June 3, 1941. A. CHRISTIANSON ET AL 2,243,854

DIAPHRAGM FACEPLATE ARRANGEMENT

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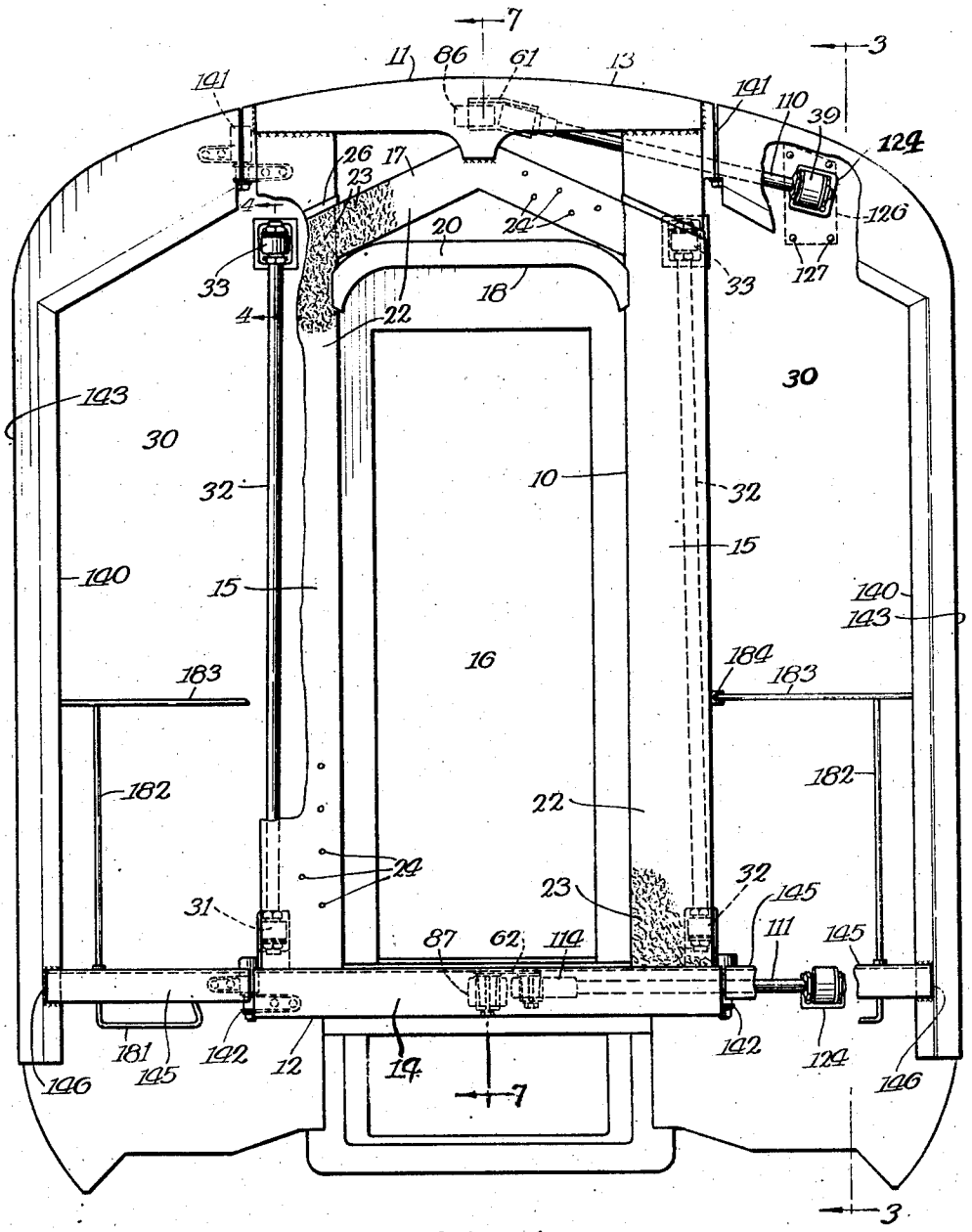


Fig. 1

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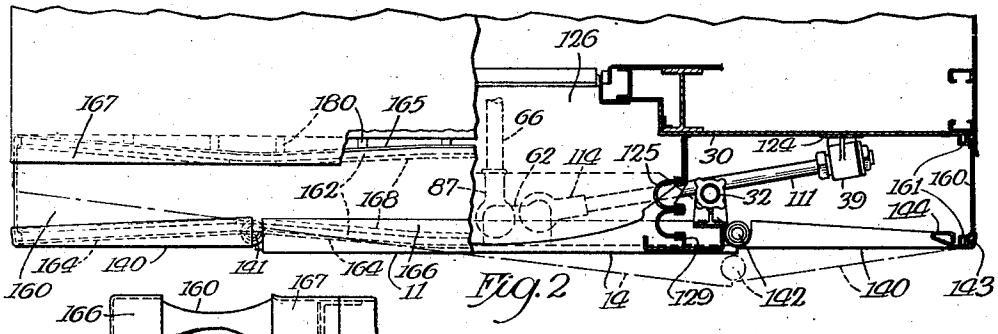
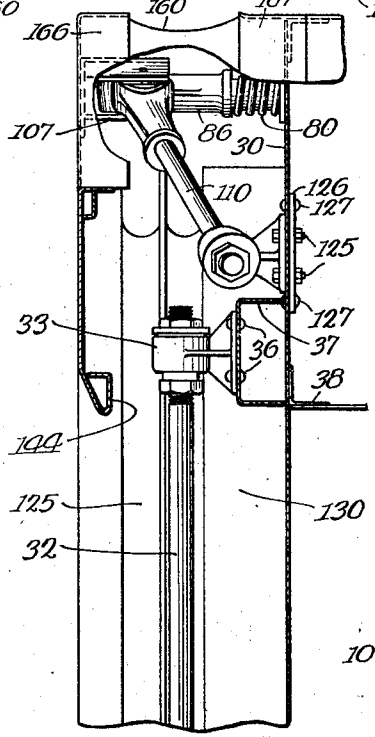


Fig. 2



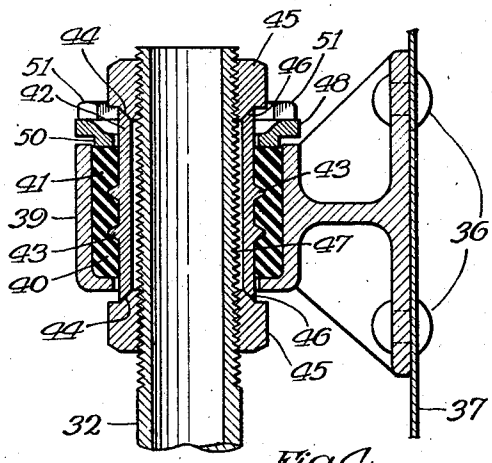


Fig. 4

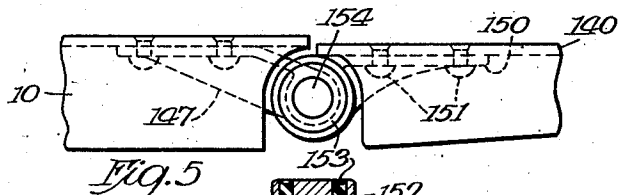


Fig. 5

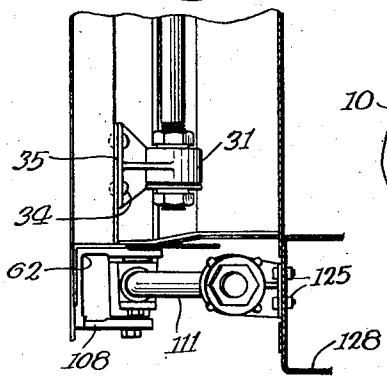


Fig. 3

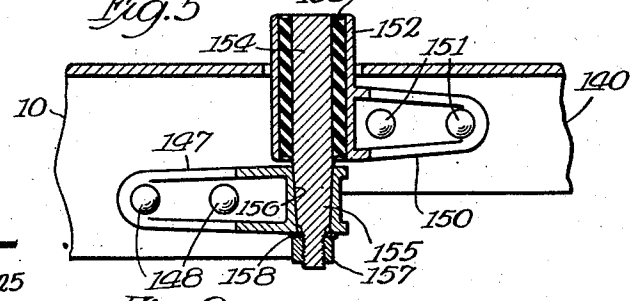


Fig. 6

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DIAPHRAGM FACEPLATE ARRANGEMENT

Filed Aug. 6, 1937 4 Sheets-Sheet 3

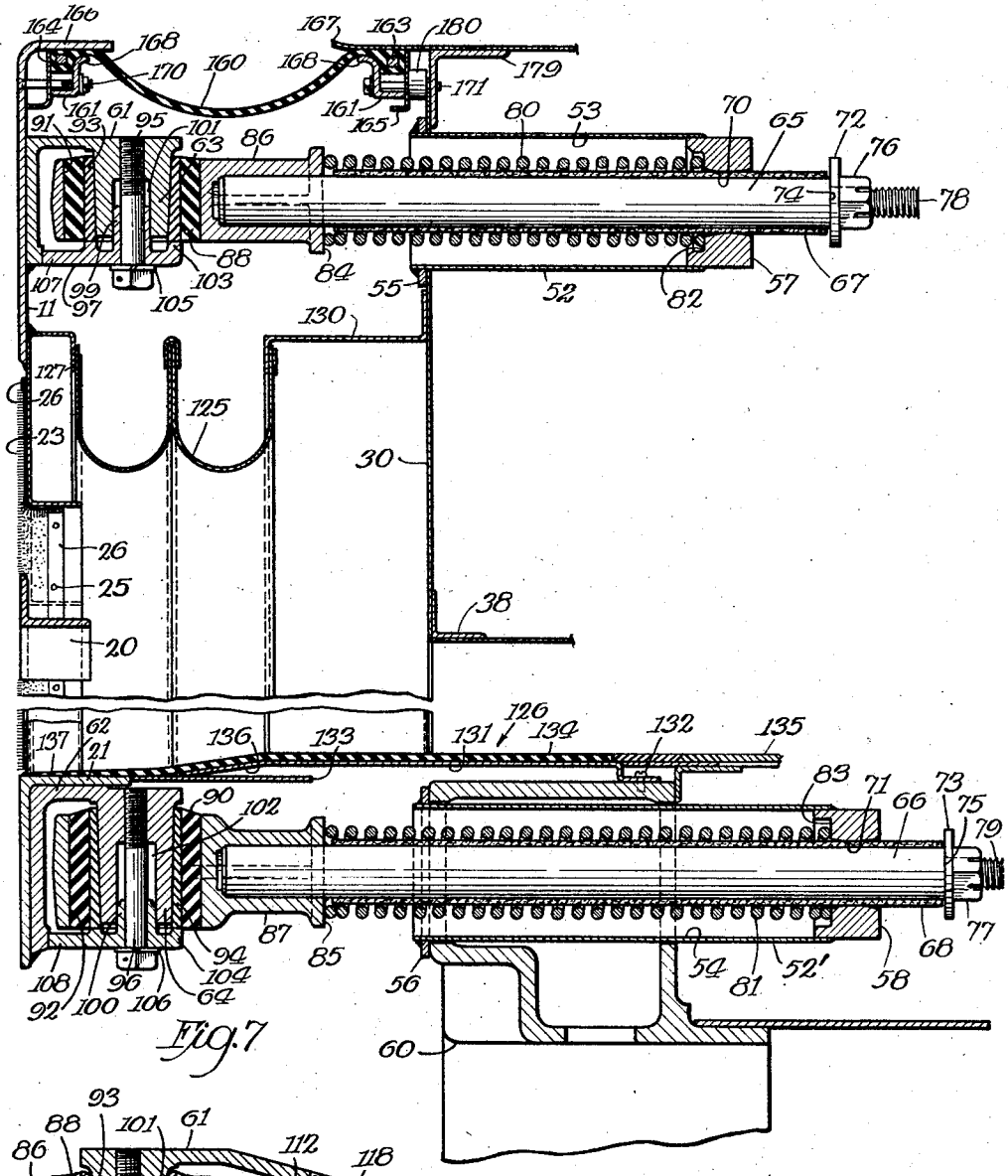


Fig. 7

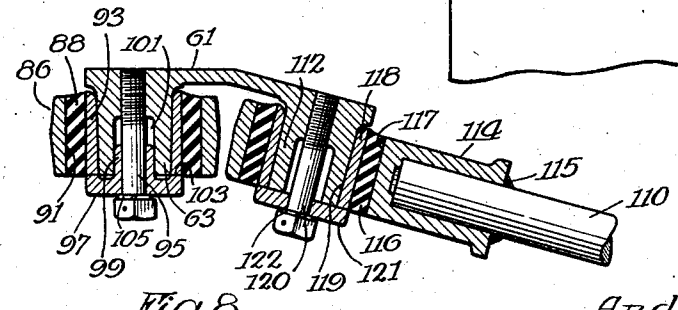


Fig. 8

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DIAPHRAGM FACEPLATE ARRANGEMENT

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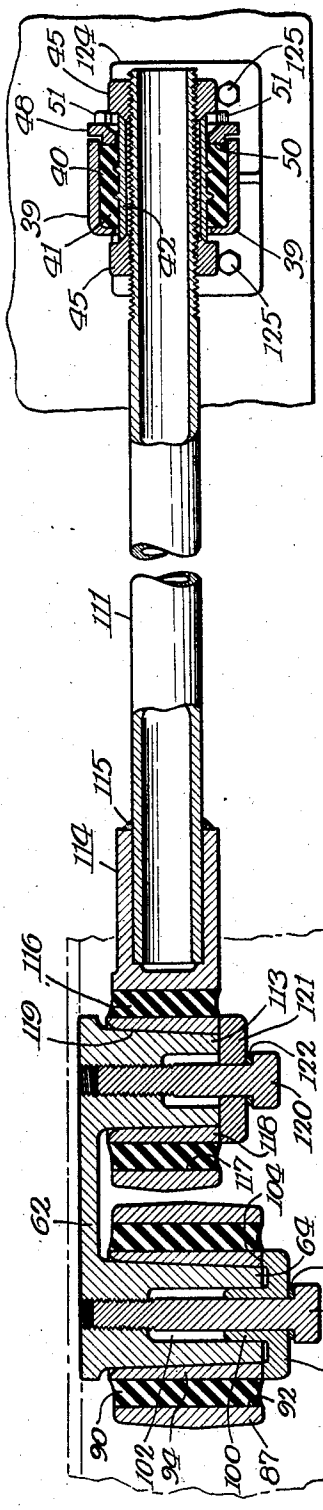


Fig. 9

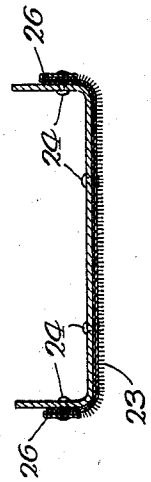


Fig. 11

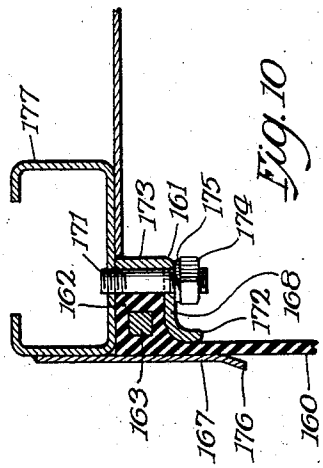


Fig. 10

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UNITED STATES PATENT OFFICE

2,243,854

DIAPHRAGM FACEPLATE ARRANGEMENT

Andrew Christianson, Hammond, Ind., and Peter Parke, Chicago, Ill.

Application August 6, 1937, Serial No. 157,672

63 Claims. (Cl. 105—10)

This invention relates to railway car diaphragms and has particular reference to constructions using an inner passageway diaphragm in combination with an outer streamlining diaphragm to the peripheral contour of the car.

It is the primary purpose of the invention to provide a vestibule connection between non-articulated cars utilizing inner and outer diaphragms and having a passageway faceplate provided with hinged extension wing members affording continuous surfaces coextensive with the respective diaphragms for association with complemental surfaces of an adjacent faceplate and permitting negotiation of curves without parting adjoining passageway plates.

It is an important object of the invention so to support and guide the faceplate and diaphragms as to maintain alignment thereof with the car end periphery and passageway.

An object of the invention is the provision of single upper and lower central buffing mechanisms for maintaining the faceplate and diaphragm in extended position and having means associated with said mechanisms for maintaining parallelism between the faceplate and car end.

Another object of the invention is the provision of a faceplate fully out of metallic supporting contact with the car from which it is suspended.

Another object of the invention is the provision of transverse strut members positively to prevent lateral displacement of the faceplate and guide the in-and-out buffing movements thereof.

A further and important object of the invention is the provision of a faceplate having hinged wing members utilizing torsional spring hinges for resisting displacement of and restoration of the wing members to their normal parallel position after displacement.

A still further object of the invention is the provision of a streamlining faceplate having buffing surfaces in a single plane adapted to contact complemental surfaces of an adjoining faceplate and provided with passageway plate portions out of contact with complemental portions of an adjoining plate and having sealing means on each adapted cooperatively to weatherproof the passageway.

The foregoing and other and more specific objects of the invention will become apparent from the following description read in conjunction with the accompanying drawings in which—

Fig. 1 is an end elevational view of a railway car equipped with a faceplate incorporating features of the present invention;

Fig. 2 is a horizontal, sectional view through a car end and faceplate showing the relative disposition of the buffing mechanism, the lower, transverse guide strut and the supporting mechanism and passageway;

Fig. 3 is a vertical, sectional view taken on the line 3—3 of Fig. 1 showing the disposition of the upper and lower transverse guiding struts and the relation of the vertical supporting struts.

Fig. 4 is a fragmentary view in section taken on the line 4—4 of Fig. 1 showing an upper supporting strut connection in detail;

Fig. 5 is a top plan view of a fragment of the faceplate at the position of the hinge joint between the passageway plate and a wing member;

Fig. 6 is a vertical, sectional view through the hinge showing the torsional spring means;

Fig. 7 is a vertical, longitudinal, sectional view taken on the line 7—7 of Fig. 1 and showing the method of maintaining the diaphragms extended;

Fig. 8 is a transverse, sectional view through the flexible connections of the upper buffing device and transverse guiding strut to the faceplate;

Fig. 9 is a transverse, sectional view through the bottom guiding strut showing its flexible connection to the car end wall and to the faceplate and also showing the flexible connection between the lower buffing device and faceplate;

Fig. 10 is an enlarged, fragmentary, sectional view of the connection of the streamlining diaphragm to a car end wall; and

Fig. 11 is a horizontal, sectional view through one leg of the passageway plate showing the method of attaching the fabric covering for weatherproofing the passageway.

As best shown in Fig. 1 of the drawings, the main section of the faceplate comprises the central portion 10 at the passageway 16 consisting of the upper, flanged buffing plate 11 and lower buffer angle 12 connected at the rear side of their respective webs 13 and 14 by pressed channel-shaped vertical leg members 15 at each side of the passageway and all integrated by welding. The vertical leg members 15, in addition to the connections afforded by the buffer members 11 and 12, are connected by a channel-shaped upper passageway plate member 17 secured to the vertical legs and buffer plate 11 by welding and an angle member 18 extending between and welded to the legs 15. The face of the vertical flange 20 of the angle 18 is in the same plane

with the buffing surface of the members 11 and 12, thereby affording greater contacting area between adjoining faceplates. As shown in Fig. 7, the vertical legs 15 and top connecting member 17 are in a plane rearwardly of the buffing members 11, 12 and 18 so that between adjoining faceplates only those buffing members are in actual complemental, metallic contact. The connecting member 17 and the legs 15 from the connecting member to the horizontal flange 21 of the buffer angle are covered with fabric 22 having nap 23 extending outwardly beyond the buffing surface of members 11, 12 and 18 adapted to cooperate with the nap on an adjoining faceplate to seal the space existing therebetween and render the passageway between adjoining cars weatherproof at this point. The fabric 22, as best shown in Fig. 11, is secured to the faceplate by means of small rivets 24 disposed at intervals throughout the surface area of the fabric, and metal binding strips 26 secure the edges of the fabric to the flanges of the channels 15 and 17 and to the web of channels 15 at the uppermost edges of the fabric. Rivets 25 secure the binding strips 26 in place. The faceplate is supported from the car end wall 30 by means of tubular strut members 32 forming the subject-matter of copending application Serial No. 55,166, filed December 19, 1935, now Patent No. 2,096,938 of October 26, 1937.

The strut members 32 and their application are best shown in Figs. 1, 3 and 4 extending vertically between and pivotally secured to brackets 31 and 33 secured respectively to the faceplate at the bottom and to the car end wall 30 at the top at opposite sides of the passageway 16. The brackets 31 are secured by rivets 34 to plates 35 which are welded along their bottom edges to the horizontal flange 21 of the buffer angle and at their respective back sides to the outside flange of each of the vertical legs 15. The brackets 33 are attached by rivets 36 to pressed channel-shaped plates 37 secured at their flanged edges to the end wall 30 by welding and substantially at the position of end plate 38 for greater strength. The upper and lower brackets are exactly alike and merely reversed in their application to the end wall and faceplate respectively. Fig. 4 illustrates one of the brackets in detail and the connection of a strut 32 thereto. The bracket is provided with a cup-shaped receptacle 39 into which a flexible unit 40 is placed and through which the strut 32 extends. The unit 40 comprises a collar of flexible material 41, such as rubber, vulcanized to the cylindrical core portion 42 which has encircling ribs 43 affording a better purchase for the rubber and a more positive support for the connection. Preferably, the core 42 is countersunk at each end, as at 44, and nuts 45, threaded in opposing relation upon the strut 32 at opposite ends of the core, have protruding portions 46 in complemental engagement with said countersunk ends, whereby the core 42 is maintained in spaced relation to the threaded portion 47 of the strut 32, and an adjustable connection is afforded permitting variation in the length of struts 32. The connections are designed to prevent other than strictly pivotal action, and for this purpose the rubber 41 is initially compressed to prevent vertical oscillation of the joints. After insertion of the units 40 in the cup-like receptacles 39, a metal washer or cap 48 having a projecting annular portion 50 in engagement with the rubber 41 is placed about the protruding portion of the core 42 and, after final adjustment of the nuts 45, is drawn up tightly against the rubber by means of bolts 51 penetrating the cap and threaded into the receptacle 39, thereby to place the rubber under initial compression sufficient to prevent vertical resiliency but allowing enough flexing to permit pivotal action of the joints, thus allowing for the necessary in-and-out and angular movements of the faceplate. By the disposition of the struts 32 at opposite sides of the center of the faceplate, all vertical movement of the plate is prevented and canting, or transverse rocking thereof, is eliminated and vertical alignment between adjoining faceplates is positively assured.

The buffing mechanism for keeping the diaphragm and faceplate extended is best shown in Fig. 7 and comprises upper and lower central buffing gears of substantially similar construction in the respective planes of the buffing plate 11 and buffer angle 12. Upper and lower built-up spring pockets 52 and 52', comprising cylindrical tubes 53 and 54 having annular flange plates 55 and 56 and perforated end abutment members 57 and 58 secured respectively thereto by welding, are secured in the end wall 30 and buffer end sill 60 respectively. Brackets 61 and 62 are welded, respectively, to the buffing plate 11 and buffer angle 12, and each is provided with a depending boss 63 and 64, respectively, having downwardly converging walls affording conical bearings for the respective buffer stem assemblies. The buffer stem assemblies comprise the stems 65 and 66 covered by sound-deadening composition tubes 67 and 68 extending through openings 70 and 71 in the end members 57 and 58 having washers 72 and 73 for limiting outward movement of the stems and, consequently, the face plate, and held in place against shoulders 74 and 75 by nuts 76 and 77 taking the threaded end portions 78 and 79 respectively. Coil springs 80 and 81, about the stems, extend from spring seats 82 and 83 in the end members 57 and 58 to abutments 84 and 85 afforded by the heads 86 and 87 fixedly secured to the stems and exert a force therebetween to keep the faceplate and diaphragm extended and to absorb the movement of the faceplates between associated cars in a train. The buffer stem heads 86 and 87 are designed to cooperate with the bosses 63 and 64 on the brackets 61 and 62 in such manner as to render the action of the mechanism noiseless and to return the faceplate to its normal position parallel to the car end 30 after displacement. Torsional spring devices, formed as integral units with the respective heads, serve this dual purpose and comprise hollow cylindrical units of rubber 88 and 90 vulcanized within openings 91 and 92 in the respective heads and to the outer, cylindrical walls of inner bearing members 93 and 94. On their inner peripheries the bearings 93 and 94 are conical to the same degree as bosses 63 and 64 about which they are adapted to engage in close frictional contact induced by bolts 95 and 96 threaded into the bosses and drawing the bearings up tight to prevent any rotative action therebetween. The heads of the bolts seat against bottom plates 97 and 98 having guiding bosses 99 and 100 entering recesses 101 and 102 in the bosses 63 and 64 to insure engagement of annular bearing surfaces 103 and 104 with the bottoms of bearing members 93 and 94, thereby to press such members into positive engagement with the bearings 63 and 64. Lock washers 105 and 106, interposed between the heads of the bolts and the plates 97 and 98, insure permanent

retention of the bolts. The plates 97 and 98 each have extensions 107 and 108 bearing against suitable surfaces on the vertical flanges of brackets 61 and 62, thereby affording, in each connection, a two-point resistance to buffing stresses and serving to eliminate the otherwise excessive bending moment in the respective single, horizontal top flanges. Angular displacement of the faceplate is resisted by the torsional force thereby generated in the rubber 88 and 90 which also effects restoration of the faceplate to its normal position parallel to the end wall 30. The inherent torsibility of the respective upper and lower buffer stem connections to the faceplate is adequate to maintain proper relation of the faceplate with respect to the car end at all times, the resistance of the rubber in torsional shear being directly proportional to angular displacement of the faceplate.

Referring now to Figs. 1, 2, 3, 8 and 9, it will be seen that means are provided positively to prevent lateral movement of the faceplate and to insure alignment thereof with the passageway and car periphery at all times. Upper and lower transverse, tubular strut members 110 and 111 pivotally connected to the faceplate and car end wall, in combination with vertical struts 32, positively eliminate any tendency for the faceplate to move in any direction other than necessary. Upper and lower brackets 61 and 62 on the faceplate, in addition to the bearings 63 and 64, are also provided with depending bosses 112 and 113, respectively, to which the transverse struts are adapted to be connected in a manner substantially the same as the connection of the buffer stems 65 and 66 to the bearings 63 and 64, and, since the connections of the upper device 110 and those of the lower member 111 are identical, the following description is equally applicable to either. The struts 110 and 111 have heads 114 fixedly secured thereto by welding, as at 115, and each of which is provided with a rubber annulus 116 vulcanized within round openings 117 in the heads and to the outer cylindrical surfaces of bearings 118 which, like the buffer stem connections, are conical on their inner surfaces 119 to cooperate with similar complemental surfaces on the bearings 112 and 113 into engagement with which they are tightly drawn by bolts 120 to prevent any relative rotation therebetween by sheer frictional resistance. The bolts 120 are threaded into the bearings 113 and 114 and exert an upwardly directed force on the bottom edges of bearings 118 by means of bottom plates 121 against which the heads of the bolts seat and are held from reverse rotation by lockwashers 122. The struts 110 and 111 extend from the faceplate connections just described to brackets 124 secured to the car end wall 30, both top and bottom, by bolts 125. The end wall is reinforced at the position of the upper bracket by a plate 126 secured thereto by rivets 127, and the lower bracket is applied directly to the end sill 128. The brackets 124 are exactly like the brackets 31 and 33 except for the fact that they are designed to cooperate with the struts 110 and 111 to function in a horizontal direction and include cup-like receptacles 39 into which flexible units 40 are placed and through which the struts extend. The units are secured in place by cap rings 48 having annular projections 50 engaging the rubber 41 initially to compress it when bolts 51 are threaded home in the receptacles 39. The length of struts 110 and 111 is variable by adjustment of nuts 45 at opposite ends of the respective unit cores 42. Connections of this type to the car end permit sufficient pivotal action to allow for necessary in-and-out movement of the faceplate while positively eliminating any movement thereof in a transverse direction, and the connections to the faceplate allow for angling of the faceplate with respect to the car end in addition to the pivotal stress imposed by the in-and-out motion, and the resultant greater torsional strain, combined with lateral forces encountered, is better borne by connections of the type used at this point. It is to be noted, looking at Figs. 1 and 3, that the strut 111 is horizontal and slopes only in an inward direction towards the car end, but the strut 110 slopes inwardly from the faceplate and in a downward direction towards the car end for connection with the upper bracket 124 which has the receptacle 39 arranged at the angle necessary to receive the strut, but, if desired, both struts may be arranged in like manner—preferably parallel and horizontal.

The passageway 16 from the end wall 30 to the faceplate is completed by a diaphragm 125 and a footplate 126 of novel construction. The diaphragm 125 is of the usual collapsible bellows-fold type and is secured to the faceplate at the top by means of depending flange 127 and to the side legs through the medium of Z-shaped members 129, and is secured at its inner end to the inwardly-extending flanges of the top and sides of an extension structure 130 secured to the car end wall and, in adjoining cars, cooperates with the diaphragms to provide a continuous enclosed passage from car to car since the seal afforded by fabric 23 prevents the entrance of weather between the faceplates. At the bottom, footplate structures 126 form a substantially continuous walkway between cars. The footplates each comprise a metal plate 131 secured at 132 to the end sill casting 60 extending the width of the passageway and resting at its free end upon a flat plate 133 integrally secured to the horizontal flange 21 of the buffer angle by welding and forming a continuation flush with the surface thereof upon which the plate 131 slides as the faceplates are affected by movement of cars in a train. The plate 131 beyond the connection 132 is raised slightly from the end sill casting 60 to place the covering 134 on a level with the vestibule floor 135 and, at its free end, slopes downwardly at 136 to rest upon plate 133 and avoid a too abrupt change in height of the surface of the footplate. The covering 134 is of rubber vulcanized directly to the plate 131 and provides a secure footing for passengers passing through the vestibule. The rubber 134 extends beyond the free edge of the footplate and rests upon the plate 133 and the flange 21 of the buffer angle and slides thereon as the faceplate shifts. The rubber slopes at 136 with the plate 131 and from the base of the slope tapers as at 137 to a substantially imperceptible edge closely adjacent the edge of the buffer angle, and affords a non-slip surface practically the full distance between adjoining cars. The portion of the rubber resting upon the buffer angle flange 21 and plate 133 is arcuate at its free edge, as shown in Fig. 2, to permit angling of the faceplate without disturbing the rubber, and the closest space between adjacent edges of the rubber on adjoining cars is sufficient to prevent displacement of the rubber during normal buffing action between cars and affords a footplate extending practically to the buffing surface of the buffer angle which, should the buffing forces momentarily become too great,

will be flexed sufficiently to accommodate the inward movement and again return to its normal flat position after release.

As shown in Figs. 1 and 2, the faceplate 10 is equipped with lateral extensions providing a combination passageway and streamlining faceplate to the peripheral contour of the car. The extensions comprise wing members 140 hinged top and bottom at 141 and 142 respectively to opposite sides of the plate 10. The hinged wing members each consist of a pressed plate flanged along the peripheral edge 143 and, at the inner side, rebent upon itself to provide a strengthening box section 144 and extending from the upper hinges 141 outwardly and downwardly and connected with the lower hinges 142 by means of horizontal members 145 welded to the vertical legs of the wing members at 146. The wing members 140 are directly connected with the plate 10 and are controlled with respect to vertical and lateral movement by the struts 32 and 110 and 111, respectively, and the entire plate is thus maintained in alignment with the passageway and car periphery without metallic contact with either. The upper and lower hinges 141 and 142 are alike and, as shown in detail in Figs. 5 and 6, are novel in construction and operation. The hinge butts 147 are attached to the passageway plate 10 by rivets 148 countersunk in the outer face of the plate, and the leaf portions 150 are attached in the same manner to the wing members 140 by rivets 151.

The leaf members 150 are each provided with a vertically disposed barrel 152 of greater height than the width of the attaching portion within which a larger amount of live rubber 153 is disposed than would otherwise be possible, and vulcanized thereto. A central metallic core 154 is embedded in the rubber and secured by vulcanization, and is provided with a tapering, depending integral extension 155 which enters the correspondingly shaped complemental opening 156 extending vertically through the hinge butt 147, and is held in tight frictional engagement therewith to prevent relative rotation by means of a nut 157, threaded on the end of the extension, and a lockwasher 158. Thus it will be seen that the core 154 is fixedly secured to the passageway plate 10, and any pivotal displacement of the wing members 140 with respect thereto will be resisted by the rubber acting in torsion to restore the wing members to their normal positions. The upper and lower hinges at opposite sides of the passageway plate are in vertical alignment and operate simultaneously to resist pivotal action of the wing members, and, by reason of the extended height of the barrels 152, a greater mass of rubber is contained in each hinge, providing torsional springs of greatly increased resistance adapted resiliently to maintain the wing members in their normal position. The wing members 140, when in their normal position parallel to the main portion of the faceplate 10, are in a plane rearwardly thereof as shown in Fig. 2, whereby complemental wing members of coupled cars on a straight track are out of contact with each other and are held in this position by the forces exerted by the spring-actuated hinges 141 and 142 against the resistance offered by a streamlining diaphragm 160 which connects the faceplate and wing members with the car periphery in a manner providing a substantially unbroken surface contour between cars and conceals the faceplate supporting and control mechanism from view and limits the outward movement of the wing members 140.

The diaphragm 160 extends between and is held in place by connections 161 of similar construction secured to the faceplate and car end and serving to hold the diaphragm merely by clamping pressure. The diaphragm is of rubber and is provided with enlargements 162 which are engaged by the connections 161. Flexible cores 163 are embedded in the enlargements and serve to prevent escape thereof from the connections 161 by preventing compression of the rubber which would allow it to squeeze through the opening left by the clamp as the rubber is placed under tension. In the application of the diaphragm 160 to the faceplate and car end, abutment of filler members 164 and 165, attached to the faceplate and car end respectively, are provided at the top and are so formed as to cause the diaphragm top to take a sinuous configuration across the width of the car to relieve the tension in the rubber at points of concentrated stress, since the complete diaphragm is designed so as not to be placed under any substantial tension but merely sufficient to maintain the vertical side portions taut to present a smooth surface.

The filler members 164 and 165 have their greatest width at the position of the hinges 141 where the greatest movement of the faceplate away from the car end occurs, as indicated in broken lines in Fig. 2, and thence taper in opposite directions toward the center and to the level of the inside face of the vertical legs 140 at the sides, whereby adjacent filler members on the faceplate and car end are closest at this point, affording the greatest amount of slack in the diaphragm 160 to avoid stretching the rubber at either hinge point as the faceplate angles in passing a curve. At the center between hinge points the diaphragm top is of greater width to provide more slack than at other points to take care of the outward movement of the faceplate to the uncoupled position, since the vertical portions of the diaphragm at the sides are not stretched at any time due to the pivotal action of the hinges 141 and 142, the spring action of which is sufficient only to keep the sides taut, and the top between the hinge points and respective car sides will not be overstretched due to the convergence of the filler members 164 and 165. When coupled cars pass around a curve in the track, the hinged wing members on the outer side of the cars will pivot about their hinge points as the faceplates angle, keeping the diaphragm sides taut but allowing a gap to appear between adjoining faces of the wing members, since the diaphragms are not stretched, and at the inner side of the cars the wing members contact with each other to collapse the diaphragms which, after release, are returned to their normal tautness by the action of the torsional spring hinges, but the main passageway portions 10 of the faceplates remain in contact at all times.

Although the filler members 164 and 165 give the diaphragm top a sinuous contour in plan, this is hidden at the faceplate by the overlying flange 166 and at the car end by an overhanging flange plate 167 the edge of which, when the faceplate is in its normal coupled position, is parallel to the edge of the flange 166, giving a more pleasing appearance and better streamlining. The connections 161 comprise segmental clamping members 168 substantially coextensive

with the diaphragm 160 engaging the enlargements 162 to secure the diaphragm to the faceplate and car and by bolts 170 and 171 respectively. The clamps 168 are angle-shaped having a curved flange 172 engaging the rubber to prevent abrasion as the diaphragm is flexed and a flange 173 abutting the faceplate or car end, as the case may be, and confine the diaphragm edges against the overlying flanges 166 and 167 under the action of nuts 174 and lockwashers 175 taking the bolts 170 and 171 on the faceplate and car end respectively. The flange 167 is curved at the exposed edge 176 also to prevent abrasion of the rubber as the diaphragm is flexed, and both of the overlying flanges 166 and 167 act to exclude the weather from the respective connections 161. The bolts 170, secured in the faceplate, are provided with countersunk heads, and the bolts 171 are studs threaded into the car end and corner post 177. At the top where the studs 170 penetrate the filler members 165 and enter the end carline 179, collar members 180 are placed about the bolts to brace the fillers from the car end. It will be seen that the elasticity of the rubber in the diaphragm is not relied upon to compensate for the movement of cars in negotiating curves in the track, and it is not stressed or stretched beyond its elastic limit at any time.

Safety irons 181 and 182, for the convenience of trainmen in switching, are secured to the wing members 140, and the cross rod 183 is hinged to the passageway plate 10 at 184 in line with the hinges 141 and 142.

From the foregoing it will be seen that there has been provided an improved faceplate and diaphragm construction wherein there is no supporting metallic connection between the faceplate and car end and in which all movements of the faceplate are positively controlled and the diaphragm is free from stress, and normal parallelism of the faceplate with the car end is assured by improved centering mechanism, and in which the passageway plates of adjoining faceplates are out of metallic contact and provided with weather-excluding means.

What is claimed is:

1. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, and upper and lower transverse strut members having pivotal connections to the faceplate and end wall for in-and-out and angling movements of the faceplate but positively to prevent lateral displacement thereof.

2. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a transversely extending strut member connecting the faceplate and end wall, pivotal means connecting the strut member to the end wall for in-and-out movement of the faceplate and positively to prevent lateral displacement thereof, and pivotal means connecting the strut member to the faceplate for in-and-out movements of the faceplate and positively preventing lateral displacement thereof.

3. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a substantially horizontal strut member extending between the faceplate and end wall and preventing transverse movement of the faceplate, and means connecting the strut member at opposite ends to the faceplate and end wall respectively and accommodating in-and-out movements of the faceplate.

4. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a strut member extending between the faceplate and end wall adapted to prevent transverse displacement of the faceplate, and means connecting the strut member at opposite ends to the faceplate and vehicle respectively.

5. In a vehicle including an end wall having a passageway opening, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall and having major surface areas extending around said opening, buffing surfaces on the faceplate in a plane in advance of the major surface area thereof for contacting similar complemental surfaces on an opposing faceplate to prevent contact between the respective major surface areas thereof, and non-metallic resilient means on the respective major surface areas of adjoining faceplates extending into the plane of said buffing surfaces adapted cooperatively to provide a weather seal therebetween.

6. The combination comprising adjoining vehicles each including an end wall having a passageway opening, faceplates disposed normally substantially parallel to the general plane of and in spaced relation to the respective end walls having major surface areas extending around said opening and supported from the respective vehicles, buffing surfaces on each faceplate in a plane in advance of the major surface areas thereof and in complemental contact with each other to prevent contact between the respective major surface areas, and nonmetallic means on the respective major surface areas extending into the plane of said buffing surfaces adapted cooperatively to provide a weather seal therebetween.

7. A faceplate having an opening, buffing surfaces on the faceplate in a plane in advance of the major surface area thereof, said major surface area extending around said opening, and nonmetallic material secured on said major surface area and extending into the plane of said buffing surfaces.

8. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to said faceplate, a streamlining diaphragm extending between the upper portion of said faceplate and the periphery of said vehicle and between the wing members and the periphery of said vehicle, complemental members having sinuous configurations respectively on the vehicle and on the faceplate and wing members and having their greatest width adjacent the hinge points of said wing members, and means securing the upper portion of the diaphragm at opposite edges to said members.

9. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to said faceplate, a streamlining diaphragm extending between the upper portion of said face plate and the periphery of said vehicle and between the wing members and the periphery of said vehicle, complemental members of sinuous configurations respectively on the vehicle and on the faceplate and wing members and having their greatest width adjacent

the hinge positions of said wing members, and means securing the upper portion of the diaphragm at opposite edges to said members.

10. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to said faceplate, a streamlining diaphragm extending between the upper portion of said faceplate and the periphery of said vehicle and between the wing members and the periphery of said vehicle, complemental members of sinuous configurations respectively on the vehicle and on the faceplate and wing members and having their greatest width adjacent the hinge points of said wing members, means securing the upper portion of the diaphragm at opposite edges to said members, and means concealing said sinuous configurations.

11. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to said faceplate, a streamlining diaphragm extending between the upper portion of said faceplate and the periphery of said vehicle and between the wing members and the periphery of said vehicle, complemental members having sinuous configurations respectively on the vehicle and on the faceplate and wing members and having their greatest width adjacent the hinge positions of said wing members, means securing the upper portion of the diaphragm at opposite edges to said members, and means concealing said sinuous configurations.

12. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, and wing members pivotally secured to said faceplate providing lateral extensions of said faceplate and adapted to provide longitudinally spaced extensions of the peripheral contour of the vehicle.

13. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members pivotally secured with respect to said faceplate, the peripheries of said members providing longitudinally spaced extensions of the peripheral contour of the vehicle, and means resisting pivoting of the wing members.

14. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members pivotally associated with said face plate, the peripheries of said members providing longitudinally spaced extensions of the peripheral contour of the vehicle, and torsional spring means resisting pivotal action of said wing members.

15. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, wing members pivotally associated with said faceplate, the peripheries of said members providing longitudinally spaced extensions of the peripheral contour of the vehicle, and torsional spring hinges disposed between the faceplate and respective wing members adapted to resist pivotal action of the individual wing members.

16. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending pivotal wing members supported out of metallic contact with the faceplate by nonmetallic means, said nonmetallic means being adapted to resist pivotal action of the wing members, the peripheries of said wing members providing longitudinally spaced extensions of the peripheral contour of said vehicle.

17. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members pivotally secured with respect to the faceplate, spring means urging the wing members outwardly away from the end wall, and a streamlining diaphragm extending between the upper portion of the faceplate and the periphery of the vehicle and between the wing members and the periphery of the vehicle and limiting the outward pivotal action of said wing members.

18. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, upper and lower spring-actuated buffer stems urging the faceplate outwardly, and nonmetallic means connecting the buffer stems and faceplate and secured to each, the inherent torsibility of said means maintaining the faceplate normally parallel to the end wall.

19. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the faceplate having flexible connections top and bottom to the end wall and faceplate respectively adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing vertical displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and nonmetallic means connecting said devices with the faceplate and secured to each, the inherent torsibility of said means maintaining the faceplate normally parallel to the end wall.

20. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the passageway having flexible connections top and bottom to the end wall and faceplate respectively adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing vertical displacement thereof, upper and lower transverse strut members having flexible connections to the faceplate and end wall adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and nonmetallic means connecting said devices with the faceplate and secured to each, the inherent torsibility of said non-metallic means maintaining the faceplate normally parallel to the end wall.

21. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the faceplate having flexible connections top and bottom to the end wall and faceplate respectively adapting the faceplate for the limited angling movement necessary to in-

and-out and angling movements of the faceplate but positively preventing vertical displacement thereof, and upper and lower transverse strut members having flexible connections to the faceplate and end wall adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof.

22. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, upper and lower transverse strut members having flexible connections to the faceplate and end wall for necessary in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and nonmetallic means connecting said devices with the faceplate and secured to each, the inherent torsibility of said means maintaining the faceplate normally parallel to the end wall.

23. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, and upper and lower transverse strut members having flexible connections to the faceplate and end wall for necessary in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof.

24. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a transversely extending strut member connecting the faceplate and end wall, flexible means connecting the strut member to the end wall for the pivotal action necessary for in-and-out movement of the faceplate but positively preventing lateral displacement thereof, and means connecting the strut member to the faceplate for the pivotal action necessary for in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof.

25. In a vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to the faceplate, said faceplate and wing members providing a peripheral contour similar to that of the end wall, a streamlining diaphragm having enlarged reinforced peripheral edges extending between the upper portion of the faceplate and the periphery of the vehicle and between the wing members and the periphery of the vehicle, and clamping members confining the enlarged edges beneath overlying flanges on the faceplate and wing members and vehicle periphery.

26. In a vehicle having an end wall, a faceplate construction normally substantially parallel to the general plane of and in spaced relation to the end wall and connected therewith by a diaphragm and having a buffer angle with an extended horizontal surface, and a footplate secured to the vehicle and resting upon said horizontal surface, said footplate comprising a metallic backing plate covered with a rubber tread portion having a part extended beyond the backing plate to rest and slide upon the reciprocating buffer angle.

27. In a vehicle including an end wall having a passageway, a faceplate having major surface areas extending around said passageway supported from the vehicle and disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, buffing surfaces on the faceplate in a plane spaced with respect to the major surface area thereof for contacting similar complemental surfaces on an opposing faceplate and preventing contact between the respective major surface areas of adjoining faceplates, and means on the respective major surface areas of adjoining faceplates extending into the plane of said buffing surfaces adapted cooperatively to provide a weather seal therebetween.

28. In a vehicle having an end wall, a faceplate supported by vertical strut members from the vehicle and disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, extension members hinged to the faceplate having peripheries which in combination with the faceplate form a peripheral contour similar to that of the end wall of the vehicle, a streamlining diaphragm extending between the upper portion of the faceplate and the periphery of the vehicle and between the extension members and the periphery of the vehicle, clamping elements connecting the diaphragm to the respective members, spring means urging the hinged extension members outwardly against the restraining force of the diaphragm, upper and lower central buffing devices urging the faceplate outwardly, nonmetallic means connecting the buffing devices with the faceplate, said means maintaining parallelism of the faceplate with the end wall, transverse strut members connecting the faceplate with the vehicle and preventing lateral displacement thereof, and an inner diaphragm connecting the faceplate with the end wall.

29. A faceplate having a passageway opening, buffing surfaces on the faceplate in a plane spaced with respect to the major surface area thereof for contacting similar complemental surfaces on an opposing face plate to prevent contact between the respective major surface areas of the adjoining faceplates, said major surface areas extending around said opening, and means on the respective associated surfaces of adjoining major surface areas extending into the plane of said buffing surfaces adapted cooperatively to provide a weather seal between the faceplates.

30. In a passenger car provided with a vestibule at its end, a vertically disposed frame arranged in spaced relation with the vestibule outer wall and consisting of a top section and two side sections, said sections being pivotally secured together; means intermediate of the top section and the vestibule end wall for yieldingly forcing said sectional frame outwardly; means for urging the side sections away from the vestibule end wall; and a flexible diaphragm arranged substantially in the planes of the sides and of the car roof and secured to the vestibule end wall and to said sectional frame.

31. A vehicle, a faceplate construction for the vehicle comprising a main passageway portion and wing members disposed at opposite sides thereof normally in substantially the same plane therewith and hingedly secured thereto for pivotal movement perpendicular to said plane, the periphery of said wing members providing a longitudinal extension of the periphery of the vehicle.

32. A vehicle, a faceplate construction for the vehicle including an assembly comprising a unitary main passageway portion extending to sub-

stantially the full height of said vehicle, and wing members at opposite sides of said unitary passageway portion disposed normally in substantially the same plane therewith and hingedly secured thereto for pivotal movement perpendicular to said plane, the periphery of said assembly providing a longitudinal extension of the periphery of said vehicle.

33. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a transversely disposed strut member extending between the faceplate and end wall, and connections at opposite ends of the strut member to the end wall and faceplate respectively, one of said connections comprising a flexible unit adapted to provide for adjustment in the length of said strut.

34. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a transversely disposed strut member extending between the faceplate and end wall, and connections at opposite ends of the strut member to the end wall and faceplate respectively including a bracket adapted to provide for securement of the strut, one of said connections comprising a flexible unit having a core adapted to be disposed in spaced relation about said strut and a rubber pad mounted between the core and the bracket, means engaging opposite ends of said core and threaded on the strut for adjustably securing the core on the strut, and means for securing said flexible unit to said bracket.

35. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, a transversely disposed strut member extending between the faceplate and end wall, and connections at opposite ends of the strut member to the end wall and faceplate respectively including a bracket adapted to provide for securement of the strut member, one of said connections comprising a flexible unit including a collar of rubber secured to the strut member, and means for securing said collar to said bracket in such manner that the rubber functions in shear to resist transverse displacement of the faceplate and during in-and-out movements of the faceplate.

36. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively and adapted to resist in-and-out and angling movements of the faceplate by rubber in shear, said connections each comprising a cup-shaped receptacle adapted to receive a flexible unit removably secured on the respective ends of said strut members, means for securing the flexible unit in said receptacle adapted to limit flexibility of said unit, and means securing the respective flexible units to said struts adapted to provide for adjustment in the length of the struts.

37. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively adapted to resist in-and-out and angling movements of the faceplate, said connections each comprising a flexible unit having a core adjustable lengthwise on the vertical members, means removably securing said core to the vertical members, a cup-shaped receptacle adapted to receive the flexible unit, and means securing the flexible unit in the receptacle adapted to limit flexibility of the unit, said cup-shaped receptacle at the end wall being disposed in upright position and at the faceplate in inverted position.

38. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively and adapted to resist in-and-out and angling movements of the faceplate, said connections each comprising a flexible unit having a core adjustable lengthwise on the vertical members, means removably securing said core to the vertical members, a cup-shaped receptacle adapted to receive the flexible unit, and means securing the flexible unit in the receptacle adapted to limit flexibility of the unit, one of said cup-shaped receptacles being disposed at each end of each of said vertical members for attachment to the end wall and faceplate respectively in oppositely disposed relation.

39. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively adapted to resist in-and-out and angling movements of the faceplate, said connections each comprising a flexible unit having a core adjustable lengthwise on the vertical members, means removably securing said core to the vertical members, a cup-shaped receptacle adapted to receive the flexible unit, and means securing the flexible unit in the receptacle adapted to limit flexibility of the unit.

40. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively each including a bracket adapted to provide for securement of the vertical members and adapted to resist in-and-out and angling movements of the faceplate, said connections each comprising a flexible unit having a core adapted to be disposed in concentric relation to said vertical member, means engaging opposite ends of said core and threaded on the vertical member for adjustably securing the core on said member, and means for securing said flexible unit to said bracket.

41. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively each including a bracket adapted to provide for securement of the vertical members and adapted to resist in-and-out and angling movements of the faceplate by rubber in shear, said connections each comprising a flexible unit having a cylindrical core adapted to be disposed in concentric relation to said vertical member,

a collar of rubber secured to said core, means engaging said core and secured on the vertical member for securing the core on said member, and means for securing said collar to said bracket in such manner that the rubber functions in shear during in-and-out and angling movements of the faceplate.

42. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively each including a bracket adapted to provide for securement of the vertical members and adapted to resist in-and-out and angling movements of the faceplate, said connections each comprising a flexible unit including a collar of rubber secured to the vertical member, and means for securing said collar to said bracket in such manner that the rubber functions in shear during in-and-out and angling movements of the faceplate.

43. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical members disposed at opposite sides of the faceplate having connections at their opposite ends to the end wall and faceplate respectively including a bracket adapted to provide for securement of the vertical members, at least one of said connections comprising a flexible unit including a collar of rubber secured to the vertical member, and means for securing said collar to said bracket in such manner that the rubber functions in shear to support the faceplate and resist in-and-out and angling movements of the faceplate.

44. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members pivotally secured with respect to said faceplate, the peripheries of said respective members each providing a longitudinally spaced extension of a portion of the peripheral contour of the vehicle, and means adapted normally to maintain said wing members substantially parallel to the faceplate.

45. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending pivotal wing members supported out of metallic contact with the faceplate by nonmetallic means, said nonmetallic means being adapted to provide for pivotal action of the wing members, the peripheries of said respective wing members each providing a longitudinally spaced extension of a portion of the peripheral contour of said vehicle.

46. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, upper and lower spring-actuated buffer stems urging the faceplate outwardly, and nonmetallic means connecting the buffer stems and faceplate and secured to each, said means maintaining parallelism of the faceplate with the end wall.

47. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the faceplate having flexible connections at their opposite ends to the end wall and faceplate respectively adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing vertical displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and nonmetallic means connecting said devices with the faceplate and secured to each.

48. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, vertical strut members disposed at opposite sides of the passageway having flexible connections at their opposite ends to the end wall and faceplate respectively adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing vertical displacement thereof, upper and lower transverse strut members having flexible connections to the faceplate and end wall adapting the faceplate for the limited angling movement necessary to in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and non-metallic means connecting said devices with the faceplate and secured to each.

49. A vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, upper and lower transverse strut members having flexible connections to the faceplate and end wall for necessary in-and-out and angling movements of the faceplate but positively preventing lateral displacement thereof, upper and lower central buffing devices urging the faceplate outwardly, and nonmetallic means connecting said devices with the faceplate and secured to each.

50. In a passenger car provided with a vestibule at its end, a vertically disposed frame arranged in spaced relation with the vestibule outer wall and consisting of a central section and two side sections, said sections being pivotally secured together; means intermediate of the central section and the vestibule end wall for yieldingly forcing said sectional frame outwardly; means for urging the side sections away from the vestibule end wall; and a flexible diaphragm arranged substantially in the planes of the sides and of the car roof and secured to the vestibule end wall and to said sectional frame.

51. In a passenger car provided with a faceplate comprising a sectional frame disposed at the end of the car platform in spaced relation therewith and substantially in the same plane as the car sides and the car roof, said frame being composed of two side sections and a central vestibule faceplate section hingedly secured together; means whereby said side sections are pivotally supported by the vestibule faceplate; a flexible diaphragm secured to the platform end wall and to said frame; and independent resilient means for said side sections and for said central section for urging the sectional frame away from the platform outer wall.

52. As an article of manufacture for use in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a hinge member for connecting a wing member to the main faceplate portion for movement in a horizontal plane.

53. As an article of manufacture for use in a faceplate assembly including a main faceplate

portion and wing members hingedly mounted with respect thereto, a hinge member for connecting a wing member to the main faceplate portion, said hinge member incorporating a spring for maintaining the wing members substantially in a plane with the main faceplate portion.

54. As an article of manufacture for use in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a hinge member for connecting a wing member to the main faceplate portion, said hinge member incorporating a spring for maintaining the wing members substantially in a plane with the main faceplate portion and disposed in supporting relation to said wing members.

55. As an article of manufacture for use in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a wing member having inwardly directed upper and lower arms for pivotal connection with the main faceplate portion.

56. As an article of manufacture for use on a vehicle in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a main faceplate adapted for pivotal association with the wing members for movement thereof in a horizontal plane.

57. As an article of manufacture for use in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a main faceplate substantially to the full height of the vehicle adapted for pivotal association with the wing members for movement thereof in a horizontal plane.

58. As an article of manufacture for use in a faceplate assembly including a main faceplate portion and wing members hingedly mounted with respect thereto, a main faceplate adapted to be assembled with the wing members in pivotal association therewith for movement thereof in a horizontal plane and disposed in supporting relation thereto.

59. In a vestibuled passenger car provided with a diaphragm enclosing the central passageway of said vestibule and a faceplate at the outer end of the diaphragm, an outer diaphragm arranged substantially flush with the car side walls and roof and secured at one end to the vestibule end wall, a sectional frame including said faceplate secured to the outer end of the second-mentioned diaphragm, means pivotally associated with the faceplate and having operative relation with the respective sections of said sectional frame and including torsion means operative between the faceplate and said respective sections whereby such sections are yieldingly forced away from the vestibule end wall, and yielding means arranged between the vestibule end wall and said faceplate.

60. In a railroad car provided at the end with a passageway and a faceplate disposed about said passageway, vertically disposed wing members arranged at opposite sides of the faceplate normally substantially aligned therewith and spaced from the car end wall, the peripheries of the respective wing members defining substantial portions of the peripheral contour of the car, hinge means associated with the faceplate whereby the wing members are permitted swinging movement toward and away from the end wall independently of each other and of the faceplate, a flexible diaphragm extending between the car end and said wing members, and means for yieldingly holding the wing members away from the car end wall.

61. In a vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to the faceplate, said faceplate and wing members providing a peripheral contour similar to that of the end wall, a streamlining diaphragm having enlarged reinforced peripheral edges extending between the upper portion of the faceplate and the periphery of the vehicle end wall and between the wing members and the periphery of the end wall, and clamping members confining the enlarged edges beneath overlying flanges on the faceplate and wing members and vehicle periphery and leaving the diaphragm imperforate, said overlying flanges lying substantially in the planes of the peripheral surfaces of the vehicle.

62. In a vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to the faceplate, said faceplate and wing members providing a peripheral contour in substantially the same planes, longitudinally of the vehicle, as the periphery of the end wall, a streamlining diaphragm having enlarged reinforced peripheral edges extending between the faceplate and the vehicle end wall at the periphery thereof and between the wing members and the periphery of the end wall, and clamping means confining the enlarged edges beneath overlying flanges on the wing members and the vehicle end wall, the overlying flanges lying substantially in the planes of the peripheral surfaces of the vehicle.

63. In a vehicle having an end wall, a faceplate disposed normally substantially parallel to the general plane of and in spaced relation to the end wall, laterally extending wing members hingedly secured to the faceplate, said faceplate and wing members providing a peripheral contour in substantially the same planes, longitudinally of the vehicle, as the periphery of the end wall, a streamlining diaphragm extending between the peripheries of the faceplate and of the vehicle end wall and between the peripheries of the wing members and of the end wall, and clamping means on the end wall and the wing members embracing the marginal portions only of the diaphragm.

ANDREW CHRISTIANSON.
PETER PARKE.

CERTIFICATE OF CORRECTION.

Patent No. 2,243,854. June 3, 1941.

ANDREW CHRISTIANSON, ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, second column, line 17, for "of" read --or--; page 6, first column, line 57, claim 14, for the words "associated with said" read --secured with respect to the--; page 8, first column, line 75, claim 37, before "adapted" insert --and--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of July, A. D. 1941.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.