

Aug. 6, 1946.

D. E. AUSTIN .

2,405,394

COACH BODY

Filed Sept. 14, 1944

4 Sheets-Sheet 1

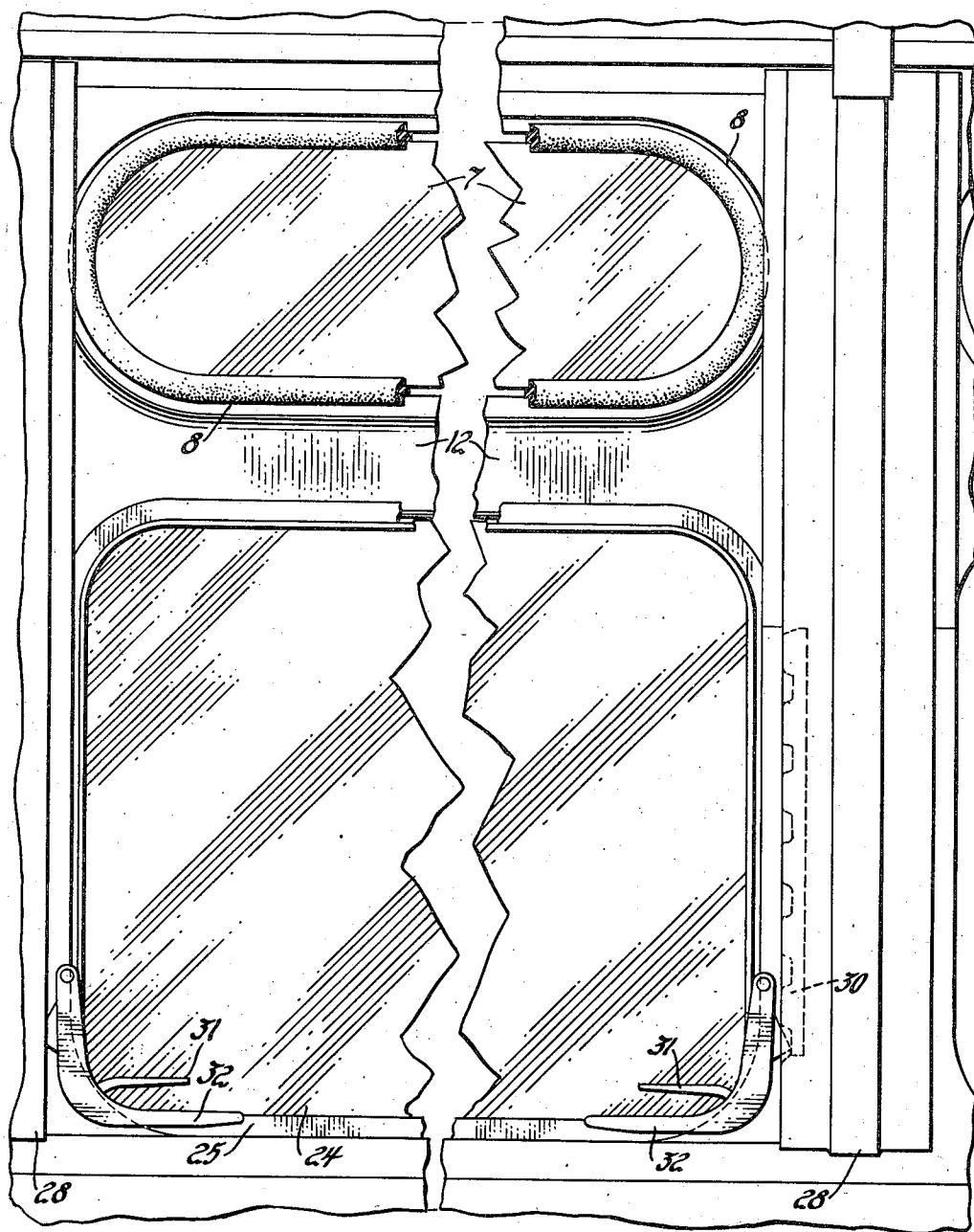


Fig. 1

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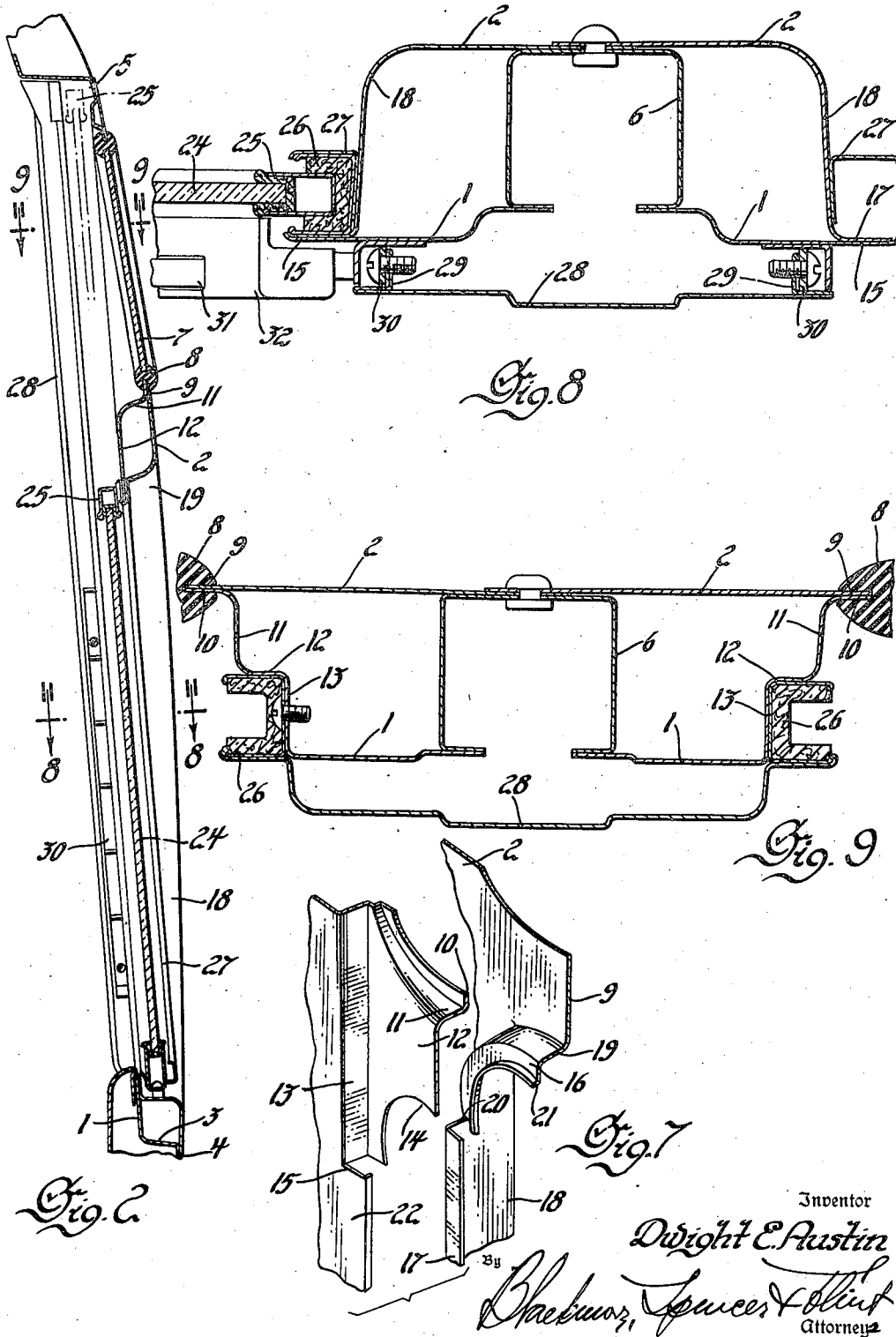
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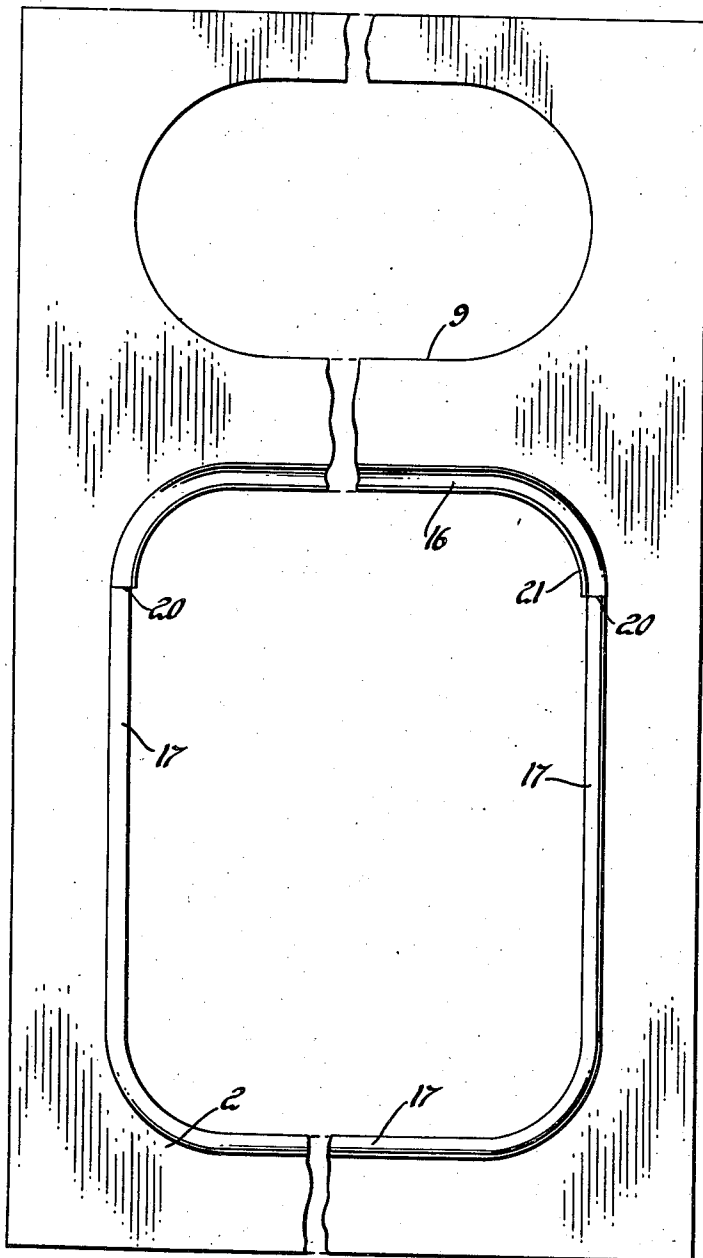


Fig. 3

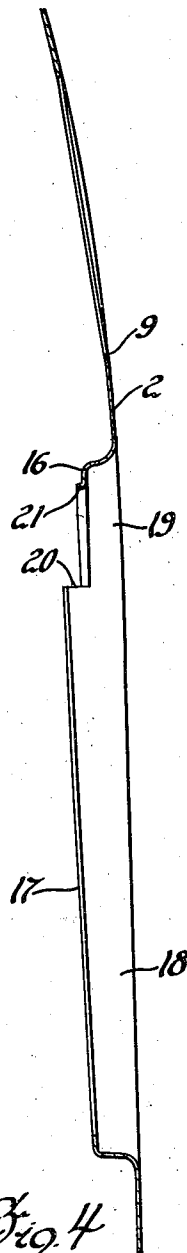


Fig. 4

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4 Sheets-Sheet 4

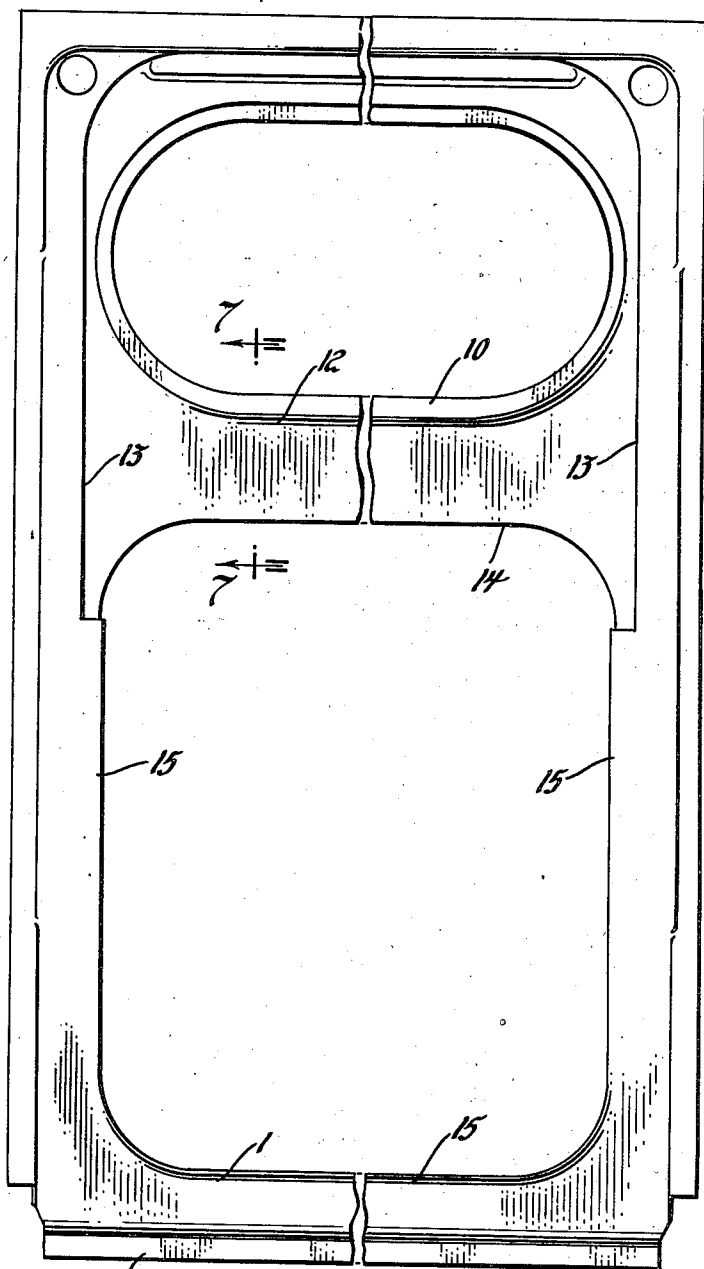


Fig. 5

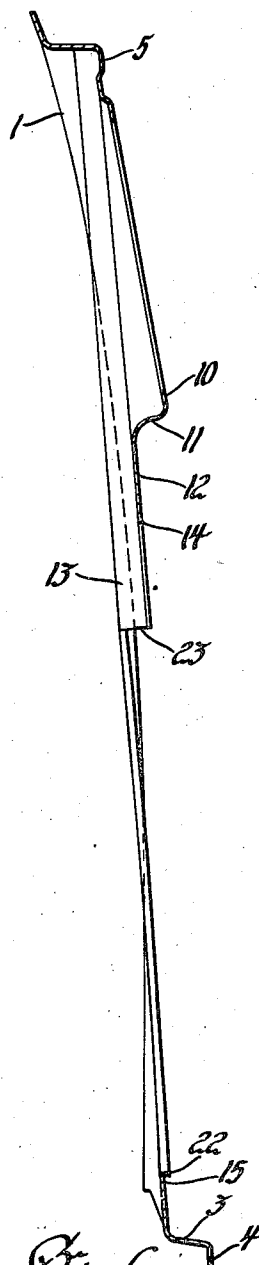


Fig. 6

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UNITED STATES PATENT OFFICE

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COACH BODY

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Application September 14, 1944, Serial No. 554,096

9 Claims. (Cl. 296—44)

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This invention relates to motor vehicle bodies and more particularly to an improved side wall structure.

An object of the invention is to provide a lightweight hollow wall section preferably formed of a pair of complementary sheet metal pressings having preformed window openings and having interrelated relation such that the need is eliminated for the customary costly guide rails for the sliding window.

A further object of the invention is to provide a low cost window frame unit in which the shape and formation of the panel pressings afford a strong unit which can be easily and quickly put together without extreme precision but with marked simplicity over current practice in the passenger bus field.

Another object is to provide a wall unit whose window opening is bounded by integral flange formations which cooperate in defining slide channels for the window closure. A special feature is in arranging the guide margins at the window openings for use with an upwardly sliding window sash so that the lower guide portion is offset inwardly or behind the upwardly slidable window while the upper margin guide is outside the window sash. Thus the window sash in closed position is partly inside and partly outside the wall proper and is slidable upwardly to open position inside the body, the offset upper and lower guide margins affording in effect a sash receiving slot in the body side wall preferably near the top of the window opening. Among other things a better weatherproof seal is assured with the window in closed position since the window guide integral with the wall panel is inside the sash throughout the major portion of both sides and across the bottom and affords a more effective dam against rain and moisture.

Ease of sash installation is a factor. The sash can be slid through the slot between the relatively offset guide flanges and two separately formed guide pieces can be mounted on the wall, one outside the body as a window reveal trim strip having a guide portion aligned with the upper outwardly offset guide flange for cooperation with the inwardly spaced guide flange integral with the body panel in completing a retaining channel and the other in the form of an interior trim strip having a marginal portion for alignment with and as a continuation of the inwardly offset flange integral with the panel and which trim strip in cooperation with the centrally depressed upper region of the inner panel affords a retainer for the upwardly slidable sash.

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Other objects will become apparent from an inspection of the accompanying drawings wherein Figure 1 is an elevation of a fragment of the body wall inside the body; Figure 2 is a transverse vertical section of the body wall between the belt rail and roof and through the window areas; Figure 3 is an elevation showing the inner face of the outer panel of the window frame; Figure 4 is a vertical section through the panel shown in Figure 3; Figure 5 is an elevation showing the inner face of the inner panel of the window frame; Figure 6 is a vertical section of the panel shown in Figure 5; Figure 7 shows in perspective, portions of the inner and outer panels partly in section, and Figures 8 and 9 are transverse sections taken respectively on lines 3—3 and 9—9 of Figure 2.

In the conventional motor coach the roof is supported along opposite sides by a series of spaced posts and passenger seat windows are located above the belt rail and between the posts. In many cases an upper transom window is fixed to the body posts and a lower slide window is contained within channels mounted on the posts in a plane behind the transom window so that the sliding window can be lifted from closed position to open position in overlapping relation with the fixed transom.

In the present improved body structure a window frame for both the transom and sliding window is constituted by a hollow wall unit comprising an inner panel 1 and an outer panel 2, both preferably preformed sheet steel pressings to overlie one another with transom and sliding window openings in alignment and with the margins of the openings abutting and being secured together by welding or the like. To maintain the panels in spaced relation the abutting margins of the transom opening in the inner panel is offset outwardly from the main plane of the panel and a somewhat similar offset pressed inwardly is formed in the outer panel at the sliding window opening. Also the bottom edge of the inner panel 1 is turned outwardly at 3 and terminates in a dependent flange 4 for abutting attachment with the lower edge of the outer panel 2. Further abutting attachment occurs between the top edge of the outer panel 2 and an outwardly depressed offset portion 5 immediately below the top edge of the inner panel 1. Opposite edges of both panels are straight vertically as seen in Figures 3 and 5 and these side edges in the two panels are spaced apart for attachment to the C-sectioned body post 6 in the manner shown in Figures 8 and 9.

The transom window 7 is cut or shaped to approximately the size of the opening in the upper part of the double wall and may be fixed by a known type of elastic mounting strip 8 which grips the peripheral edge of the window glass and the adjoining edge of the wall. In the outer panel 2 the opening is simply punched or cut out to the size desired and the marginal edge 9 lies generally in the main plane of the panel. The corresponding opening in the inner panel 1 is defined by a boundary flange 10 in which the outward offset or spacer 11 terminates. This offset 11 is formed in a flat wall area 12 which itself is depressed outwardly in the central upper region of the panel 1 and is bounded by the connecting side shoulders 13—13 extending vertically along both sides thereof.

The lower edge of each lateral shoulder 13 terminates at the side and just below the top of the slide window opening and the upper portion of the opening is afforded by a portion punched out of the centrally depressed area 12, whose lower edge 14 thus defines the top margin of the opening and is offset from the plane of the remaining marginal portion 15 extending down both sides and across the bottom of the inner panel 1 from the main plane of which the major portion of the slide window opening is cut out. Mating with the offset margins 14 and 15 of the inner panel are correspondingly relatively offset marginal portions 16 and 17 of the outer panel 2, which consist of terminal flanges of a depressed window reveal. Thus the lower portion 18 of the window reveal is deeper than the upper portion 19, the shallow portion 19 being divided from the deep portion by an abrupt line of severance 20 whereby the upper and lower flange portions bounding the sliding window opening are in planes spaced apart in parallelism with each other and with the general plane of the panel 2. For neatness a lateral flange 21 is turned on the edge of the flange 16 to overlie the edge 14 and a similar lip 22 on the flange 15 overlies the edge of the flange 17. The edge 20 at the top of the deep reveal 18 is arranged to abut the bottom edge 23 of the shoulder 13 so that the shoulder 13 and the side of the reveal 18 are in vertical alignment.

The closure for the sliding window opening comprises a glass pane 24 with bordering sash rails 25 occupying the space between and being guided by the offset portions 15—17 and 14—16. Its sash side rails are pocketed within antisqueak and waterproof channels 26 of flexible cushioning material extending from top to bottom of the frame unit and suitably secured to the shoulder 13 and to the deeper reveal 18.

In mounting the slide window the upper parts of the cushion channels 26 are first secured to the shoulders 13 and the bottoms temporarily are left unattached and then the sliding sash is fitted to the channels from outside the body and concurrently the top sash rail is inserted through the slot between the offset flanges at the abutting edges 20—23. After the sash is lifted to its upper limit of travel the lower parts of the channels 26 are finally secured to the sides of the lower reveal together with a separately formed metal retainer strip 27 which cooperates with the complementary flanges 15—17 in affording slide channels at opposite sides of the window opening. Aligned continuations of these channels are afforded in the upper portion of the window frame unit by the shoulders 13 and the adjacent sides of the centrally depressed area

12 together with upper side extensions or retainers on separately formed interior trim strips 28. For convenience each trim strip 28, as shown, serves two adjacent window frame assemblies and bridges the interior of the frame post. It extends vertically from the roof to the belt rail and its side edges below the region of the abrupt offset of the frame retainer flanges or adjacent the abutting edges 20—23 instead of affording retainer projections to complete the sash channel are bent back and then laterally, as shown at 29 in Figure 8 and afford reentrant pockets housing fixed racks 30. Each rack contains a number of spaced stops or seats selectively engageable with a releasable latch controlled by a thumb lever 31 on the window lift handle 32. By this means the window can be raised or lowered in its channel guides and locked in several positions.

In closed position weather tightness is assured, especially sealing against rain. Water beating against and running down the exterior of the body is properly deflected downwardly on the outside of the closure window by the exterior boundary parts 14—16 integral with the wall panels at the top of the window opening and is effectively blocked throughout the major portion of both sides and across the sill by reason of the interior disposition of the parts 15 and 17 relative to the sash and their integral wall panel formation.

I claim:

1. In combination, a sliding sash, a frame therefor, comprising inner and outer mating and juxtaposed sheet metal panels having window openings therein, with the marginal portions of said openings in both panels constituting attachment flanges welded together and presented substantially parallel to the general plane of the sliding sash, said welded together marginal portions in the lower part of the opening being inside the path of sliding sash and offset vertically from those in the upper part of the opening, and the lower and upper portions respectively providing guide retainers for interior and exterior faces of the sash, and separately formed sash guides secured to said panels, one above and as a continuation of said lower marginal interior retainer and the other below and as a continuation of the upper marginal exterior retainer.

2. In combination, a panel having an opening therein, a sliding closure for the opening shiftable beside the panel adjacent said opening, terminal flange portions integral with the panel at the margins of said opening affording closure guides extending parallel to the plane of the path of said sliding closure and being characterized by a line of division transverse to the direction of sliding travel of the closure at each side of and intermediate the top and bottom of said opening, with the marginal guide flange portion bounding the opening on one side of said line of division being offset from the plane of the marginal guide flange portion bounding the opening on the other side of said line of division and said offset marginal guide flange portions engaging opposite sides respectively of the sliding sash.

3. In combination, a wall panel having a window opening formed within its margins, a closure window therefor, means to guide the window for sliding travel upwardly behind the panel above said window opening, said means including a terminal flange, integral with the panel, engaging the outer side of the window at the upper part of the opening and a terminal flange integral with

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the panel and inwardly offset from the first mentioned flange, engaging the inside of the window at the lower part of the opening.

4. In combination, a wall panel having a window opening formed within its margins, a closure window therefor, means to guide the window for sliding travel upwardly behind the panel above said window opening, said means including the panel edge portion which surrounds the opening, said panel edge portion being separated vertically intermediate the vertical height of the opening into an upper exterior guide and a lower interior guide, and said lower interior guide being offset inwardly from the plane of the upper guide margin of said opening.

5. In a coach body side wall, a pair of stamped metal panels arranged one behind the other in generally spaced relation and having aligned upper openings for a fixed transom and aligned lower openings for a sliding window, with marginal portion defining both openings in one panel in abutment with corresponding marginal portions of the other panel, and the abutting margins at the upper opening being in a plane outwardly spaced in relation to the margins at the lower opening, means to mount on said margins of the upper opening a transom window, shouldered offsets in the sides of the inner panel behind the transom window to afford guideways for a sliding window closure for the lower opening, said offsets being in a plane with the abutting margins in the upper region of the lower window opening and said upper region margins defining continuations of said guideways for engagement with the outer side of the sliding window, the abutting margins in the lower region of the lower window being inwardly displaced in relation to the upper margins and serving as guides for the inner side of the sliding window.

6. A window frame comprising an outer sheet metal panel having upper and lower window openings therein, with the marginal portions of the upper opening lying substantially in the plane of the panel body, an inwardly depressed reveal bordering the lower opening and being deeper below than above a region immediately below the upper portion of the opening, said reveal terminating both in its shallow portion and its deep portion in flanges which are substantially parallel with the plane of the panel body and are offset from each other, an inner panel having upper and lower window openings aligned with those of the outer panel, with offset upper and lower flanges bounding the lower opening and mating with those of the outer panel and with outwardly depressed marginal portions bordering the upper opening and bearing on the upper window marginal portions of the outer panel and means join-

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ing the complementary flanges to one another and maintaining the bodies of the panels spaced from one another.

7. In combination, a wall panel, a sliding closure for an opening in the panel, closure guide means including a marginal flange integral with the panel, bounding the panel opening, and being transversely slit in each side of the opening intermediate the top and bottom of the opening with the flange portion above the slit and across the top of the opening forming a guide for the outer side of the closure and that portion of the flange below the slit and across the bottom of the opening being inwardly offset from the upper flange portion and forming a guide for the inner side of the sliding closure, a separately formed guide piece secured to the panel in alignment with the upper flange portion for cooperation with the lower flange portion to afford a guide channel and a separately formed guide piece secured to the panel in alignment with the lower flange portion for cooperation with the upper flange portion in affording a guide channel in continuation to the first mentioned guide channel.

8. In combination, a pair of complementary panels having aligned openings therein, a re-entrant reveal in the outer panel which is deeper in its lower portion than in its upper portion, there being a sharp offset between the upper and lower portions in the side walls thereof, both the upper portion of the reveal and the lower portion of the reveal terminating in flanges lying in planes substantially parallel to each other and to the general plane of the panel, a flange-like extension integral with the inner panel and bounding the lower portion of the opening for abutting union with the flange on said deeper reveal portion, said inner panel having an outwardly offset central portion above the region of said flange-like extension with the edge portion thereof at the opening in abutting union with the flange on the upper reveal portion, and a slide closure for said opening located between the offset upper and lower boundaries of the opening.

9. In combination with a slide window, a panel having an opening for said window, a window reveal in said panel defining the limits of the window opening and being divided intermediate its length in the direction of window travel into a relatively shallow portion extending from the division toward one limit of said length and a relatively deep portion extending from the division toward the opposite limit of said length, window confining guides on said reveal, those on the shallow and deep portions respectively engaging the opposite sides of the slide window.

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