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WINDOW FRAME CONSTRUCTION

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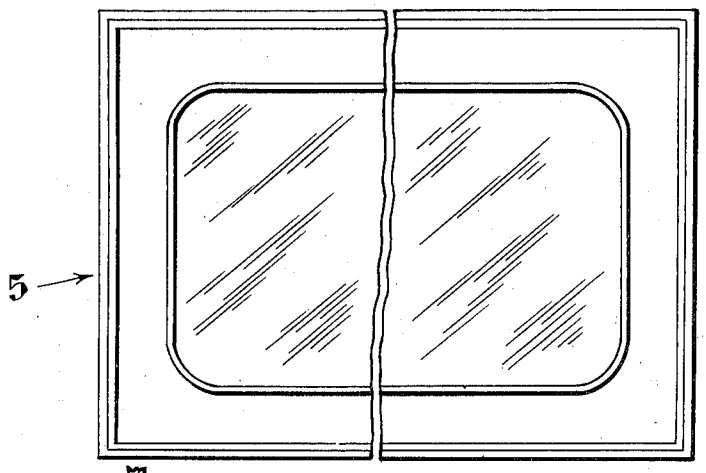


FIG. 1

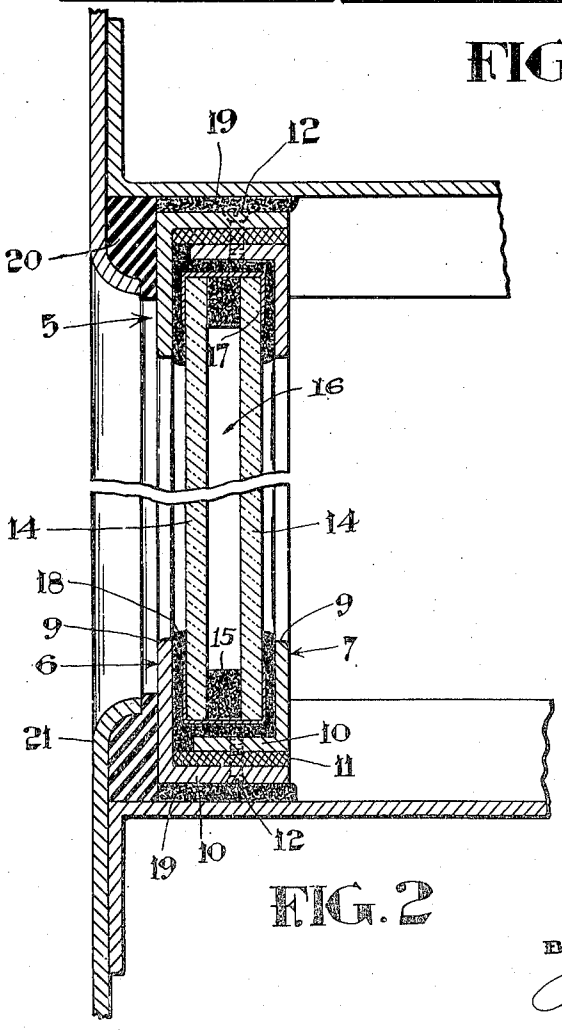


FIG. 2

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WINDOW FRAME CONSTRUCTION

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2 Claims. (Cl. 189—64)

This invention relates to a metal window construction for use in air conditioned railway cars and in other relations where it is desirable to prevent transmission of cold from the outside to the inside of the sash frame in order to avoid the occurrence of what is known as frosting or sweating of the frame.

It is an object of this invention to provide an inexpensive and easily assembled metal sash frame comprising inner and outer sections held out of direct contact with each other by insulating material which prevents the transmission of cold from the outer to the inner side of the frame. This object is preferably achieved by the employment of inner and outer frame sections of substantially L-shape in cross section. These frame sections are fitted together to form an inwardly facing channel in which the glazing is cemented in place so that the cement, which is of low thermal conductivity, is interposed, as an insulating barrier, between the glazing and the side and bottom walls of the channel. In forming this glazing receiving channel the L-shaped frame sections are reversely arranged and fitted one within the other so that the bottom of the channel is formed by overlapping flanges of the sections. These overlapping flanges are held out of direct contact with each other by an interposed layer of fibrous or other insulating material of low thermal conductivity. The flange of the inner frame section which forms part of the bottom wall of the channel is made sufficiently narrow so that its inner edge is held out of direct contact with the opposing surface of the outer frame section by the glazing and glazing cement interposed between the frame sections.

It is also an object of this invention to provide an improved glazing assembly for use in connection with the improved frame construction. To this end the invention contemplates the provision of a glazing assembly comprising inner and outer glass plates having their marginal portions cemented together by a hardened cementitious plastic resinous composition which serves to hold the body portions of the plates in spaced relation. After they have been cemented together by the resinous composition the edges of the glass plates are enclosed by a thin closely fitting U-shaped metal binding frame which serves to reinforce the plates against relative outward displacement. This assembly is then mounted in place within the channel formed by the previously mentioned L-shaped inner and outer members of the sash frame.

Proceeding now to a more detailed description reference will be had to the accompanying drawing wherein—

Fig. 1 is an elevation of the metal window sash and glazing assembly provided in accordance with this invention.

Fig. 2 is a transverse sectional view through the assembly shown in Fig. 1. This view also shows the manner in which this assembly is mounted within the window frame of a railway car.

As shown in the drawing the sash frame, generally indicated at 5, comprises inner and outer sections 6 and 7 which are substantially L-shaped in cross section. These frame sections are fitted together so that their flanges 9 form the side walls of a U-shaped channel, the bottom of which is formed by the remaining flanges 10 which are disposed in overlapping relation and are held out of direct contact with each other by an interposed layer 11 of fibrous or other suitable insulating material of low thermal conductivity. The flanges 10 are secured together by screws 12 which also pass through the interposed insulating material. The two frame sections are preferably secured together in this manner so that the outer side of the flange 9 of section 7 lies in a common plane with the free edge of the flange 10 of the companion section 6. It will also be observed that the width of flange 10 of section 7 is such that the inner edge of this flange terminates short of the inner surface of the flange 9 of section 6.

In the present instance the glazing fitted in the channel formed by the frame sections 6 and 7 comprises a pair of glass plates 14 which are cemented together in spaced relation by means of a hardened plastic resinous cementitious composition 15 interposed between the edges thereof. This material 15 forms, with the glass plates 14, a sealed air space 16 which is useful in preventing sweating or frosting of the inside glass plate 14. The edges of the glass plates 14 are also held together by a thin closely fitting U-shaped metal frame 17. The glazing assembly comprising the glass plates 14 and the marginal binding frame 17 is secured in the channel of the sash frame by means of the cement indicated at 18. The cement used in this connection is preferably of low thermal conductivity and serves to form an insulating layer between the glazing assembly and the side and bottom walls of the sash frame.

The sash assembly described herein may be secured in the metal window frame of a railway car as shown in Fig. 2. In this connection it will be noted that the sash frame is cemented to

the window frame as indicated at 19 with the flange 9 of the frame member 6 butted against one side of a rubber cushioning strip 20 the opposite side of which is held in place by the portion 21 of the window frame. It will thus be seen that the metal frame sections 6 and 7 are held out of direct contact with each other by the interposed fibrous material 11 and cement 18 which serve as insulation preventing transmission of cold from the outside to the inside of the metal frame. The only metal to metal contact between the frame sections 6 and 7 is that afforded by the fastening screws 12 but this does not permit sufficient transmission of cold from the outside to the inside of the frame to produce frosting or sweating of the frame.

The composition of the cement 18 is preferably such that this cement will remain in a plastic condition so as to serve as a cushioning medium between the glazing assembly and the side and bottom walls of the frame channel in which said assembly is secured. It may, however, be pointed out that any suitable caulking material may be used in place of the cement 18 to hold the sash assembly in place and to provide the desired cushion between this assembly and the walls of the channel in which it is secured.

Having thus described my invention, what I claim is:—

1. A window construction comprising a sectional metal sash frame consisting of inner and outer L-shaped frame sections fitted together to form an inwardly facing channel, said frame sections being reversely arranged and fitted one within the other so that the bottom of the channel is formed by overlapping flanges of the sections, a layer of fibrous or other insulating material of low thermal conductivity interposed between the overlapping flanges to hold them out of direct contact with each other, the inner of said overlapping flanges being disposed with its inner edge spaced from the opposing surface of the outer frame section and a glazing assembly cemented in place within said channel, said assembly comprising inner and outer glass plates having their marginal portions cemented together so that the body portions of the plates are disposed in spaced relation and a thin closely fitting U-shaped metal binding frame embracing the edges and the adjacent outer surfaces of the glass plates to reinforce them against relative outward displacement, the cement employed for holding the glazing assembly in said channel being disposed to form an insulating barrier of substantial thickness between the glazing and the side and bottom walls of the channel.

2. A window construction comprising a sectional metal sash frame consisting of inner and outer L-shaped frame sections fitted together to form an inwardly facing channel, said frame sections being reversely arranged and fitted one within the other so that the bottom of the channel is formed by overlapping flanges of the sections, insulating material of low thermal conductivity interposed between the overlapping flanges to hold them out of direct contact with each other and a glazing assembly cemented in place within said channel, said assembly comprising inner and outer glass plates having their marginal portions cemented together so that the body portions of the plates are disposed in spaced relation and a layer of cement interposed between the walls of the channel and the glazing assembly to secure the latter in place, said cement being disposed to form an insulating barrier of substantial thickness between the glazing and the side and bottom walls of the channel.

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