

(No Model.)

2 Sheets—Sheet 1.

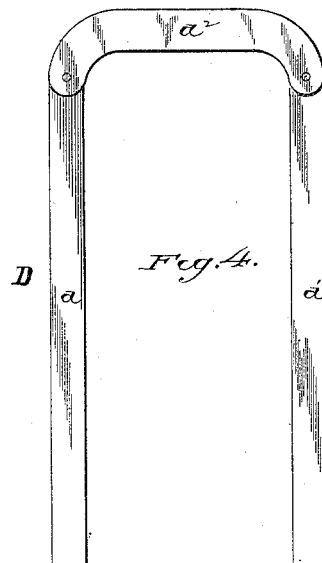
J. N. BARR.
RAILWAY CAR.

No. 421,375.

Patented Feb. 18, 1890.

Fig. 1.

Fig. 2.



Witnesses:
M. M. Mortimer
A. R. Kennedy

Inventor:
J. N. Barr
By Phil T. Dodge
Attorney

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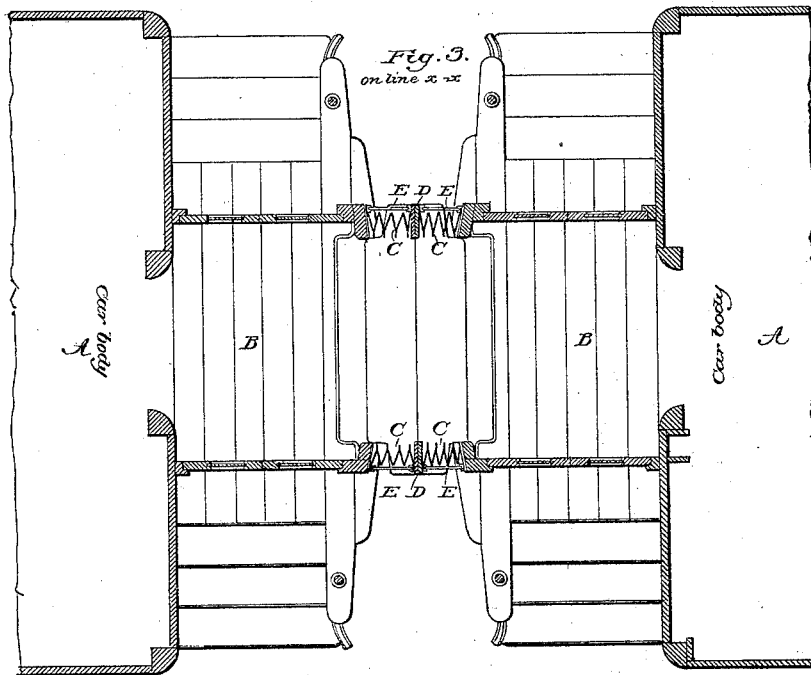
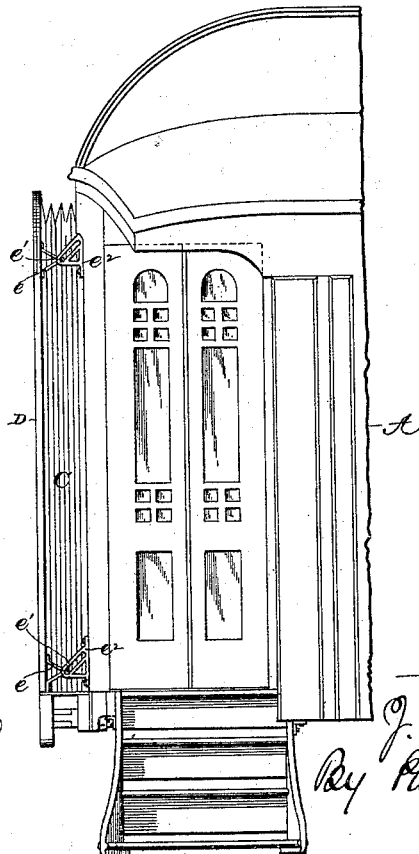


Fig. 5.



Witnesses:
W. W. Mortimer
H. R. Kennedy

Inventor:
J. N. Barr
By Phil. T. Dodge
Atty

UNITED STATES PATENT OFFICE.

JACOB N. BARR, OF MILWAUKEE, WISCONSIN.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 421,375, dated February 18, 1890.

Application filed November 11, 1889. Serial No. 329,924. (No model.)

To all whom it may concern:

Be it known that I, JACOB N. BARR, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain Improvements in Railway-Cars, of which the following is a specification.

My invention has reference to what are known in the art as "vestibule-cars," in which vestibules or compartments built at the end of the cars are provided with an extensible or flexible passage-way, commonly known as a "vestibule-extension," adapted to meet a like extension on the end of an adjacent car for the purpose of providing a closed passage between the two cars.

The aims of my invention are to provide an automatic and simple means for horizontally projecting or elongating the extension, maintaining its outer or end face in a vertical position, and permitting either side to move to and from the car independently of the other, so that the extension on one car may maintain a close connection with the opposing extension on the next car as the train travels around curves.

To this end the invention consists in sustaining the end of the extension on each side independently of the other by inclined pivoted arms or radius-bars or equivalent devices, whereby the weight of the extension is utilized to effect its elongation, and in so arranging the parts that each side may move to and from the car with a rising or falling motion without affecting the other.

The invention further consists in certain details, which will be hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of one end of a car provided with my improvement. Fig. 2 is a similar view showing two such cars coupled together. Fig. 3 is a horizontal section on the line $x x$ of Fig. 2. Fig. 4 is a face view of the open end of the vestibule-extension. Fig. 5 is a side view of a car, showing my improvement in modified form.

Referring to the drawings, A represents the body of the car; B, a chamber above the platform, closed at its top and sides, and commonly known as the "vestibule."

C is the vestibule-extension, a bellows-like structure or tube attached at one end to the vertical end of the car, so that it may be

projected horizontally therefrom to a greater or less distance. At its outer or open end this extension is provided with a vertical face-plate D of the jointed construction hereinafter described. This face-plate is at each side of the extension pivoted to the upper ends of inclined arms E, which have their lower ends pivoted to the car. Under this construction the movement of the face-plate to and from the car is accompanied by a rising-and-falling motion. The weight of the face-plate and extension tending to depress the outer ends of the sustaining-arms E causes the latter to urge the face-plate outward from the car, or, in other words, to effect the horizontal elongation of the vestibule-extension. This elongation of the extension by reason of its own weight is of the essence of my invention, and, as will hereinafter appear, the result may be effected by various equivalent constructions.

The parts are so proportioned that when two cars provided with my extension are brought together end to end the face-plates of the two extensions will meet and the extensions will be forced backward and upward sufficiently to maintain a slight pressure between the face-plates. By this I mean a pressure sufficient to maintain a close joint, but insufficient to produce any material or objectionable friction between the vertical faces.

While it is preferred to retain the bellows-like construction of the extensions, it is to be understood that they may be constructed in any other approved form which will admit of their being lengthened and shortened horizontally and of the face-plate rising and falling to permit the operation of my sustaining-arms or their equivalents.

In order to permit the rising-and-falling motion of the two sides of the extension independently, I construct the face-plate of two independent vertical plates d and d' , applied to the opposite edges of the extension and connected at the top by a cross-plate d^2 , to which they are jointed. This connection may, however, be modified at will, provided only it permits the two side plates or sections to play vertically in relation to each other. Each of the plates d d' is sustained by its own pair of arms or links E independently of the plate at the opposite side. When, therefore, the cars are passing about a curve,

the compression of the extensions on the inner side of the curve causes them to rise on that side, while on the opposite side the separation of the cars permits them to elongate and sink. Thus it is that proper connection is maintained without, however, causing the sides of the extensions to rise or fall to an objectionable extent. The sustaining-arms of each side, being parallel and of equal length, maintain the vertical position of the face-plate, so that it moves to and from the car without changing its vertical angle.

It is manifest that if the face-plate were a rigid one with its two sides pivoted to the radius-bars the movement of either side toward the car would cause the entire face-plate to rise, so that the links at the other side would cause it to approach the car in like manner, and thus the face-plate would be kept at all times parallel with the end of the car. As a result of this fact, the extensions of the two cars would separate at the outer side as the train passed a curve. It is because it avoids this difficulty that my construction is specially advantageous.

As shown in Figs. 1 and 2, the sides of the face-plate are extended down freely through slots in the ends of the buffer H, which is of the usual construction, being mounted to yield toward the car, and also arranged to turn or swing horizontally. The vertical sliding connections admit of the sides of the face-plate rising and falling freely and independently while at the same time they are compelled to move with the ends of the buffer to and from the car. This connection of parts insures a perfect and constant closure of the passage at the bottom and sides, but is not a necessary feature of my invention.

One of the substitutes which may be used in place of the inclined arms, although not recommended, is represented in Fig. 4, in which the face-plate of the extension is provided on each side with arms e , extending backward and provided with studs or rollers e' , riding in inclined slots in plates e^2 , fixed to the car-body. In this arrangement the gravitating action of the extension causes its

open end or face to be projected from the car.

Having thus described my invention, what I claim is—

1. A railway-car having an open-ended vestibule-extension adapted to be lengthened and shortened horizontally, in combination with the guides or supports sustaining and permitting the lengthening and shortening of the two sides of the extension independently, and actuated by its weight to effect the elongation, whereby the necessity for extension-springs is avoided and each side of the vestibule is permitted to yield toward the car independently of the other.

2. In a railway-car, a horizontally-collapsible vestibule-connection having at its open end two vertical face-plates—one at each side—adapted to rise and fall independently, whereby each side of the extension is permitted to rise and fall without affecting the other.

3. In a railway-car, the vestibule-extension provided at its open end with the two vertical face-plates jointed at the top to a connecting-plate.

4. In a railway-car, a collapsible vestibule-extension having at its outer end a face-plate, in combination with a buffer and a vertical sliding joint connecting the face-plate and buffer and compelling them to move horizontally both to and from the car in unison.

5. In a railway-car, the usual buffer movable to and from the car, in combination with the vestibule-extension, its face-plate jointed to rise and fall at the two sides independently, and the vertical sliding joints securing the sides of the face-plate to the buffer and compelling them to move to and from the car in unison.

In testimony whereof I hereunto set my hand this 1st day of November, 1889, in the presence of two attesting witnesses.

JACOB N. BARR.

Witnesses:

F. STANLEY ELMORE,
W. R. KENNEDY.