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WINDOW CONSTRUCTION

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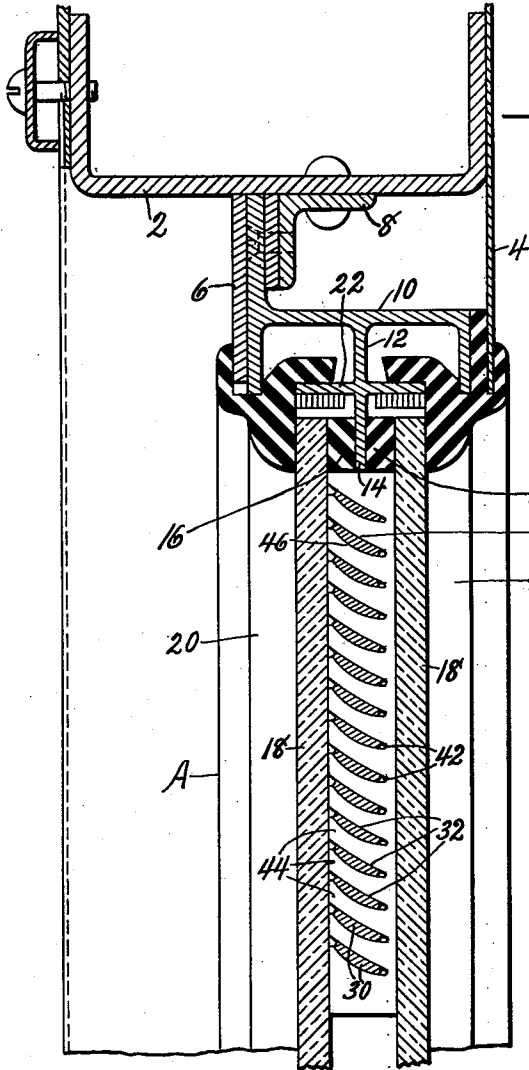


Fig. 2.

Fig. 3.

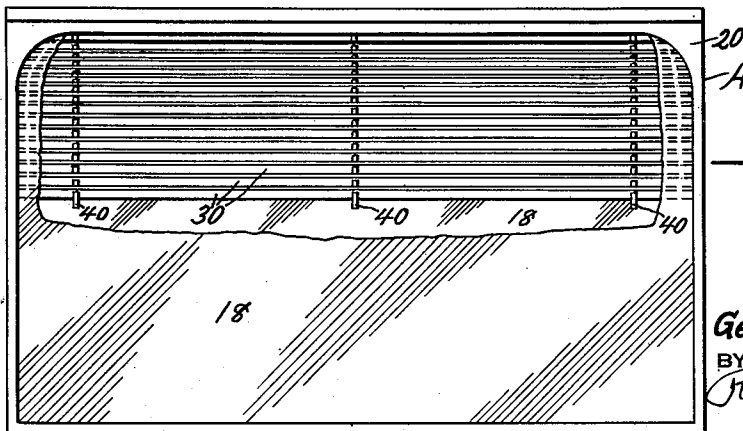
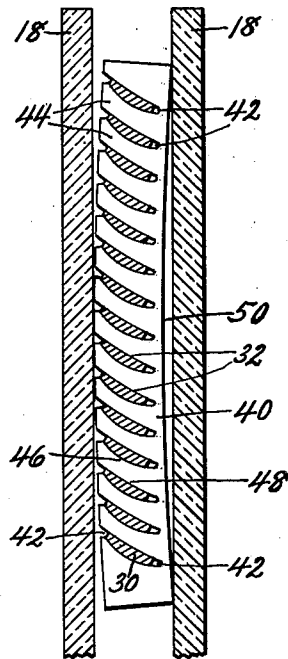


Fig. 1.

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## WINDOW CONSTRUCTION

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3 Claims. (Cl. 20—56.5)

1

This invention relates to window constructions in general and in particular to window constructions for use in moving conveyances.

In moving conveyances, such as vehicles traveling on road or rail and airplane, it is desirable to have some source of exterior or natural light which is under positive control and which can not be tampered with by the traveling public. In the past certain public conveyances have been equipped with Venetian blinds, but considerable trouble has been caused with these blinds due to noise and either accidental or deliberate damage. It has recently been proposed that the windows in public conveyances be divided into upper and lower sections, with the lower section made of clear glass with the light in this part controlled by the passengers themselves through means of shades, curtains or drapes. The upper portions of these windows are to be equipped with more or less permanently adjusted Venetian type blinds or louvers. With this type of blinds, however, it is necessary to make the individual slats quite thin and unless properly supported vibration will occur or sagging of the individual slats will more or less destroy the value of the blind or louvered section of the window. It is an object, therefore, of the present invention to provide a window in which a portion at least of the window is provided with positive and permanent light control means.

A further object of the invention is the provision of a window in which a portion of the light passing through the window is permanently controlled by fixed louvers or slats.

A still further object of the invention is the provision of an improved means for supporting and positively gripping the individual slats of a louvered window construction.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which

Fig. 1 is an elevational view of the improved window unit;

Fig. 2 is an enlarged sectional view showing details of construction and mounting, and

Fig. 3 is an enlarged sectional view showing details of the improved louver or slat gripping means before pressure has been applied by the transparent sheets.

Referring now to the drawings in detail, it will be seen that the window unit A has been mounted in an opening bounded by a structural member 2 to which is fastened the outside sheath-

2

ing 4 and the inside finish 6. In order to fasten the window unit in the opening an angle or other means 8 is fastened to the frame member and adapted to receive screws or other securing means for retaining the window unit in the opening. The window unit itself is made up of a frame 10 of flanged channel construction from which depends an intermediate cruciform element 12. Against the depending leg 14 of the cruciform member are placed rubber or other resilient members 16 and in assembled position glass sheets 18 bear against these resilient members 16 and are thus held in proper spaced relation to form an insulating type of window. The glass sheets 18 are held in position by special form rubber elements 20 which grip not only the glass sheets, but the outstanding flanges 22 of the cruciform member, as well as the flanges of the channel frame and the outside sheathing and inside finish to form weather seals. It is obvious, of course, that various types of glass retaining or glazing members, other than those shown, can be used.

In order to positively control the light passing through the upper portion of the window unit A, a plurality of slats 30 are placed between the panes of glass 18. These slats are of curved cross-section so as to give the slat more longitudinal stiffness while at the same time obtaining better light reflecting properties. It will be noticed, particularly from Fig. 2, that with the slats 30 as placed, a person inside the window can look outwardly and downwardly, but can not look upwardly toward the bright sky since direct rays are blocked by the slats. Likewise, incoming light from the sky or sun can not pass through the window's upper section except by striking the upper surface 32 of each slat and being reflected upwardly toward the ceiling of the enclosure. Thus it becomes impossible for direct rays of light to cause discomfort to occupants of the enclosure bounded in part by the window. In order for the slats to properly control passage of light, it is necessary that they be supported in an exact predetermined position and substantially parallel throughout their length. Since it is also necessary that the slats be as thin as possible so as not to interfere with a person's vision looking outwardly and downwardly, it is necessary that the slats be supported positively intermediate their ends.

In order to support the slats a supporting member 40 is provided and this member is preferably made of some slightly flexible transparent material chosen from among the numerous plastics

55

3

now on the market. The slat-retaining members have either cut or molded therein a plurality of slots 42 separated by fingers or teeth 44. The surfaces of the fingers or teeth are cut or formed so as to substantially conform to the cross-sectional contour of the slats 30. The curved surface 46 of each tooth or finger 44, which is adapted to contact the under curved surface of each slat, conforms very closely to this contour, whereas the opposite surface 48 of each finger or tooth is made substantially plane. In this way the plane surface 48 does not in the unstressed condition exactly conform to the slightly curved upper surface of each slat. Also, the width of slots 42 is a very small amount lesser in width than the thickness of the slats 30. By forming the fingers as described and narrowing the slots very slightly the entire toothed member 40 will assume a position similar to that shown in Fig. 3 when all of the slats 30 have been inserted in the slots 42. In other words, the back surface 50 of the toothed slat spacer will be curved as clearly shown in Fig. 3. When the slats and toothed slat spacers are placed between the glass as shown in Fig. 3 and the glass pushed to its final position shown in Fig. 2, the toothed slat spacers will be forced to assume the position shown in Fig. 2, that is, the back surface 50 will be located in a plane parallel to the glass sheets or panes 18. By forcing the toothed slat spacer from its position of Fig. 3 to that of Fig. 2, it will be obvious that considerable pressure will be exerted causing the teeth or fingers 44 to conform almost exactly to the slat contour, thus effectively gripping the slats and preventing any vibration or shift in their position. Also, since the stresses set up in the spacer will tend to bow the plane surface 48 toward the slat, it will be seen that these teeth not only grip and properly space the slat, but will maintain the proper cross-sectional contour of the slat, thus materially adding to the longitudinal strength of the slat to prevent its sagging or vibrating during travel of the conveyance. Since the slat spacers 40 are of a transparent material, it is possible to use a sufficient number without detracting from the appearance of the window unit. Also, since the spacers can be readily made from a plastic, they can be either easily cut or molded to the desired shape. While the slat spacer has been shown as of comb-like structure in order to permit ready insertion of the slats, it will be obvious that the spacer could be made of ladder form, with the slats in this case inserted by longitudinal

4

movement. It will also be obvious that various other modifications can be made without departing from the scope of the appended claims.

What is claimed is:

1. A support for positioning individual louvers, said support being of comb like form having a normally straight flexible back and outwardly projecting teeth defining slots of slightly less width than the individual louver to be positioned whereby the flexible back of said positioning means will assume a curved position upon insertion of said louvers in the slots between the teeth.

2. A support for positioning individual louvers, said support being of comb like form having a normally straight flexible back and outwardly projecting teeth defining slots of slightly less width than the individual louvers to be positioned whereby the flexible back of said positioning means will assume a curved position upon insertion of said louvers in the slots between the teeth, said teeth being moved into louver binding position upon movement of said flexible back from curved to straight position to retain the same against shifting movement.

3. In a window construction the combination of a frame, spaced apart transparent sheets clamped in said frame, light impervious slats located in spaced relationship in the space between said transparent sheets, and means insertable between the slats to grip and retain the same in predetermined spaced relationship, said means including spaced supporting structures each formed with normally straight flexible backs and outwardly projecting slots of slightly less width than the individual slats to be positioned thereby, said supporting structures assuming a curved position upon insertion of said slats and straightening under pressure of said transparent sheets to clamp said slats against movement relative to each other.

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#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

Number	Name	Date
421,165	D'Arros et al. ....	Feb. 11, 1890
881,433	Mitchell .....	Mar. 10, 1908
1,941,308	Indahl .....	Dec. 26, 1933
2,382,566	Heckman .....	Aug. 14, 1945