Dec. 18, 1962 B. R. BORSKI 3,068,617

GLAZING GASKET

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Fig. 1

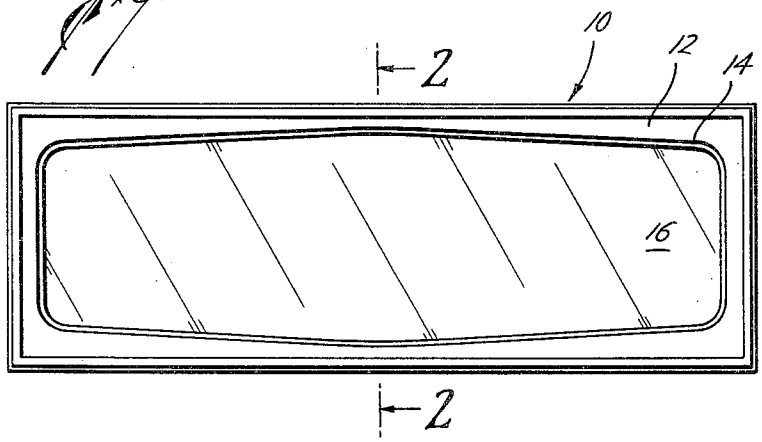


Fig. 3

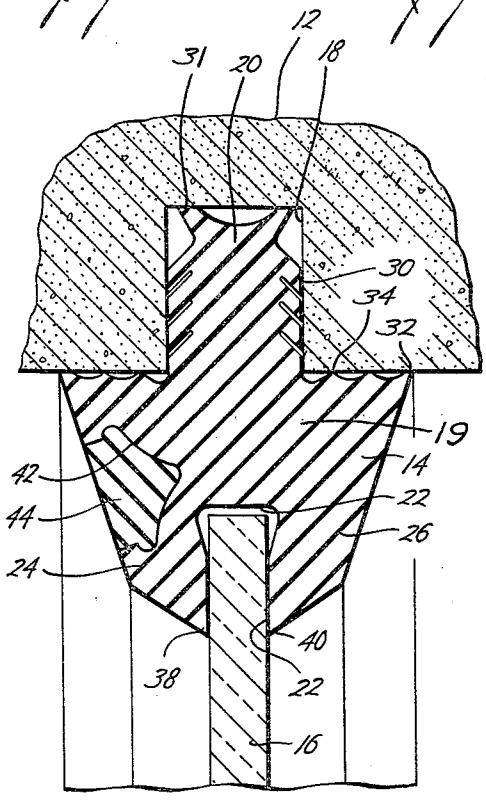
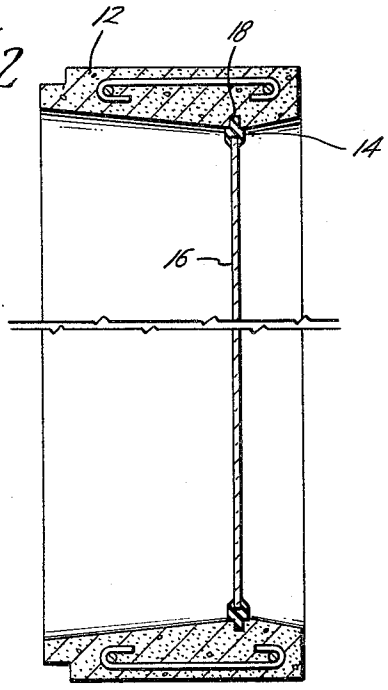


Fig. 2



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Fig. 4

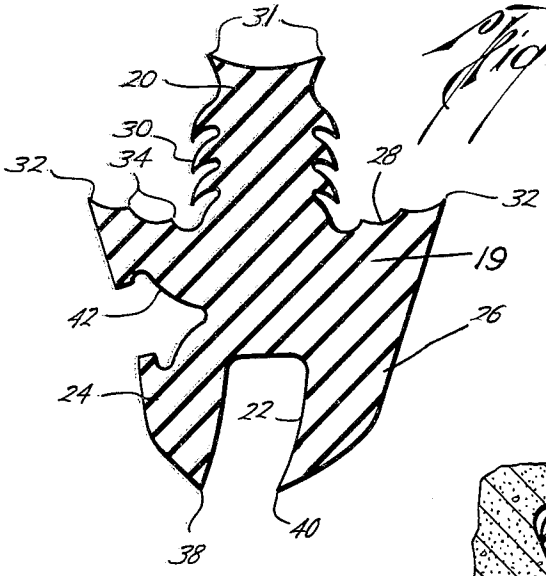


Fig. 6

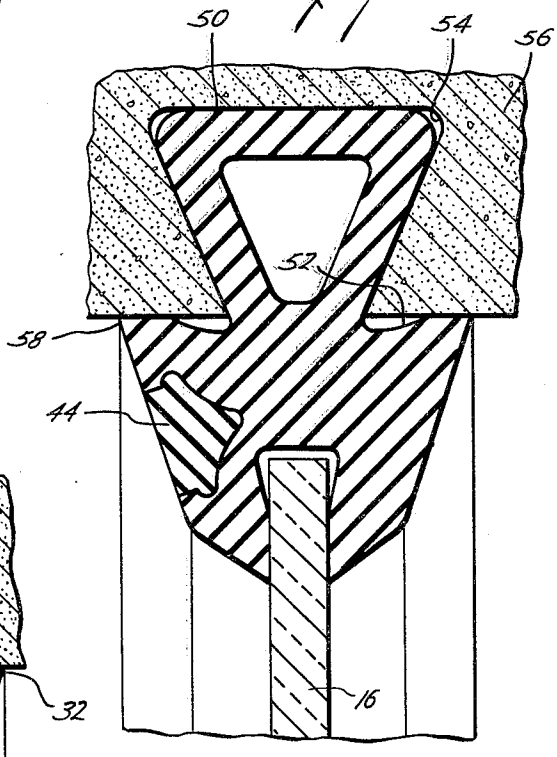
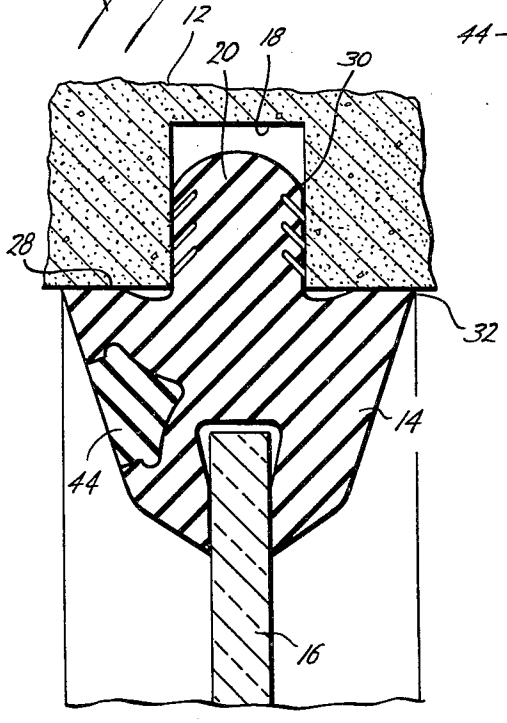


Fig. 5



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GLAZING GASKET

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5 Claims. (Cl. 50—120)

This invention relates to wall panel construction, and particularly it relates to gaskets used for sealingly retaining panels used in building wall construction.

One form of building wall construction that is being used with some frequency is one which requires the use of concrete wall panel frames which are precast in a mold and installed in the wall of the building. The frames are provided with means for retaining therein panels of glass, if the frames are for windows, or of other materials, if an opaque wall is desired. Such means include the use of a combination of a metal member and a rubber gasket. One method suggested comprises molding the frame with an intergral inwardly extending annular metal insert, to which glass panels, for example, may be attached, as by means of sealing strips such as are described in U.S. Patent 2,189,138. As may be seen in the above patent, sealing strips join coplanar sheets of material in sealing relationship. The sealing strip is first placed on the insert, so that it extends all the way around the inside of the frame, and the window pane is then put into place.

A major problem with this procedure is the difficulty of obtaining a permanent seal between the annular metal insert and the cast frame, so that the wall panel is impervious to wind and rain, since metals are subject to corrosion. An aluminum insert has been found most satisfactory, but these are expensive, and the concrete causes rapid corrosion of aluminum, so that these inserts do not provide a permanent structure.

According to the present invention, the frame, whether of concrete or of other material, is made with an annular inwardly directed groove. A glazing gasket is sealingly engaged in the groove, and the glass or other wall panel is sealingly retained by the glazing gasket.

For a better understanding of the invention, reference is now made to the drawings, wherein:

FIGURE 1 depicts a cast window frame having a glass pane retained by a glazing gasket;

FIGURE 2 is an enlarged sectional view of the window and frame of FIGURE 1, taken on line 2—2 of FIGURE 1;

FIGURE 3 is a further enlarged fragmentary view of a portion of FIGURE 2;

FIGURE 4 is a sectional view of the glazing gasket used in the structure shown in FIGURE 3;

FIGURE 5 is a fragmentary view similar to FIGURE 3, showing a modification of the glazing gasket; and

FIGURE 6 is a fragmentary view similar to FIGURE 3, showing another modification of the glazing gasket.

The window unit 10 depicted in FIGURE 1 comprises a molded concrete frame 12, a glazing gasket 14, and a pane of glass 16. As shown in FIGURE 2, and more clearly in FIGURE 3, frame 12 is provided with an inwardly directed annular groove 18 into which glazing gasket 14 is sealingly engaged.

Glazing gasket 14 is an elongated strip, usually made of natural or synthetic rubber or other elastomeric material, which extends all the way around the inside perimeter of the frame 12, being sealingly engaged in the annular groove 18 throughout this inside perimeter.

As best seen in FIGURE 4, the glazing gasket has a body portion 19 to which is attached a longitudinally extending tongue 20. A longitudinally extending groove 22 is formed in the side of the body opposite the tongue side, the groove being formed by wing elements 24, 26. The body is provided with a frame-engaging face 28 on the

tongue side, this face preferably extending substantially perpendicular to the tongue, or at an acute angle relative thereto. Tongue 20 is provided with ridges 30 which are preferably backwardly directed teeth or barbs which are directed toward the body of the glazing gasket so as to allow the tongue to be readily inserted into the groove 18 in the frame but resist removal of the tongue from the groove. The ridges 30 function as sealing elements to provide a fluid-tight seal of the tongue 20 in groove 18. It will be appreciated that the thickness of tongue 20 with the ridges 30 in their free position, is greater than the width of groove 18. Additional sealing is provided by lips 31 extending longitudinally along the edges of tongue 20, which engage the bottom of groove 18.

In the embodiment shown in FIGURES 3 and 4, frame-engaging face 28 is provided with lips 32 along each edge and longitudinally extending ridges 34 intermediate the lips and the tongue. The lips 32 and ridges 34 are deformed upon insertion of the tongue 20 in the frame so as to provide sealing engagement of the face 28 therewith.

Wing elements 24 and 26 terminate at their edges most removed from the frame-engaging face in lips 38, 40, which form the entrance to groove 22. One laterial side of the body is provided with a longitudinally extending wedge recess 42 which is adapted to receive a wedge 44. Wedge 44 forces lip 38 into sealing engagement with the panel 16, the lip 40 similarly being held in sealing engagement with the other side of panel 16.

It will be apparent that the structure of this invention is assembled by inserting the tongue 20 of the glazing gasket into groove 18 far enough so that the lips 32 are in sealing engagement with the frame, followed by bending wing element 24 back and inserting the panel 16. The wedge 44 is then inserted into groove 42 to retain lips 38 and 40 in positive sealing engagement with panel 16. The ridges 30 serve to retain lips 32 in sealing engagement with the frame.

Another embodiment of the invention, shown in FIGURE 5, omits the ridges 34 on frame-engaging face 28 and the lips 31 on tongue 20, so that sealing between the frame and the glazing gasket is attained by means of the ridges 30 on tongue 20 and the lips 32 on frame-engaging face 28.

In the embodiment shown in FIGURE 6, another form of tongue is used to retain the glazing gasket in sealing engagement with the frame. Tongue 50 has a somewhat trapezoidal shape, the small side of the trapezoid being adjacent frame-engaging face 52, and is hollow. Thus the tongue 50 may be compressed for insertion into a groove 54 in frame 56, and thereby achieve a sealing engagement. The groove shown in FIGURE 6 is a dovetail groove, which will function to pull frame-engaging face 52 and its sealing lips 58 into a sealing engagement with the frame. It is evident that when a dovetail is used, groove 54 and tongue 50 are proportioned so that lips 58 are held tightly against the frame.

It will be evident that the structure of this invention provides simple means for supporting glass or other building panels in molded concrete or other frames without the use of additional intermediate metal framing elements, and that means are provided for insuring that wind and water do not leak around the panels. In a test of the structure of this invention, using panels approximately four feet wide and eleven feet high, a wind as high as 120 miles per hour was used to blow water simulating an average rainfall of 4.85 inches per hour against the structure of this invention. It was found that no water leaked around any of the glazing gaskets, and all glass panels remained firm in the frames.

Several embodiments of the invention have been shown and described herein. Many other modifications, however, will be apparent to those skilled in the art, therefore the invention is not limited to the specific embodiments disclosed, but only as defined by the following claims.

I claim:

1. An elastomeric glazing gasket for mounting a wall panel in a rigid frame having an inwardly directed annular mounting groove therein, comprising an elongate body portion, a longitudinally extending tongue protruding from one side of said body portion and adapted to be engaged in said mounting groove, a wall panel engageable groove form into the opposite side of said body portion, the bottom of said groove terminating short of the plane of juncture of said tongue and said body portion, means on said gasket providing for sealing engagement thereof with the mounting groove, a frame-engaging face on said body portion extending laterally outwardly a substantial distance on either side of said tongue and terminating in a sealing lip extending toward the frame and deformable upon insertion of said tongue into said mounting groove to provide sealing at the edges of said frame-engaging face, means on said tongue adapted to retain said tongue far enough in said groove to insure maintenance of the deformation of said sealing lips, and means for urging the walls of the groove in the body portion into sealing engagement with the wall panel.

2. An elastomeric glazing gasket as defined by claim 1 wherein the means on said tongue adapted to retain tongue in said groove comprises a dovetail form adapted to engage a corresponding dovetail groove.

3. A structural assembly comprising an annular molded concrete frame, an elongate elastomeric glazing gasket circumscribing the inner face of said frame and sealingly engaged therewith, and a wall panel sealingly and supportingly held in said frame by said glazing gasket, wherein said frame has an annular inwardly directed mounting groove extending around the inner face thereof and said gasket has a body portion, a frame-engaging face on said body portion, a longitudinally extending tongue protruding from said frame-engaging face and sealingly engaged in said frame mounting groove, means on said frame-engaging face resiliently and sealingly engaging the inner face of said frame, means on said tongue resiliently and sealingly engaged in said frame mounting groove and adapted to resist disengagement of said tongue from said frame mounting groove, a pair of longitudinally extending wing members on said body portion on the side of said body portion opposite the frame-engaging face forming a panel receiving groove therebetween having a bottom formed by said body portion, said wall panel being sealingly and supportingly received in said panel receiving groove, whereby said body portion provides resilient support for said wall panel intermediate the edge of the wall panel and the inner face of the frame.

4. A structural assembly as defined by claim 3 wherein the means on the tongue for resisting disengagement comprise longitudinally extending ridges or teeth on said tongue which are directed toward said frame engaging face.

5. A structural assembly comprising an annular molded concrete frame, an annular inwardly directed dovetail mounting groove formed in the inner surface of said frame, an elongate elastomeric glazing gasket circumscribing the inner surface of said frame, a longitudinally extending hollow dovetail shaped tongue extending from one side of said gasket and engaged in said mounting groove, a frame-engaging face on said gasket extending laterally outwardly a substantial distance on either side of said tongue and terminating in a sealing lip extending toward the frame and deformable upon insertion of said tongue into said mounting groove sufficiently to fully engage the dovetails to provide sealing at the edges of said frame-engaging face, said dovetail engagement being such as to maintain such sealing, a longitudinally extending panel-receiving groove formed in the side of said gasket opposite said tongue, a substantial unsupported body portion intermediate said tongue and said groove, a wall panel having its edge sealingly supported in said panel-receiving groove, and wedge means in said gasket for urging the walls of the panel-receiving groove into sealing engagement with the wall panel.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,068,617 December 18, 1962

Bernes R. Borski

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 20, for "intergral" read -- integral --; column 2, line 25, for "laterial" read -- lateral --; column 3, line 13, for "form into" read -- formed in --; line 14, before "groove" insert -- wall panel engageable --; line 24, before "groove" insert -- mounting --; line 30, before "tongue" insert -- said --; same line 30, before "groove" insert -- mounting --; column 4, line 32, before "groove" insert -- panel-receiving --.

Signed and sealed this 9th day of July 1963.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents