

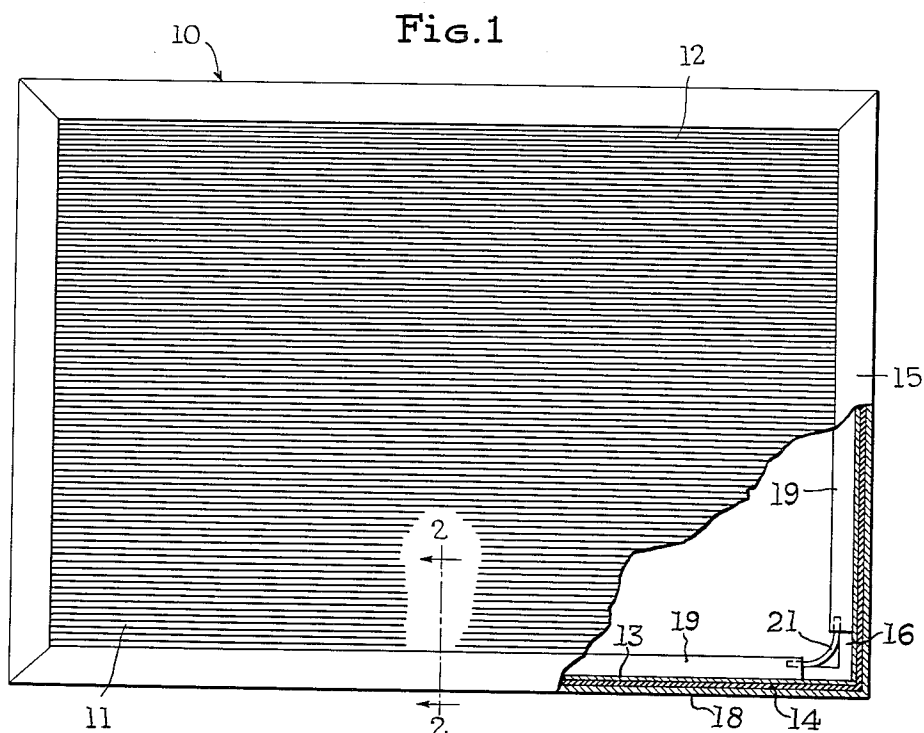
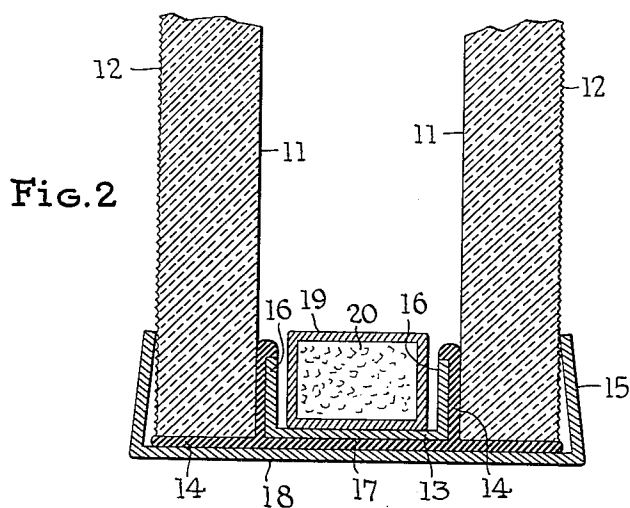
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O. D. ENGLEHART ET AL

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MULTIPLE GLAZED FLEXIBLE SPACER UNITS

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INVENTORS
Oscar D. Englehart
and William S. Bobel
BY

Oscar L. Spencer
Attorney.

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MULTIPLE GLAZED FLEXIBLE SPACER UNITS

Oscar D. Englehart, Brackenridge, and William S. Bobel,
New Kensington, Pa., assignors to Pittsburgh Plate
Glass Company

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4 Claims. (Cl. 20—56.5)

This invention relates to window constructions and more particularly to multiple glazed units utilizing a relatively flexible edge construction.

One object of this invention is the provision of a multiple glazed unit which effectively seals the margins of panels of pattern glass and/or panels of fully tempered glass.

Another object of this invention is the provision of an improved edge construction for multiple glazed units which maintains an adequate vapor seal with and tends to prevent the breakage of panels of pattern surface, bowed surface, or polished surface glass.

A still further object of this invention is the provision of an improved edge construction for multiple glazed units which includes a relatively flexible spacer element and light channel pressures against the glass panels.

Other objects and advantages of the invention will become more apparent from the following detailed description of a preferred embodiment thereof.

It has been found that conventional patterned surface glasses lack the required degree of flatness to avoid stresses causing breakage of such glass incorporated in standard edge constructions for multiple glazed units. Likewise some fully tempered glasses acquire bows and kinks during tempering that create stresses causing breakage in conventional edge constructions for multiple glazed units. The present invention contemplates the provision of somewhat flexible spacers and edge channels for multiple glazed units having panels of patterned surface glass, bowed surface glass, or polished surface glass.

In the drawing, Figure 1 is an elevational view of a multiple glazed unit embodying the principles of our invention; and,

Figure 2 is a fragmentary vertical sectional view taken along line II—II of Figure 1.

Referring to the drawing, a multiple glazed unit 10 comprises a pair of glass panels 11 arranged in parallel relation. The glass panels 11 have patterned outer faces 12. It is to be understood that the particular form of the patterned surface is not a part of our invention, and that many types of patterned surface glasses are well known. It should also be understood that our invention is concerned not only with multiple glazed units utilizing patterned glass panels, but also with such units using fully tempered bowed glass panels or using polished glass panels. The marginal edge portions of the panels are spaced by a spacer channel 13, of U-shape cross section, a suitable mastic caulking or sealing composition 14 being located between the panels 11 and the spacer 13. A second channel 15, of U-shape cross section, engages the outer peripheral surfaces of the panels 11 to hold the panels together against the spacer 13 as a multiple glazed unit. The mastic compound 14 extends between the flanges 16 of spacer 13 and the panels 11, between the base 17 of spacer 13 and the base 18 of clamping channel 15, and between the edges of panels 11 and the base 18 of channel 15. A suitable container 19 containing a desiccating agent 20 such as activated alumina, anhydrous

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calcium sulfate, or the like, is disposed within the spacer 13 and is positioned against the base 17 of said spacer. The container 19 may be of extruded aluminum and should have a width approximately 1/16 inch smaller than the width of the space between flanges 16 of spacer 13. The mastic caulking or sealing compound 14 may be a dispersion of carbon black in polyisobutylene of the character disclosed in Patent 2,551,952, issued May 8, 1951, in the name of Gerald E. Kunkle, but it is to be understood that any suitable mastic composition may be employed.

The spacer channel 13 is preferably formed of thin metal, such as 18-8 or 17-7 stainless steel or from a low expansion metal such as 4750 with a thickness of .005 to .010 inch. The 4750 metal has a coefficient of expansion about equal to that of glass, and its use reduces relative movement at the sealing surfaces upon temperature changes. The outer channel 15 is also formed of thin metal, such as 18-8, 17-7, 12% chromium or 18% chromium steels, with a thickness of the order of .008 to .012 inch. The spacer channel 13 may be formed with rounded corners at the corners of the multiple glazed unit, and the desiccant container 19 may be secured in the channel 13 by suitable spring clips 21 at said corners. Both the spacer 13 and the outer channel 15 may have soldered or welded joints, well known in the art, to form a continuous edge construction unit. The use of such light gauge metals results in relatively flexible spacer and clamping channels and results in light channel pressures being exerted against the glass panels 11. Such light pressures permit the use of glass having a normal wave as received in pattern glass manufacture, and also permits the use of fully tempered glass which is normally bowed or kinked during tempering. The light channel pressures do not destroy the effectiveness of the vapor seal formed by the mastic 14 and do eliminate excessive breakage of the glass panels.

The multiple glazed unit formed by the use of the U-shaped spacer 13 and the use of a channel 15 exerting relatively light pressures on the glass panels has been found to have a relatively long effective life as compared with edge constructions formerly used with irregular surface glasses. The described spacer and edge construction is also useful with all types of glasses including polished plate glass as well as laminated glasses.

It will be apparent to those skilled in the art that various modifications and variations in the nature and arrangement of the several elements of our construction are possible without departing from the spirit of this invention or the scope of the appended claims.

What we claim is:

1. A substantially rectangular multiple glazed unit comprising a plurality of glass panels of similar size, arranged in parallel relation, a thin metal spacer channel of substantially U-shape cross section positioned between marginal portions of said panels, a clamping channel of thin metal of substantially U-shape cross section extending around the peripheral portions of said glass panels and having flanges engaging the outer surface of the outer panels of said unit, a mastic composition between said spacer channel and said panels and between said spacer channel and said clamping channel, a tubular desiccant container for each marginal side portion of said unit and positioned in the channel of said spacer, and a spring clip in each corner of said unit and extending from the end of one desiccant container to the end of the adjacent desiccant container to resiliently position said containers in said channel.

2. A rectangular multiple glazed unit comprising a pair of patterned surface glass panels arranged in parallel relation with said patterned surfaces facing outward, a thin

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metal spacer channel of substantially U-shape cross section positioned between the marginal portions of said panels, a clamping channel of thin metal of substantially U-shape cross section extending around and enclosing the peripheral portions of said panels and having side flanges contacting the outer patterned surface of each of said panels of said unit, mastic composition between said spacer channel and said glass panels and between said spacer channel and said clamping channel, a series of desiccant containers including a substantially straight container for and shorter in length than each side of said rectangular unit, and a spring clip in each corner of said unit extending from the end of one of said containers to the end of the adjacent container to position and hold said containers in said spacer channel.

3. A multiple glazed unit comprising a plurality of glass panels arranged in spaced, parallel relation, a flexible spacer channel of substantially U-shaped cross section positioned between marginal portions of said panels, means

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holding the spacer channel and glass panels in relation to each other, a tabular, desiccant container for each marginal side portion of said unit positioned in the channel of said spacer, and a spring clip extending from the end of one desiccant container to the end of the adjacent desiccant container to resiliently position said containers in said channel.

4. The multiple glazed unit as described in claim 3, wherein the spacer channels and glass panels are held in relation to each other by means of a mastic composition.

References Cited in the file of this patent

UNITED STATES PATENTS

2,021,179	Fox	Nov. 19, 1935
2,094,381	Slayter	Sept. 28, 1937
2,525,717	Ottenheimer	Oct. 10, 1950

FOREIGN PATENTS

515,085	Great Britain	May 1, 1939
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