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F. W. HALL

2,340,469

GLAZING UNIT

Filed May 28, 1941

Fig. 1.

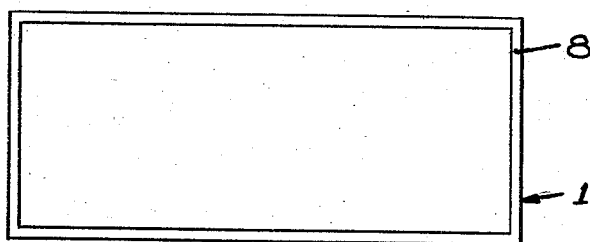


Fig. 2.

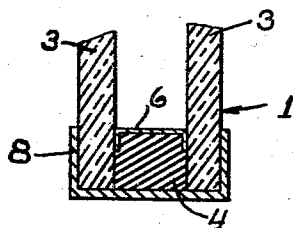


Fig. 3.

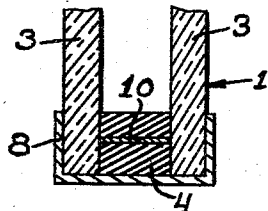
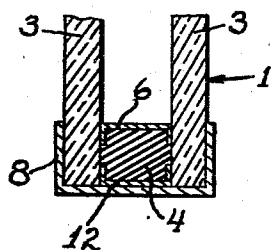


Fig. 4.



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GLAZING UNIT

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Application May 28, 1941, Serial No. 395,544

1 Claim. Cl. (20—56.5)

The present invention relates to a multiple paned insulating construction and more particularly to a glazing unit provided with a sealed insulating chamber.

One object of the invention is to provide a glazing unit having improved spacing and sealing means which will materially prolong the effective life of the unit.

Other objects and advantages of the invention will become more apparent from the following detailed description of certain preferred embodiments thereof, when taken in conjunction with the accompanying drawing.

In the drawing,

Figure 1 is an elevational view of a glazing unit embodying the principles of my invention;

Figure 2 is a fragmentary vertical sectional view thereof;

Figure 3 is a fragmentary vertical sectional view of another form of the invention;

Figure 4 is a fragmentary vertical sectional view of still another form of the invention.

Referring to the drawing, a glazing unit 1 comprises a plurality of glass plates 3 disposed in parallel relation and maintained therein by a spacer 4 interposed between the plates and adhered thereto marginally. A vapor barrier 6 is secured to the inner surface of the spacer 4 and extends across the space between the glass plates. A frame 8 substantially of U-shape in cross-section surrounds the unit 1 and completes the assembly thereof.

As shown in Figure 3, the spacer 4 may be rendered impervious by the installation of a vapor barrier 10 within the body of the spacer. Another form of the invention, illustrated in Figure 4, contemplates the use of a second vapor barrier 12 secured to the outer surface of the spacer 4 increasing the measure of protection afforded by the barrier 6 secured to the inner surface of the spacer.

The novel feature of the invention resides in the combination of the vapor barrier and spacer. Heretofore attempts to use thermoplastic materials as the spacers of multiple glazed units have been subject to certain deficiencies inasmuch as these materials are relatively permeable to water vapor. The thermoplastic resins, polyvinyl acetals, acrylates and the like, may be admixed with suitable plasticizers and made to adhere directly to glass. Obviously, therefore, this characteristic of the resins could be used to great advantage in manufacturing multiple glazed units, were it only possible to render the resins impervious to moisture. By making a vapor barrier an integral

part of the spacer, the desired results are accomplished.

The vapor barrier is preferably a continuous strip of metal foil, copper, aluminum, lead and the like being suitable for the purpose, although the use of other metals and alloys is possible. The metal foil may be secured to the surfaces of the spacer material as a facing extending the full width of the spacer. To increase the effectiveness of the barrier, the ends of the facing overlap the edges of the spacer. In this respect care must be taken that sufficient of the spacer is left uncovered to enable a proper bond thereof with the glass plates. If it is desired a strip of metal foil may be incorporated within the body of the spacer (Figure 3), extending across its full width, during the formation of the thermoplastic material into the spacer. Excellent results have been obtained through the use of polyvinyl acetal resins as the spacer material. These resins exhibit strong adhesion to both the glass plates and the metal foil even when only slightly plasticized. Other thermoplastic resins may be used, however, and if desired, fillers or reinforcing agents may be added to increase their strength.

Generally a frame is added to the unit although this is not necessary in all cases. For example, a unit of the type illustrated in Figure 4 does not require a full frame and spaced clips could be used as a substitute therefor.

It will at once be obvious that various modifications in the nature of the several elements and their arrangement are possible without departing from the spirit of the invention or the scope of the appended claim.

What I claim is:

A multiple glazed unit comprising adjacent glass plates disposed in parallel, face-to-face relation, a spacer of thermoplastic resinous material disposed between and bonded to adjacent plates around the marginal portions thereof serving as the sole means to hold the plates in spaced relation, and pliable metal foil traversing the space from plate to plate continuously around the marginal portions thereof and integrally bonded to the body of the spacer on both the inside and outside surfaces thereof to form a vapor barrier against the penetration of moisture into the space between the plates, said foil having inwardly turned marginal portions lying flat against the opposed surfaces of the plates.

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