

(No Model.)

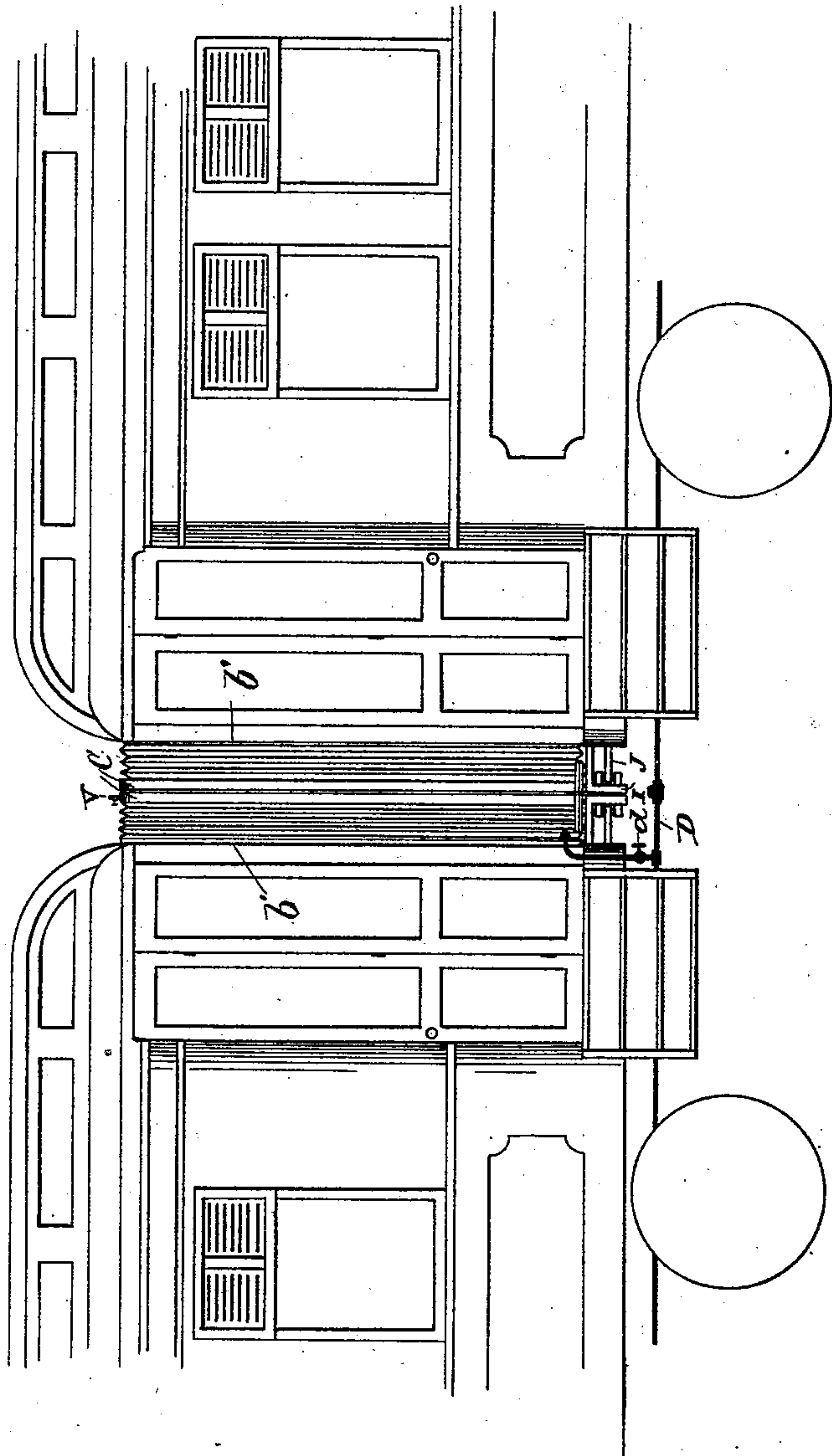
2 Sheets—Sheet 1.

G. W. BANCROFT.  
RAILROAD CAR.

No. 529,012.

Patented Nov. 13, 1894.

*Fig. 1.*



*Witnesses;*  
*G. W. Benjamin*  
*R. M. Van Hooker*

*Inventor,*  
*Geo W. Bancroft*

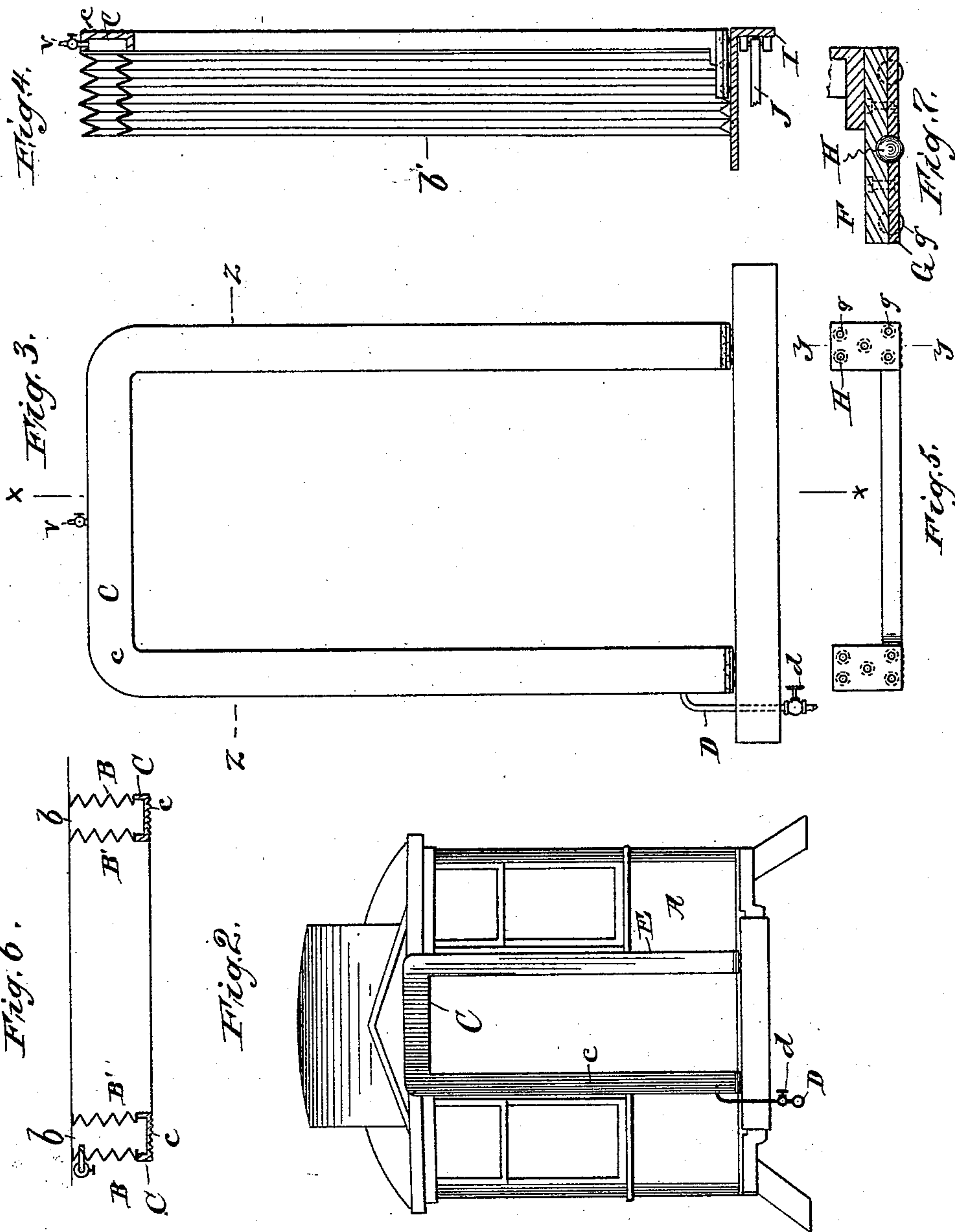
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Witnesses:  
Geo. W. Bancroft  
P. H. Bosherck

Inventor:  
Geo. W. Bancroft



# UNITED STATES PATENT OFFICE.

GEORGE W. BANCROFT, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE  
BANCROFT VESTIBULE CAR COMPANY, OF SAME PLACE.

## RAILROAD-CAR.

SPECIFICATION forming part of Letters Patent No. 529,012, dated November 13, 1894.

Application filed December 16, 1890. Serial No. 374,944. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. BANCROFT, a citizen of the United States, residing at Chicago, Illinois, have invented a new and useful Improvement in Railroad - Cars, of which the following, taken in connection with the accompanying drawings, is a full, clear, and accurate description.

The object of my invention is to provide a vestibule for railroad cars, which, maintaining its position rigidly when in use during the running of the cars can be readily detached and separated when desired to separate the cars, at the same time dispensing with springs or other rigid devices to keep said vestibule in position, and also to provide means of allowing the bottom of the vestibule to move freely on the buffer plate or platform of the car, the vestibule, at the same time, retaining its position in close proximity to said buffer plate or platform.

In the drawings, Figure 1, represents a view of two cars with my improved vestibule in position; Fig. 2, an end view of a car with the vestibule attached; Fig. 3, a view of the outer end of one portion of the vestibule; Fig. 4, a side view of the same through the line *x, x*; Fig. 5, details of the device for allowing the bottom of the vestibule to move on the buffer plate; Fig. 6, a cross section of the vestibule through the line *z, z*, and Fig. 7, a cross section of Fig. 5, through the line *y, y*.

Similar letters of reference in the various figures refer to similar parts.

My improved vestibule is made in two sections, each composed of two pieces of air tight material, placed one within the other with a sufficient space between them, in bellows form, the whole forming three sides of a hollow tube open at each end. One end of each section is rigidly attached to the car, and the other or outer end terminates in an air cushion having its outer face preferably corrugated. The forward bottom portion of the bottom of each section of the vestibule is attached to a plate having in its under surfaces, preferably five or more semi-spherical indentations to receive the balls hereinafter described. Attached to the bottom of this last mentioned plate by bolts or screws, is

another plate having in it corresponding segmental spherical holes through which the said balls project. In the sockets so formed by the junction of the plates are placed balls, the middle one being preferably of larger diameter than the other. These balls rest on the upper plate of the buffer moving freely in the sockets and allow the vestibule to move easy on the buffer plate, and at the same time allow it to shift as necessary from side to side to maintain its position as the inclination of the car changes either vertically or horizontally in relation to the next car.

The bellows of each section of the vestibule, is inflated with air through a supply pipe, which may take its supply from the air brakes of the car or any other desired source, and the pressure of this air contained between the inner and outer sides of the vestibule forces the outer ends of the vestibule into close proximity, holding them together tightly, while at the same time the yielding nature of the air, permits said ends to move freely with each other in close contact. The rubber cushion forming the outer end of my vestibule can also be applied to the face plate of the sections of vestibules now in use, and will form a yielding air packing, capable of adapting itself to fill any interstices formed between the face plate by the vibration of the cars.

In the drawings A, represents the car; B, the air tight outer sides of the vestibule; B', the inner air tight sides of the vestibule. These are made bellows shape as shown particularly at *b*, Fig. 6.

C, is the air tight rubber outer end of each section of the vestibule. In the drawings this end piece C, is shown as having its inner end open connected with the sides of the vestibule; but it is obvious that it can be made in the form of a perfectly closed tube, having its source of inflation independent of the vestibule. The outer adjoining faces of the tube C, are corrugated, as shown at *c*, Fig. 6.

D, is an air supply tube leading to the interior of the vestibule between the two sides, B, B', and is provided with the stop-cock *d*.

V, is a valve in the side of the vestibule to allow the escape of the air, when desired.



The inner end  $b'$ , of each section of the vestibule, is fastened rigidly to the car, as shown at E.

F, is a plate of steel or other suitable material fastened to the forward bottom portion of each section of the vestibule, provided with semi-spherical indentations  $f, f$ . G, is another plate of similar material having segmental-spherical holes  $g, g$ , corresponding in position to the indentations  $f, f$ ; the smaller portion of the segmental-spherical holes being at the bottom. In the sockets so formed, are placed the steel balls H, H, the middle ball being preferably of larger diameter than the other. These balls are all of such diameter that they move freely in the sockets formed in the plates F, G, and project downward through the bottom of the semi-circular holes  $g, g$ . The plates F, G, are fastened together by screws or bolts.

I, is the buffer plate of the car with the coupling J attached, shown in section in Fig. 4.

The operation of my improved vestibule, is as follows: Before making up the train, each section of the vestibule can, if desired, be pushed back against the car, the air between the inner and outer sides escaping through the valve V, and the balls in the socket plates allowing the lower ends to roll freely on the buffer plates. The cars being coupled, air is forced in between the inner and outer sides of each section of the vestibule, and this air pushes the section forward until it is forced tightly against the other section. The corrugated rubber cushion on the end of each section permits the two sections to come closely together; the corrugations fitting one into the other, while the pressure of the air in the sections of the vestibule hold these opposing corrugations tightly together. The supply of air is then cut off and the train is then ready to start. When the train is running, it will be found that the pressure of the air contained between the impermeable sides B, B' of the vestibule,

will hold the whole vestibule in its place; the yielding of the cushion between the two sections allowing these sections to move or slip without separating, no matter what may be the variation, either lateral or vertical, of the cars, while the socket plates and balls allow the vestibule to shift easily on the buffer plate without parting therefrom.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A vestibule for cars, the sides of each section composed of two thicknesses of air-tight material with an air-space between them, made in bellows shape, the outer end of each section terminating in a face-plate or cushion, the whole forming a hollow air-tight partition, valves for introducing and discharging air from said partition, in combination with a plate provided with semi-spherical indentations fastened to the forward bottom part of each section, a plate provided with segmental-spherical holes corresponding to the indentations on the first-named plate; balls placed in said indentations and holes, and projecting downwardly through the bottom of said holes, said plates being secured or bolted together, substantially as described and for the purpose set forth.

2. A vestibule for cars, having attached to the forward bottom part of each section, a plate provided with semi-spherical indentations, a plate provided with segmental-spherical holes corresponding to the indentations on the first-named plate, balls placed in said indentations and holes, and projecting downwardly through the bottom of said holes; said plates being bolted together, substantially as described.

In witness whereof I have hereunto set my hand this 5th day of December, 1890.

GEORGE W. BANCROFT.

In presence of—

R. Y. VON BOSKERCK,  
JOSIAH A. WEBBER.