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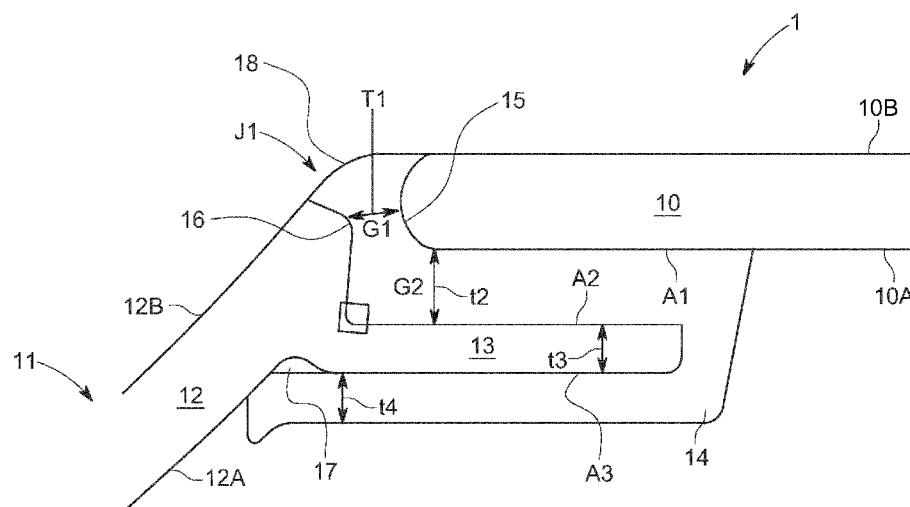


FIG. 3

(57) **Abstract:** Aspects of the present invention relate to a glazing assembly (1) for a vehicle (2). The glazing assembly (1) includes a glazing element (10), a finisher component (11) and a connector (14). The glazing element (10) has an inner surface (10A) and an outer surface (10B); the finisher component (11) has an inner surface (12A) and an outer surface (12B). A portion of the glazing element inner surface (10A) forms a first encapsulation area (A1); and a portion of the finisher component inner surface (12A) forms a second encapsulation area (A2). The finisher component (11) is connected to the glazing element (10) by the connector (14) which is composed of an encapsulation material which encapsulates the first encapsulation area (A1) and the second encapsulation area (A2). The resulting glazing assembly (1) has a substantially continuous outer surface. The present invention also relates to an encapsulated assembly (1) for an exterior of a vehicle (2). Furthermore, the present invention relates to methods of forming a glazing assembly (1);



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GLAZING ASSEMBLY AND FORMING METHOD

TECHNICAL FIELD

The present disclosure relates to a glazing assembly and forming method. Aspects of the invention relate to a glazing assembly, an encapsulated assembly, a method of forming a glazing assembly, and a method of forming an encapsulated assembly.

BACKGROUND

It is known to provide a vehicle with a finisher component to form part of an exterior surface thereof. In certain designs, the finisher component may be located alongside a glazing panel. The finisher component and the glazing panel are typically fitted as separate components. The glazing panel may be fitted to a body of the vehicle, for example using an adhesive and/or a mechanical fastener. The finisher component may then be fitted alongside the glazing panel. The finisher component may be fastened to the vehicle body using mechanical fasteners, such as blind clips. The resulting joint between the glazing panel and the finisher component is visible and there is typically a slight step/offset between the glazing panel and the finisher component.

A perspective view of a known glazing assembly 101 on a vehicle 102 is shown in Figure 6 by way of example. The glazing assembly 101 comprises multiple pieces which are fitted to the vehicle 102 as separate components. In particular, the glazing assembly 101 comprises a glazing element 110 and a finisher component 111. A join line J2 formed between the glazing element 110 and the finisher component 111 is represented by dashed lines in Figure 4.

It is an aim of the present invention to address one or more of the disadvantages associated with the prior art.

SUMMARY OF THE INVENTION

Aspects and embodiments of the invention provide a glazing assembly, an encapsulated assembly and a method of forming a glazing assembly as claimed in the appended claims

According to an aspect of the present invention there is provided a glazing assembly for a vehicle, the glazing assembly comprising:

a glazing element having an inner surface and an outer surface, wherein a portion of the glazing element inner surface forms a first encapsulation area; and

a finisher component having an inner surface and an outer surface, wherein a portion of the finisher component inner surface forms a second encapsulation area;

the finisher component being connected to the glazing element by a connector composed of an encapsulation material which encapsulates the first encapsulation area and the second encapsulation area such that the glazing assembly comprises a substantially continuous outer surface. The encapsulation material bonds to the first encapsulation area and to the second encapsulation area, thereby fixedly connecting the glazing element and the finisher component. The glazing assembly is pre-assembled for installation on the vehicle. The glazing element outer surface and the finisher component outer surface form an outer surface of the vehicle.

The glazing assembly outer surface is at least substantially continuous. Thus, at least in certain embodiments, the glazing assembly outer surface is at least substantially free from discontinuities or interruptions, such as a step change in profile. The resulting glazing assembly may comprise a seamless joint between the glazing element and the finisher component.

The glazing assembly outer surface may be planar. Alternatively, the glazing assembly outer surface may be curved. For example, the glazing assembly outer surface may be curved in one or more direction.

At least in certain embodiments, the connector forms a water-tight seal between the glazing element and the finisher component.

The first encapsulation area is formed on the glazing element inner surface. At least in certain embodiments, the connector does not extend over the glazing element outer surface. Alternatively, or in addition, the connector does not extend over the finisher component outer surface.

The finisher component may comprise a stabilising member. The stabilising member may extend from the finisher component inner surface and form at least a portion of the second encapsulation area.

The stabilising member may be spaced apart from the glazing element inner surface. At least a portion of the connector may be disposed between the stabilising member and the glazing element inner surface.

The stabilising member may extend substantially parallel to the glazing element inner surface. The stabilising member may comprise a central longitudinal axis which extends substantially parallel to the glazing element inner surface which forms the first encapsulation area.

- 5 The second encapsulation area may be formed on two opposing sides of the stabilising member.

The glazing element could comprise interlocking means for interlocking with the connector. The interlocking means may comprise one or more of the following: an aperture, a channel, a
10 recess and a protuberance. The interlocking means may be formed in the first encapsulation area.

The stabilising member may comprise interlocking means for interlocking with the connector. The interlocking means may comprise one or more of the following: an aperture, a channel, a
15 recess and a protuberance. The interlocking means may be formed in the second encapsulation area. Alternatively, or in addition, the stabilising member may comprise a (negative) taper angle for interlocking with the connector.

The connector may form a joint between the glazing element and the finisher component. The
20 joint may have an outer surface which forms a continuation of the glazing element outer surface and the finisher component outer surface. The joint outer surface may be planar or curved.

The connector may comprise an elongate section disposed between the glazing element and
25 the finisher component. The elongate section may comprise an outer surface which is profiled to form a continuation of at least one of the glazing element outer surface and the finisher component outer surface. The elongate section outer surface may, for example, comprise a convex curve or a planar surface. The elongate section outer surface may be moulded to form a continuation of at least one of the glazing element outer surface and the finisher component
30 outer surface.

The glazing element and the finisher component may abut against each other. Alternatively, the glazing element and the finisher component may be spaced apart from each other.

- 35 The encapsulation material may be substantially rigid or inflexible. Alternatively, the encapsulation material may resiliently deformable to enable relative movement of the glazing element and the finisher component. The encapsulation material may, for example, comprise

or consist of an elastomer. The encapsulation material may enable limited relative movement of the glazing element and the finisher component.

According to a further aspect of the present invention there is provided a vehicle comprising a
5 glazing assembly as described herein.

According to a further aspect of the present invention there is provided an encapsulated assembly for an exterior of a vehicle, the encapsulated assembly comprising:

10 a first component having a first inner surface and a first outer surface, wherein a portion of the first inner surface forms a first encapsulation area; and

a second component having a second inner surface and a second outer surface, wherein a portion of the second inner surface forms a second encapsulation area;

15 the first component and the second component being connected to each other by a connector, the connector being composed of an encapsulation material which encapsulates the first encapsulation area and the second encapsulation area such that the encapsulated assembly comprises a substantially continuous outer surface;

wherein the second component comprises a stabilising member forming the second encapsulation area. The stabilising member may extend from the second inner surface.

20 The first component and the second component may be formed from different materials. The first component may be formed of metal. The first component may be formed of a plastics material.

According to a further aspect of the present invention there is provided a method of forming a
25 glazing assembly for a vehicle, the glazing assembly comprising a glazing element having an inner surface and an outer surface; and a finisher component having an inner surface and an outer surface; the method comprising:

locating the glazing element and the finisher component in a mould;

30 introducing an encapsulation material into the mould to form a connector to connect the finisher component to the glazing element, the encapsulation material encapsulating a first encapsulation area formed on the glazing element inner surface and a second encapsulation area formed on the finisher component inner surface such that the glazing assembly comprises a substantially continuous outer surface. At least in certain embodiments, the mould may define the outer surface of the connector. Thus, the mould may be profiled to form the
35 substantially continuous outer surface of the glazing assembly.

The finisher component may comprise a stabilising member extending from the finisher component inner surface. The method may comprise introducing the encapsulation material into the mould to encapsulate at least a portion of the stabilising member.

- 5 The stabilising member may be spaced apart from the glazing element inner surface. The encapsulation material may be introduced between the stabilising member and the glazing element inner surface.

- 10 The stabilising member may be spaced apart from the glazing element. The encapsulation material may form an elongate section of the connector extending between the stabilising member and the glazing element.

The mould may form an outer surface of the connector.

- 15 The mould may be profiled such that the connector outer surface forms a continuation of at least one of the glazing element outer surface and the finisher component outer surface.

The glazing element and the finisher component abut against each other in the mould.

- 20 According to a further aspect of the present invention there is provided an encapsulated assembly for an exterior of a vehicle, the encapsulated assembly comprising:

a first component having a first inner surface and a first outer surface, wherein a portion of the first inner surface forms a first encapsulation area; and

- 25 a second component having a second inner surface and a second outer surface, wherein a portion of the second inner surface forms a second encapsulation area;

the first component and the second component being connected to each other by a connector, the connector being composed of an encapsulation material which encapsulates the first encapsulation area and the second encapsulation area such that the encapsulated assembly comprises a substantially continuous outer surface;

- 30 wherein the second component comprises a stabilising member extending from the second inner surface and forming the second encapsulation area.

The first component and the second component may be formed from different materials.

- 35 According to a further aspect of the present invention there is provided a method of forming an encapsulated assembly for an exterior of a vehicle, the encapsulated assembly comprising

a first component having a first inner surface and a first outer surface; and a second component having a second inner surface and a second outer surface; the method comprising:

locating the first component and the second component in a mould;

introducing an encapsulation material into the mould to form a connector to connect
5 the first component to the second component, the encapsulation material encapsulating a first encapsulation area formed on the first inner surface and a second encapsulation area formed on the second inner surface such that the encapsulated assembly comprises a substantially continuous outer surface. The mould may form an outer surface of the connector.

10 Within the scope of this application it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination, unless such
15 features are incompatible. The applicant reserves the right to change any originally filed claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

20 BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a schematic representation of a vehicle incorporating a glazing
25 assembly in accordance with an embodiment of the present invention;

Figure 2 shows a perspective view of a vehicle incorporating the glazing assembly illustrated in Figure 1;

Figure 3 shows a sectional view through the glazing assembly shown in Figure 2;

Figure 4 shows a plan elevation of a mould for forming a connector to join the glazing
30 element and the finisher component of the glazing assembly;

Figure 5A shows a sectional view of the mould shown in Figure 4 prior to introduction of an encapsulation material;

Figure 5B shows a sectional view of the mould shown in Figure 4 after introduction of the encapsulation material to form the connector; and

35 Figure 6 shows a perspective view of a vehicle incorporating a known two-piece glazing assembly.

DETAILED DESCRIPTION

A glazing assembly 1 in accordance with an embodiment of the present invention is described herein with reference to the accompanying Figures. As shown in Figures 1 and 2, the glazing assembly 1 is installed on a vehicle 2. In the present embodiment, the vehicle 2 is an automobile. In particular, the vehicle 2 is a sports utility vehicle (SUV). It will be understood that the glazing assembly 1 may be employed in a vehicle 2 having other body styles, for example a saloon, sports, coupé, station wagon, estate, shooting brake or utility. Furthermore, it will be understood that the glazing assembly 1 may be installed in other types of vehicle, such as a train.

As shown in Figure 1, the vehicle 2 comprises a vehicle body (denoted generally by the reference numeral 3) comprising an A-pillar 4, a B-pillar 5, a C-pillar 6 and a D-pillar 7. The glazing assembly 1 is a rear quarter glazing assembly and is installed in a rear quarter of the vehicle 2 so as to extend between the C-pillar 6 and the D-pillar 7. The glazing assembly 1 comprises a glazing element 10 and a finisher component 11. The finisher component 11 forms an exterior surface of the vehicle 2 (also known as an A-surface).

The glazing element 10 consists of a glass panel and forms a rear quarter window of the vehicle 2 when the glazing assembly 1 is installed. The rear quarter window in the present embodiment is a fixed window (i.e. a window which cannot be opened), but aspects of the present invention could be implemented in a window which can open. The glazing element 10 is fastened to the vehicle body 3 using conventional fastening means (not shown), such as an adhesive and/or one or more mechanical fastener(s). The glazing element 10 has an inner surface 10A and an outer surface 10B. The outer surface 10B of the glazing element 10 forms part of the exterior surface of the vehicle 2 when the glazing assembly 1 is fitted.

The finisher component 11 comprises a D-pillar finisher which forms an exterior surface of the D-pillar 7 of the vehicle body 3. The finisher component 11 is moulded from a plastics material, for example by an injection-moulding process. The D-pillar finisher is made of a thermoplastic Polymethyl methacrylate (P.M.M.A) in the present embodiment. As shown in Figure 3, the finisher component 11 comprises a finisher panel 12, a stabilising member 13 and a connector 14. The finisher panel 12 comprises an inner surface 12A and an outer surface 12B. The outer surface 12B of the finisher panel 12 forms a part of the exterior surface of the vehicle 2. The outer surface 12B of the finisher panel 12 may have a gloss or matt finish. The stabilising member 13 is provided to reinforce the connection between the glazing component 10 and the finisher component 11. The stabilising member 13 projects from the inner surface 12A of the finisher panel 12 and extends alongside the glazing component 10 to form an overlap. As

shown in Figure 3, the stabilising member 13 is spaced apart from the inner surface 10A of the glazing element 10. The finisher panel 12 and the stabilising member 13 are formed integrally such that the finisher component 11 has a one-piece composition. In a variant, the finisher panel 12 and the stabilising member 13 could be formed separately and then joined, for example by fastening or mounting the stabilising member 13 to the finisher panel 12.

The connector 14 fixedly connects the glazing element 10 and the finisher component 11. As described herein, the connector 14 is moulded around the stabilising member 13 and at least partially encapsulates the stabilising member 13. The connector 14 retains the glazing element 10 and the finisher component 11 in a substantially fixed position and orientation relative to each other. The glazing assembly 1 may be fitted to the vehicle body 3 as a single, homogeneous component. The connector 14 may be at least substantially rigid or inflexible. In the present embodiment, the connector 14 enables limited relative movement of the glazing element 10 and the finisher component 11 to facilitate fitting of the glazing assembly 1. The connector 14 could be formed from an elastomeric compound.

The connector 14 forms a joint J1 (represented by a dashed line in Figure 2) between the glazing element 10 and the finisher component 11. The joint J1 is elongated along the length of the boundary between the glazing element 10 and the finisher component 11. A sectional view of the joint J1 is shown in Figure 3 and the joint J1 extends out of the plane of the page. The joint J1 comprises an outer surface 18 having a curved profile which forms a continuation of the outer surfaces 10B, 12B of the glazing element 10 and the finisher panel 12. The outer surface 18 of the joint J1 thereby forms a substantially continuous (i.e. substantially uninterrupted) exterior surface for the glazing assembly 1. The continuous outer surface 18 forms a seamless joint J1 which is less visible than prior art arrangements. The glazing element 10 has a first edge 15; and the finisher component 11 has a second edge 16. The first and second edges 15, 16 each have a convex profile in transverse section. The joint J1 is formed such that the first and second edges 15, 16 oppose each other in a spaced apart arrangement. In the present embodiment, a substantially uniform first gap G1 is formed between the first and second edges 15, 16 along said joint J1. In a variant, the joint J1 may be formed such that the first and second edges 15, 16 abut against each other. The first and second edges 15, 16 could have cooperating profiles to form the joint J1, for example cooperating convex and concave profiles. As shown in Figure 2, in the present embodiment the joint J1 comprises a linear section and a curved section in side elevation. It will be understood that the joint J1 may have other profiles.

The stabilising member 13 extends continuously along the length of the joint J1 and reinforces the connection between the glazing element 10 and the finisher component 11. The stabilising member 13 extends across the joint J1 to form an overlap with the glazing element 10. As shown in Figure 3, the stabilising member 13 is spaced apart from the inner surface 10A of the glazing element 10. In the present embodiment, the stabilising member 13 extends substantially parallel to the inner surface 10A of the glazing element 10. A second gap G2 is formed between the stabilising member 13 and the inner surface 10A of the glazing element 10. As described herein, the connector 14 is formed in the second gap G2. One or more aperture may be formed in the stabilising member 13 to form a mechanical interlock between the stabilising member 13 and the connector 14. As shown in Figure 3, a channel 17 is formed at a base of the stabilising member 13 to form a keyed interlock with the connector 14.

The connector 14 is moulded in situ such that it is formed around the glazing element 10 and the finisher component 11. The glazing element 10 comprises a first encapsulation area A1 formed on the inner surface 10A. The stabilising member 13 comprises opposing surfaces which form respective second and third encapsulation areas A2, A3. The connector 14 is moulded onto the glazing element 10 and the finisher component 11 so as to form a bond directly with each of the first, second and third encapsulation areas A1-A3, thereby connecting the glazing element 10 and the finisher component 11. A plan elevation of a mould 50 for forming the connector 14 is shown in Figure 4. The mould 50 forms a mould cavity 51 in fluid communication with an injection port 52 through which an encapsulation material is injected to form the connector 14. The mould 50 in the present embodiment comprises first and second mould members 53, 54 for forming the mould cavity 51. At least one of the first and second mould members 53, 54 is movable to open and close the mould 50. A sectional view of the mould 50 along the section line A-A of Figure 4 is shown in Figures 5A and 5B.

The formation of the connector 14 will now be described with reference to Figures 5A and 5B. The mould 50 is opened and the glazing element 10 and the finisher component 11 are located in the mould 50 in a desired position and orientation relative to each other. The first and second mould members 53, 54 are brought together to close the mould 50. The first and second mould members 53, 54 clamp the glazing element 10 and the finisher component 11 in position. The glazing element 10 and the finisher component 11 are supported in the mould 50 spaced apart from each other. The first and second gaps G1, G2 are thereby maintained between the glazing element 10 and the finisher component 11. The glazing element 10 and the finisher component 11 are held in this position by the first and second mould members 53, 54. The mould 50 forms the mould cavity 51 around the glazing element 10 and the finisher component

11 in the shape of the connector 14. The first, second and third encapsulation areas A1-A3 are open to an interior of the mould cavity 51.

As illustrated in Figure 5B, the encapsulating material (or a tertiary material) is introduced into the mould cavity through the injection port 52. The encapsulating material may, for example, comprise a thermoplastic elastomer (TPE), sometimes referred to as a thermoplastic rubber. The thermoplastic elastomer may provide both thermoplastic and elastomeric properties, for example enable moderate elongation. The thermoplastic elastomer typically has a low viscosity which enables injection at relatively low pressures. The encapsulation material fills the mould cavity 51 and at least substantially covers the first, second and third encapsulation areas A1-A3. The encapsulation material fills the first and second gaps G1, G2 formed between the glazing element 10 and the finisher component 11, thereby forming the joint J1. The mould cavity 51 is profiled to form the outer surface 18 of the joint J1 as a continuation of the outer surface 10B of the glazing element 10 and the outer surface 12B of the finisher panel 12. Thus, the outer surface of the glazing assembly 1 (as defined by the outer surfaces 10B, 12B and the outer surface 18) is at least substantially continuous and is at least substantially free from surface interruptions or discontinuities. The encapsulating material is cured to form the connector 14 which is bonded to each of the first, second and third encapsulation areas A1-A3. The mould is then opened and the glazing assembly 1 removed as a single component.

The glazing assembly 1 is pre-assembled for example to facilitate installation on the vehicle 2. The glazing assembly 1 may be transported and manipulated as a single component, rather than a separate glazing element 10 and finisher component 11. This facilitates fitting of the glazing assembly 1 to the vehicle body 3, for example on the assembly line. The glazing assembly 1 may be removed from the vehicle body 3 as a single component, for example to replace a damaged unit.

It will be appreciated that various changes and modifications can be made to the present invention without departing from the scope of the present application.

The surface of the glazing element 10 may optionally be etched, either mechanically or chemically, to provide a keyed surface finish in the first encapsulation area A1. Alternatively, or in addition, the finisher component 11 may be formed such that one or both of the second and third encapsulation areas A2, A3 may have a textured or roughened surface finish for enhancing bonding.

The glazing assembly 1 has been described herein with particular reference to a D-pillar finisher assembly. It will be understood that the glazing assembly 1 could be used in other applications. The glazing assembly 1 could be used in conjunction with a front windshield, for example to form an A-pillar finisher assembly. Alternatively, the glazing assembly 1 could be used in conjunction with a rear windshield, for example to integrate a finisher component into a trunk door.

The method and apparatus described herein is not limited to glazing assemblies. For example, the glazing panel could be replaced with a plastic element, for example a transparent plastic element. The transparent plastic element may form a cover of a light on the vehicle, for example a front headlight, a tail light or a signalling light.

CLAIMS

1. A glazing assembly for a vehicle, the glazing assembly comprising:
a glazing element having an inner surface and an outer surface, wherein a portion of
5 the glazing element inner surface forms a first encapsulation area; and
a finisher component having an inner surface and an outer surface, wherein a portion
of the finisher component inner surface forms a second encapsulation area;
the finisher component being connected to the glazing element by a connector
composed of an encapsulation material which encapsulates the first encapsulation area and
10 the second encapsulation area such that the glazing assembly comprises a substantially
continuous outer surface.
2. A glazing assembly according to claim 1, wherein the finisher component comprises
a stabilising member extending from the finisher component inner surface and forming at least
15 a portion of the second encapsulation area.
3. A glazing assembly according to claim 2, wherein the stabilising member is spaced
apart from the glazing element inner surface; and at least a portion of the connector is
disposed between the stabilising member and the glazing element inner surface.
20
4. A glazing assembly according to claim 2 or claim 3, wherein the stabilising member
extends substantially parallel to the glazing element inner surface.
5. A glazing assembly according to any one of claims 2, 3 or 4, wherein the second
25 encapsulation area is formed on two opposing sides of the stabilising member.
6. A glazing assembly according to any one of claims 2 to 5, wherein the stabilising
member comprises means for interlocking with the connector.
- 30 7. A glazing assembly according to any one of the preceding claims, wherein the
connector comprises an elongate section disposed between the glazing element and the
finisher component, the elongate section having an outer surface which is profiled to form a
continuation of at least one of the glazing element outer surface and the finisher component
outer surface.

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8. A glazing assembly according to claim 7, wherein the elongate section outer surface is moulded to form the continuation of at least one of the glazing element outer surface and the finisher component outer surface.

5 9. A glazing assembly according to any one of claims 1 to 6, wherein the glazing element and the finisher component abut against each other.

10. A glazing assembly as claimed in any one of the preceding claims, wherein the encapsulation material is resiliently deformable to enable relative movement of the glazing
10 element and the finisher component.

11. A vehicle comprising a glazing assembly according to any one of the preceding claims.

15 12. An encapsulated assembly for an exterior of a vehicle, the encapsulated assembly comprising:

a first component having a first inner surface and a first outer surface, wherein a portion of the first inner surface forms a first encapsulation area; and

a second component having a second inner surface and a second outer surface,
20 wherein a portion of the second inner surface forms a second encapsulation area;

the first component and the second component being connected to each other by a connector, the connector being composed of an encapsulation material which encapsulates the first encapsulation area and the second encapsulation area such that the encapsulated assembly comprises a substantially continuous outer surface;

25 wherein the second component comprises a stabilising member forming the second encapsulation area.

13. A method of forming a glazing assembly for a vehicle, the glazing assembly comprising a glazing element having an inner surface and an outer surface; and a finisher
30 component having an inner surface and an outer surface; the method comprising:

locating the glazing element and the finisher component in a mould;

introducing an encapsulation material into the mould to form a connector to connect the finisher component to the glazing element, the encapsulation material encapsulating a first encapsulation area formed on the glazing element inner surface and a second encapsulation
35 area formed on the finisher component inner surface such that the glazing assembly comprises a substantially continuous outer surface.

14. A method according to claim 13, wherein the finisher component comprises a stabilising member extending from the finisher component inner surface, the method comprising introducing the encapsulation material into the mould to encapsulate at least a portion of the stabilising member.

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15. A method according to claim 14, wherein the stabilising member is spaced apart from the glazing element inner surface; and the encapsulation material is introduced between the stabilising member and the glazing element inner surface.

10 16. A method according to any one of claims 13, 14 or 15, wherein the stabilising member is spaced apart from the glazing element; and the encapsulation material forms an elongate section of the connector extending between the stabilising member and the glazing element.

15 17. A method according to any one of claims 13 to 16, wherein the mould forms an outer surface of the connector.

18. A method according to claim 17, wherein the mould is profiled such that the connector outer surface forms a continuation of at least one of the glazing element outer surface and the finisher component outer surface.

20

19. A method according to claim 13 or claim 14, wherein the glazing element and the finisher component abut against each other in the mould.

20. A method of forming an encapsulated assembly for an exterior of a vehicle, the
25 encapsulated assembly comprising a first component having a first inner surface and a first outer surface; and a second component having a second inner surface and a second outer surface; the method comprising:

locating the first component and the second component in a mould; and

30 introducing an encapsulation material into the mould to form a connector to connect the first component to the second component, the encapsulation material encapsulating a first encapsulation area formed on the first inner surface and a second encapsulation area formed on the second inner surface such that the encapsulated assembly comprises a substantially continuous outer surface.

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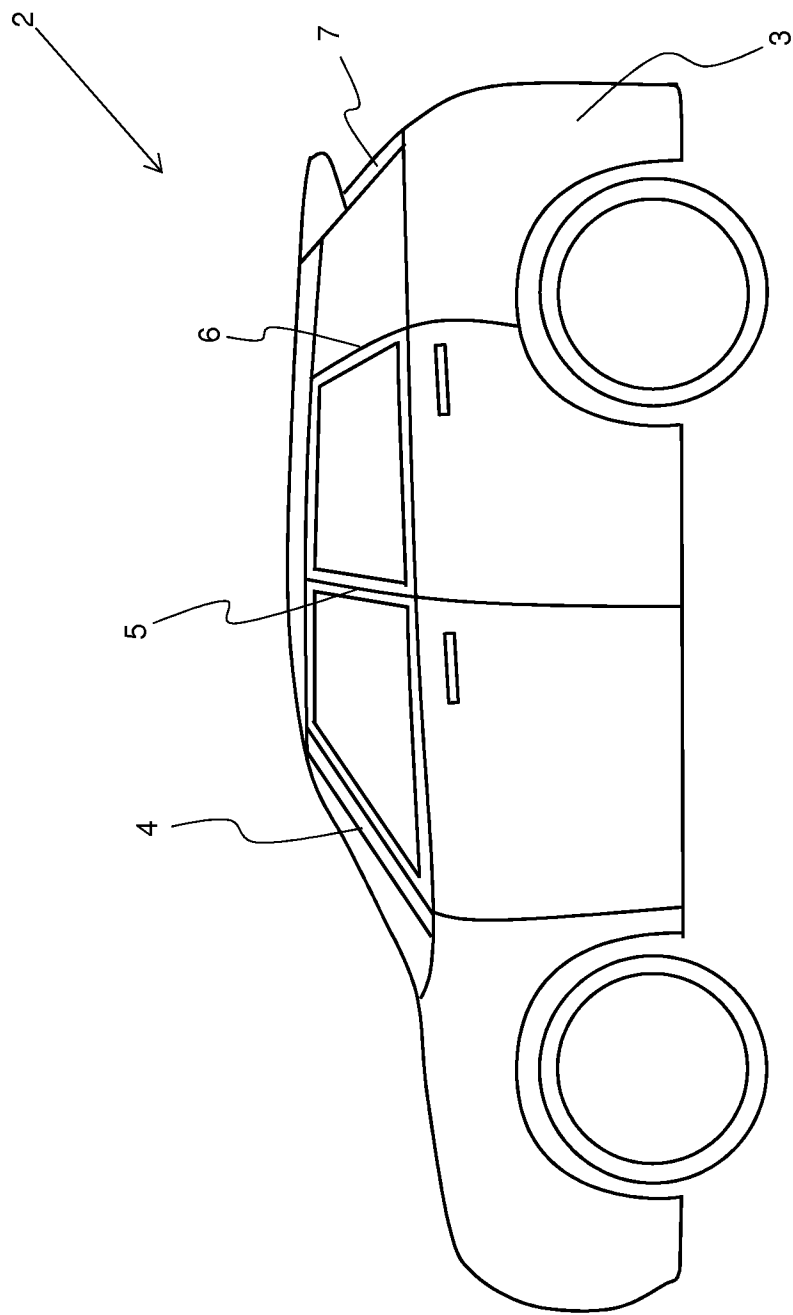


FIG. 1

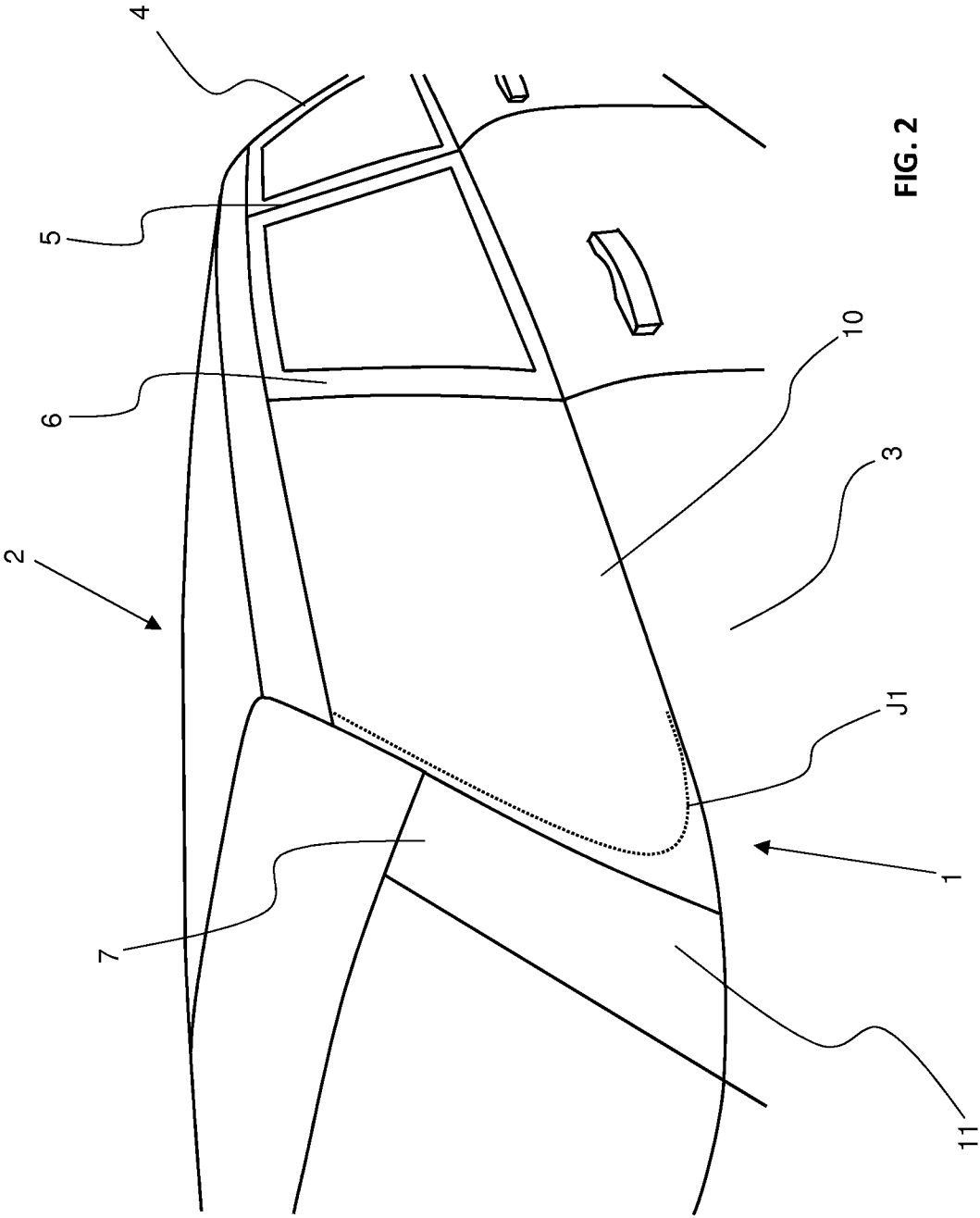
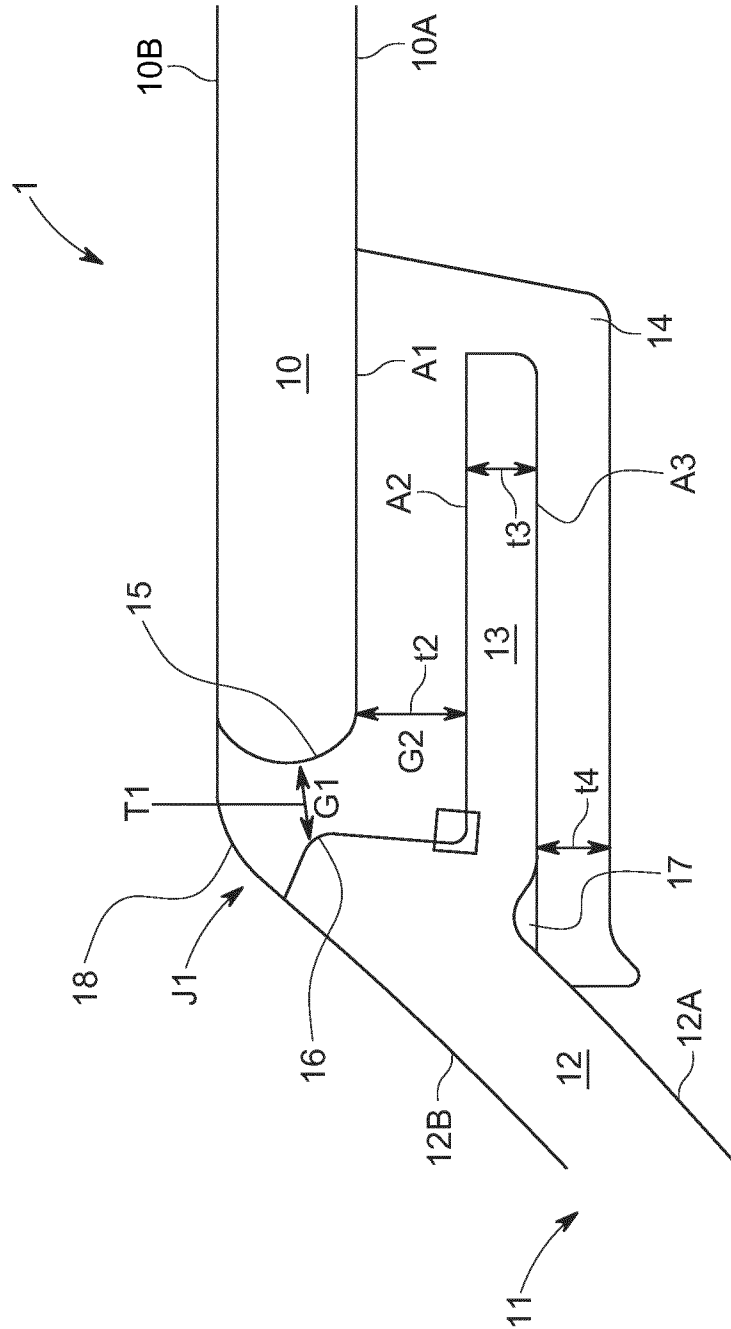


FIG. 2



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G.
F

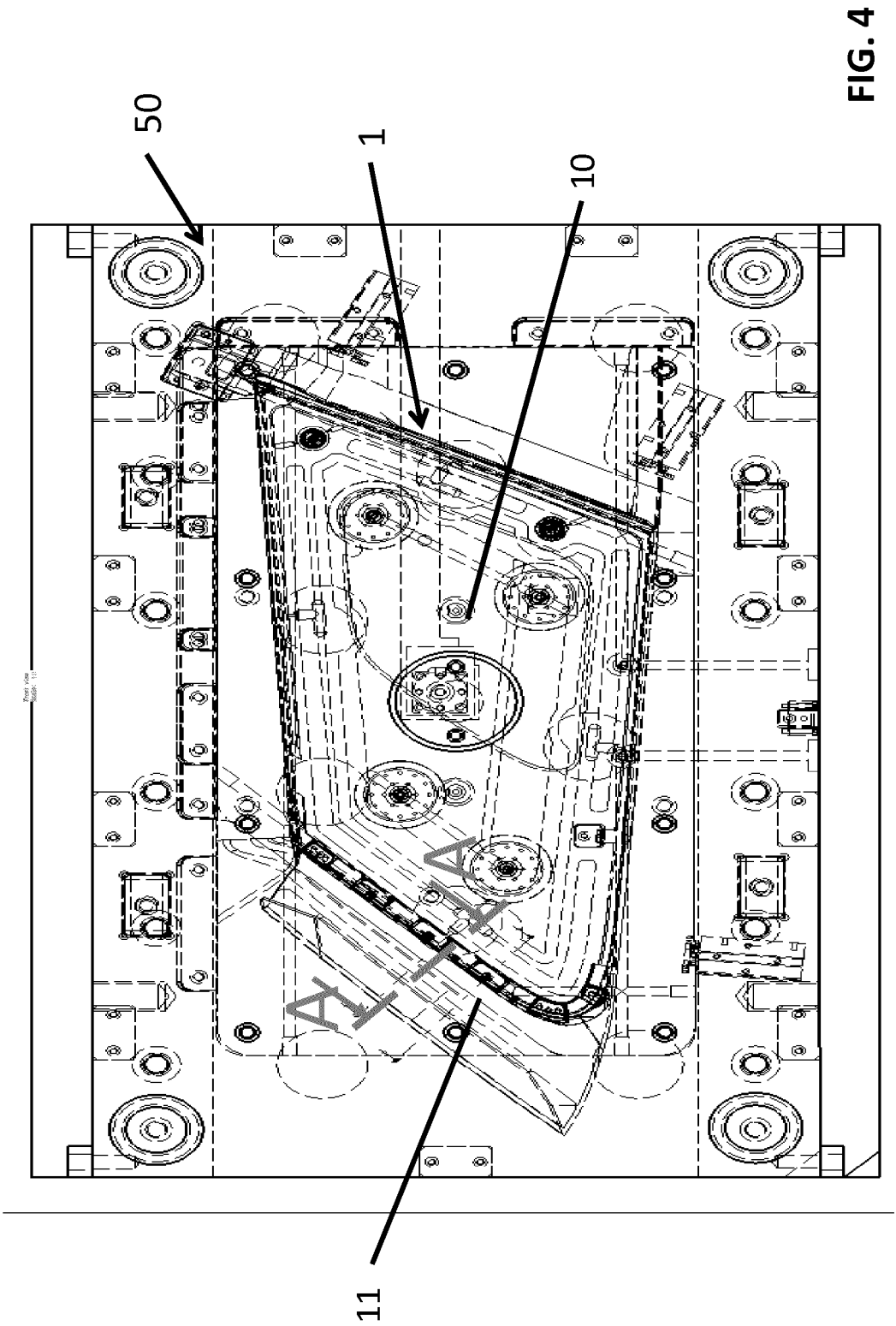


FIG. 4

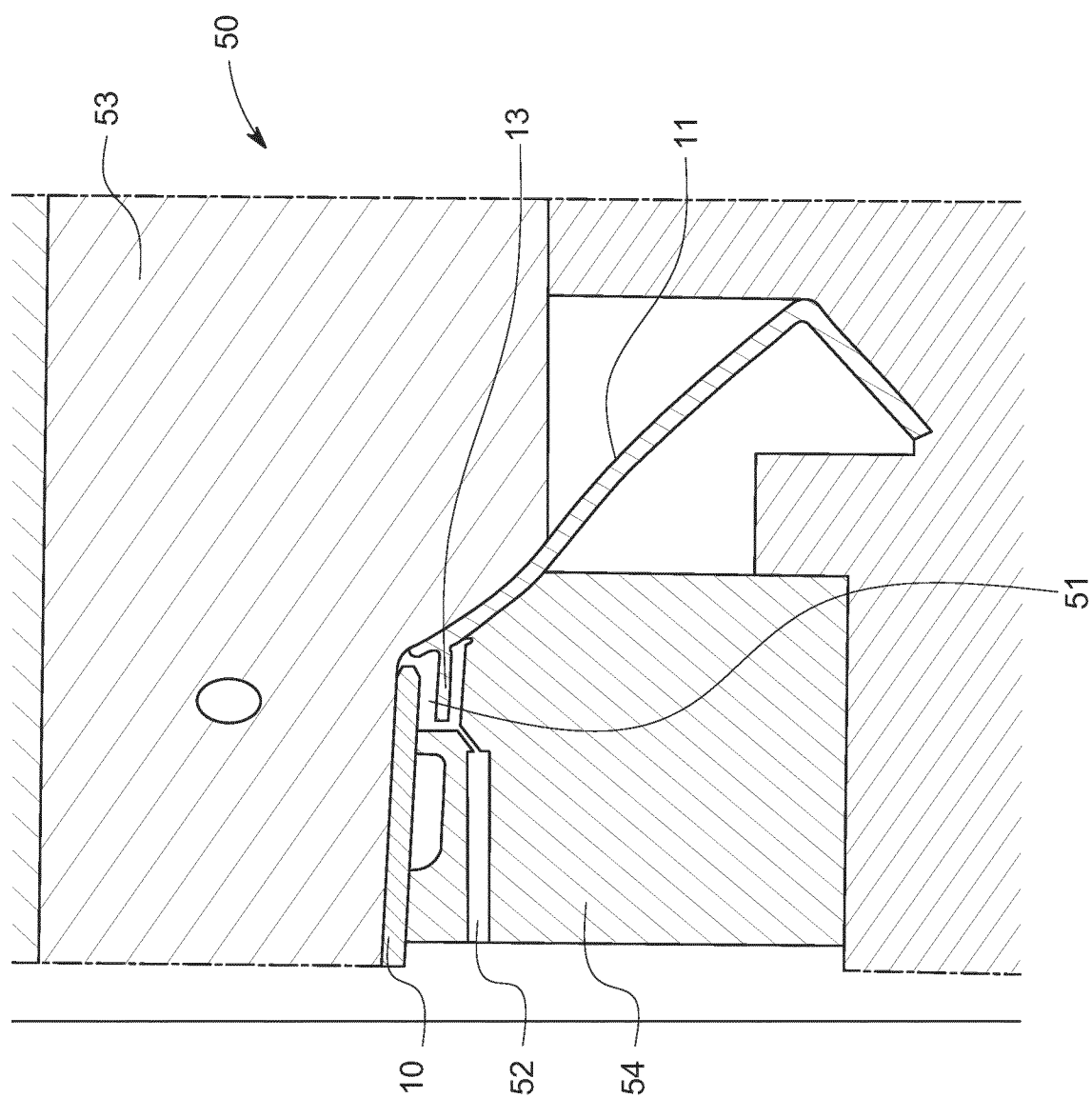


FIG. 5A

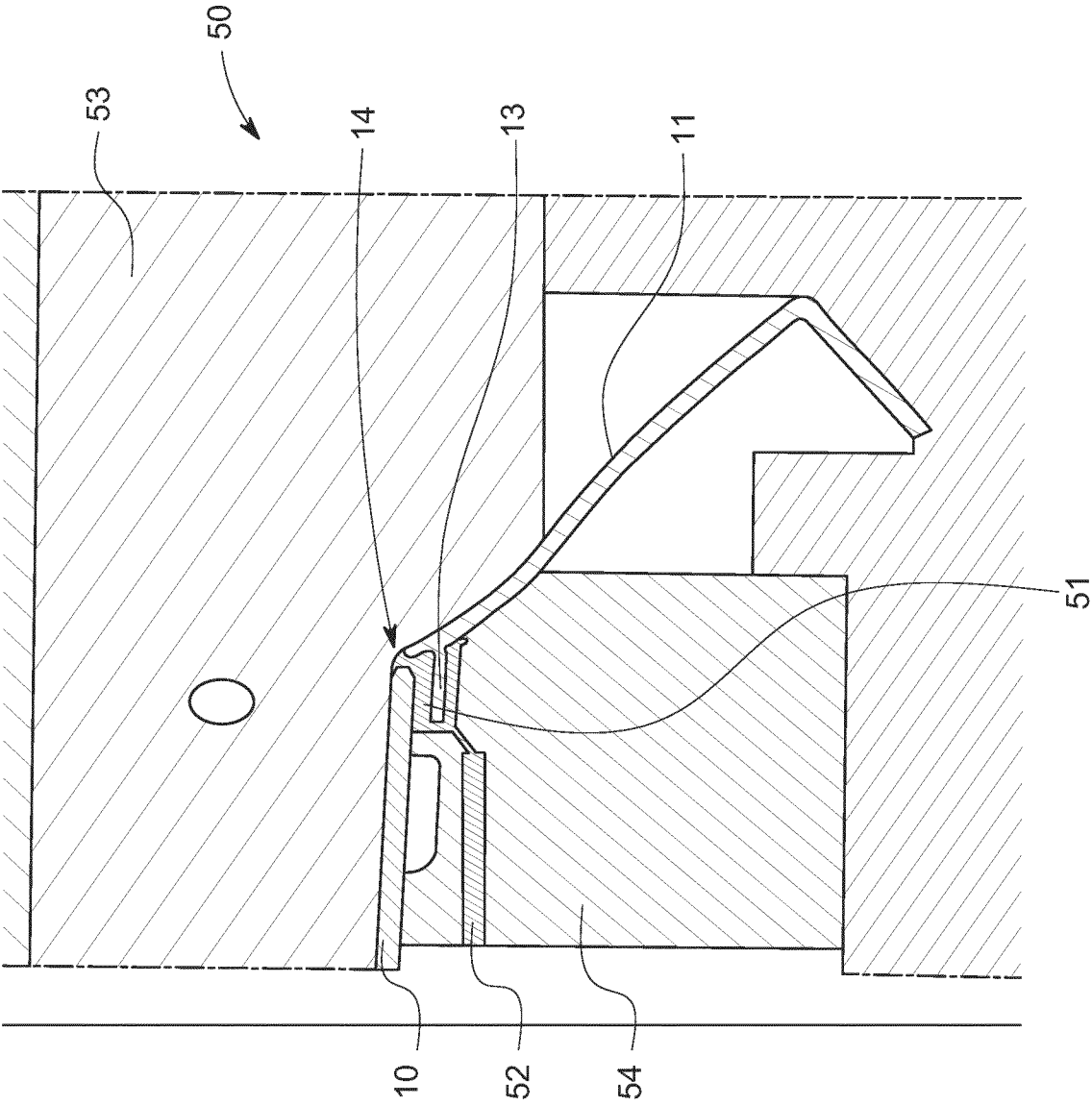


FIG. 5B

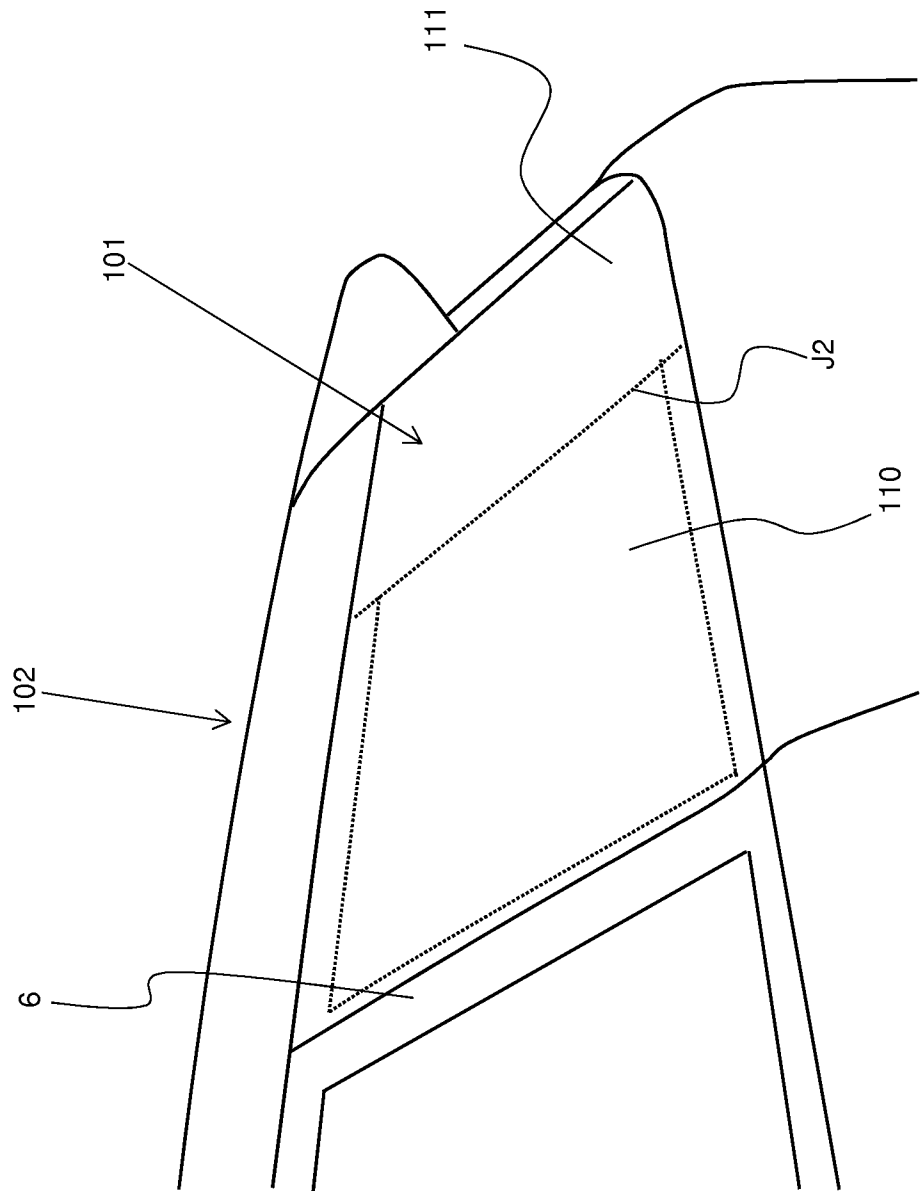


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/072745

A. CLASSIFICATION OF SUBJECT MATTER

INV. B29C45/14 B60J10/26 B60J10/70
ADD. B29L31/30 B29L31/26

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B29C B29L B60J

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2012 171392 A (KOJIMA PRESS KOGYO KK) 10 September 2012 (2012-09-10) abstract figures 1,2,4, 5 -----	1-8, 10-18,20
X	CN 104 149 267 A (FUYAO GLASS IND GROUP CO LTD) 19 November 2014 (2014-11-19) abstract figure 4 -----	1,13,20
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Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

25 October 2019

Date of mailing of the international search report

05/11/2019

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/072745

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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