as air blown out from the air blower outlet 54 can be made to flow around the curved face 30.

Moreover, in the above exemplary embodiments, the curved face 30 is formed such that air blown out from the air blower outlet 54 flows around the curved face 30 that forms the design face of the front pillar trimming 28. However, the curved face 30 does not necessarily have to be formed such that the air blown out from the air blower outlet 54 flows around the curved face 30 as long as air at the periphery of the front windshield 20 can be
drawn towards the front pillar trimming 28 side.

[0055] Moreover, in the above exemplary embodiments, configuration is made such that the airflow $F$ that is blown out from the front defroster 48 is drawn towards the front pillar trimming 28 side (airflow $B$), with the airflow $B$ utilized to rapidly clear the fogged region of the front windshield 20 and the side door windowpane 64, however configuration may be made wherein the airflow blown out from the air blower outlet 54 is employed alone.

[0056] Moreover, in the above exemplary embodiments, explanation has been given of a case in which the vehicle defroster structure of the present invention is applied to both the vehicle left hand side and right hand side front pillars 12, however the present invention includes cases in which the vehicle defroster structure is applied to a front pillar 12 on only the vehicle right hand side or the vehicle left hand side.

[0057] Explanation has been given above of exemplary embodiments of the present invention, however the present invention is not limited by the above description, and obviously various modifications other than those described above may be implemented within a scope not departing from the spirit of the present invention.


All publications, patent applications, and technical standards mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent application, or technical standard was specifically and individually indicated to be incorporated by reference.
CLAIMS

1. A side defroster structure for a vehicle comprising:
   a flow path that is provided at a vehicle width direction outside in a front pillar trimming and that is formed along a length direction of the front pillar trimming that is oriented with the length direction in a vehicle up-down direction; and
   an air blower outlet that is provided at a vehicle width direction inside of the flow path in the front pillar trimming, that is in communication with the flow path, and from which air is blown towards a vehicle front-rear direction rear side.

2. The side defroster structure for a vehicle of claim 1 wherein:
   a design face of the front pillar trimming is a curved face that bulges towards the vehicle compartment side, and the curved face is formed such that air blown out from the air blower outlet flows around the curved face.

3. The side defroster structure for a vehicle of claim 2 wherein:
   the curved face is split in the vehicle front-rear direction as viewed in cross-section taken along a direction orthogonal to the length direction of the front pillar trimming, and the air blower outlet is configured by a gap at an overlapping portion where respective end portions of the split curved face overlap with each other in the vehicle width direction.

4. The side defroster structure for a vehicle of claim 2 or claim 3 further comprising a blower outlet for changing flow direction that is provided at the front pillar trimming at a rear
side in the vehicle front-rear direction of the air blower outlet, and an airflow from the blower outlet for changing flow direction intersects with an airflow blown out from the air blower outlet and changes the direction of the airflow from the air blower outlet.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. B60H1/24 B60H1/34 B60R13/02

According to International Patent Classification (IPC) onto both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60H B60S B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>DE 23 18 097 Al (VOLKSWAGENWERK AG) 31 October 1974 (1974-10-31) page 4 - page 5; figures 1-3</td>
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<td>X</td>
<td>DE 10 2010 048342 Al (GM GLOBAL TECH OPERATIONS INC [US]) 19 April 2012 (2012-04-19) paragraphs [0031] - [0034]; figures 1, 2, 3a, 3b</td>
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☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:

A: document defining the general state of the art which is not considered to be of particular relevance

E: earlier application or patent published on or after the international filing date

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