May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 1

Fig. 1

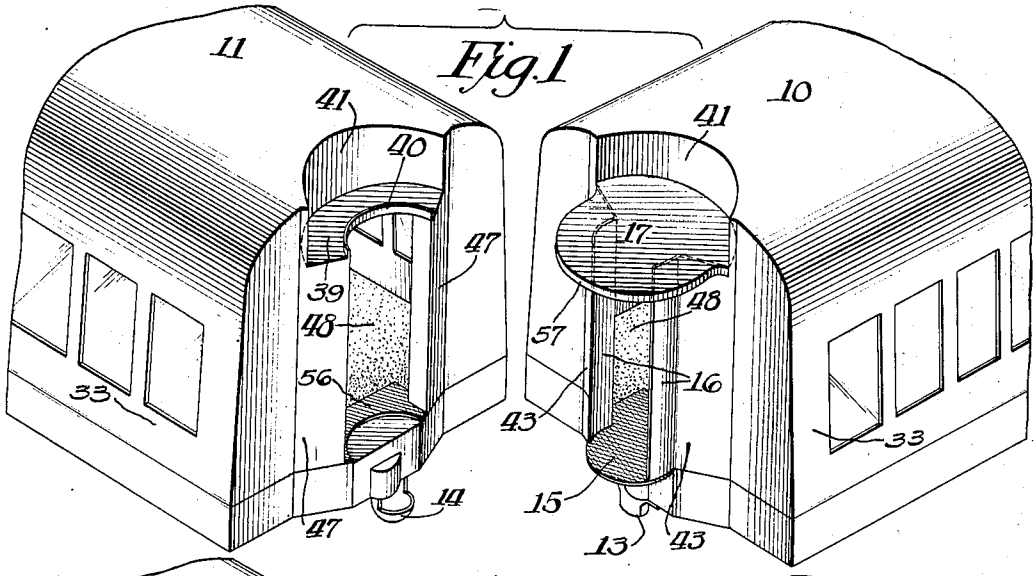


Fig. 2

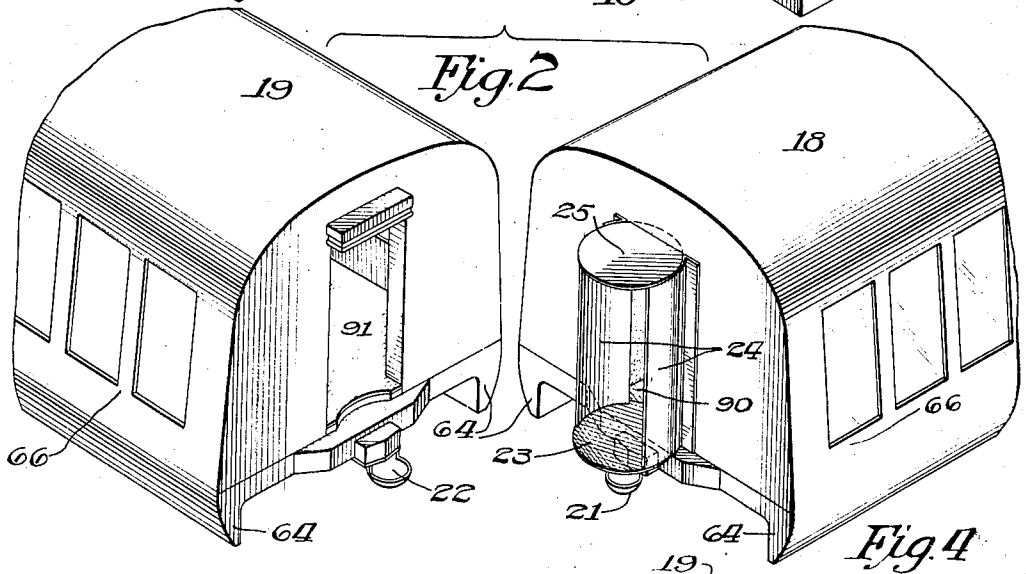


Fig. 3

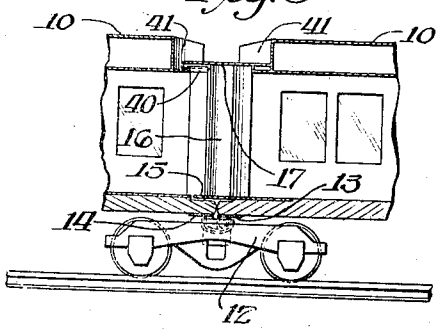
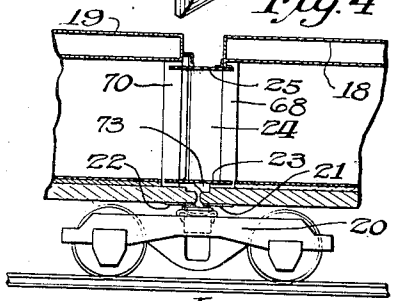


Fig. 4



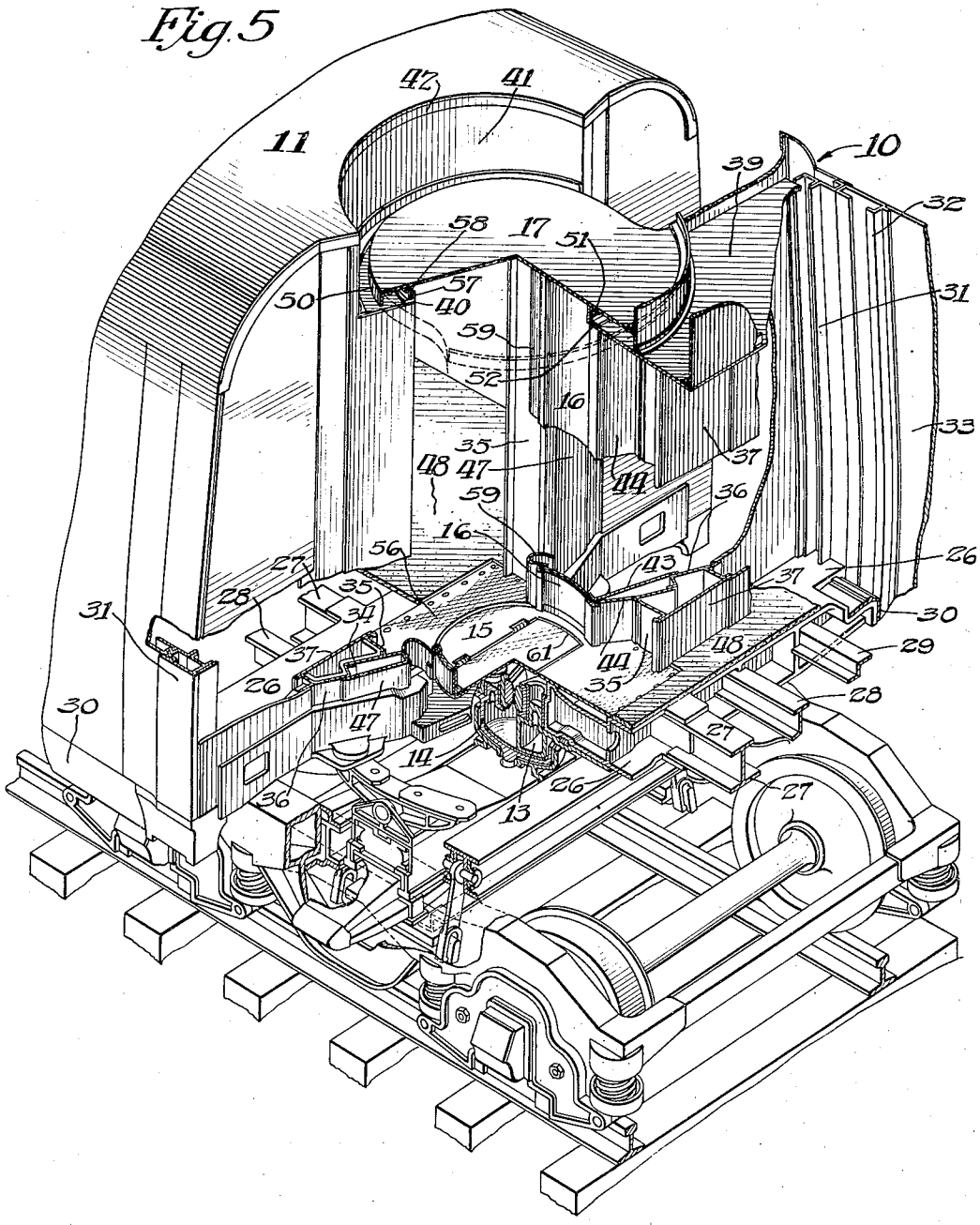
Inventor
Martin P. Blomberg
By Dillson, Mann & Cox,
Attys

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 2

Fig. 5



Inventor
Martin P. Blomberg
By Gillson, Mann & Coe, Attys.

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 3

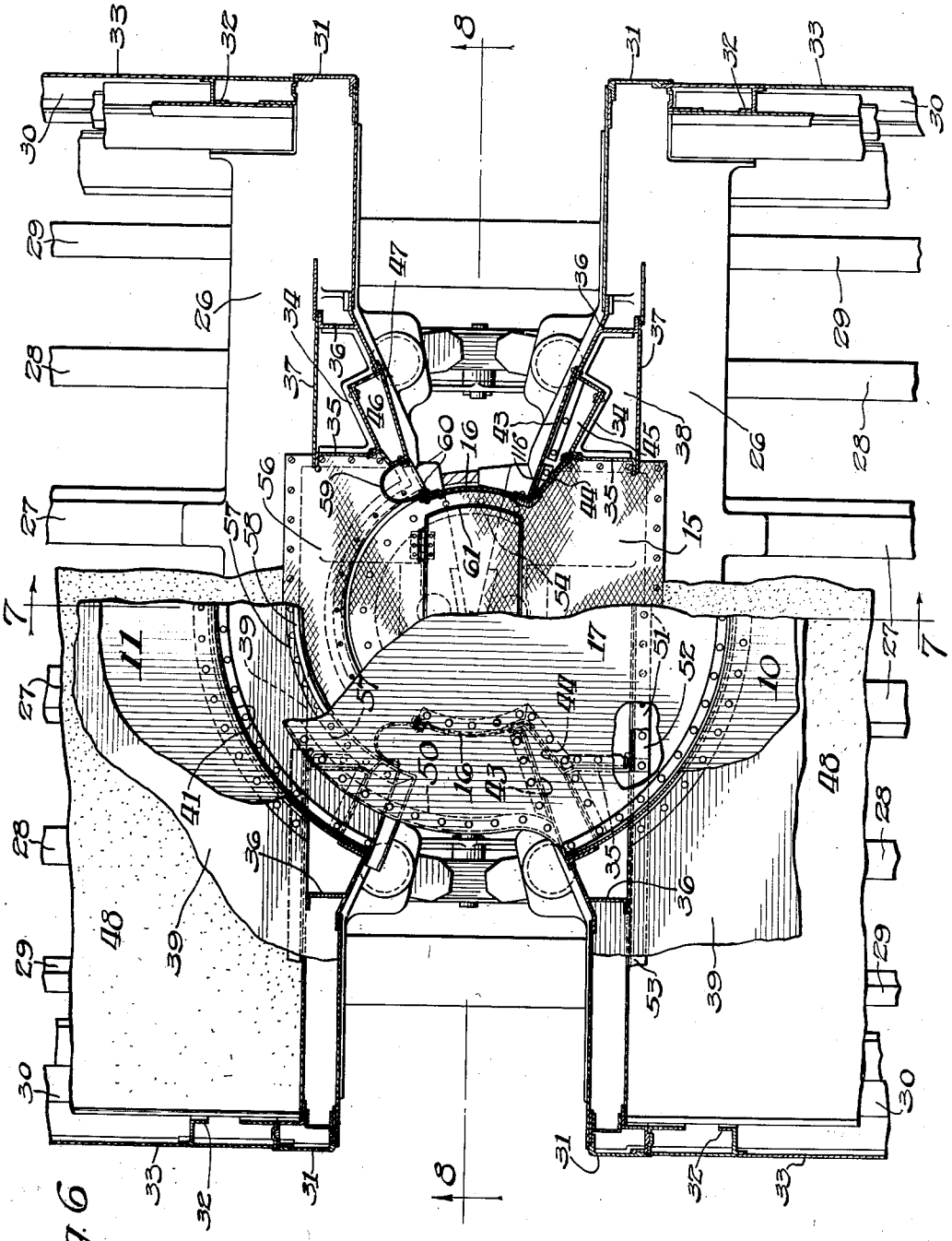


Fig. 6

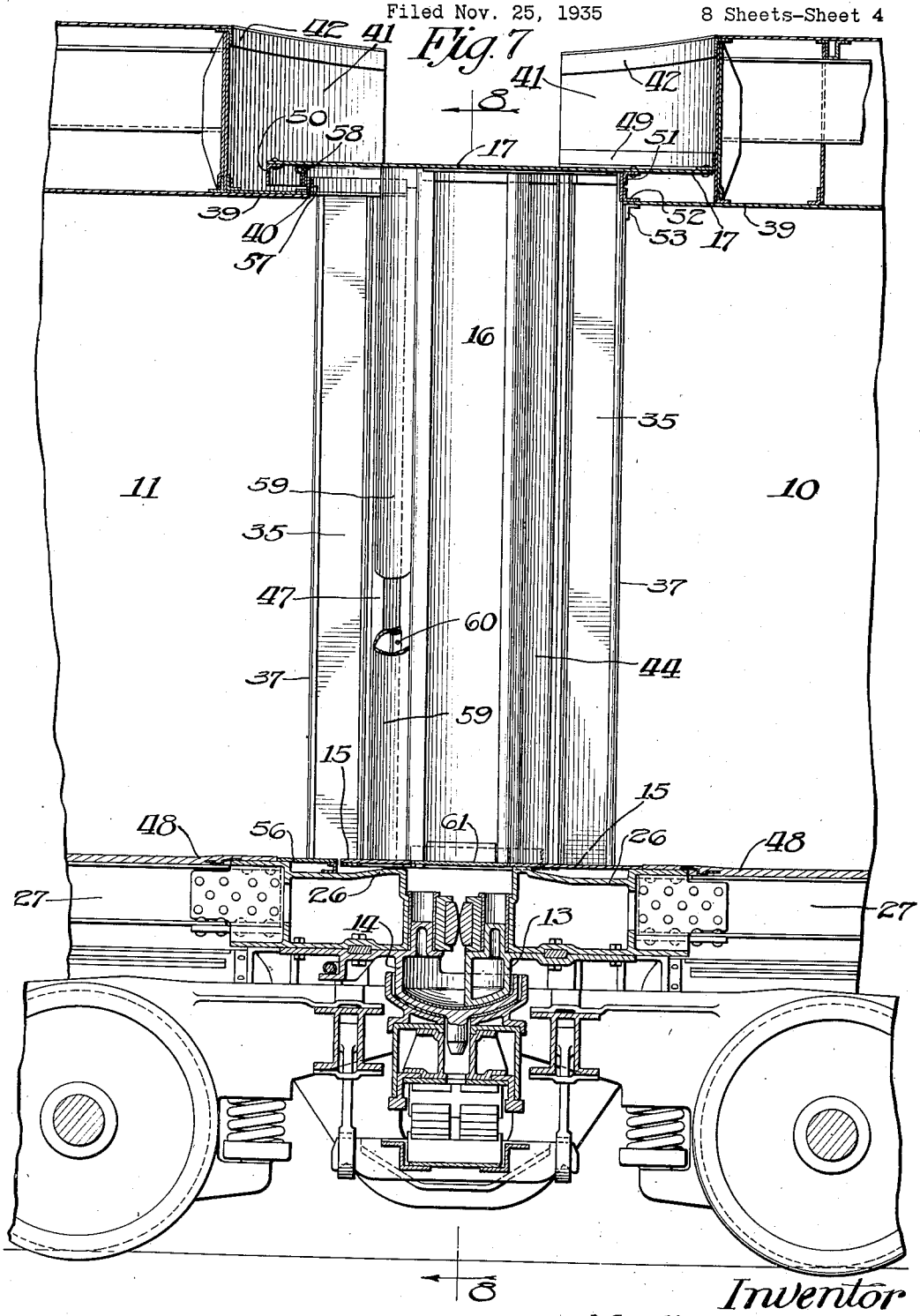
Inventor
Martin P. Blomberg
By Wilkow, Mann & Cox
Attys.

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 4

Fig. 7



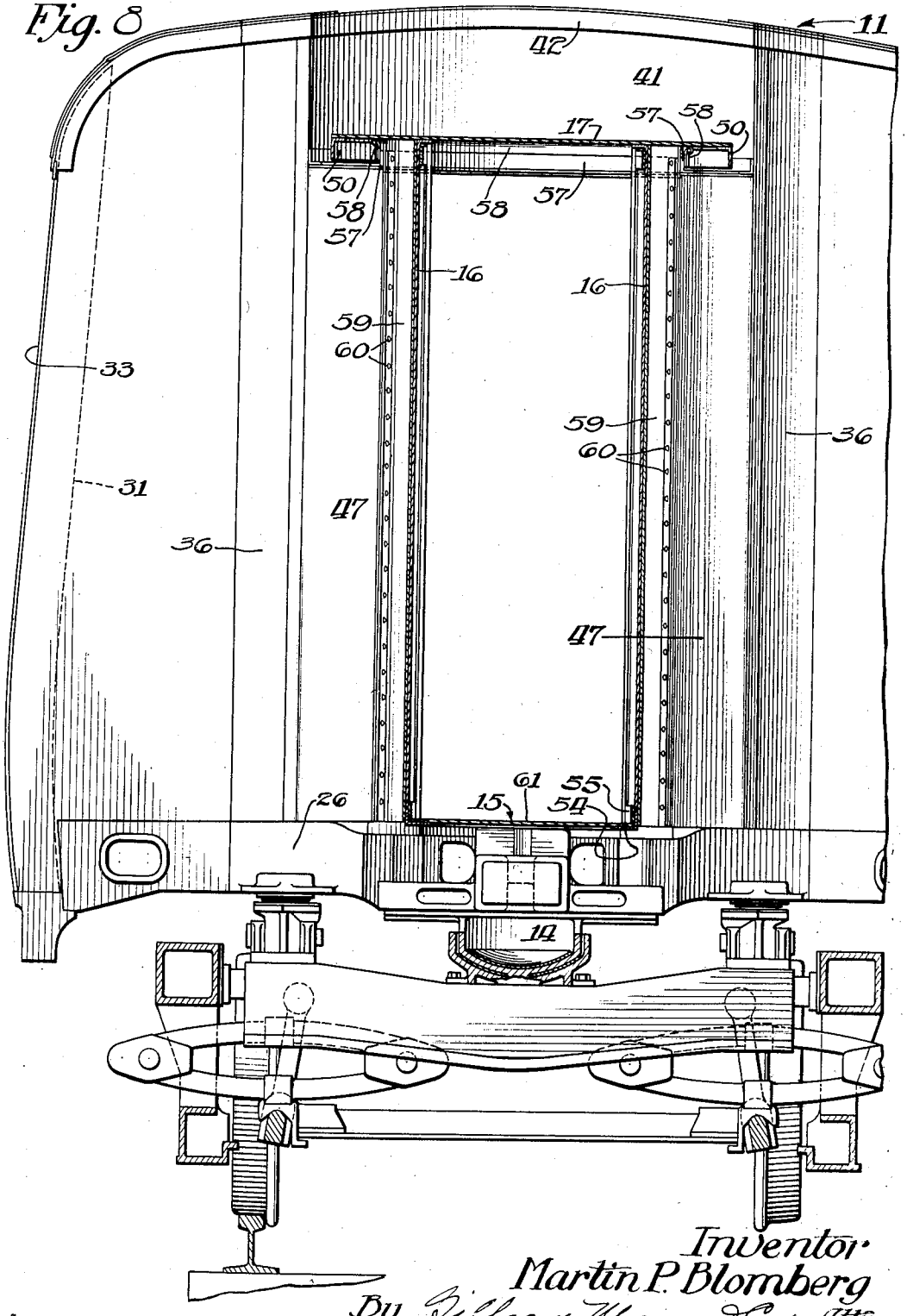
Inventor
Martin P. Blomberg
By Gillson, Mann & Co. Attys

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 5

Fig. 8



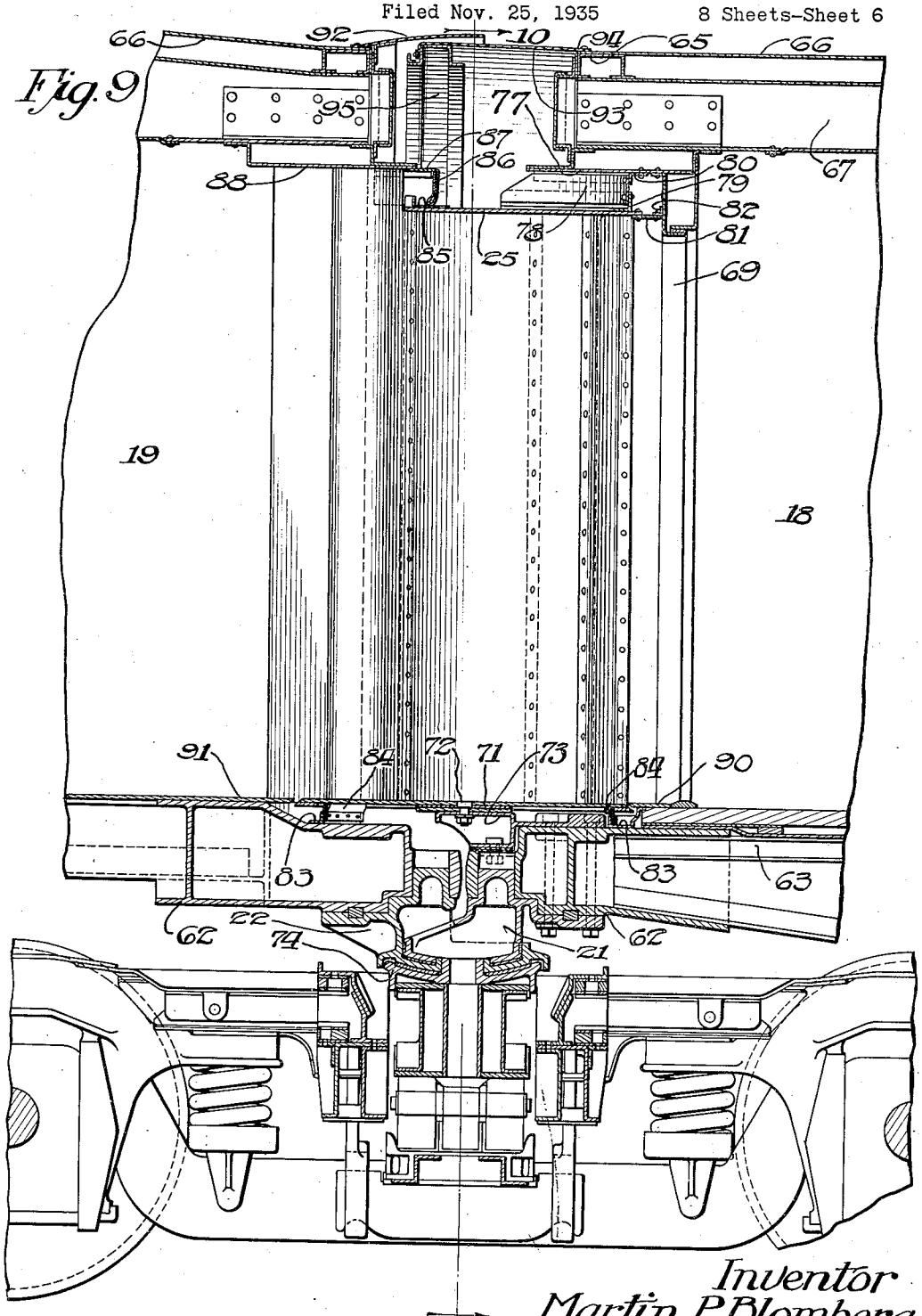
Inventor:
Martin P. Blomberg
By Wilson, Mann & Cox, Attys

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 6

Fig. 9



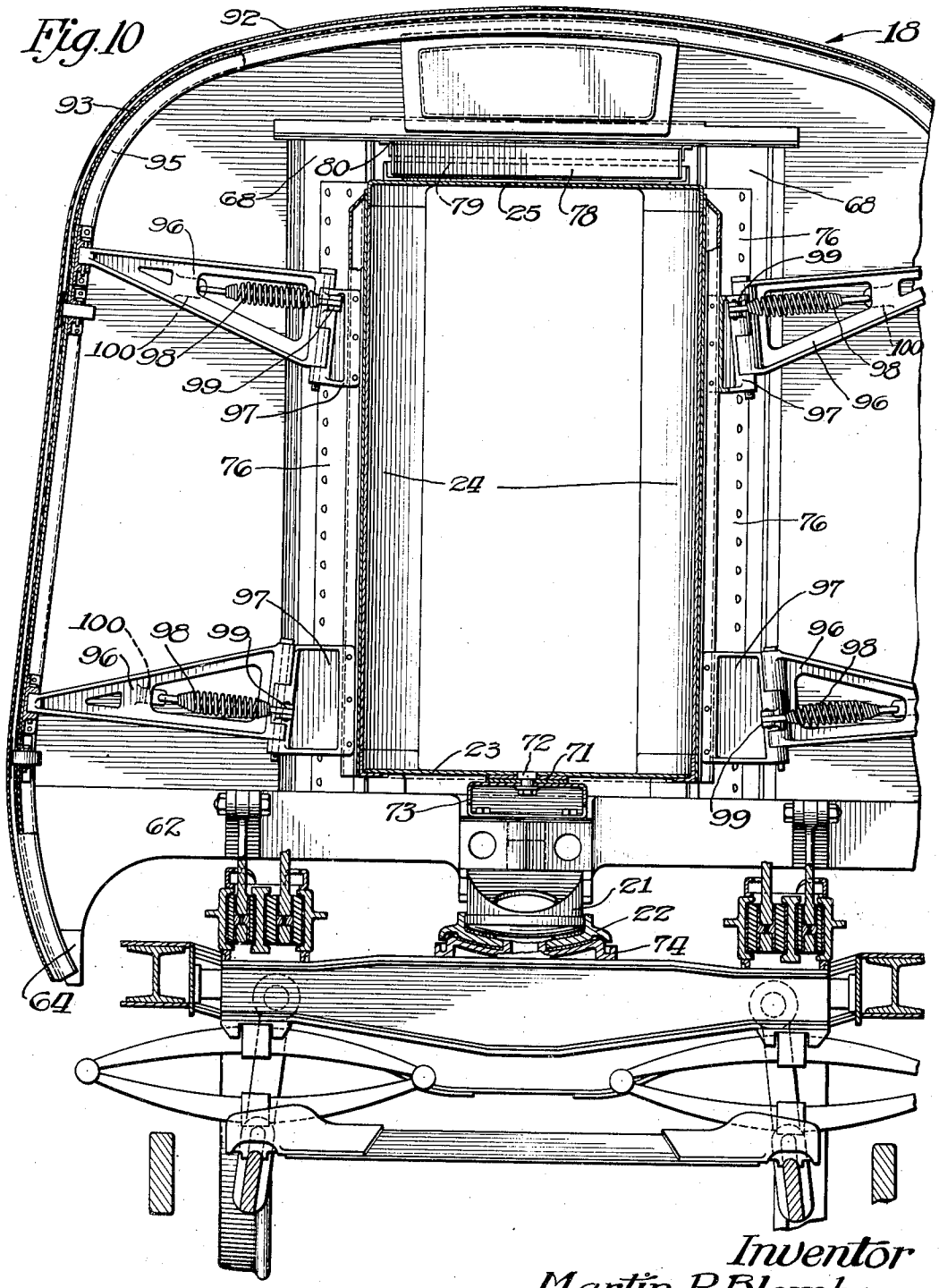
Inventor
Martin P. Blomberg
By Gilleon, Mann & Cox
Attys

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 7

Fig. 10



Inventor
Martin P. Blomberg
By Gillson, Mann & Cox,
Attys

May 16, 1939. M. P. BLOMBERG 2,158,062

ARTICULATED CAR

Filed Nov. 25, 1935 8 Sheets-Sheet 8

Fig. 11

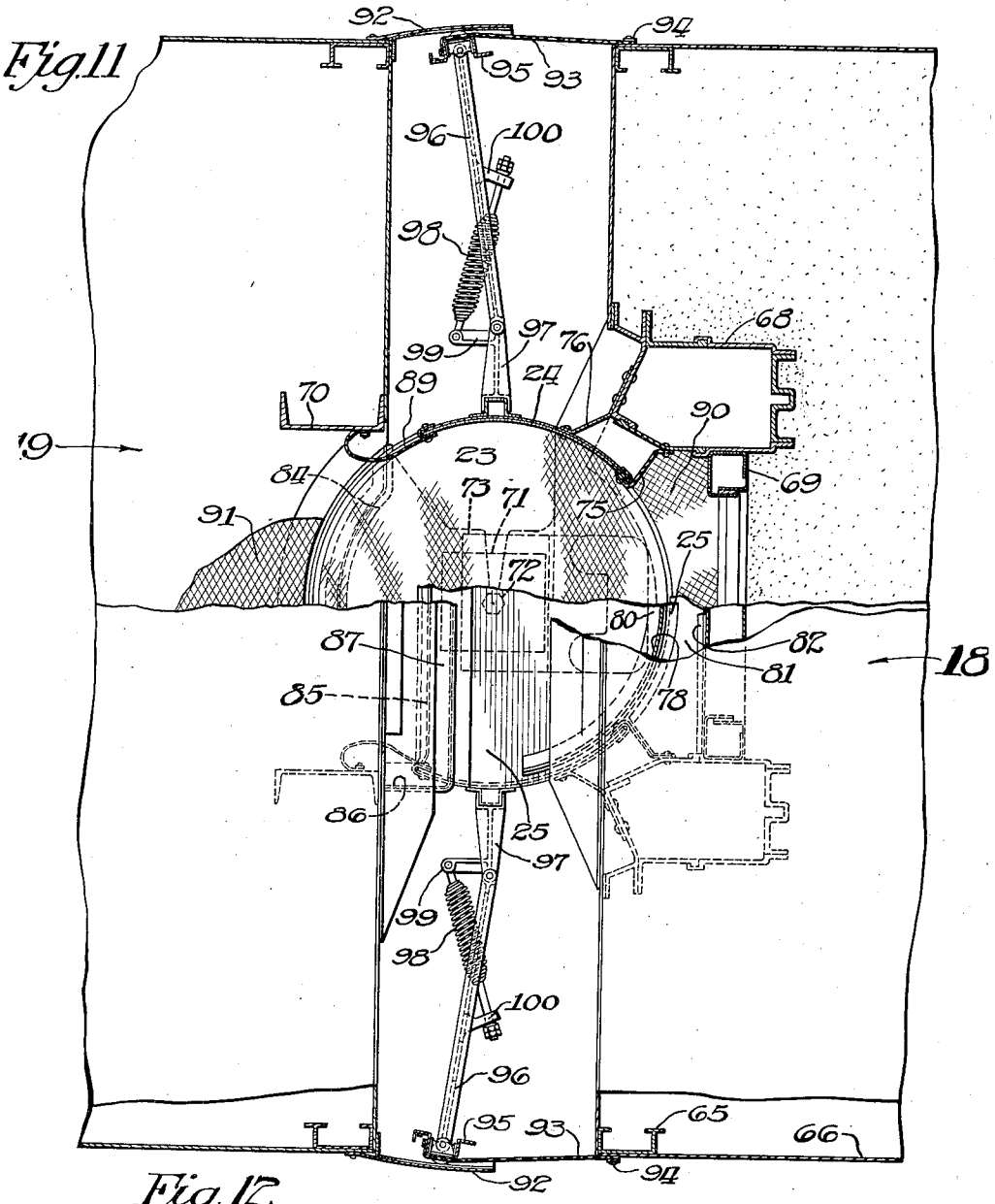
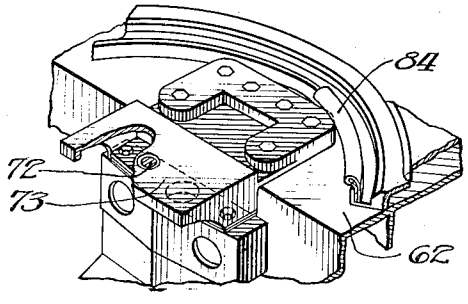


Fig. 12



Inventor
Martin P. Blomberg
By Gillson, Mann & Cox,
Attys.

Patented May 16, 1939 2,158,062

UNITED STATES PATENT OFFICE

2,158,062

ARTICULATED CAR

Martin P. Blomberg, Hinsdale, Ill., assignor to Pullman-Standard Car Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application November 25, 1935, Serial No. 51,383

4 Claims. (Cl. 105—4)

This invention relates to what are sometimes called multi-section cars, or articulated cars, and which comprise two or more sections having car bodies with adjacent ends articulated to, and carried by a common truck, and the principal object is to provide an enclosed passageway bridging the gap between adjacent car ends.

Further objects and advantages of the invention will appear as the disclosure proceeds and the description is read in connection with the accompanying drawings, in which

Fig. 1 is a diagrammatical view in perspective of two adjacent car ends, separated from the truck and displaced to reveal the pasageway and suggest the manner of assembly shown in Fig. 3;

Fig. 2 is a similar view of another form;

Fig. 3 is a longitudinal section through adjacent ends of cars assembled on the common truck and provided with a passageway embodying this invention;

Fig. 4 is a similar view corresponding to the modified form shown in Fig. 2;

Fig. 5 is a perspective view of an actual construction embodying the invention as applied to cars for elevated and subway service;

Fig. 6 is a half plan and half section of adjacent car ends shown in Fig. 5;

Fig. 7 is a vertical section on the line 7—7 of Fig. 6;

Fig. 8 is a transverse section on the line 8—8 of Fig. 7;

Fig. 9 is a vertical section through adjacent car ends of another embodiment made particularly for standard railway service;

Fig. 10 is a transverse section on the line 10—10 of Fig. 9;

Fig. 11 is a horizontal section through adjacent car ends shown in Fig. 10; and

Fig. 12 is a perspective view of a detail for supporting a passageway unit on one of the car ends.

These specific constructions having been built and put into satisfactory operation, are used for the purpose of disclosure, but not with the intent of imposing unnecessary limitations on the claims.

In Fig. 1, 10 and 11 indicate car bodies, adjacent ends of which are to be articulated and supported upon a common truck 12, as shown in Fig. 3, by center plates 13 and 14 cooperating with the truck. The car body 10 is provided with a vestibule passageway unit or structure, including a floor or tread 15, curved side walls 16, and a flat top 17, all fixed to the car body to project from it in cantilever fashion and be received within a corresponding doorway recess in the car body 11.

In Fig. 2, 18 and 19 indicate similar car bodies, the adjacent ends of which are carried by a common truck 20, shown in Fig. 4, through center plates 21 and 22 cooperating with the truck. In this instance the car body 18 is provided with a vestibule passageway unit, or structure, including a floor or tread 23, curved sides 24, and a flat top 25, anchored on the car body and projecting from it to enter a corresponding doorway opening in the car body 19, when brought into the relation shown in Fig. 4.

The constuction diagrammatically shown in Figs. 1 and 3 is more fully illustrated in Figs. 5 to 8 (Sheets 2, 3, 4 and 5).

Each car body includes a transverse end sill 26, which, together with longitudinal sills 27, 28, 29 and 30, and corner posts 31 and ribs 32, covered with side and roof sheathing 33, form the car body.

The top of each sill 26 is provided with flanges 34, to which are secured hollow built-up door posts each including a V-bar 35, an irregularly shaped bar 36, and a plate 37, which together form the main portion of the post, and one duct 38 for the passage of air in the air conditioning system of the car.

Near the top of car section 11 all the components of the door posts, except the irregularly shaped bar 36, terminate at and are secured to a stout transverse plate 39 (Fig. 7), sometimes called the antitelescoping plate, from its function of resisting shock in collisions. Bar 36 extends to the roof as shown in Fig. 8. In car section 10 the post components are secured to the plate 39, and continue above it to the top 17 of the passageway to which they are made fast.

As best shown at the left in Fig. 1, the antitelescoping plate 39 has a curved edge 40, inwardly of which, and extending upwardly from the plate 39, is a curved end plate 41, joined to the roof by an angle 42, Figs. 5 and 7.

The door posts of the car body 10 include, in addition to the bars 35, 36 and plate 37, two upright plates 43 and 44, which, together with the bars 35 and 36, form another duct 45.

In the car body 11 a similar duct 46 is formed by the cooperation of an angular plate 47 with the corresponding bars 35 and 36.

From the description thus far it will appear that the pairs of door posts, with the corresponding end sill and anti-telescoping plate, form doorway openings separated by a gap, which it is the purpose of the vestbule passageway structure to span and provide safe passage for passengers from one car body to the other.

The floor 15 of the passageway rests upon and

is secured to the end sill 26 of the car body 10, and forms a continuation of the floor 48 of that car, as indicated particularly in Figs. 5 and 7.

The top 17 of the vestibule passageway is fitted against the curved wall 41 of car section 10 (Fig. 5), and secured by an angle 49, from which it projects to end in a curved edge stiffened by an angle 50.

The curved side walls 16 of the passageway are fixed at the upper end to the top 17 and the anti-telescoping plate 39 by angles 51, 52 and 53, and to the floor by an angle 54 and a filler plate 55. They also have flat flanges 116 overlapping the plates 44 (Fig. 6) and built into the door post structure.

From this it will be clear that the vestibule passageway is in the nature of a cantilever through bridge, anchored to the car body 10 and projecting beyond its end, toward the car body 11.

The door posts of the car body 11 form a doorway opening into which the floor or tread 15 of the vestibule unit projects above the corresponding end sill 26 to terminate in substantial alignment with a tread plate 56 at the edge of the floor 48. The top 17 of the vestibule passageway laps over the anti-telescoping plate 39 of the car body 11, the curved edge of which is stiffened by an angle 57, provided with a weather strip 58 cooperating with the underside of the top 17 to make a weather seal.

The free edges of the curved walls 16 of the vestibule unit are connected with the plates 47 of the door posts in the car body 11 by bent sheets of flexible material, 59, such as weather-proofed canvas, rubber, and the like, secured at its edges by screws, or other fastenings 60.

The vesitbule passageway and its load are borne entirely by the car body 10, and the clearance between the floor or tread 15 and the end sill of the car body 11, and the clearance between the top 17 and the anti-telescoping plate 39 of the car body 11, permit the necessary movement as the articulated car goes through a depressed portion of the track.

The floor, or tread 15 is provided with a hinged trap door 61 to permit inspection of the body center bearing, the truck center bearing and the associated parts, the construction of which is sufficiently revealed in the drawings for the purpose of this application.

The form shown diagrammatically in Figs. 2 and 4 is more particularly disclosed in Figs. 9, 10, 11 and 12, (Sheets 6, 7 and 8).

The car body 18 includes an end sill 62, center sills 63, side sills 64 bowed ribs 65, and a sheathing 66, that forms the covering for the sides and the top. Overhead there is a box beam structure 67 connected with the end sill by fabricated columns or posts 68, made up of special extruded shapes, but not here of great importance. These posts are set apart to leave a doorway passage fitted with a door frame 69.

The car body 19, which was built as a power section in this particular embodiment, includes a somewhat similar construction, except that the posts 68 are replaced by channel shaped posts 70, set apart to define a doorway passage. The floor or tread 23, the curved side wall 24, and the top 25 of the vestibule passageway, are secured together to form a generally cylindrical drum shaped unit.

On the lower side the bottom is fitted with a disk 71 welded or riveted in place, and having an opening to receive a bolt 72 by which the vestibule passageway is made fast to a bracket 73, mounted on the end sill 62 and projecting somewhat beyond it, as shown in Fig. 9, to support the vestibule assembly substantially in alignment with the axis of the truck center bearing 74.

Bent plates 75 and 76 are secured to each of the columns 68 and made fast to the adjacent portions of the curved side walls 24 of the vestibule passageway.

The top 25 is fitted beneath an anti-telescoping plate 77 and secured to it by a curved plate 78 and angles 79 and 80. It is also secured at the edge adjacent to the car by a strap 81, in turn, made fast by an angle 82 to the door frame 69. In this position the passageway structure projects in cantilever fashion from the end of the car body 18, and the floor, or tread 23, extends over the end sill 63 of the car body 19 with ample clearance to permit the necessary movement in traveling through a valley in the track.

The end sills are fitted with curved angles 83 carrying weather strips 84 rubbing against the underside of the vestibule floor to make a weather seal.

The top 25 of the vestibule assembly has a curved angle 85 (Fig. 9) cooperating with the weather strip 86 carried by a plate 87 secured to the anti-telescoping plate 88 on the car body 19. The free edges of the passageway walls 24 are connected to the posts 70 by flexible sheets, or strips 89, of waterproof canvas, rubber, or the like, to form a weather seal.

The floor, or tread, of the vestibule passageway fits with appropriate clearance between the curved tread plates 90 and 91 of the car floors. It might well be made one with the tread plate 90, but for convenience in manufacture for this particular embodiment the vestibule passageway structure was fabricated as a separate unit and then secured to the car body.

This embodiment is a streamline train, or car, and in order to carry out the aero-dynamic contour from one car body to another, the leading car body 19 is provided with a curved metallic shed 92, arching over the passageway and extending rearwardly. The car body 18 is equipped with a flexible fly 93 of weather-proofed fabric, rubber, or the like, secured at its rear edges to the roof and side sheets at 94 and at its front edge to a bow 95, carried by pivoted arms 96 mounted on brackets 97 at the sides of the passageway walls 24 and urged forwardly by springs 98 stretched between arms 99 on the brackets 97 and lugs 100 on the arms 96.

The feature of construction and the general fabrication of the car bodies, trucks and articulation, form the subject matter of other pending applications.

The two embodiments disclosed were especially designed for light weight construction, chiefly of aluminum alloy.

I claim:

1. In an articulated car, a truck, car bodies with adjacent ends carried by the truck, and a passageway between the bodies comprising a cantilever structure, including a floor tread member, projecting beyond the car body from one of the adjacent ends into the other, the entire weight of the passageway being carried by the first mentioned car body.

2. In an articulated car, a truck, car bodies with adjacent ends carried by the truck, and including end sills in juxtaposition, and a passageway between the car bodies comprising a cantilever structure, including a floor tread member, projecting beyond the car body from one of the

adjacent ends into the other over the end sill, with clearance between the cantilever structure and the last mentioned end sill, the entire weight of said structure being carried by the first mentioned car end.

3. In an articulated car, a truck, car bodies with adjacent ends carried by the truck, and a passageway comprising a cantilever through bridge having a floor tread member and having rounded side walls projecting beyond the car body from one of the adjacent ends into a doorway in the other, and flexible weatherstrips between the ends of the rounded walls and the sides of the doorway, the entire weight of said structure being carried by the first-mentioned car body end.

4. In an articulated car, a truck, two car bodies having adjacent ends carried by the truck and each including end sills and posts set apart to leave a doorway, and a passageway comprising a cantilever through bridge projecting beyond and secured to the sill and posts of one car body and projecting beyond that car body into the doorway of the other, means for enclosing the passageway with a flexible fly, and means for supporting the fly from the passageway, said passageway including a floor tread member, the entire weight of said structure being carried by the first mentioned car body end.

MARTIN P. BLOMBERG.