Nov. 25, 1941. W. OWEN 2,264,187

MULTIPLE GLAZED UNIT

Filed Jan. 12, 1940

Fig. 1.

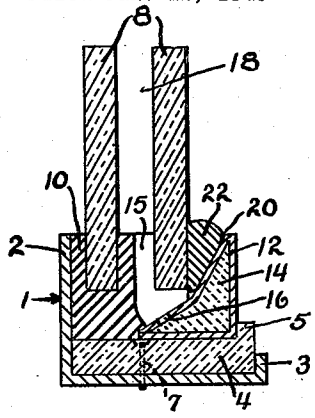


Fig. 2.

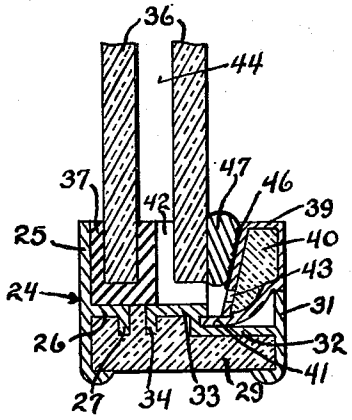
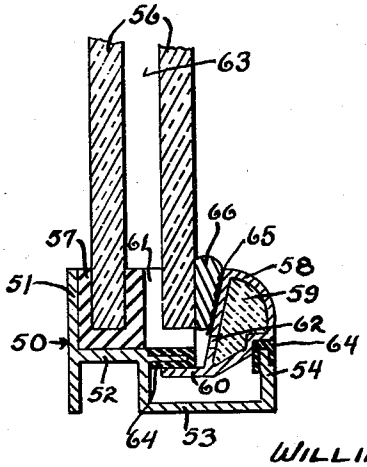


Fig. 3.



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MULTIPLE GLAZED UNIT

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Application January 12, 1940, Serial No. 313,556

5 Claims. (Cl. 20—56.5)

The present invention relates to window constructions and more particularly to multiple glazed units in which the assembly is readily dismantled for purposes of repair or cleaning.

One object of the invention is the provision of a multiple glazed unit with a special frame restricting the transfer of heat therethrough, together with an improved retainer element for holding the glass panes removably in position within the frame.

A second object of the invention is the provision of a retainer for the glass panes which carries a dehydrating material adapted to maintain the space between the glass panes in substantially anhydrous condition.

Other objects 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 wherein:

Figure 1 is a fragmentary vertical section through a unit constructed in accordance with the provisions of my invention, and Figures 2 and 3 are fragmentary vertical sections through other forms of structure illustrating the invention.

Referring to Figure 1 of the drawing, a unit comprises a frame 1 of metal, wood or synthetic plastic substantially of L-shape in cross-section, provided with inwardly extended flanges 2 and 3. A bar 4 of insulating material provided with a shoulder 5 lies within the frame and is secured thereto by suitable means, as for example by rivets 7. A plurality of glass panes 8 seated within a marginal spacing and sealing member 10 of rubber or other resilient material is positioned within the frame 1 upon the insulating layer 4. A retainer element 12 substantially of triangular shape in cross-section is fitted within the frame abutting the insulating layer 4 and held against transverse movement by the shoulder 5. The retainer 12 carries a filling 14 of a dehydrating material such as activated alumina, calcium sulfate, or the like. Ducts 15, extending through the marginal spacers 10 at suitable intervals and openings 16 within the retainer 12, establish communication between the space 18 intermediate the glass panes 8 and the dehydrating material 14. The retainer 12 has a face 20 converging toward the glass panes 8 and a wedge 22 of resilient material is interposed between the face 20 of the retainer 12 and one of the glass panes 8 to lock the assembly.

Another form of the invention is illustrated in Figure 2 wherein a frame 24 is substantially of L-shape in cross-section and includes a flange 25 having an intermediate shoulder 26 carrying a dependent lip 27 interlocking with a bar 29 of suitable insulating material. A second flange 31 is fitted over the opposite end of the bar 29 and carries the intermediate shoulder 32 having an offset portion 33 carrying a dependent lug 34 which also interlocks with the bar 29. The outer edges of the flanges 25 and 31 are rolled over the bar 29 to complete the frame. A plurality of glass panes 36 with a marginal spacing and sealing member 37 is seated within the frame upon the shoulder 26 and section 33. A retainer element 39 containing a filling 40 of a dehydrating material is interlocked with the frame, one side resting upon the flange 31 and an integral finger 41 extending under the offset portion 33 of the shoulder 32. Ducts 42 provided at spaced intervals along the marginal spacer 37 and openings 43 within the retainer 39 establish communication between the space 44 intermediate the glass panes 36 and the dehydrating material 40. The retainer 39 has a side 46 converging toward the glass panes with a notched surface to bind a locking wedge 47 of resilient material which fits between the retainer face 46 and one of the glass panes 36 to lock the assembly.

Another form of the invention is illustrated in Figure 3 wherein a frame 50 comprises a metal flange 51 having an intermediate shoulder 52 from which is offset, adjacent the end thereof, a channel member 53 terminating in a flange 54. A plurality of glass panes 56 with marginal spacing and sealing means 57 is positioned within the frame upon the shoulder 52. A retainer element 58, containing a filling 59 of a suitable dehydrating material, is seated upon the flange 54, and carries a finger 60 which interlocks with the free end of the shoulder 52. Ducts 61, extending through the marginal spacer 57 at suitable intervals and openings 62 in the retainer 58, establish communication between the space 63 intermediate the glass panes 56 and the dehydrating material 59. Channel strips 64 of rubber are interposed between the frame and the retainer to provide an insulation, reducing heat transference through the assembly. The retainer 58 is provided with a side 65 converging toward the glass panes 56 and bearing surface notches to bind a wedge 66 of resilient material which is interposed between the retainer and one of the glass panes to lock the assembly.

It is recognized that the application of dehydrating capsules or desiccants to multiple glass units has been shown by the prior art. In most

circumstances, however, considerable difficulty is experienced in replacing those desiccators which are no longer effective and which have become spent in service. In the few constructions in which provision is made for ready replacement of the desiccating materials, the amounts of those materials which are present in the units are relatively small. By combining the dehydrating materials with the retaining elements it is not only possible to permit rapid replacement of the spent desiccators, but also to secure a more complete dehydration of the space between the glass panes since a larger amount of desiccant is exposed thereto.

Another feature of my proposed construction is the fully insulated frame by means of which heat transfer therethrough is reduced to a minimum. Accordingly, when the units are installed the inner surfaces thereof will be maintained substantially at room temperatures, thus preventing undue condensation of atmospheric moisture thereon.

It will at once be apparent that modifications in the arrangement of the several elements of my construction are possible without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. A multiple glazed unit comprising a frame, substantially of L-shape in cross-section, a plurality of glass panes with marginal spacing and sealing means positioned within the frame, a retainer element carrying a filling of a dehydrating material fitted within the frame adjacent the glass panes, ducts establishing communication between the space intermediate the glass panes and the dehydrating material, and a wedge of resilient material interposed between the retainer element and one of the glass panes to lock the assembly.

2. A multiple glazed unit comprising a frame, substantially of L-shape in cross-section, a plurality of glass panes with marginal spacing and sealing means positioned within the frame and abutting a layer of insulating material, a retainer element carrying a filling of a dehydrating material seated within the frame adjacent the glass panes upon the layer of insulating material, ducts establishing communication between the space intermediate the glass panes and the dehydrating material, and a wedge of resilient material interposed between the retainer element and one of the glass panes to lock the assembly.

3. A multiple glazed unit comprising a frame substantially of L-shape in cross-section, a bar of insulating material lying within the frame and secured to the base portion thereof provided with an inwardly-extending shoulder, a plurality of glass panes with marginal spacing and sealing means positioned within the frame and abutting the insulating material, a retainer element, substantially of triangular shape in cross-section seated within the frame upon the insulating layer and held against lateral movement by the shoulder thereof, with one side converging toward the glass panes, a body of a dehydrating material disposed within the retainer element, ducts establishing communication between the space intermediate the glass panes and the dehydrating material, and a wedge of resilient material interposed between the retainer element and one of the glass panes to lock the assembly.

4. A multiple glazed unit comprising a frame substantially of L-shape in cross-section including a pair of metallic plates secured to and maintained in spaced parallel relation by a spreader bar of insulating material, a plurality of glass panes with marginal spacing and sealing means positioned within the frame, a retainer element carrying a filling of a dehydrating material interlocked with the frame adjacent the glass panes, ducts establishing communication between the space intermediate the glass panes and the dehydrating material, and a wedge of resilient material interposed between the retainer element and one of the glass panes to lock the assembly.

5. A multiple glazed unit comprising a frame including a pair of spaced inwardly-extending flanges and a shoulder intermediate thereof extending from one of the flanges, a plurality of glass panes with marginal spacing and sealing means supported upon the shoulder, a retainer element carrying a filling of a dehydrating material interlocked with the frame adjacent the glass panes, ducts establishing communication between the space intermediate the glass panes and the dehydrating material, and a wedge of resilient material interposed between the retainer element and one of the glass panes to lock the assembly.

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