

July 18, 1944.

K. F. NYSTROM ET AL

2,354,045

PASSAGEWAY ENCLOSURE FOR PASSENGER CARS

Filed Aug. 24, 1942

4 Sheets-Sheet 1

Fig. 1.

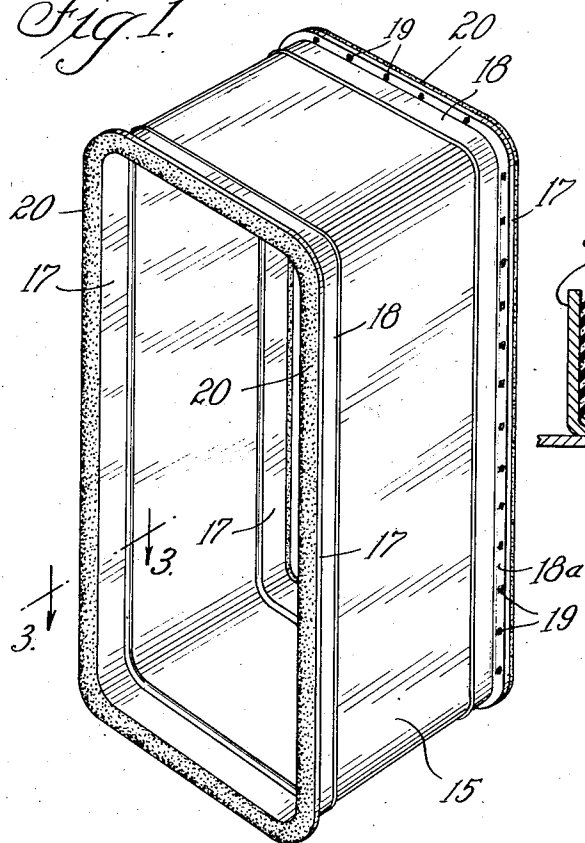
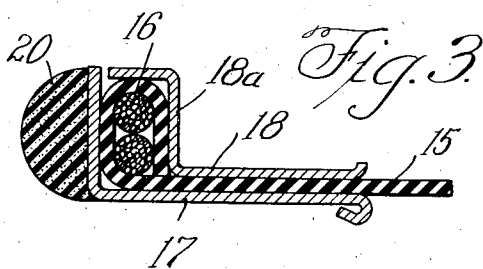
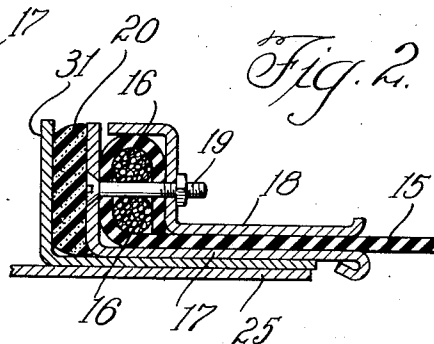


Fig. 2.



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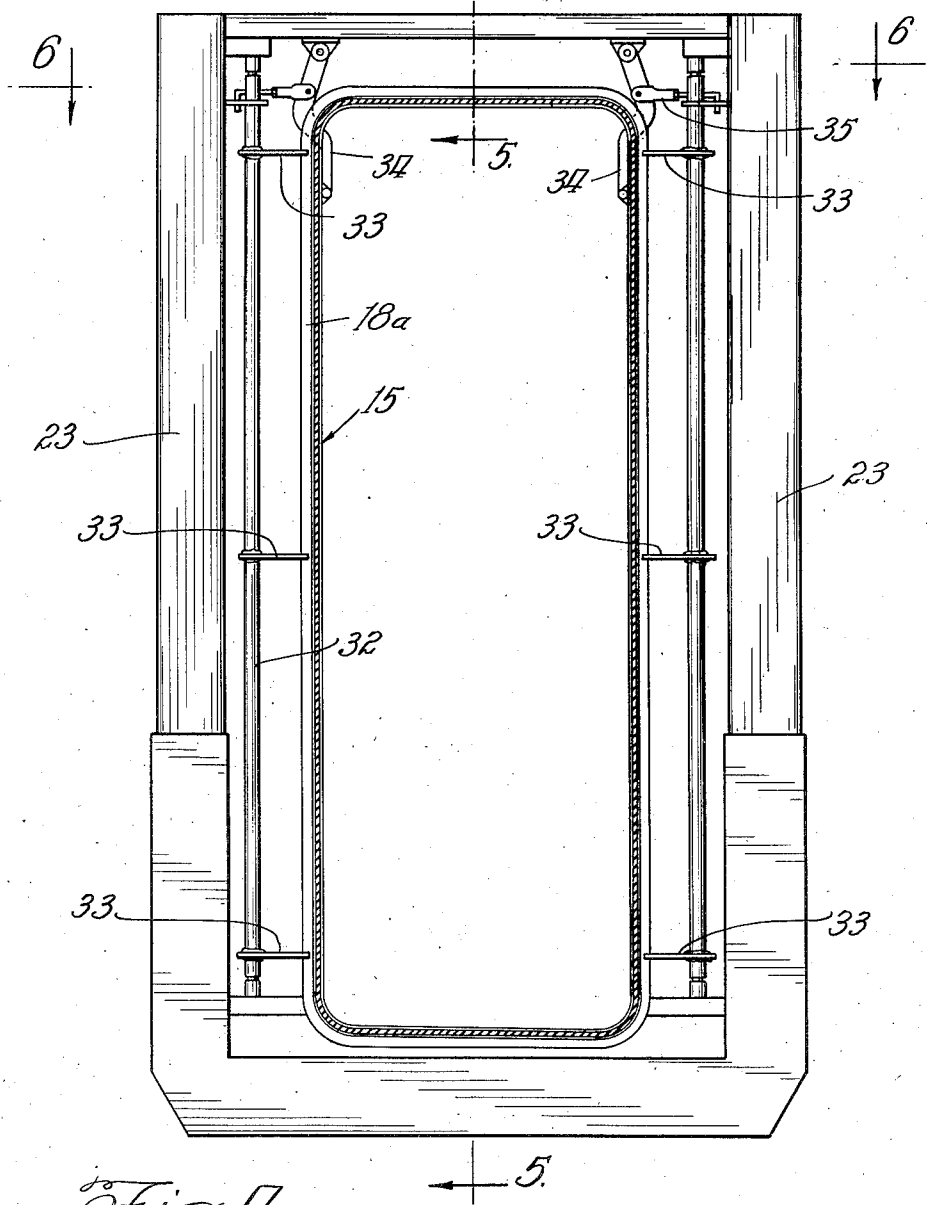


Fig. 4.

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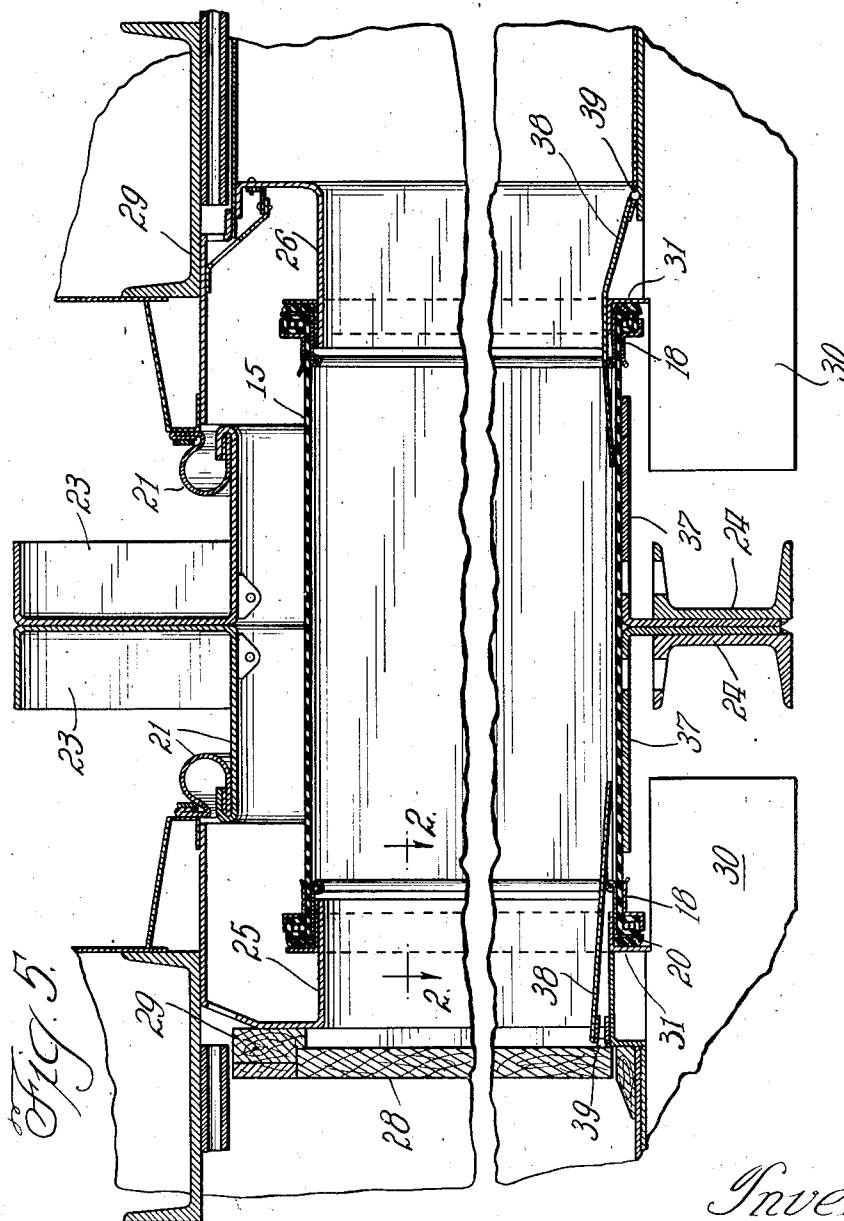
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4 Sheets-Sheet 3



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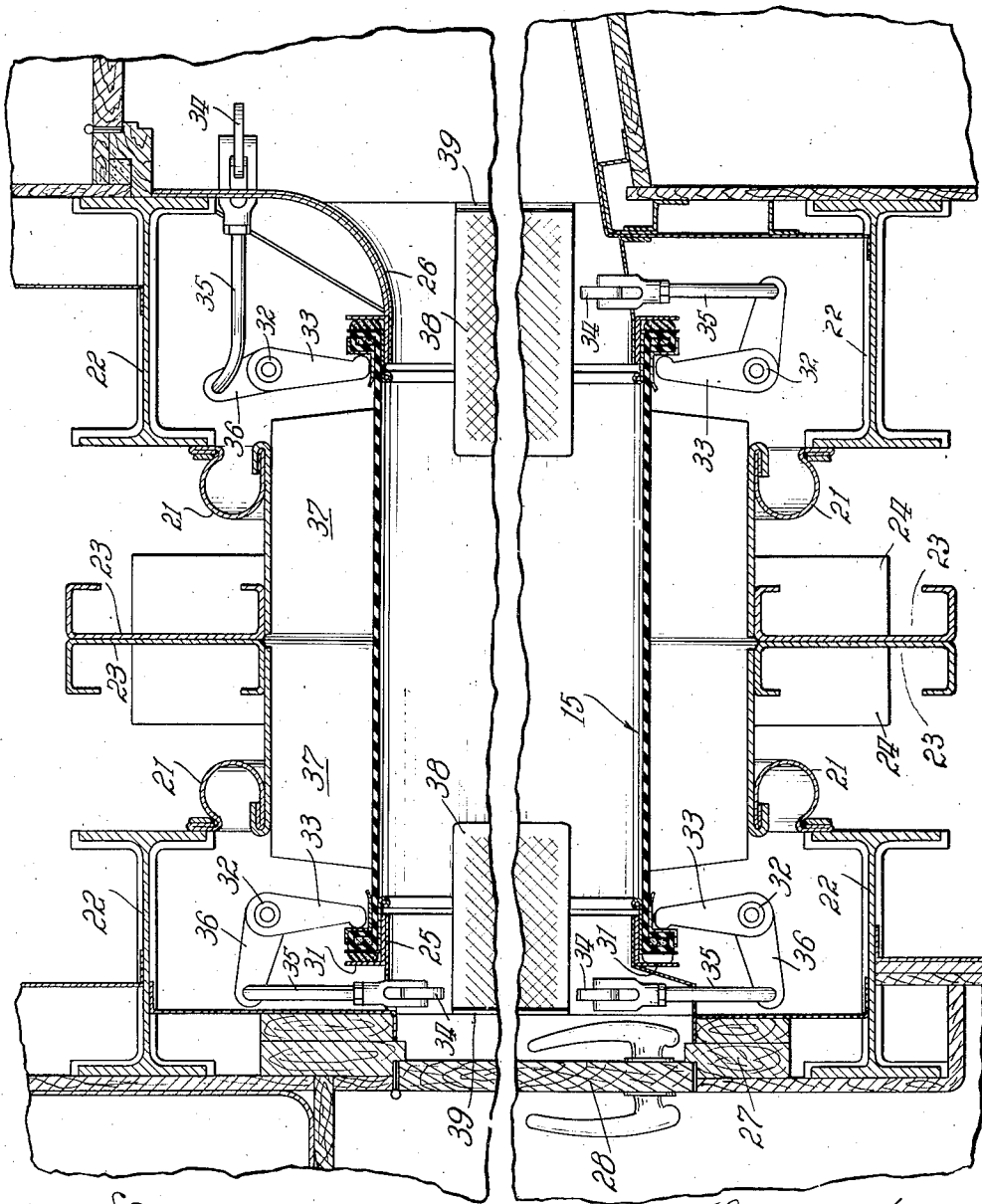
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PASSAGEWAY ENCLOSURE FOR PASSENGER CARS

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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PASSAGEWAY ENCLOSURE FOR PASSENGER CARS

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Milwaukee, Wis.

Application August 24, 1942, Serial No. 456,118

9 Claims. (Cl. 105—15)

Our invention relates to means whereby a completely enclosed passageway between successive cars of a train may be provided and has for its object the provision of a passageway from which cinders, dirt, snow and the like will be excluded, while at the same time providing a structure which may be readily detached from the adjacent ends of both cars or from the end of one of the cars to permit uncoupling of the cars when occasion requires.

The invention also contemplates an enclosure which maintains its contour and adapts itself to the respective swayings and relative angular movements of the successive cars and provides a safe passageway between the platforms of adjacent cars, which at the same time materially reduces the noise in the cars.

The invention, its objects and advantages will all be readily comprehended from the following detailed description of the accompanying drawings wherein—

Figure 1 is a perspective view of our improved passageway enclosure in distended and unattached condition.

Figure 2 is a detail sectional view taken on the line 2—2 of Figure 5.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 1.

Figure 4 illustrates the face plate of a car vestibule in elevation with our improved passageway enclosure applied.

Figure 5 is a vertical sectional view taken substantially on the line 5—5 of Figure 4, intermediate portions being broken away, showing the adjacent ends of two cars with our passageway enclosure applied and in distended condition.

Figure 6 is a cross-sectional view taken adjacent the top of the passageway on the line 6—6 of Figure 4 with an intermediate portion broken away, illustrating modifications of locking and of operating mechanisms.

The specific embodiment of the enclosure or tunnel, as disclosed in Figure 1, involves a continuous rubber, or other suitable fabric, tube 15 of dimensions approximating the height and width of the passageway provided by the usual face plates and attached diaphragms arranged at the ends of the cars or car platforms. The tube 15, as shown in Figure 1, extends about the top, two sides and bottom and is of length sufficient to permit it to extend, in more or less taut condition, from the vestibule end, or end door, of one car to that of an adjacent car.

The tube 15, at both ends, in order to provide a sufficient reenforced bead, preferably is rolled

about a pair of heavy cords—such as sash-weight cord 16, 16 and the beaded ends of the tunnel or tube are clamped between the frame providing angular metal strips 17 and 18 which are secured together into bead clamping condition by a suitable number of bolts and nuts, as shown at 19 in Figure 2; it being understood that the frame strips 17 and 18 are formed to provide the rectangular outline to the tunnel or tube 15 shown in Figure 1. In order to provide a non-metal contact at the ends of the tunnel and also to ensure a dirt-proof joint with certain door-way forming elements on the cars, we prefer to provide the laterally extending flange of the frame strip 17 with sponge or cushion rubber as shown at 20 which may be cemented to the strip 17 after the bolts 19 have been put into place. In Figure 2, where a portion of an auxiliary door frame is shown, the cushion rubber 20 is shown in the compressed condition which occurs when the end of the tube or tunnel is locked to the end of a car by fastening mechanism attached to each car and later described.

As previously stated, our improved tunnel or enclosure is employed with railroad passenger cars whose ends are provided with the usual diaphragms as indicated at 21 (see Figures 5 and 6 where the adjacent ends of two cars are shown) which extend about the two sides and the top with one end secured to the I-beams or posts 22 of the car end wall, while the other ends of the diaphragms are provided with the usual face plates 23; the face plates at the adjacent ends of two cars normally being in striking or abutting relation as shown and extending upwardly at the sides and across the top, with the lower ends secured to the respective buffer channels 24 of the cars.

In order to adapt the enclosure element 15 to the car ends we provide the latter with false doorways or frames arranged between the two I-beams or posts 22 and secured at the sides to the side posts of the vestibule or to the posts of the door-way and secured at the top to the car end plate. The false door-ways or frames are shown at 25 and at 26 in Figures 5 and 6 which, at the left, disclose a car end without a vestibule (such as a diner) and at the right disclose a blind vestibule.

The false doorway 25 is suitably attached to the end posts 27 at opposite sides of the car end door 23, across the top of the door opening where it is secured to the car end plate 29, while the bottom of the door-way 25 is secured to the platform casting 30.

The false doorways preferably are made of sheet metal and vary slightly in configuration to conform with the nature or condition of the car end to which it is to be attached. For example, at the right in Figures 5 and 6 we show the false doorways 26 conforming with the outlet of a blind vestibule and hence the doorway 26 is shown secured at top to the car end plate and flaring or curving at one side to conform with the aisle or passageway at one side of the car and the false doorway 26 at its side secured to the vestibule side post 22 and at the bottom to the platform casting 30. The doorways or frames are rigidly secured in place by welding or by screws and on the outer side are each provided with a shoulder or flange as at 31 which provides an abutment for the cushioned end 20 of the tunnel or enclosure 15.

Each car on opposite sides of the doorways, namely to the outside of the added frames, is provided with a vertical shaft 32, suitably secured at top and bottom to permit it to be rotated. Each shaft is provided with suitable fingers 33 which are rigidly secured to the shaft (a suitable number of fingers being employed) and are adapted to engage the outwardly disposed shoulder 18^a formed at each end of the tunnel or enclosure 15 by the outer frame strip 18; proper rotation of the shafts 32 causing the cushioned ends of the enclosure 15 to be firmly pressed against the shoulders 31 of the added doorway.

The shafts 32 are manually operated by suitable hand levers, which vary slightly in configuration, so as to accommodate the operation to the style of car end construction. As for example, the shafts 32 at the left in Figure 6 (a non-vestibule end) are to be operated from within the added doorway through the medium of the overhung or depending levers 34 which have link connections 35 with the arms 36 which are rigidly secured to the shafts 32 and extend at a proper angle therefrom relative to the fingers 33, so that complete oscillation of the hand levers 34 will rotate the shafts 32 sufficiently to move the free ends of the fingers 33 out of holding relation with the tunnel-frame and beyond the path of the enclosure 15.

In the structure at the right in Figure 6—namely with the enclosure secured to a vestibuled car end—the hand lever 34 is located within the vestibule and is connected by link 35 with arm 36 which latter, by reason of the direction of the power, is secured to shaft 32 at a different angle from that shown at the left; it being understood that the functions of the hand levers are all the same and that their oscillations are transmitted to shafts 32 through mechanical means suggested by the location of the hand levers relative to the shafts.

In practice, one end of the enclosure 15 is placed about the added doorway at the end of a car and locked in place against the abutment or shoulder 31 by operating the hand levers 34 of that car so as to cause the fingers 33 to engage the shoulders 18^a on the exterior of the tunnel or enclosure. One end of the enclosure having been secured in place as stated, the other end of the enclosure or tunnel is then manually drawn and placed about the added doorway 25, or 26 as the case may be, (it being understood that the two cars have been properly coupled together) and the shafts 32 of the adjacent car are operated to cause their fingers to engage the frame of the tunnel or enclosure and to hold the same against

the abutment or shoulder of the added doorway; the rubber body of the enclosure being held in more or less taut condition.

The bottom of the tunnel or enclosure is supported by the foot-plates 37 which are suitably secured to the buffer channels 24 as shown in Figure 5 and extend rearward over the top of the car end sill or platform casting 30 at the end of each car; the platform castings being chamfered as shown in Figure 5 to provide a pocket for the shoulder of the supplemental frame and tunnel frame.

The bottom of the added doorway or frame preferably is provided with a threshold 38, one end whereof is hingedly connected to the platform casting or car end sill, as shown at 39 in Figure 5; the threshold being of length sufficient to overlap the juncture between the metal doorway or frame and the beaded and flanged end of the non-metallic tunnel or enclosure 15. By reason of the slight difference in formation at the vestibule end of a car, the threshold 38 is bent to fit over the end frame of the enclosure 15, as shown at the right in Figure 5.

With our improved yieldable enclosure arranged in snug compressed relation with the vertical face on the added doorway, which is intimately secured to the main structure of the car, an entirely enclosed passageway between the adjacent ends of the cars of a train is provided and the passengers during passage from one car to another will be protected from water, snow, cinders and dirt; the enclosure at the same time materially reducing noise in a car.

It will be understood that the ends of the cars are first provided with the metal door frame or doorway which becomes a permanent part of the car structure; one end of the tunnel 15 is then slipped onto the added door frame of one of the cars and the hand levers 34 operated so as to cause shafts 32 at the end of said car to rotate and force the fingers 33 into engagement with the shoulder 18^a of the tunnel frame and to hold the same firmly against the shoulder 31 of the added doorway or frame. The other end of the tunnel is then drawn onto the added doorway of the adjoining car and held thereon by operation of the shafts on said car—the rubber or yieldable tunnel being held in taut condition. If one of the cars is to be uncoupled from the train, the tunnel 15 may quickly be released by reversing the operation of the hand levers 34.

We have illustrated what is believed to be the simplest embodiment of our invention and its adaptation to varying car end conditions and have described the invention in terms employed for purposes of description and not as terms of limitation, as structural modifications and modified adaptations may be made without, however, departing from the spirit of our invention as defined in the appended claims.

What we claim is:

1. A passageway enclosure between aligned railway cars provided with diaphragms disposed about the passageway openings at the car ends and foot-plates secured to the car buffer members, a protruding door frame rigidly secured at the end of each car about its end opening and provided with a uniform surface about the top, sides and bottom thereof; a continuous yieldable tube, arranged within the diaphragms at adjacent car ends, provided with contour forming members adapted to encircle said door frames and fit against said surface in dirt excluding relation and to rest on said foot-plates; vertical shafts rotat-

ably arranged at the end of each car adjacent and on each side of said door-frames and provided with radially disposed fingers adapted to hold the tube-ends against said surface of the door-frames; and means operable from within said door frames whereby said shafts may be rotated into tube holding and releasing positions.

2. A passageway enclosure between aligned railway cars comprising a sheet metal frame immovably secured within the passageway opening in the car or vestibule end wall of each car and protruding longitudinally therefrom, said frames being provided with vertically arranged abutting surfaces; a continuous elastic tube provided at its ends with contour forming frame elements adapted to fit about the protruding metal frames of adjacent car ends and to seat against said abutting surfaces; vertical shafts rotatably mounted on each car adjacent the metal frame and provided with radially disposed fingers adapted to releasably hold the tube-ends against said abutting surfaces; and lever mechanism secured to each shaft and operable from the car end whereby the shafts may be independently rotated.

3. In a passageway enclosure for aligned railway cars comprising, in combination with the passageway openings in the car or vestibule end wall and the foot-plates rigidly secured to the buffer members at the ends of the cars, a metal frame rigidly secured to the end wall of each car and disposed about the top, sides and bottom of the passageway openings, said frames on their outer surfaces having continuous shoulders about the tops, sides and bottoms; a continuous elastic tube adapted to extend from end wall to end wall of adjacent cars and to rest on said floor-plates and provided at its ends with contour forming frame elements extending continuously thereabout on the tube exterior, the tube ends being formed to match said shoulders; vertical shafts rotatably mounted on each car adjacent the metal frames and provided with tube engaging fingers for releasably holding the ends of the tube against the shoulders; levers whereby the shafts may be rotated and the fingers thereby moved into tube holding or releasing position; and a threshold hingedly secured to each car with its free end disposed into the bottom of said tube across the juncture with said frames.

4. In a passageway enclosure for the ends of aligned railway cars provided with passageways at the ends, a frame rigidly secured in each passageway to extend about the top, sides and bottom thereof above the car platform casting and provided with a laterally disposed shoulder, a continuous elastic tube of predetermined length to extend from car-end to car-end of adjacent cars above the car foot-plates and provided at its ends with contour forming frames formed to match said passageway surrounding frame at the ends of adjacent cars, the contour forming frames being arranged on the tube exterior and adapted to seat against said laterally disposed shoulders; means whereby the contour forming frames are releasably clamped against said shoulders; and means operable from within the passageway whereby said last mentioned means may be moved into and out of tube frame clamping position.

5. A passageway enclosure for the aligned cars of a passenger train wherein the end of each car is provided with a foot-plate secured to the buffer member of the car; a rigid outwardly extending passageway surrounding frame secured about the end wall passage opening of each car and ter-

minating rearward of the buffer members, with its outer face rearward of the outer end formed to provide a uniform abutting surface; a continuous elastic tube formed to define the passage openings at the car ends adapted to extend between the end walls of aligned cars, the ends of said tube having contour maintaining portions adapted to effect telescopic relation with said rigid frames; means whereby the ends of the tubes are clamped against said abutting surfaces; means secured at the end of each car, operable from within the passageways, whereby said last means may be moved into and out of clamping positions; and a threshold pivotally secured within said passageway surrounding frame of each car and adapted to overlie the juncture between the tube and said passageway surrounding frame.

6. A passageway enclosure between the ends of aligned cars comprising a protruding metal doorway frame rigidly secured to each car end within the passageway opening; a removable elastic tube formed to the contour of the doorway frames with its ends provided with contour defining frames adapted to telescope the protruding portions of the doorway frames; a rotatable vertical shaft on each side of the passageway and operable from the passageway interior; elements carried by said shafts whereby the ends of the tube are releasably clamped on said doorway frame; and threshold plates hingedly secured in the doorway frames adapted to extend into the tube and overlie the juncture between the tube and doorway frames.

7. A passageway enclosure between aligned railway cars having doors at the ends comprising a rigid doorway defining, outwardly extending shell secured continuously about the end opening of each car and terminating rearward of the outer end of the car platform casting, with the outer face at a distance removed from the outer end provided with a laterally disposed continuous surface; a continuous yieldable tube provided at its ends with contour forming frame members arranged on the tube exterior adapted to fit onto the outer ends of said shells and seat against said laterally extending surfaces, said tube at its bottom being adapted to rest on the foot-plates secured to the buffer members at the car ends; and oscillatively mounted means arranged at the end of each car and manually operable from the passageway interior whereby the adjacent end of the tube may be releasably and independently clamped against the laterally disposed surfaces of said doorway defining shells.

8. A passageway enclosure between two aligned railway cars provided with foot-plates secured to the buffer members at the ends of the cars; a metallic shell rigidly secured to each car about the passageway opening of the car end wall or the car vestibule and extending outwardly therefrom and terminating rearward of and in a horizontal plane above the buffer members, each shell on its exterior having a laterally disposed shoulder on the top, sides and bottom thereof; a yieldable tube formed to define the opening through said metallic shells and provided at its ends and on its exterior with contour forming rigid frame members adapted to encircle said shells and seat against said shoulders, said tube being of predetermined length to extend from the frame of one car to the frame of the adjacent car and across and be supported by the foot-plates of the two cars; threshold plates hingedly mounted in each shell so as to extend into the tube and overlie the foot-plates; oscillative means arranged at

the end of each car on the shell exterior adjacent said shoulders adapted to engage the frame members of said tube and to releasably clamp the latter against said shoulders; and manually operable means operable from the shell interior whereby said oscillative means may be controlled.

9. In railroad passenger cars provided with passage openings at the ends, passageway enclosing shells adapted to be secured about the top, sides and bottom of each passageway opening and provided on the exterior with outwardly disposed shoulders; a continuous yieldable fabric

5 tube formed to fit onto said shells and to extend across and rest on the foot-plates secured to the buffer elements at the ends of aligned cars, said tube at the ends being provided with contour forming frames having laterally disposed surfaces; and manually operable independent means secured to each car at opposite sides of said tube whereby the latter may be clamped to and released from the car ends.

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