

INSTRUCTIONS

(a) If Convention application insert "Convention"

600237 (a) CONVENTION
AUSTRALIA

Patents Act

(b) Delete one

APPLICATION FOR A (b) STANDARD/~~DEIX~~ PATENT

(c) Insert FULL name(s) of applicant(s)

&/We (c) LIBBEY-OWENS-FORD CO.

APPLICATION ACCEPTED AND AMENDMENTS

(d) Insert FULL PATENT OFFICE

of (d) ALLOWED 25.5.90
811 Madison Avenue
Toledo, Ohio 43695
UNITED STATES OF AMERICA

hereby apply for the grant of a (c) Standard/~~DEIX~~ Patent for an invention entitled

(f) WINDOW ASSEMBLY AND METHOD OF MAKING THE SAME

which is described in the accompanying (g) complete specification.

(Note: The following applies only to Convention applications)

Details of basic application(s)

	Application No.	Country	Filing Date
(h)	794,019	United States of America	November 1, 1985

Address for Service:

PHILLIPS ORMONDE AND FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia 3000

Dated (i) October 15, 1986

LIBBEY-OWENS-FORD CO.

By Alan J. Miller
Alan J. Miller - Secretary

(k) Corporate seal if any

Note: No legalization or other witness required

PHILLIPS ORMONDE AND FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia

AUSTRALIA

Patents Act

DECLARATION FOR A PATENT APPLICATION

▼ INSTRUCTIONS

- (a) Insert "Convention" if applicable
(b) Insert FULL name(s) of applicant(s)

In support of the (a) convention application made by
(b) LIBBEY-OWENS-FORD CO.

- (c) Insert "of addition" if applicable
(d) Insert TITLE of invention

(hereinafter called "applicant(s)" for a patent (c) of addition for an
invention entitled (d)
WINDOW ASSEMBLY AND METHOD OF MAKING THE SAME

- (e) Insert FULL name(s) AND address(es) of declarant(s) (See headnote*)

I/We (e) ALAN J. MILLER (Secretary)
LIBBEY-OWENS-FORD CO.
811 Madison Avenue
Toledo, Ohio 43695
United States of America

do solemnly and sincerely declare as follows:

1. I am/We are the applicant(s).
(or, in the case of an application by a body corporate)
1. I am/We are authorized to make this declaration on behalf of the applicant(s).
2. I am/We are the actual inventor(s) of the invention.
(or, where the applicant(s) is/are not the actual inventor(s))
2. (f)
William R. Weaver
4380 River Road
Toledo, Ohio 43614
United States of America
is/are the actual inventor(s) of the invention and the facts upon which the applicant(s)
is/are entitled to make the application are as follows:

(g)

Applicant is the assignee of the actual inventor

(Note: Paragraphs 3 and 4 apply only to Convention applications)

3. The basic application(s) for patent or similar protection on which the application is based is/are identified by country, filing date, and basic applicant(s) as follows:
(h) United States of America
Patent Application Serial No. 794,019 filed November 1, 1985
William R. Weaver as assignor to Libbey-Owens-Ford Co.

4. The basic application(s) referred to in paragraph 3 hereof was/were the first application(s) made in a Convention country in respect of the invention the subject of the application.

- (k) Insert PLACE of signing

Declared at (k) Toledo, Ohio

- (l) Insert DATE of signing

Dated (l) October 15, 1986

- (m) Signature(s) of declarant(s)

(m) LIBBEY-OWENS-FORD CO.

By

Alan J. Miller - Secretary

Note: No legalization or other witness required

To: The Commissioner of Patents

P18/7/81

PHILLIPS ORMONDE & FITZPATRICK
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Melbourne, Australia

(12) PATENT ABRIDGMENT (11) Document No. AU-B-64384/86
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WINDOW ASSEMBLY AND SEAL

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(56) Prior Art Documents
AU 74618/81 545966 E06B 7/23
AU 5868/61 248831 78.85; 93.9; 78.73
AU 31094/57 223274 78.73; 78.85

(57) Claim

1. A window assembly comprising a sheet of transparent or translucent material and a bracket means positioned along a^{first} portion of the peripheral edge of said sheet, characterized by a gasket composed of a synthetic polymer and including a first member extending along ~~a first face of~~ said^{first} portion of the peripheral edge of said sheet between said bracket means and said sheet, said first member adhered to both said sheet and said bracket means for securing said bracket means relative to said sheet, said gasket including a second member spaced from said first member and extending along and adhered to^{a second} ~~the face opposite said first face of said~~ portion of the peripheral edge of said sheet for providing an exposed peripheral sealing surface, said gasket further including a rib portion extending along and adhered to the peripheral edge of said sheet, said rib portion connecting said first member of said gasket to said second member of said gasket, said gasket having been polymerized in situ

adjacent said bracket means and said first and second portions of said sheet and having assumed through the autogenous mechanism incident to its polymerization and cure while confined, intimate contact with the portions to which it is adhered.

8. A mold structure for producing a window assembly including a transparent or translucent sheet having a bracket secured thereto by a first gasket member adhered to the bracket and a first peripheral portion of the sheet and having a second gasket member adhered to a second peripheral portion of the sheet, characterized in that said mold structure comprises at least two cooperating mold sections having facing surfaces defining a chamber for receiving the sheet and the bracket, at least one of the facing surfaces of said mold sections provided with a gasket shaping portion which cooperates with the bracket and a first peripheral portion of the sheet to define a first gasket forming cavity corresponding to a first gasket member to be formed on the sheet and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed, and inlet means for introducing a flowable gasket forming material into the first and second gasket forming cavities when said mold sections are in contacting relationship.

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COMPLETE SPECIFICATION

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This document contains the
amendments made under
Section 49.

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APPLICANT'S REF.: 7-5594

Name(s) of Applicant(s): LIBBEY-OWENS-FORD CO.

Address(es) of Applicant(s): 811 Madison Avenue
Toledo, Ohio 43695
UNITED STATES OF AMERICA

Actual Inventor(s): WILLIAM R. WEAVER

Address for Service is:

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Complete Specification for the invention entitled:

WINDOW ASSEMBLY AND METHOD OF MAKING THE SAME

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

The present invention relates generally to a window assembly and to a process for producing the assembly, and more particularly to a door glass assembly for a vehicle including a glass sheet having a gasket formed along at least one edge thereof and a bracket attached along at least one other edge thereof.

Initially, fixed window assemblies for vehicles were comprised of a plurality of elements including adhesive sealants applied around the marginal edges of the glass sheet, suitable mechanical fasteners such as metal clips, and exterior decorative trim strips disposed to cover the junction between the marginal edges of the glass sheet and the adjacent portions of the vehicle frame. Such window structures were costly, especially from a labor standpoint, since it was necessary to assemble the individual elements along the vehicle assembly line.

Subsequently, in an endeavor to improve the above window structure, unitary window assemblies of the type illustrated in U.S. Patent 4,072,340 were developed. These assemblies included a sheet of glass, an adjacent frame, and a casing or gasket of molded material, such as polyvinylchloride, extending between the frame and the peripheral edge of the window to hold the sheet of glass and the frame together. Fasteners were provided at spaced locations along the frame such that the entire assembly could be guided into location over the opening in a vehicle body as a unit. Other types of unitary window assemblies are disclosed in U.S. Patents 3,759,004 and 4,364,595. While such unitary window structures greatly reduce the time required to mount the window assembly in the associated vehicle, such structures are relatively costly, since the individual components required to produce each window assembly generally must be manually assembled.

Moveable vehicle windows also presented problems, especially as the window glass became curved. Seals were

typically attached to the door frames on either side of the channel in which the window traveled. In a hard top or convertible, a seal was typically attached to the leading edge of the rear window to engage the trailing edge of the door glass. Such window structures were costly to assemble and made it difficult to eliminate wind noise and leaking.

The present invention relates to a window assembly and a method of making the same including a mold structure for forming a gasket around a predetermined portion of a sheet of generally transparent frangible material, such as glass, to produce a unitary window assembly. In the preferred embodiment of the invention, the gasket is formed by curing a multi-constituent polymeric gasket forming material in situ on the glass sheet to encapsulate the marginal peripheral edge portion of the sheet. The gasket is typically formed by a reaction injection molding process.

More specifically, the mold structure includes at least two cooperating mold sections each having a recessed portion formed therein in facing relationship to one another. The recessed portions cooperate to define a sheet receiving chamber for receiving a sheet of transparent material such as glass. A compressible seal means is positioned about at least a portion of the periphery of the chamber and functions to resiliently support the glass sheet within the chamber.

In the preferred embodiment of the invention, each mold section includes a metallic main body portion, and the seal means maintains the glass sheet in spaced-apart relationship with the main body portions of the mold sections to prevent any glass-to-metal contact between the glass sheet and the metallic mold sections.

Also, the seal means cooperates with predetermined portions of the glass sheet and the mold sections for defining a gasket cavity having a configuration corresponding to the gasket to be formed on the glass sheet. In accordance with the present invention, the facing surfaces of mold



For the purposes of this specification, a reference to a portion of a peripheral edge of a sheet of transparent or translucent material shall include a reference to those portions near the periphery.

In the preferred embodiment of the invention, each mold section includes a metallic main body portion, and the seal means maintains the glass sheet in spaced-apart relationship with the main body portions of the mold sections to prevent any glass-to-metal contact between the glass sheet and the metallic mold sections.

Also, the seal means cooperates with predetermined portions of the glass sheet and the mold sections for defining a gasket cavity having a configuration corresponding to the gasket to be formed on the glass sheet. In accordance with the present invention, the facing surfaces of mold



sections disposed outwardly of the gasket forming cavity are in metal-to-metal contact with one another. This enables the amount the seal means is compressed and the dimensions of the gasket to be precisely controlled. Inlet means or
5 gates are provided for introducing a flowable gasket forming material into the gasket cavity.

The window assembly also includes a metal bracket for connection to a scissor linkage for raising and lowering the window assembly in a vehicle door. The bracket is attached
10 to the window glass by a gasket formed at the same time and in the same manner as the encapsulating gaskets on the window.

In the accompanying drawings:

15 Fig. 1 is a front elevational view of a window assembly according to the present invention mounted in a vehicle door;

Fig. 2 is a perspective view of the window assembly shown in Fig. 1;

20 Fig. 3 is an enlarged fragmentary sectional view of the door frame and window assembly of Fig. 1 taken along the line 3-3 thereof;

Fig. 4 is an enlarged fragmentary sectional view of the window assembly of Fig. 2 taken along the line 4-4 thereof;

25 Fig. 5 is a top plan view of a mold structure for fabricating the window assembly according to the present invention with a portion of the upper half of the mold cut away;

30 Fig. 6 is an enlarged fragmentary sectional view of the window assembly and mold structure of Fig. 5 taken along the line 6-6 thereof;

Fig. 7 is an enlarged fragmentary sectional view of the window assembly and mold structure of Fig. 5 taken along the line 7-7 thereof; and

Fig. 8 is an enlarge fragmentary sectional view of the window assembly and mold structure of Fig. 5 taken along the line 8-8 thereof.

According to the present invention, there is provided a window assembly comprising a sheet of transparent or translucent material and a bracket means positioned along a ^{first} portion of the peripheral edge of said sheet, characterized by a gasket composed of a synthetic polymer and including a first member extending along ~~a first face of~~ ^{first} said portion of the peripheral edge of said sheet between said bracket means and said sheet, said first member adhered to both said sheet and said bracket means for securing said bracket means relative to said sheet, said gasket including a second member spaced from said first member and extending along and adhered to ^{a second} ~~the face opposite said first face of~~ said portion of the peripheral edge of said sheet for providing an exposed peripheral sealing surface, said gasket further including a rib portion extending along and adhered to the peripheral edge of said sheet, said rib portion connecting said first member of said gasket to said second member of said gasket, said gasket having been polymerized in situ adjacent said bracket means and said first and second portions of said sheet and having assumed through the autogenous mechanism incident to its polymerization and cure while confined, intimate contact with the portions to which it is adhered.

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Fig. 8 is an enlarge fragmentary sectional view of the window assembly and mold structure of Fig. 5 taken along the line 8-8 thereof.

According to the present invention, there is provided a window assembly comprising a sheet of transparent or translucent material and a bracket means positioned along a first portion of the peripheral edge of said sheet, characterized by a gasket composed of a synthetic polymer and including a first member extending along said first portion of the peripheral edge of said sheet between said bracket means and said sheet, said first member adhered to both said sheet and said bracket means for securing said bracket means relative to said sheet, said gasket including a second member spaced from said first member and extending along and adhered to a second portion of the peripheral edge of said sheet for providing an exposed peripheral sealing surface, said gasket having been polymerized in situ adjacent said bracket means and said first and second portions of said sheet and having assumed through the autogenous mechanism incident to its polymerization and cure while confined, intimate contact with the portions to which it is adhered.

Also, according to this invention, there is provided a method for producing a window assembly including a transparent or translucent sheet having a bracket means secured thereto by a first gasket member adhered to a first peripheral portion of the sheet and having a second gasket member adhered to a second peripheral portion of the sheet, characterized by:

- a) positioning a sheet of transparent or translucent material within the interior of a mold chamber formed by at least two cooperating mold sections;
- b) positioning a bracket means along the periphery of the sheet within the interior of the mold chamber, said mold sections provided with a gasket shaping portion which



cooperates with a first peripheral portion of the sheet and the bracket means to define a first gasket forming cavity corresponding to a first gasket member to be formed and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed;

10 c) injecting into the first and second gasket forming cavities a composition which is capable of polymerization and cure and, when cured in contact with the sheet and the bracket means, adheres thereto to produce the first and second gasket members;

d) curing the composition injected into the first and second gasket forming cavities; and

e) removing the window assembly from the mold chamber.



- cooperates with a first peripheral portion of the sheet and the bracket means to define a first gasket forming cavity corresponding to a first gasket member to be formed and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed;
- 5 c) injecting into the first and second gasket forming cavities a composition which is capable of polymerization and cure and, when cured in contact with the sheet and the bracket means, adheres thereto to produce the first and second gasket members; and
- 10 d) removing the window assembly from the mold chamber.

Still further, according to this invention, there is provided a mold structure for producing a window assembly including a transparent or translucent sheet having a bracket secured thereto by a first gasket member adhered to the bracket and a first peripheral portion of the sheet and having a second gasket member adhered to a second peripheral portion of the sheet, characterized in that said mold structure comprises at least two cooperating mold sections having facing surfaces defining a chamber for receiving the sheet and the bracket, at least one of the facing surfaces of said mold sections provided with a gasket shaping portion which cooperates with the bracket and a first peripheral portion of the sheet to define a first gasket forming cavity corresponding to a first gasket member to be formed on the sheet and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed, and inlet means for introducing a flowable gasket forming material into the first and second gasket forming cavities when said mold sections are in contacting relationship.

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There is shown in Fig. 1 a window assembly 10 according to the present invention installed in a front door 11 of a



vehicle (not shown). A scissor linkage 12 is provided in the door 11 to raise and lower the window assembly 10. The linkage 12 may be of any conventional type and is shown in the raised position. The linkage 12 is pivotally connected at 13 and 14 to a bracket 15 attached to a lower edge 16 of a window 17 in the window assembly 10.

Referring to Figs. 1 and 2, a front gasket 18 is attached to a front edge 19 of the window 17 and a rear gasket 20 is attached to a rear edge 21 of the window 17. As shown in more detail in Fig. 3, the front door 11 of the vehicle includes a window frame having a rear section 22. The window frame rear section 22 is formed in the shape of "J" in cross section with the top of the "J" facing the outside of the front door 11. One half of the top and the body of the "J" are curved at the edges thereof to retain a gasket 23. The gasket 23 is generally "C" shaped in cross section with the ends 24 defining an opening and being turned toward the center of the "C" to form a slotted opening 25.

The gasket 23 extends the entire length of the frame rear section 22 and the slot 25 accepts a flange member 26 formed on the gasket 20 as the window is raised and lowered. The ends 24 of the gasket 23 are typically relatively flexible and tend to snugly press against the sides of the flange member 26 to seal against the intrusion of fluids such as wind and rain. The flange member 26 extends from a body portion 27 of the gasket 20. The body portion 27 encloses the rear edge 21 of the window 17 and is attached thereto for movement with the window as the linkage 12 raises and lowers the window assembly 10. The front gasket 18 is of similar construction with a flange member 28 and a body portion 29. The flange member 28 is accepted by a gasket (not shown) in a front section of the window frame.

There is shown in Fig. 4 a fragmentary sectional view of the bracket 15 and the window 17. The bracket 15 includes

an angled elongate plate member 31 having a lower L-shaped portion 31a which is secured to the lower end of a C-shaped channel member 32 by welding, for example. The channel member 32 is formed to accept rollers (not shown) attached at the pivot points 13 and 14 to the linkage 12 to permit raising and lowering of the window assembly 10. The angled plate member includes an upper L-shaped portion 31b which cooperates with the side wall of the channel member 32 to define an upwardly facing channel for receiving the lower peripheral edge 16 of the window 17. The lower edge 16 is secured relative to the bracket 15 by a U-shaped gasket 33. The lower leg of the upper L-shaped portion 31b is provided with an aperture 31c which, as shown in Fig. 6, is utilized to introduce a suitable flowable gasket forming material into the associated gasket forming cavities. As will be discussed, the gaskets 18, 20, and 30 are all simultaneously molded in situ to the window 17 and the bracket 15.

Referring to Figs. 5 through 8, there is shown a mold 40 for making a window assembly in accordance with the present invention. The mold 40 is formed of a lower section 41 and an upper section 42 (half of which has been cut away along a center line 43 for illustration purposes). While the mold sections 41 and 42 are typically formed of a metallic material such as steel or aluminum, for example, other types of substantially rigid or non-resilient material can be used. Suitable means, not shown, are provided to open and close the mold sections 41 and 42. Also, each of the mold sections 41 and 42 can be provided with passageways (not shown) for circulating a suitable coolant through the respective mold sections.

As shown in Figs. 6 through 8, the mold sections 41 and 42 are provided with recessed portions 44 and 45 respectively in facing relationship to one another such that, when the mold sections are closed, the recessed portions 44 and 45 cooperate to define a sheet receiving or glass clearance

chamber 46 for receiving the glass sheet 17 on which a gasket is to be formed. When the mold sections are open, the glass sheet 17 is positioned on the lower section 41 so that the outer peripheral portion of the lower surface of the glass rests on a resilient lower seal 47 positioned within a groove 48 formed in the upper surface of the lower section 41.

After the glass sheet 17 and the bracket 15 are suitably positioned on the seal 47 of the lower mold section 41, the upper mold section 42 is lowered into position to enable the outer peripheral portions of the facing surfaces 49 and 50 of the cooperating mold sections 41 and 42 respectively to be clamped together in a metal-to-metal contact, as shown in Figs. 7 and 8. The upper mold section 42 carries a resilient upper seal 51 positioned in a groove 52 formed opposite the groove 48. The upper seal 51 cooperates with the lower seal 47 to press yieldingly against the glass sheet 17 and resiliently support the glass sheet within the glass clearance chamber 46.

The chamber 46 of the mold 40 is slightly larger than the formed glass sheet 17 to avoid an glass-to-metal contact between the glass sheet 17 and the metallic mold sections 41 and 42. However, it will be appreciated that the glass clearance chamber 46 can be formed of any shape as long as the chamber is sufficiently large to avoid any glass-to-metal contact between the glass sheet and the metallic mold sections. For example, the portions of the mold sections 41 and 42 which are below and above the central portions of the glass sheet 17 can be removed such that each mold section will be generally ring-shaped.

The seals 47 and 51 are preferably formed of a silicone rubber material and can be secured within the respective grooves 48 and 52 by means of a suitable adhesive. Alternatively, the seals 47 and 51 can be releasably secured within the respective grooves. This can be accomplished by

providing tab portions (not shown) in spaced apart locations around the respective seal which can be inserted and releasably held within corresponding tab receiving apertures (not shown) formed at corresponding spaced apart locations around the
5 respective groove.

In addition to resiliently supporting the glass sheet 17 within the glass clearance chamber 46, the seals 47 and 51 cooperate with selected portions of glass sheet 17, the bracket 15, and the mold sections 41 and 42 for defining the
10 gasket forming cavities, generally designated 53, utilized to form the gaskets 18, 20, and 33. More specifically, these gasket forming cavities include a lower cavity 53a (see Fig. 6) for forming the lower edge gasket 33, a front cavity 53b (see Fig. 7) for forming the front gasket 18, and a rear
15 cavity 53c (see Fig. 7) for forming the rear gasket 20. The front cavity 53b can be connected to the lower cavity 53a by a passageway 53d, while the rear cavity 53c can be connected to the lower cavity 53a by a passageway 53e. As shown in Figs. 5 and 8, the passageways 53d and 53e are located adjacent
20 the peripheral edge of the glass sheet. Such a construction causes rib portion 33a and 33b (shown in Fig. 2) to be formed along the lower edge 16 of the sheet. The rib portions 33a and 33b could be eliminated by forming the passageway 53d and 53e in spaced relationship with the lower edge 16, as
25 represented in phantom in Fig. 8 at 53e.

The cavities communicate with an inlet means or gate 54 for receiving a flowable polymeric gasket forming material from a nozzle member (not shown). The gasket forming material is introduced into the lower cavity 53a through the
30 aperture 31c. As shown in Fig. 5, the gasket forming material is supplied to the front cavity 53b via the cavity 53a and the passageway 53d, and is supplied to the rear cavity 53c via the cavity 53a and the passageway 53e. To prevent the undesirable ingress of gasket forming material
35 into the channel member 32 as it flows through the cavity

53a into the passageways 53d and 53e, the opposite ends of the channel member 32 are preferably closed off or sealed with removable plugs 32a. Auxiliary passageways 53f and 53g can be provided for supplying the gasket forming material directly from the inlet 54 to the passageways 53d and 53e respectively. Typically, the gasket forming material is adapted to polymerize and cure in situ on the peripheral portion of the glass sheet 17. The gasket can be formed by a reaction injection molding process utilizing a polyurethane material, for example. Materials which have been utilized to form suitable gaskets include Bayflex 110-80 and Bayflex 110-50 manufactured by Mobay Chemical Corporation of Pittsburgh, Pennsylvania, U.S.A. For a further description of procedures, compositions, component preparation and post treatments reference is made to U.S. patent No. 4,561,625, the disclosure of which is hereby incorporated herein by reference.

As shown in Figs. 7 and 8, the mold sections 41 and 42 include facing surfaces 49 and 50, respectively, which are in contact with one another outwardly of the gasket forming cavity 53 to define a parting line 55. Since the glass sheet 17 is relatively fragile, it is important to control the amount the seals 47 and 51 are compressed to avoid fracturing the glass. By enabling the two mold sections to come together in metal-to-metal contact, the amount the seals 47 and 51 are compressed can be controlled. Also, the metal-to-metal contact of the mold sections 41 and 42 enables the width of the gasket forming cavity 53 to be precisely controlled. A number of tabs 56 are spaced about the recessed portions 44 and 45 of the mold to engage an upper edge 57 of the window 17 for positioning the window 17 precisely with respect to the gasket forming cavity 53.

The claims defining the invention are as follows:

1. A window assembly comprising a sheet of transparent or translucent material and a bracket means positioned along a ^{first} portion of the peripheral edge of said sheet, characterized by a gasket composed of a synthetic polymer and including a first member extending along ~~a first face of said~~ ^{first} portion of the peripheral edge of said sheet between said bracket means and said sheet, said first member adhered to both said sheet and said bracket means for securing said bracket means relative to said sheet, said gasket including a second member spaced from said first member and extending along and adhered to ^{a second} ~~the face opposite said first face of said~~ portion of the peripheral edge of said sheet for providing an exposed peripheral sealing surface, said gasket further including a rib portion extending along and adhered to the peripheral edge of said sheet, said rib portion connecting said first member of said gasket to said second member of said gasket, said gasket having been polymerized in situ adjacent said bracket means and said first and second portions of said sheet and having assumed through the autogenous mechanism incident to its polymerization and cure while confined, intimate contact with the portions to which it is adhered.
2. A window assembly as claimed in claim 1, characterized in that said sheet material is glass.
3. A window assembly as claimed in claim 1 or claim 2, characterized in that said bracket means is metal.
4. A window assembly as claimed in any of claims 1 to 3, characterized in that said gasket is formed of an elastomeric material.



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5. A window assembly as claimed in any of claims 1 to 4, characterized in that said gasket is a polyurethane material.

5 6. A window assembly as claimed in any of claims 1 to 5, characterized in that said gasket includes a rib portion extending along and adhered to the peripheral edge of said sheet, said rib portion connecting said first member of said gasket to said second member of said gasket.

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6. A window assembly as claimed in any of claims 1 to 5, characterized in that said gasket additionally includes a third member spaced from said first and second members and extending along and adhered to a third portion of the peripheral edge of said sheet for providing an exposed peripheral sealing surface, and a second rib extending along and adhered to the peripheral edge of said sheet connecting said first member of said gasket to said third member of said gasket.

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7. A method for producing a window assembly including a transparent or translucent sheet having a bracket means secured thereto by a first gasket member adhered to a first peripheral portion of the sheet and having a second gasket member adhered to a second peripheral portion of the sheet, characterized by:

a) positioning a sheet of transparent or translucent material within the interior of a mold chamber formed by at least two cooperating mold sections;

b) positioning a bracket means along the periphery of the sheet within the interior of the mold chamber, said mold sections provided with a gasket shaping portion which cooperates with a first peripheral portion of the sheet and the bracket means to define a first gasket forming cavity corresponding to a first gasket member to be formed and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed;

c) injecting into the first and second gasket forming cavities a composition which is capable of polymerization and cure and, when cured in contact with the sheet and the bracket means, adheres thereto to produce the first and second gasket members; and

d) removing the window assembly from the mold chamber.



produce the first and second gasket members;

d) curing the composition injected into the first and second gasket forming cavities; and

e) removing the window assembly from the mold chamber.



JM

8. A mold structure for producing a window assembly including a transparent or translucent sheet having a bracket secured thereto by a first gasket member adhered to the bracket and a first peripheral portion of the sheet and having a second gasket member adhered to a second peripheral portion of the sheet, characterized in that said mold structure comprises at least two cooperating mold sections having facing surfaces defining a chamber for receiving the sheet and the bracket, at least one of the facing surfaces of said mold sections provided with a gasket shaping portion which cooperates with the bracket and a first peripheral portion of the sheet to define a first gasket forming cavity corresponding to a first gasket member to be formed on the sheet and cooperates with a second peripheral portion of the sheet to define a second gasket forming cavity corresponding to a second gasket member to be formed, and inlet means for introducing a flowable gasket forming material into the first and second gasket forming cavities when said mold sections are in contacting relationship.

9. A mold structure as claimed in claim 8, characterized by a passageway formed in said mold sections for connecting the first gasket forming cavity to the second gasket forming cavity.

10. A mold structure as claimed in claim 9, characterized in that said passageway is formed by the cooperation of said mold sections and a predetermined peripheral portion of the sheet.

11. A window assembly substantially as described with reference to the accompanying drawings.



12. A method for producing a window assembly substantially as described in the specification.

13. A mold structure substantially as described with reference to the accompanying drawings.

DATED: 23 October, 1986

PHILLIPS ORMONDE AND FITZPATRICK
Attorneys for:
LIBBEY-OWENS-FORD CO.

David B Fitzpatrick



FIG. 2

64384/86

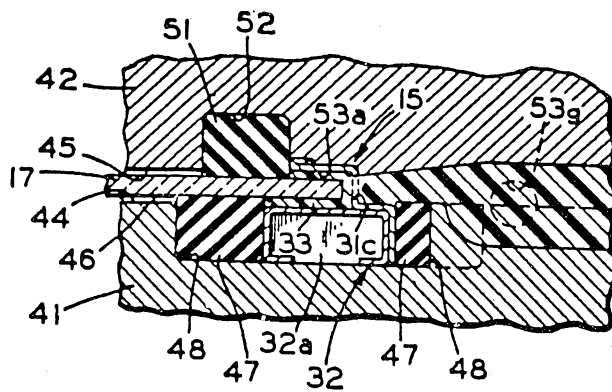


FIG. 6

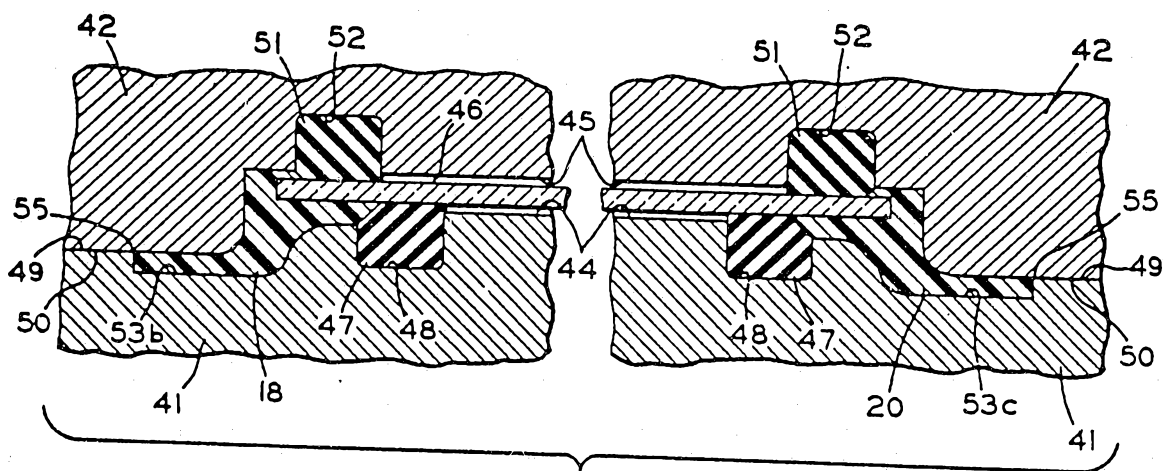


FIG. 7

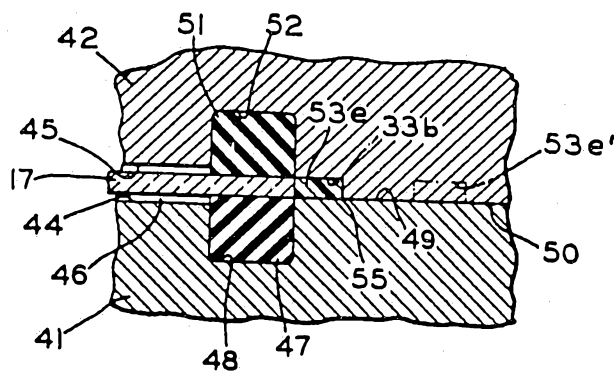


FIG. 8