

(No Model.)

2 Sheets—Sheet 1.

J. N. BARR.  
RAILWAY CAR.

No. 429,834.

Patented June 10, 1890.

Fig. 3.  
on line 3-3

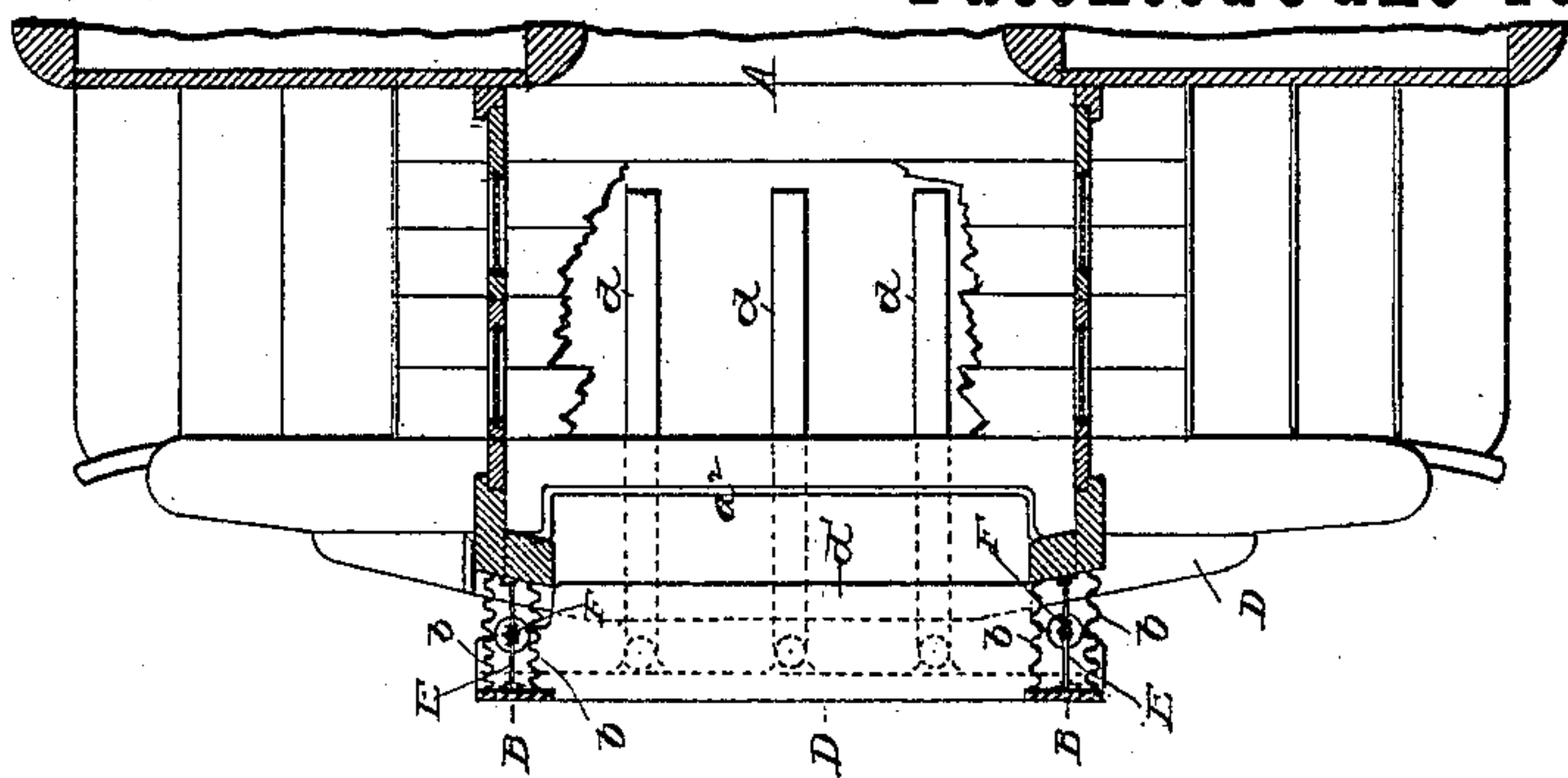


Fig. 2.  
on line 2-2

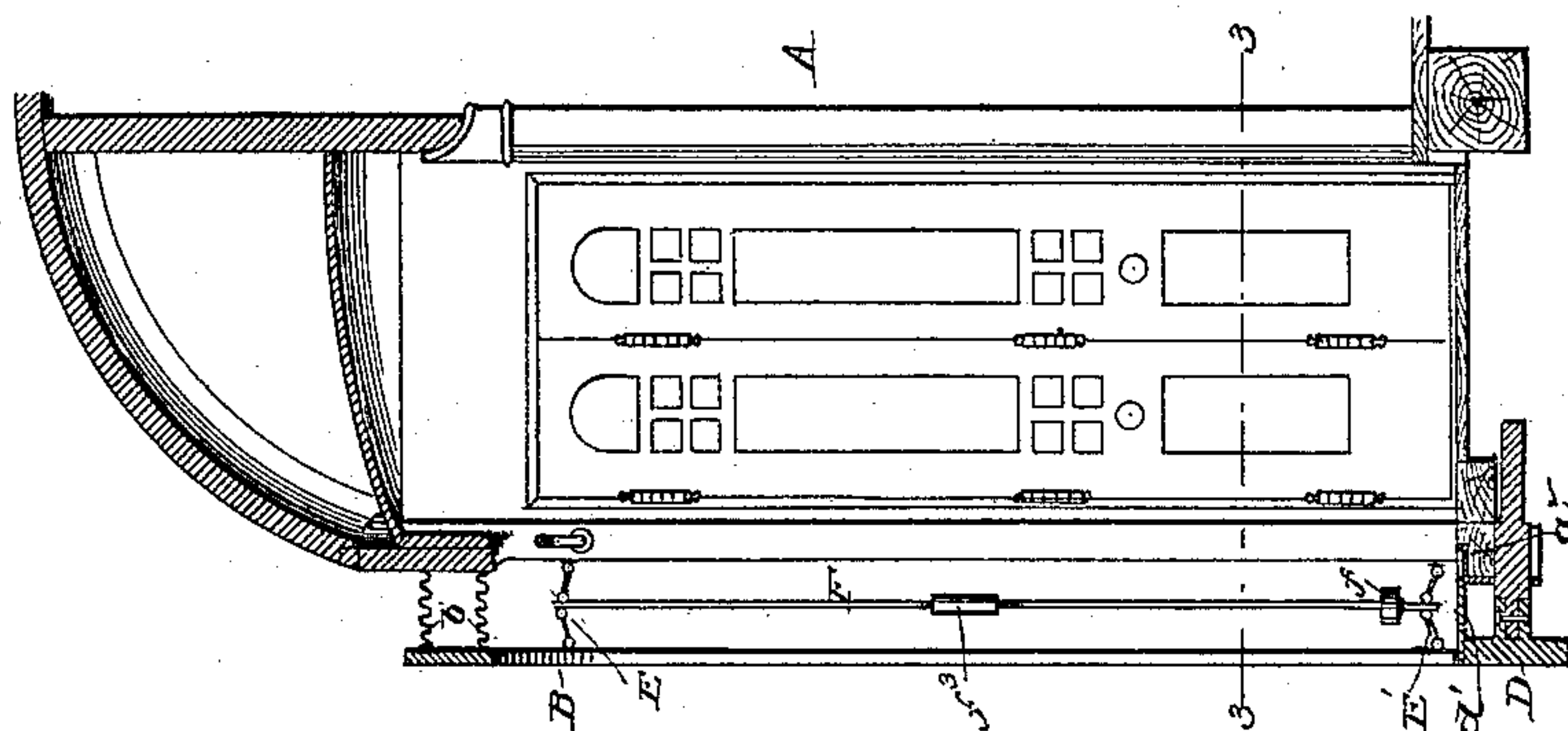
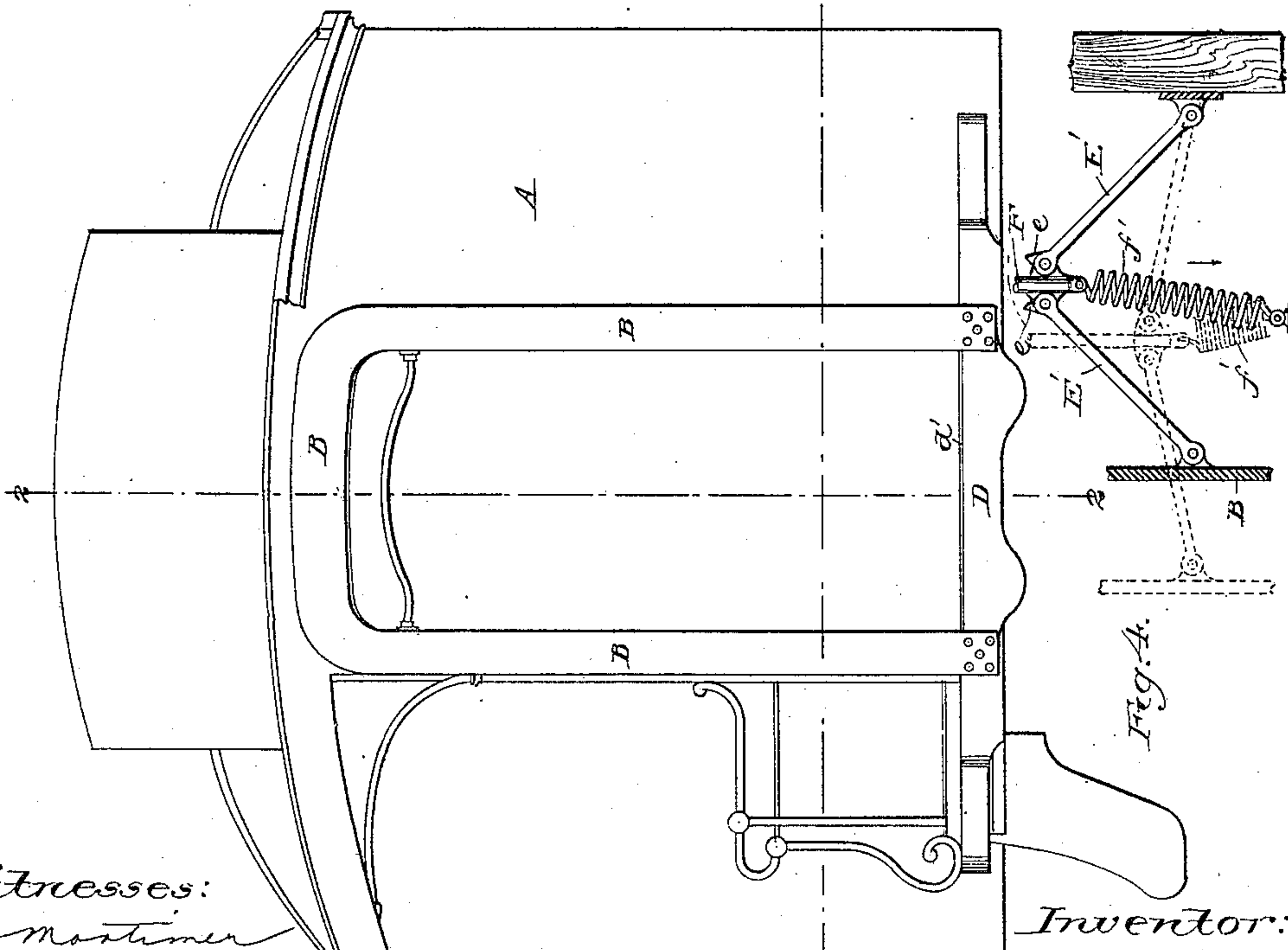


Fig. 1.



Witnesses:  
W. H. Mortimer

A. G. Kennedy—

Inventor:

J. N. Barr  
By Phil T. Dodge atty

(No Model.)

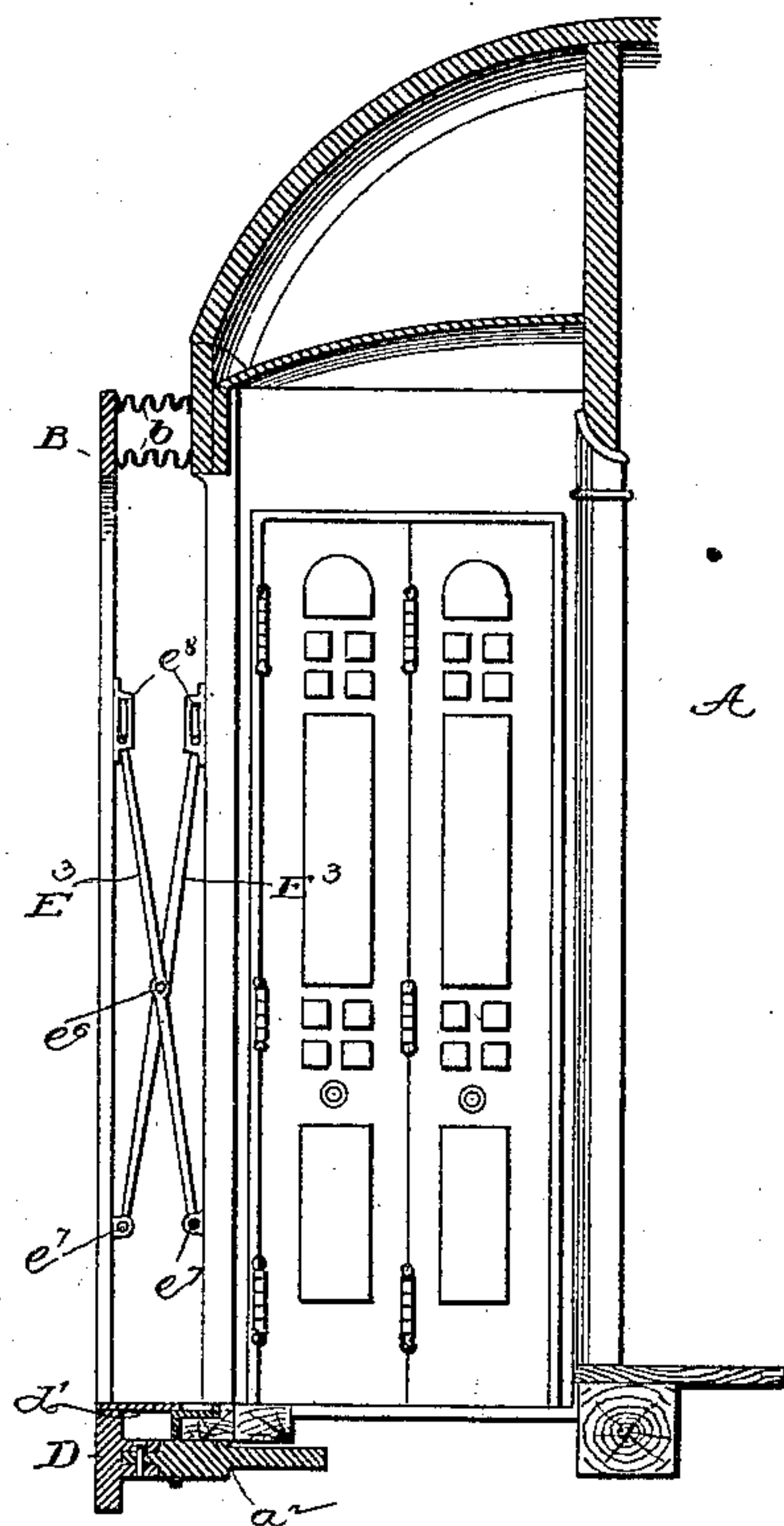
2 Sheets—Sheet 2.

J. N. BARR.  
RAILWAY CAR.

No. 429,834.

Patented June 10, 1890.

Fig. 5.



Witnesses:  
W. W. Mortimer.  
A. 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. 429,834, dated June 10, 1890.

Application filed November 6, 1889. Serial No. 329,388. (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.

This invention relates to what are commonly known as "vestibule-cars," in which a compartment at the end of each car is provided with an extension or passage-way adapted to be projected a greater or less distance beyond the car in order to join a corresponding extension in the adjacent car, the two extensions forming jointly a closed or covered passage-way from one car to another.

The aims of my invention are mainly to simplify and strengthen the construction of the collapsible extension and to avoid certain difficulties which attend them in their ordinary forms. To this end I provide the end of each car with an extension consisting of a vertical face-plate and a collapsible or extensible portion connecting the same with the end of the car. The collapsible portion may be of bellows-like construction or of flexible material—such as canvas or sheet-rubber—or of a telescopic character, as preferred. I connect each side of the face-plate independently with the car-body by two or more toggle-joints or equivalent devices, which act to sustain the face-plate in a vertical position or in a predetermined and constant relation to a vertical position, while allowing each side to move to and fro independently of the other. This arrangement maintains a proper connection between the abutting extensions of adjacent cars, allowing the extensions to elongate on the outer and shorten on the inner sides as the cars pass around curves. I connect the two or more toggles on each side by vertical rods or like connections to cause their movement in unison, and I make these connections extensible in order that the face-plate may be adjusted to a true vertical or slightly-inclined position, as demanded. I also propose to use in connection with the toggle-joints weights or springs acting constantly to elongate the extension.

In the accompanying drawings, Figure 1 is an end elevation of a car having my improve-

ment applied thereto. Fig. 2 is a longitudinal section of the same on the line 2 2 of Fig. 1. Fig. 3 is a horizontal section on the line 3 3 of Figs. 1 and 2, looking in a downward direction, a portion of the ordinary vestibule being broken away on one side to show the face-plate and adjacent parts. Fig. 4 is a side elevation, partly in section, showing in detail one of the toggle-connections. Fig. 5 is a side elevation of a modification.

Referring to the drawings, A represents the body of a car, having, as usual, an end platform, a hood or roof overhanging the platform, and vertical doors or walls inclosing the platform, so as to leave only a central passage at one end, as usual.

B represents a U-shaped face-plate forming the open end of the vestibule-extension and connected to the body of the car, as usual, by the intermediate flexible or compressible portion *b*, forming the top and sides of the passage. The lower end of the face-plate is seated upon or within the usual platform-buffer D or otherwise supported to prevent it from falling out of operative position. It may, however, if preferred, be supported by horizontal rods *d*, secured thereto and sliding through suitable guides on the car-body, as indicated by dotted lines. The manner of supporting this face-plate is not of the essence of my invention, the only requirement being that it shall be permitted to move freely to and from the car at each side independently of the other.

On each side of the vestibule-extension I mount near the top and bottom, respectively, two toggle-joints E and E', attached at one end to the face-plate and at the opposite end to the car, and connected with each other by a vertical rod F, whereby they are caused to operate in unison and to the same extent. The toggles thus applied serve to maintain the vertical position of the face-plate, allowing it, however, to move to and from the car on each side independently of the other. The toggles should be constructed, as shown in Fig. 4, with knuckles *e*, to prevent them from assuming a straight line, or combined with other stop devices for the same purpose, in order that they may always stand in position to yield when pressure is applied against the face-plate.



Under ordinary circumstances the weight of the toggles and the connecting-rod will be sufficient to cause the elongation of the extension and to maintain a pressure between the face-plate of the two extensions when cars are coupled together. If desired, however, a weight  $f$  may be applied to the rod, as shown in Fig. 2, or a spring  $f'$  connected to the rod, as shown in Fig. 4, or otherwise connected, so as to cause the toggle to force the face-plate outward.

In some cases it is desirable to have face-plates to opposing extensions bear against each other at the lower ends with considerable pressure, while the upper ends bear with a light pressure. In order to secure this result, I render the connection between each pair of toggles adjustable, in order that their relations may be varied. The simplest mode of securing this end is to divide the connecting-rod  $F$  and unite its two parts by a nut or sleeve  $f^3$ , so that the rod may be lengthened or shortened at will.

The floor or footway of my vestibule-extension may be constructed in any approved manner; but I prefer to sustain the buffer  $D$  by two or more rods  $d$ , mounted to slide horizontally in the car-frame and connected at their forward ends by vertical pivots to the buffer. To the upper edge of the buffer I attach a foot-plate or threshold-plate  $d'$ , which extends horizontally backward, so as to overlap and slide upon the car sill or threshold  $a^2$ .

It will be observed that under my construction the vestibule-extension is urged constantly outward without the employment of the complicated and delicate mechanism now in use, and that its outer end is maintained in a vertical position, while being allowed entire freedom in the directions necessary to maintain its operative connection as the cars change their relations to each other.

I believe myself to be the first to combine with a face-plate at the open end of a vestibule-connection controlling devices by which the respective sides of the face-plate are permitted to move to and from the car without rising and falling and at the same time maintained in a vertical position—that is to say, so that it cannot tip forward or backward; and it is to be understood that the toggles herein shown may be replaced by any other device known to mechanics for maintaining the parallelism of separable parts—such, for example, as the crossed arms  $E^3$ , united by

pivot  $e^6$ , connected at their lower ends to the face-plate and the car by pivots  $e^7$  and at their upper ends to said parts by the vertical sliding joints  $e^8$ .

Having thus described my invention, what I claim is—

1. In a railway-car, an extensible vestibule-extension comprising a top and side walls and a  $\cap$ -shaped face-plate, forming the outer end of the extension, in combination with means, substantially such as shown, connecting the respective sides of the face-plate to the car, whereby each side is allowed to move to and from the car independently of the other and the face-plate maintained in a vertical position and prevented from tipping forward or backward.

2. The car and its vestibule-extension provided with a face-plate and adapted to be lengthened and shortened, in combination with connected toggles or their equivalents independently holding the respective sides of the face-plate in a vertical position, whereby the tipping of said plate to or from the car is prevented, but the plate permitted to turn horizontally as the train passes around curves.

3. In a railway-car, and in combination with a face-plate at the open end of a vestibule-extension, two or more toggle-joints and a connecting-bar on each side of said extension, whereby the face-plate is maintained in an upright position, but permitted to move to and from the car at each side independently of the other.

4. In combination with the face-plate, forming the open end of a vestibule-extension, two toggle-joints at each side of said plate connecting the same with the car and adjustable rods connecting the toggles at each side, whereby the relation of the face-plate to a vertical line may be regulated and maintained.

5. The combination of the vestibule-extension adapted to be horizontally elongated and shortened, the toggle-joints connecting its outer end with the car, and springs or weights tending constantly to elongate the extension.

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.