

V. VON SCHLEGELL.  
CAR CONSTRUCTION.  
APPLICATION FILED MAR. 9, 1912.

1,091,770.

Patented Mar. 31, 1914.

4 SHEETS—SHEET 1.

Fig. 1

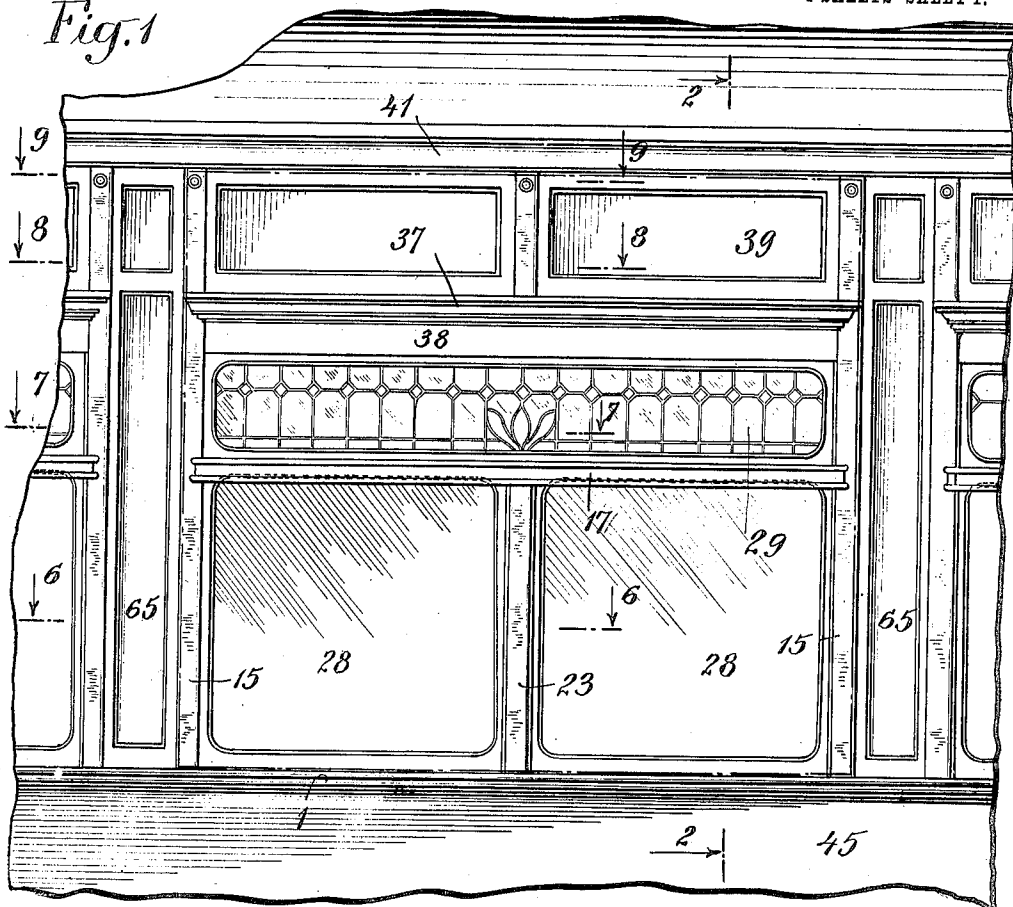


Fig. 9

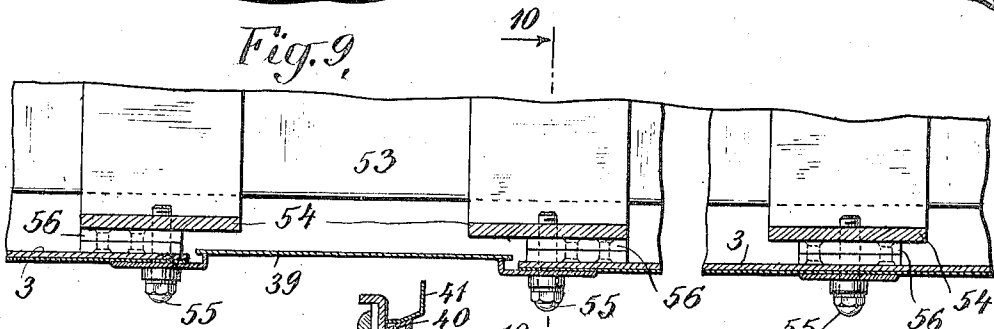
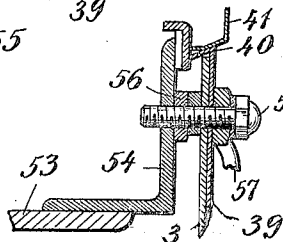


Fig. 10



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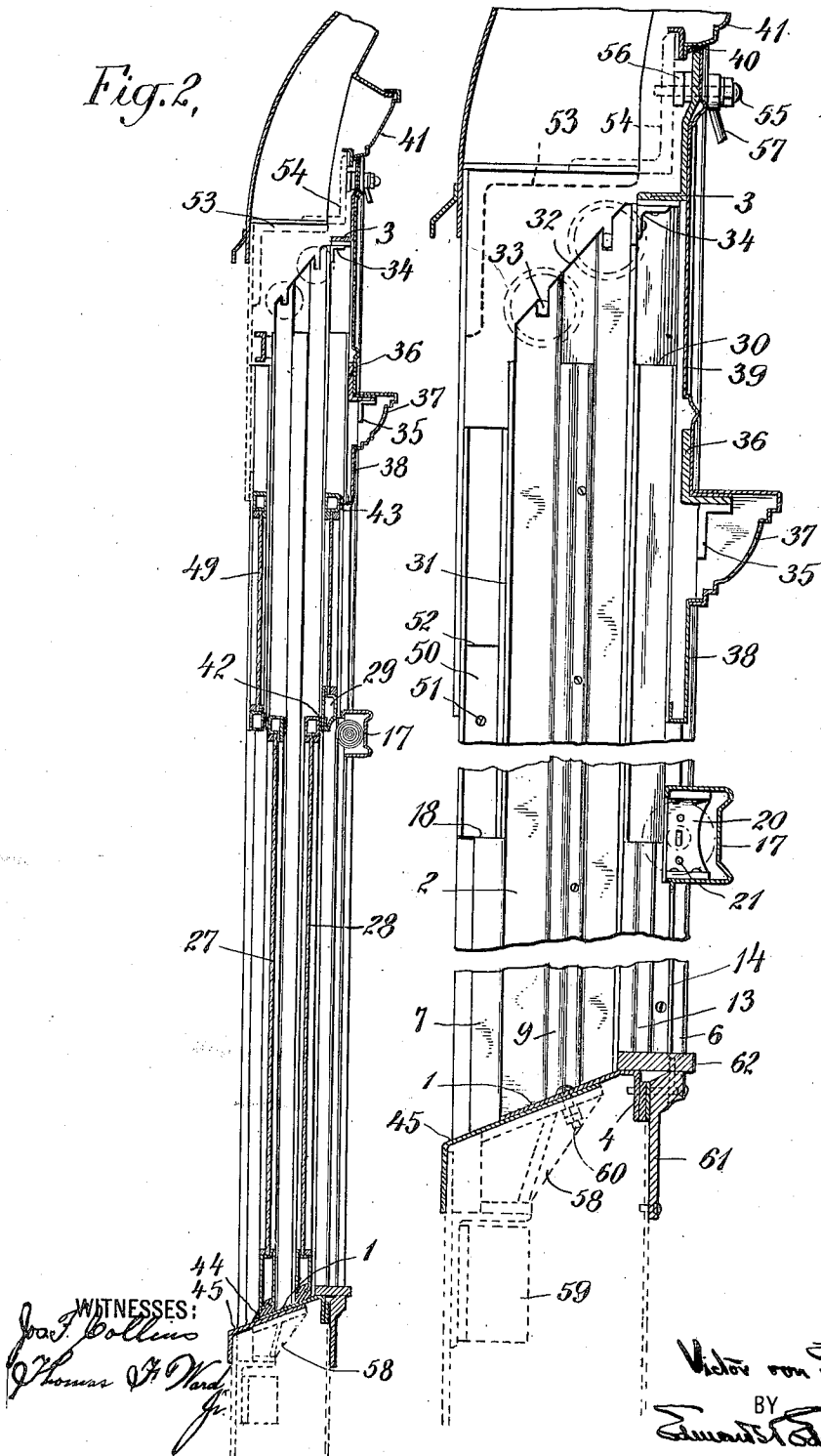
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4 SHEETS—SHEET 2.

Fig. 2,

Fig. 3,



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4 SHEETS—SHEET 3.

Fig. 4,

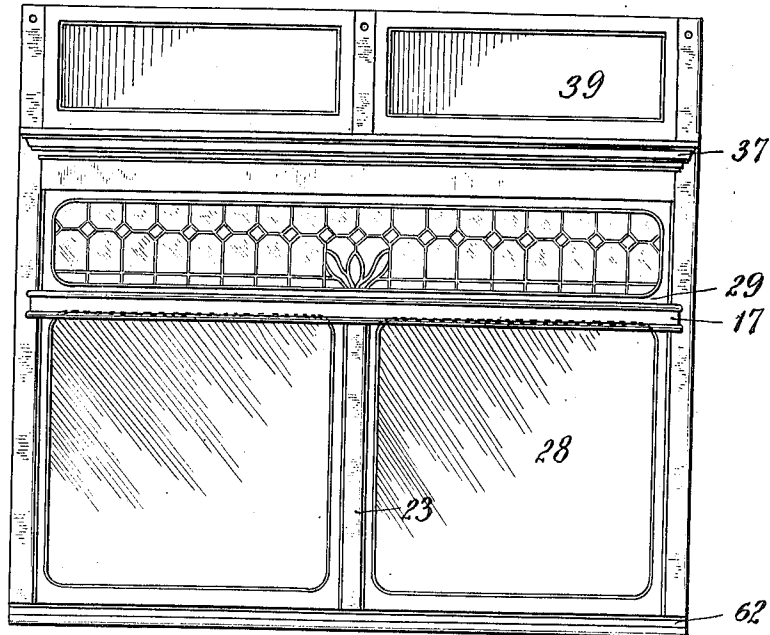
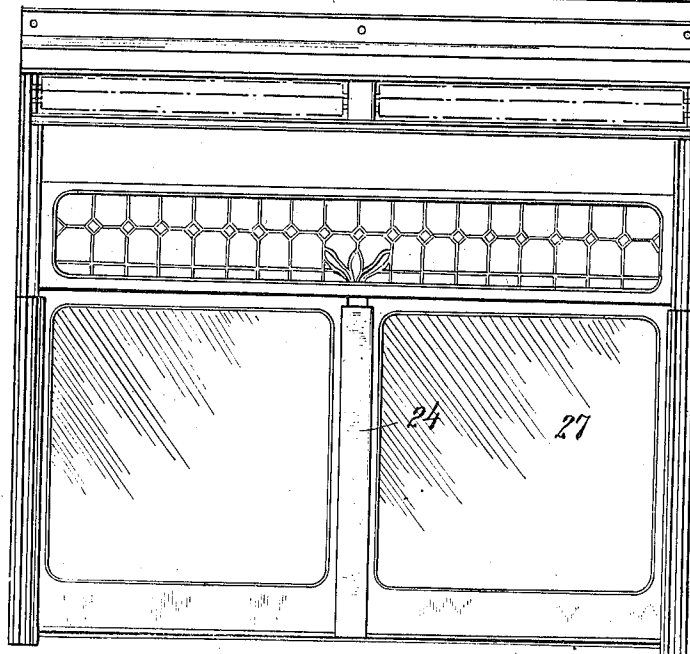


Fig. 5,



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4 SHEETS-SHEET 4.

Fig. 6,

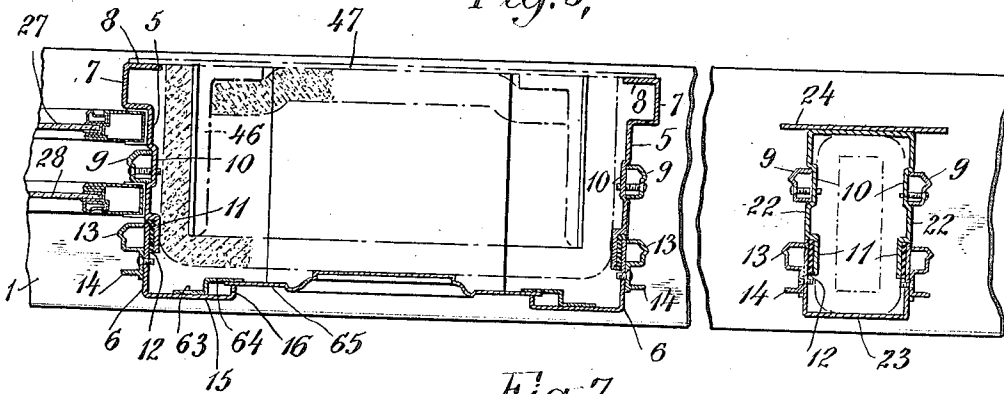


Fig. 7,

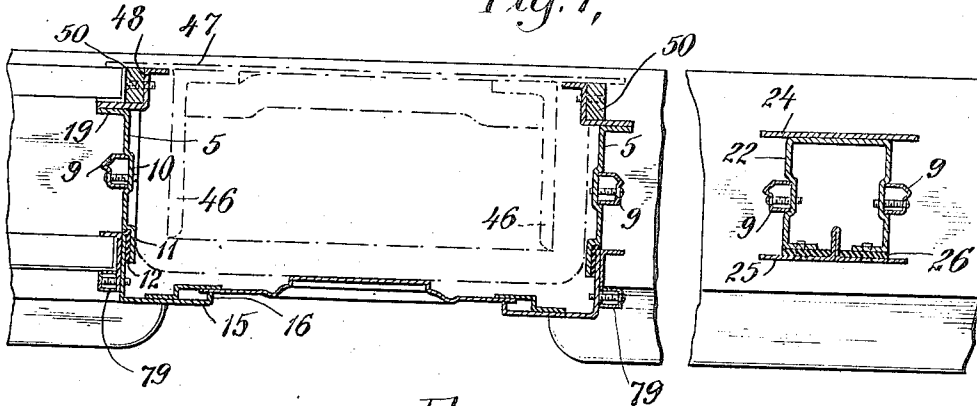
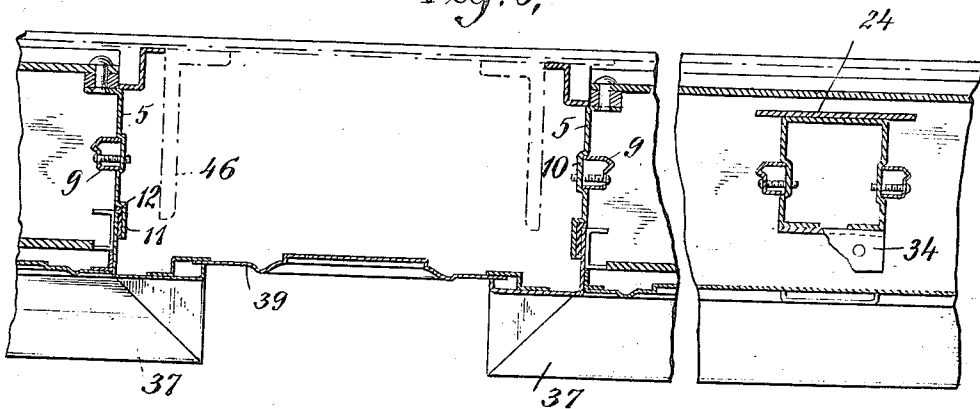


Fig. 8,



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# UNITED STATES PATENT OFFICE.

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## CAR CONSTRUCTION.

1,091,770.

Specification of Letters Patent.

Patented Mar. 31, 1914.

Application filed March 9, 1912. Serial No. 682,739.

*To all whom it may concern:*

Be it known that I, VICTOR VON SCHLEGEL, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Car Construction, of which the following is a specification.

This invention relates to the construction of railway cars for passengers, and particularly to that portion of such cars which includes the windows.

In the construction of metallic railway passenger-cars heretofore, it has been common to build up the side walls with vertical posts sustaining the roof of the car and window-sills between these posts, and then afterward to attach post-casings to the posts and apply the curtain-rail, window-balance brackets and numerous other parts, individually, as separate pieces. This method of construction has been open to serious objection. The principal objection to the employment of such construction is that it is a matter of great difficulty to make the sashes fit snugly down against the sill and make them run freely in their guides and yet sufficiently closely to prevent the ingress of cold air; to make the rollers for raising the sashes, which rollers are mounted independently supported brackets, aline properly with the sashes; and to make the various parts maintain their proper relations when the frame of the car becomes strained in service. Another objection to the construction heretofore commonly employed is that when this is employed it is a matter of considerable difficulty to disassemble the parts of the wall of the car, to permit of repainting the interior of the parts and thus prevent corrosion. It is recognized that such repainting must be done at comparatively short intervals, in order to prevent rapid deterioration of the metallic parts. A further objection to the constructions heretofore employed is due to the fact that though great care is observed in the erection of the supporting structure for the wall of the car, including the side-posts, it has been found heretofore that these posts are not always exactly parallel, so that the spaces bounded by them and the window-sill and top-sill are not true rectangles. As

a result of this, when the parts for the frame of the window are secured to the side-posts and sills, these parts do not aline, so as to permit free movement of the sashes and at the same time such a close fit as will properly exclude the cold air. The present invention is directed to the provision of a construction by which these several objections are avoided.

Broadly stated, the invention resides in the provision of a window-unit consisting of a frame, including suitable post-casings and a window-sill, a curtain-rail and window-balance brackets, and all of the other parts directly associated therewith. This unit is made up complete, as a device separate and distinct from the wall of a car, and when so making it the parts employed may be accurately positioned and secured together, so that a proper fit and at the same time a free movement of the sashes in the frame is insured, so that the sashes will fit snugly upon the window-sill, so that the window-balancing devices will be parallel with and in proper relation to the upper edges of their respective sashes, and so that the various parts employed will all be so positioned relatively as to insure proper operation. Furthermore, such window-units may be manufactured in large numbers, in a factory specially equipped for the purpose, and the cost of production thereof may thus be made comparatively low. When a car is to be erected, the usual or any suitable procedure may be followed to the extent of building up the side walls to the level of the window-sills and providing the side posts extending upwardly and supporting the roof of the car. This having been done, one of the window-units constructed as above indicated may be inserted in each of the spaces between adjacent side-posts and secured in position within that space.

By the procedure above outlined, it will be seen that proper alinement, tight fit and free movement of the various parts of the window structure employed in the side wall of the car, are insured, and that these desirable ends are insured notwithstanding variations in the dimensions of the spaces between the window-posts in which the window-units are

secured. Furthermore, any window-unit may be readily withdrawn, whenever its withdrawal is desired in order to permit of repair of any of the parts lying within the wall of the car or repainting the wall of the car both on the interior and exterior thereof.

In the preferred embodiment of the invention, the window-unit includes four sashes arranged in two pairs, those of each pair being side by side and one pair being in front of the other, above these sashes a long narrow sash, preferably of decorative appearance, extending across the top of one of the lower pairs of sashes, and above this sash a suitable metallic panel. When this construction is employed, the window-unit includes, in addition to the post-casings at the side thereof, a center post which lies between the two sashes of each of the two pairs. As stated above, this is the construction which I prefer to employ, but this construction may, if desired, be modified so that the unit shall include only two lower sashes, one in front of the other, a suitable panel or sash above these sashes, and a panel above this latter sash. In this case, the window-unit would not include a center-post. The construction which I prefer to employ may also be modified in various other respects, as, for instance, by omitting the metallic panel at the top of the unit, or so arranging the parts that this panel may be employed but not as a part of the window-unit, as, for instance, when it is desired to have a single panel extending the length of the car across the upper ends of a plurality of window-units. The construction which I prefer to employ may also be modified in various other respects, while still retaining the general features of my invention, and therefore I wish it understood that such modifications I consider within the scope of the invention and I aim to include them within the terms of the claims appended hereto.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a portion of the side wall of a car, as seen from the interior of the car, showing one of the window-units complete, the panels on opposite sides thereof and portions of the two adjacent window-units; Fig. 2 is a transverse section of the wall of the car on line 2—2 of Fig. 1; Fig. 3 is a view corresponding to Fig. 2, broken away in part so as to show the parts on a larger scale; Fig. 4 is a view of the window-unit as seen from the interior of the car; Fig. 5 is a view of the unit as seen from the exterior of the car; Figs. 6, 7, 8 and 9 are horizontal sections on lines 6—6, 7—7, 8—8 and 9—9, respectively, of Fig. 1; and Fig. 10 is a sectional detail view hereinafter referred to.

In accordance with the invention, a window-unit is constructed, including a window-sill, post-casings, a top sill, sashes movable within the frame formed by these parts, a curtain-rail, and window-balances, and after this unit has been completed it is applied to the side wall of a car in the space between two side-posts of the wall above the sub-sill and below the cornice. The construction of this unit will first be described in detail, and thereafter the arrangement of the adjacent parts of the car wall and the method of securing the unit in position will be described.

The window-unit has a rectangular frame consisting of a window-sill 1, two side-frames 2, which, with certain parts attached thereto, form the post-casings, and a top-sill 3. The window-sill 1 is preferably shaped as shown in Fig. 3, that is, it is inclined over the major portion thereof, and at its inner edge has a portion 4 turned vertically downward. The post-casings 2 are formed from sheet-metal strips, and their cross-sectional construction is preferably that shown in Figs. 6, 7 and 8. Each post-casing consists of two strips of sheet-metal 5 and 6, the strip 5 being bent along lines extending lengthwise thereof to form a guide 7 and to provide the flange 8 at its edge. The guide 7 coacts with one side of a sash, and at the other side of the sash a suitable guide 9 is provided by bending a strip of sheet-metal to a cross-sectional configuration approximating that shown in Fig. 6 and securing this strip to the strip 5 by suitable screws or rivets. To receive the guide 9, the strip 5 is preferably provided with a depression extending lengthwise thereof, as shown at 10 in Fig. 6. Adjacent to its inner edge, the strip 5 is bent along lines extending lengthwise thereof, to provide the extension 11, which is displaced from the plane of the body of the strip 5. The strip 6 is secured to the strip 5 with its body portion in line with the body portion of the strip 5, the body portion of the strip 6 being secured to the extension 11 of strip 5 but spaced apart therefrom a short distance by a strip 12, which is preferably of a material having good heat-insulating properties. The strip 6 has secured thereto a sheet-metal strip which is bent along lines extending lengthwise thereof, so as to form a guide 13 for a sash and a flange 14 which forms between it and the guide 13 a groove adapted to receive one edge of a curtain. The strip 6 may be secured to the extension 11 in any suitable manner, as by means of rivets or bolts passing through these parts and through the strip 12. At its inner edge the strip 6 is bent so as to provide a portion 15 extending laterally, this portion being provided with a flange 16 at its edge. The

cross-sectional shape of the post-casings shown in Fig. 6 is the shape which those casings have throughout the lower portion thereof, that is, from the lower ends of the post-casings up to a point about midway of their length, at which a curtain-rail or box 17 is secured in position extending across between the two post-casings. At this point, the guide 7 and flange 8 on the strip 5 are discontinued, as indicated by the line 18 in Fig. 3. By reference to Fig. 7, which shows the cross-sectional shape of the post-casings above the curtain-box 17, it will be seen that the strip 5 is of less width, and instead of having a guide 7 of box-section at its outer edge it has only a flange 19 at this edge. The strip 13 forming the sash-guide and curtain-groove is also discontinued at a point in rear of the curtain-box 17, as shown in Fig. 3. Above this point the strip 6 of the post-casing has a sheet-metal strip 79 secured thereto, as shown in Fig. 7, this strip being bent along lines extending lengthwise thereof, so as to form a guide for a sash, in the manner indicated in Fig. 7.

The curtain-box 17 is supported by brackets 20, each of which is secured to one of the post-casings by rivets shown at 21 in Fig. 3. Each of these brackets 20 has an opening therein to receive the end of a curtain-roller. The curtain-box 17 is preferably formed from a sheet-metal strip pressed into form, so as to give it a decorative appearance and to close its ends, the box being of a size such that the top and bottom thereof lie snugly upon the top and bottom flanges of the brackets 20. The box 17 may be secured to the brackets 20 in any suitable manner, as by brazing or welding.

The two post-casings are secured to opposite ends of the window-sill 1 in any suitable manner; preferably these parts are welded together, so as to make joints of great strength at these points, but if desired suitable cast brackets or angles may be employed at these corners, the parts being secured by rivets or by welding to these angles. In addition to the post-casings extending upwardly from the window-sill 1 at the ends of the latter, there is a center-post which extends upwardly from the window-sill at the center thereof. The construction of the lower part of this center-post is illustrated at the right of Fig. 6. The post consists primarily of two sheet-metal strips 22 and 23, each of which is bent along lines extending lengthwise thereof to form a channel. In the strip 22, are grooves 10, which receive sheet-metal guides 9 similar to those above described in connection with the post-casings. The ends of the strip 22 are displaced to form extensions 11, as heretofore described, and these extensions are se-

cured to the ends of the strip 23 with insulating material 12 inserted between. Strips forming guides 13 and flanges 14 are also secured to the strip 23. A sheet-metal strip 24 forms the outer wall of the center-post, this strip 24 being secured to the strip 22 and to the sill 1 of the window-unit. At a point in rear of the curtain-box 17, the dimension of the center-post in the direction of the width of the car-wall is reduced, for a purpose hereinafter described. From this point up, the construction of the center-post is that illustrated at the right of Fig. 7. The strip 24 is continued upwardly, as is also the strip 22, but the latter has the extensions 11 thereof turned toward each other. A strip 25 is secured to these extensions 11, insulating material 26 being preferably inserted between them.

Two window-sashes are adapted to be arranged between each post-casing and the adjacent side of the center-post. Two such sashes are shown at 27 and 28, these being of the usual or any suitable construction. The sash 27 is movable vertically, with one edge guided between the guides 7 and 9 on the post-casing and the other edge guided between the guide 9 and the strip 24 on the center-post. The sash 28 is guided in its vertical movement at one edge by the guides 9 and 13 on the post-casing, and at the other edge by the guides 9 and 13 on the center-post. Of course, two sashes 27 and 28 would be arranged on the opposite side of the center-post between the center-post and the next adjacent post-casing. In front of the sashes 28, a curtain is adapted to move in the grooves on the post-casing and center-post formed between the guides 13 and flanges 14. This curtain is wound on a spring-actuated roller mounted within the box 17.

Above the curtain box 17 is a long narrow panel, preferably a vertically movable sash having a plurality of small leaded panes therein. This sash is shown at 29 in Figs. 1, 2 and 4. It is adapted to move vertically in grooves formed by the strips 79 secured upon the two post-casings. This panel is not supported upon the center-post but passes across in front of the center-post, the dimension of the center-post in the direction of the width of the car being reduced above the curtain-box 17, so as to provide space in front thereof for the sash 29. While provision is made for vertical movement of the sash 29, it is not intended that such movement should be effected with any frequency, and, therefore, balancing devices for this sash are not provided. The guides 79 for the panel 29 are discontinued at the line indicated by the reference 30 on Fig. 3. The guides 9 may also be discontinued at this point.

As above stated, the guides 7 at the outer edges of the post-casings are discontinued at the line indicated by the reference 18 in Fig. 3. From this point up, the outer edge of the post-casings is indicated by the line marked 31 on Fig. 3. The upper edges of the post-casings are inclined, as shown at 32 in Fig. 3, and in these inclined edges are two slots, each in line with one of the guides for a sash 27 or 28, and each adapted to receive a trunnion 33 on the end of a spring-actuated balance-roller. The balance-rollers are thus supported directly upon the frame of the window unit and parallelism of the rollers with the upper edges of their respective sashes is thus insured. These rollers are connected with their respective sashes in the usual or any suitable manner. At its upper end, each post-casing and the center-post has a bracket 34 secured thereto by means of suitable rivets, and to these brackets are riveted the ends of the top-sill 3.

Near the upper edge of the panel 29 are angles or brackets 35, riveted to the post-casings and having a bar 36 of angular cross-section secured thereto and extending across the frame of the window-unit between opposite post-casings. On this bar 36 is secured a lintel 37 formed from a sheet-metal strip pressed to the desired configuration to give it an attractive appearance and to close the ends, as shown in Fig. 8. A sheet-metal strip 38 is secured to the lower edge of the lintel 37 and extends downwardly therefrom to a point opposite the upper edge of the sash 29, at which point the strip 38 is turned inwardly to finish its lower edge, as shown in Fig. 3. A frieze-panel 39 is provided, having its lower edge turned outwardly and extending under the upper edge of the lintel 37. This panel extends upwardly from the lintel 37 and overlies the top-sill 3, to which it may be secured in any suitable manner. The upper edge of this frieze-panel is turned inwardly as shown at 40, so as to overlie the upper edge of the top-sill 3 and to lie closely adjacent to the cornice 41 of the interior of the car.

The panel 29 is preferably provided with a weather-strip 42, which engages the sash 28 when the latter is in its lowermost position. Panel 29 is also provided with a weather-strip 43, which is adapted to engage the lower inwardly-turned edge of the strip 38. A weather-strip 44 is also preferably provided on the lower outer edge of the sash 27.

The foregoing describes the construction which is preferably employed in the window-unit itself. The construction preferred for those portions of the car wall which lie adjacent to the window-unit will now be described.

The supporting structure of the wall is

preferably a plurality of parallel, angular, metallic posts, which posts support the side wall and the roof of the car in the usual manner. The side wall is built up to the level of the window-sill in the usual or any suitable manner. On its upper edge and between each pair of adjacent side-posts, the wall is provided with a sub-sill 45, as shown in Figs. 2 and 3. This sub-sill is preferably turned downwardly at its outer edge, this downwardly turned portion lying close against the outer wall of the car. Two of the angular metallic posts forming the supporting structure of the wall of the car are shown at 46 in Figs. 6, 7 and 8. At the outer sides of these posts 46, is secured a sheet-metal plate 47, forming the exterior wall of the car between adjacent windows. Near its lower end, this plate 47 overlaps at its edges the flanges 8 upon the strips 5 of the post-casings. Above the line 18 (Fig. 3), where the parts 7 and 8 are cut away, a sheet-metal strip 48 is secured to the sheathing 47, as shown in Fig. 7. This strip 48 and a similar strip adjacent to the opposite post-casing form guides and supports for a sash 49. In the groove formed between each strip 48 and the sheet 47 to which it is secured, a strip 50 is secured by means of a screw 51. This strip extends upwardly from the line 18 but a short distance, its upper end being indicated by the line 52 in Fig. 3. The strips 48, however, are extended above the strips 52, as shown in Fig. 3. When it is desired to remove the panel 49, it may be raised in its supporting grooves above the upper ends of the strips 50 and then may be moved in the direction of its length a distance sufficient to permit one end to be withdrawn from the supporting groove. The panel 49 is thus mounted upon the wall of the car; provision is made for vertical movement of this panel, but it is not contemplated that such movement will be effected with any frequency, and therefore balancing means for this panel are not provided. At the upper ends of the angular posts 46, a beam 53 is provided extending lengthwise of the car wall and secured to the upper end of each of the posts 46. Secured on this beam 53, at intervals throughout its length, are a plurality of angular brackets 54, one end of each of these brackets extending vertically upward. The car is preferably built up in the manner thus described, and after this much of the construction has been completed a window-unit constructed as above described is inserted in each of the spaces provided therefor between adjacent posts 46. The window-unit is inserted by first inserting its lower end, so that the sill 1 rests upon the sub-sill 45. This having been done, the upper end of the window-unit is moved into

position, so that the top-sill 3 is carried closely adjacent to the brackets 54. Bolts 55 are then inserted through openings in the sill 3, suitable spacers 56 and threaded openings in the brackets 54. Preferably three brackets 54 are provided upon the beam 53 for each of the window-units, so that when the unit is mounted in position it is secured at three points along its upper edge. The bolts 55 may, if desired, be employed for supporting a basket, as indicated at 57. It is not intended that the bolts 55 should sustain any of the weight of the window-unit. The weight is borne wholly by the sub-sill 45 and the supporting structure therefor upon which the sill 1 of the window-unit rests. If desired, the window-unit may be bolted to the sub-sill and the parts underlying the same, so as to hold it the more rigidly. As I may employ this construction, it is shown in Fig. 3, wherein metallic brackets 58 are shown, mounted upon the supporting structure 59 at opposite ends of the window-unit. A bolt 60 is provided, extending through openings in the sill 1, the sub-sill 45, and the bracket 58 at each end of the sill 1. After the window-unit has been mounted in position, a board or other suitable strip 61 is secured to the inner side of the wall of the car over an opening leading to the interior of the wall. A strip 62 is also secured upon the upper edge of the strip 61, this strip overlapping at one edge the window-sill 1 and extending closely adjacent to the inner sash 28. By the removal of the strips 61 and 62, access may be had to the bolts 60 for loosening the securing devices for the window-unit.

As heretofore stated, the strips 6 of the post-casings on opposite sides of a post of the wall of the car are provided with portions 15 extending toward each other, and flanges 16 on these portions. In order to provide a finish for the inner side of the wall of the car, pier-panels are provided, extending between each pair of post-casings which lie on opposite sides of a post of the wall of the car. The portion 15 of each strip 6 has a sheet-metal strip 63 secured to the inner side thereof, this strip being bent along lines extending lengthwise thereof, as shown in Figs. 6, 7 and 8, to provide extensions 64 which lie closely adjacent to the edges of the flanges 16. After two adjacent window-units have been mounted in position in the manner above described, a pier-panel 65 is positioned between these two units by moving the panel laterally so as to carry one edge thereof between a flange 16 and extension 64. The panel is moved in this way considerably past its proper position, so as to permit of its opposite lateral edge being inserted between the extension 64 and flange 16 at that edge of the

panel. The panel may then be moved back to its proper position and both of its edges will be properly held under the flanges 16. To prevent lateral movement of the pier-panel when the car is in use, it may be secured in any suitable way, as, for instance, by the application of a molding to its lower or upper edge, or the provision of one or two screws extending through the panel.

Fig. 4 is an inside view, and Fig. 5 an outside view, of the window-unit built and in readiness for insertion in the wall of a car. It will be seen that the panel has two inner and two outer sashes, each of which is vertically movable, a decorative sash above these sashes, and above this decorative sash a frieze-panel, a center-post being provided between the two pairs of vertically movable sashes. This unit may be constructed as a unit distinct from the wall of the car in which it is to be used, and the parts thereof may be accurately finished so that the sashes will come down squarely upon the window-sill and will fit snugly in the grooves in the post-casings, while at the same time permitting of free vertical movement. The balancing devices for these vertically movable panels are also mounted directly upon the window-unit, so that parallelism of these devices with the upper edges of the sashes is insured. The proper coaction of all of these parts is, therefore, independent of any variations which may occur in the positioning of the parts which make up the wall proper of the car. Furthermore, sagging of the supporting structure or other parts of the wall of the car, due to the strains to which the car is subjected in use, will not affect the relative positioning of the parts of the window-unit, so that the parts of this unit will continue to operate properly throughout a long period of use. Whenever it is desired to paint the interior of the wall of the car, the removal of the window-unit may be effected quite readily by merely withdrawing the small number of bolts employed for securing the window-unit in position. This having been done, the removal of the unit gives free access to the posts supporting the car wall, to the interior of the post-casings of the window-unit, and to the interior of practically all other parts associated with the window in the structure of the car.

In combination with the window structure herein described, I may employ any suitable insulation for precluding or reducing the passage of heat through the wall of the car. Such insulating material is indicated in the drawings, particularly in Fig. 6, and I prefer to employ such insulating material, preferably arranged as shown in the drawings. However, the present invention is independent of the use or arrange-

ment of such insulating material, and the latter, therefore, is not shown in detail. The insulating material may, however, be so positioned, with respect to the interior walls of the post-casings and the adjacent walls of the supporting posts for the side wall and roof of the car, that this insulating material will absorb shocks and thus cushion the window-unit upon the structure which supports it.

It will be seen particularly by reference to Fig. 6 that the sheathing on the exterior of the car indicated by the reference 47 overlaps at its edges the spaces between the wall posts for the window-units. When the window-unit is inserted in position from the interior of the car, the edges of the post-casings are moved into coaction with these overlapping edges, preferably into engagement therewith throughout the length of the post-casings.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:—

1. In a railway car, the combination of a car wall including vertical posts, a unit adapted to be inserted and secured in the space between two adjacent posts, said unit comprising a sheet-metal window-sill, two sheet-metal post-casings secured at their lower ends to the sill and a metallic cross-member extending between and secured at its ends to the post-casings and said unit being of such width that said post-casings are spaced from the adjacent posts, and detachable securing devices independent of said posts for securing said window-unit rigidly to the wall of the car in the plane of the wall and between two of the posts, said devices being operable to detach the unit from the wall and permit removal thereof, substantially as set forth.

2. A railway car having a side wall including a plurality of parallel vertical posts and window-openings between them, a plurality of window-frames each mounted in one of said openings and bearing at its lower edge upon but not secured to the wall between two of said posts and each of said frames having its side members spaced from and not secured to the adjacent posts; and detachable securing devices securing the upper portion of each of said frames to the wall of the car, the parts of each of said frames being secured one to another independently of the wall of the car and each frame being removable as a whole from the wall, substantially as set forth.

3. In a railway car, the combination of two vertical posts, an upper outer sash mounted thereon, and a removable window-unit comprising a sheet-metal sill, sheet-metal post-casings secured thereto, vertically movable lower sashes and an upper

sash, said unit being detachably mounted in position between said posts with said upper sash on the window-unit parallel and adjacent to said sash mounted on said posts, substantially as set forth.

4. A railway car having a side wall including a plurality of parallel vertical posts with window-openings between them, a plurality of sashes each secured in position between two adjacent posts and extending across said window-openings, a plurality of window-frames one in each of said openings and each extending upwardly on the inner side of one of said sashes, and means for securing said frames rigidly to the wall, the parts of each of said frames being secured one to another independently of the wall of the car and each frame being secured as a whole to the wall so as to be removable as a whole therefrom, substantially as set forth.

5. A railway car having a side wall including a plurality of vertical posts with window-openings between them and a plurality of sashes each mounted in position across a window-opening between two adjacent posts, a plurality of window-frames each mounted in one of said openings with its lower edge bearing upon the wall between two of said posts and extending upwardly therefrom on the inner side of one of said sashes, and means for securing the upper portion of each of said frames to the wall of the car, the parts of each of said frames being secured one to another independently of the wall of the car and each frame being removable as a whole from the wall, substantially as set forth.

6. A railway car having a side wall including vertical posts having a window-opening between them, a sash extending across said window-opening and an outer sheathing for the car secured to said posts and overlapping said opening at its edges, a window-unit including a metallic window-sill, two metallic post-casings secured at their lower ends to the sill and a metallic cross-member extending between and secured to the post-casings, said unit being mounted in said opening in the wall with the post-casings lying within and closely adjacent to said overlapping edges of the sheathing and with the upper portion of the unit on the inner side of said sash, and securing means holding the window-unit rigidly to the wall of the car but permitting removal thereof as a unit from the wall by a movement inwardly of the car, substantially as set forth.

7. A railway car having a side wall including vertical posts and a window-opening between them, a window-unit including a metallic window-sill, two metallic post-casings secured at their lower ends to the sill and a metallic cross-member extending between and secured at its ends to the post-casings,

said unit being mounted in said opening in the wall and being of such width that its post-casings are displaced from the posts adjacent thereto throughout the length of the post-casings, securing devices independent of said posts for holding said window-unit rigidly to the wall of the car but permitting removal thereof as a unit from the wall, and heat-insulating material between

each post-casing and the post adjacent thereto, substantially as set forth. 10

This specification signed and witnessed this 6th day of March, 1912.

VICTOR VON SCHLEGELL.

Witnesses:

H. I. DUNPHY,  
A. CHARLAT.