Oct. 24, 1939. J. SCHUNK 2,177,462

WINDOW CONSTRUCTION

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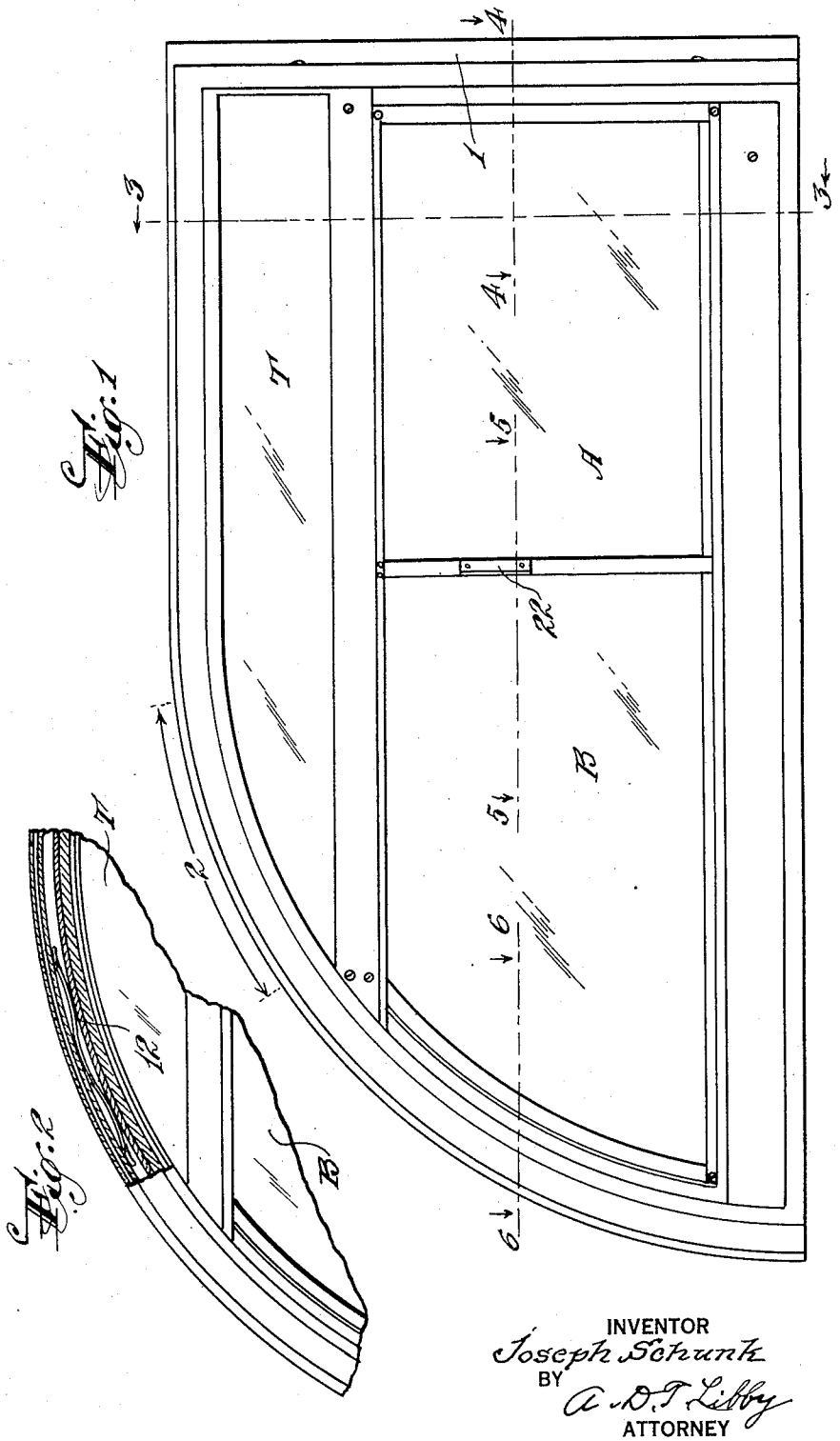


Fig. 1

Fig. 2

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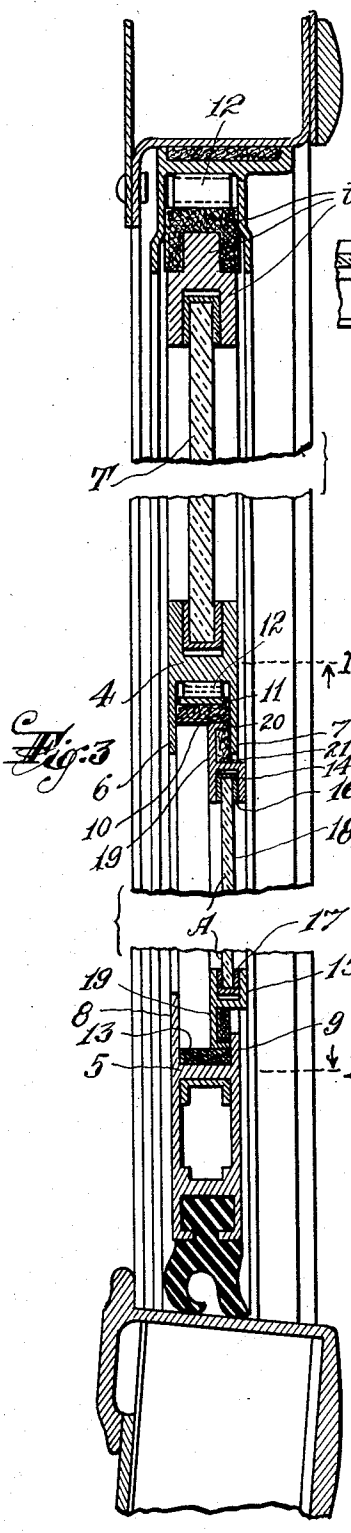


Fig. 3

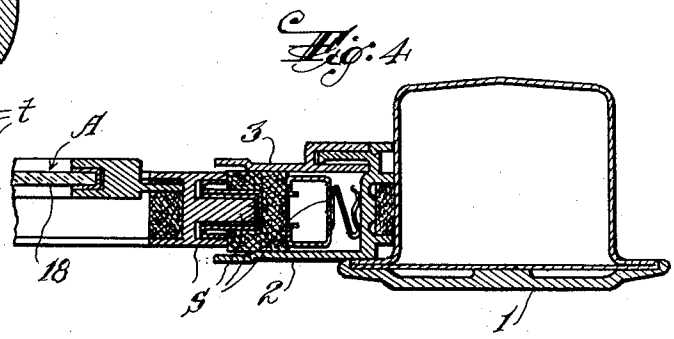


Fig. 4

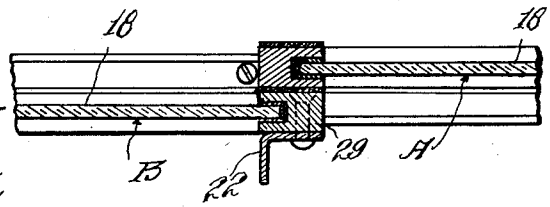


Fig. 5

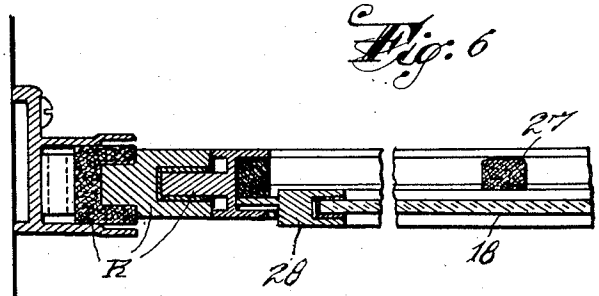


Fig. 6

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Fig. 7

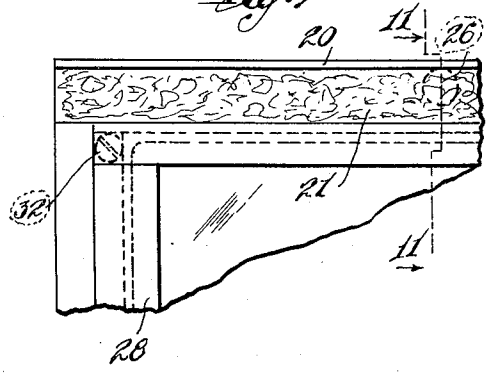


Fig. 11

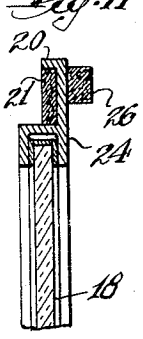


Fig. 8

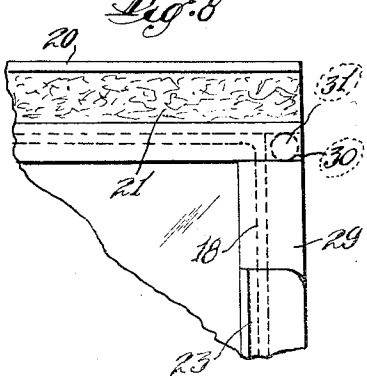


Fig. 12

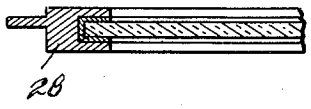


Fig. 13

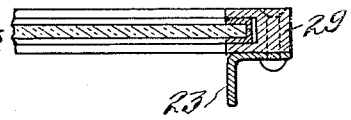


Fig. 9

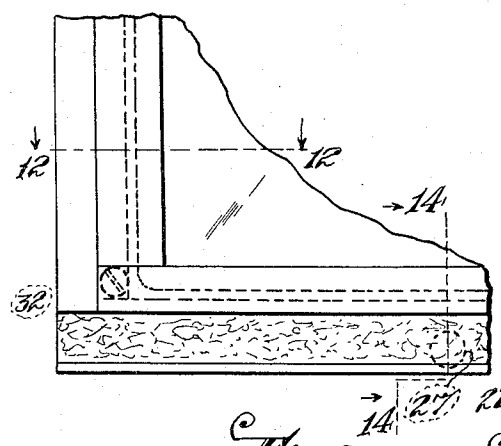


Fig. 14

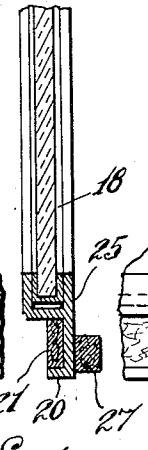
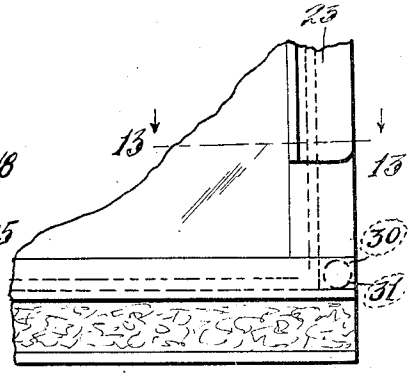


Fig. 10



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UNITED STATES PATENT OFFICE

2,177,462

WINDOW CONSTRUCTION

Joseph Schunk, Newark, N. J., assignor to The National Lock Washer Company, Newark, N. J.

Application June 30, 1938, Serial No. 216,693

7 Claims. (Cl. 189—64)

This invention relates to the construction of windows especially adapted for use on buses and cars.

In certain types of windows having sliding sections, such as the windows frequently used on buses, there are certain limitations placed on the overall thickness of the top and bottom stationary rails carrying the window sashes.

It is therefore the principal object of my invention to provide a construction which will meet the above requirements; that is to say, the provision of sliding window sashes which will fit in relatively narrow window frame grooves or channel spaces.

My improvements in this type of window construction will be readily understood by reference to the annexed drawings, wherein:

Figure 1 is an inside plan view of a window arrangement on one side of the rear end of a bus.

Figure 2 is a fragmentary view of part of the rear portion of the window frame shown in Figure 1, with the portion between the lines 2—2 being broken away to show the spring construction used on the transom portion of the window.

Figure 3 is a view on the line 3—3 of Figure 1, on an enlarged scale, the view being broken apart to get the same on the sheet.

Figure 4 is a section on an enlarged scale on the line 4—4 of Figure 1.

Figure 5 is a section on an enlarged scale on the line 5—5 of Figure 1.

Figure 6 is a section on an enlarged scale on the line 6—6 of Figure 1, Figures 4, 5 and 6 being taken on the same plane and really forming a continuous section on the lines 4—6 of Figure 1.

Figures 7 to 14, inclusive, are fragmentary views of a slidable window, out of the frame, similar to that shown at B in Figure 1, the window being rectangular in shape instead of having one end curved as in Figure 1;

Figure 7 being a view of the upper left-hand corner of the window;

Figure 8, the upper right-hand corner;

Figure 9, the lower left-hand corner;

Figure 10, the lower right-hand corner, while

Figure 11 is a view on the line 11—11 of Figure 7.

Figure 12 is a view on the line 12—12 of Figure 9.

Figure 13 is a view on the line 13—13 of Figure 10.

Figure 14 is a view on the line 14—14 of Figure 9.

In Figure 1, that portion of the window construction shown comprises a rectangular-shaped window A and a section B, the outer end of which is curved, and a transom portion T which is held in fixed position. The portion shown in Figure 1 is connected to an adjoining section to the right through the medium of a frame member or post 1 comprising part of the bus body structure. To the post 1 is fastened a guide member 2 having a locking member 3 associated therewith as shown in Figure 4 for receiving the side window sash parts generally referred to by S. Since this assembly S, as shown in Figure 4, forms no part of my present invention, it need not be further described as its construction will be clear by reference to Figure 4. Likewise, the construction and assembly of the parts designated by the letter R in Figure 6 are not described as they form no part of my present invention; and the same is true of the parts represented by the letter *t* illustrating the construction used at the top part of the transom section T.

My present invention resides in the construction illustrated between the lines I—I of Figure 3, wherein a top frame member 4 and a bottom frame member 5 are provided with channel formations pointing toward each other. The sides of the channel formation for the frame member 4 are numbered 6 and 7, while the sides of the channel formation of the frame member 5 are numbered 8 and 9. In the bottom of the channel formation which will be referred to as 4, there is provided a weather seal 10 which is spring-pressed downwardly by the spring member 11 which may be in the form of the spring 12 shown in Figure 2; or it may be a channel member held in pressing engagement with the seal 10 by a Z-shaped strip spring such as shown in Figure 4.

In the bottom of the channel 5 there is likewise positioned a weather seal 13, it being understood that the weather seals 10 and 13 are of any suitable material on which the window sash rails, about to be described, slide. The window sash has an upper rail 14 and a lower rail 15, each rail being channel-shaped and provided with glazing means 16 and 17 to hold the glass 18 in position within the channel members. Each channel member is provided with a strip portion 19 extending away from the channel toward its respective weather seal 10 or 13. The outer end of the strip 19 is bent over or formed with an arm 20 which is in engagement with the respective weather seals 10 and 13, thereby forming a contact-engaging surface with these weather seals of substantial area. Stated in another way, if

the relatively narrow strip portions 19 extended directly into contact with the respective seals 10 and 13, the sliding of the window would cause these to cut into the seals and destroy them and make a hard-operating window.

Between the strip portion 19 and the arm 20, there is provided a weather seal 21 which is also positioned laterally between the strip portion 19 and the side 7 of the channel member 4. The arm 20 is preferably shorter than the thickness of the weather seal 21, so that it will not contact with the side 7 of the channel member, insuring that the window rail will be continuously sealed by the weather seal 21, it being understood that the channels in the frame members 4 and 5 carry two of the windows in slidable position as indicated in Figure 5, although it is to be understood that either one or both of the sections may be made slidable.

It will be noted from the construction shown in Figure 3 that the outer side of the upper window rail extends outwardly beyond the outer plane of the side 7 of the channel 4, and since only the relatively thin strip portion 19 and the weather seal 21 are positioned within the channel or groove 4, this channel or groove can be made relatively narrow, thereby reducing the thickness of the window frame and sash. The same construction applies to the lower window rail 15, but it will be noted that the side 9 of the channel frame member 5 is shorter than the side 8 so as to allow any water which might build up in the channel 5 to run outwardly over the short side 9 of the channel, which is the outside portion of the window.

As shown in Figure 5, the window section B is provided with a handle member 22 for sliding the window; likewise, Figure 13 shows a similar handle 23 for sliding the window section. The window sash covered by Figures 7 to 14 inclusive has the sash rails 24 and 25 made precisely the same as the sash rails 14 and 15 of Figure 3, but arranged in reverse order, since the window, as shown, is for an inside sash corresponding to B of Figures 1 and 5, except that the left-hand end rail member is straight instead of curved as in Figure 1.

The slide rails 24 and 25 are provided with stop-and-guide lugs 26 and 27 which may be of any suitable material. In passing, it will be noted from Figure 6 that the window side rails 28 are not required to have the same cross-section as the top and bottom rails 14 and 15 since the arm 20 is not necessary.

Furthermore, it will be noted from Figures 7 to 10 inclusive, that the side rail 29 has its end 30 cut away or formed so as to enter the upper and lower window rails 24 and 25, adjacent the line of the glass 18 and is held to these upper and lower rail members by rivets 31 on one side, while screws 32 are used on the opposite side, so that the side rail member 28 may be readily removed for replacing the glass.

From what has been said, it will be seen that I have provided a sliding window construction which allows a minimum thickness of window frame and sash, and yet provides a construction in which the movable portion of the window can be readily moved to open or closed position.

What I claim is:

1. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals located in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and an L-shaped strip portion attached to and projecting away from the channel, the arm of the L affording a substantial bearing surface to continuously engage face portions of said channel weather seals.

2. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and an L-shaped strip portion projecting away from the channel, the arm of the L affording a substantial bearing surface to engage said channel weather seals, and a weather seal positioned between the arm, the outer wall of the rail channel and an inner face of a side of the frame channel.

3. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and an L-shaped strip portion projecting away from the channel, the arm of the L affording a substantial bearing surface to engage said channel weather seals, a weather seal positioned between the arm, the outer wall of the rail channel and an inner face of a side of the frame channel, the outer side of the bottom frame channel being narrower than the inner side, and spring means in the top frame channel back of the weather seal therein for pressing the seal into engagement with the arm of the L portion of the upper window rail.

4. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals located in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and an L-shaped strip portion integral with and projecting away from the channel, the arm of the L extending a distance toward the inner face of a side of the frame channel, and providing a substantial bearing surface in continuous contact with the channel weather seal.

5. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and an L-shaped strip portion projecting away from the channel, the arm of the L extending a distance toward the inner face of a side of the frame channel but not in contact therewith, and positioning the window rail so the outer side thereof is in a plane exterior to the plane of the outer sides of the frame channel formations, and a weather seal for each rail positioned between the outer side of said frame channel and said strip and arm and in continuous contact therewith.

6. In a window construction having top and

bottom frame members having relatively narrow channel grooves therein for a sliding window with weather seals in the grooves, means for slidably mounting a window in said grooves, said means including upper and lower window rails each having channel portions projecting outwardly beyond the outer material forming said grooves to receive the glass and glazing, and a relatively thin-walled strip portion projecting within its cooperating groove, the strip having an arm extending toward the inner face of a side of the groove and forming a bearing surface of substantial area against the weather seal in the groove, and a weather seal between said strip portion and a wall of the groove and extending between the arm and the base of the rail channel portion.

7. In a window construction, top and bottom frame members having channel formations pointing toward each other and having weather seals located in the bottom of the channels, a window sash slidably mounted in the channels of said frame members, said sash having upper and lower rails each with channel-shaped portions to receive a glass pane and glazing means, and a strip portion projecting away from the channel and terminating in a bearing arm having an end of substantial area in continuous engagement with the face portion of the weather seals in the channel frame members, said window sash also having end rails each with channel-shaped portions to receive the glass pane and glazing means, the said end rails having terminal formations extending into the channels of the said upper and lower sash rails, with means for fastening these ends in cooperative position.

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