

(No Model.)

2 Sheets—Sheet 1.

A. W. LILIENTHAL.
STREET CAR.

No. 579,276.

Patented Mar. 23, 1897.

Fig. 1

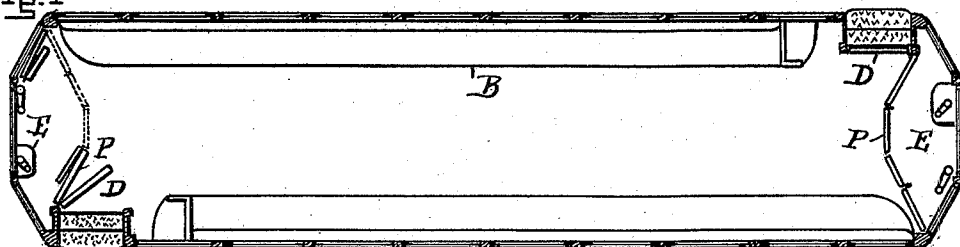


Fig. 2.

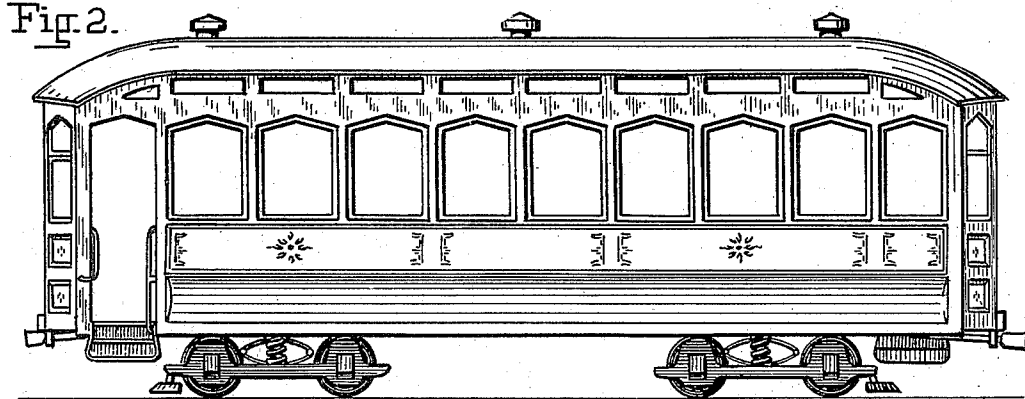


Fig. 3.

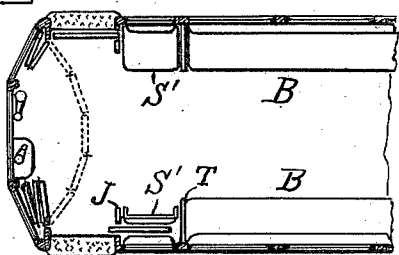
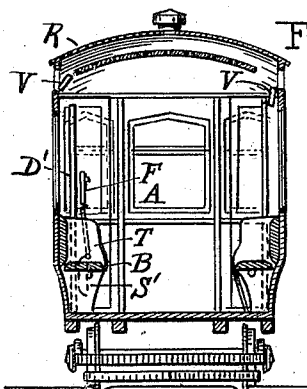


Fig. 4.



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Fig. 5.

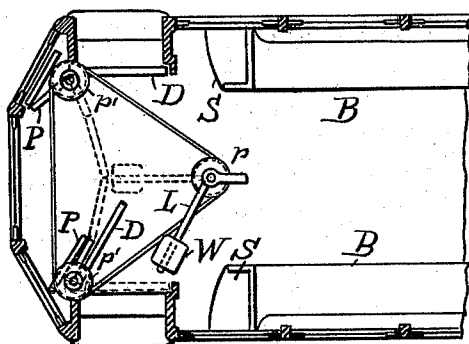


Fig. 6.

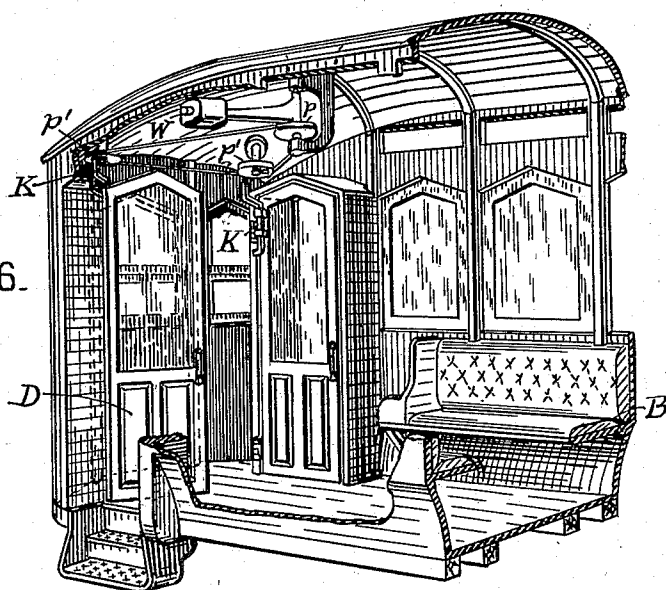
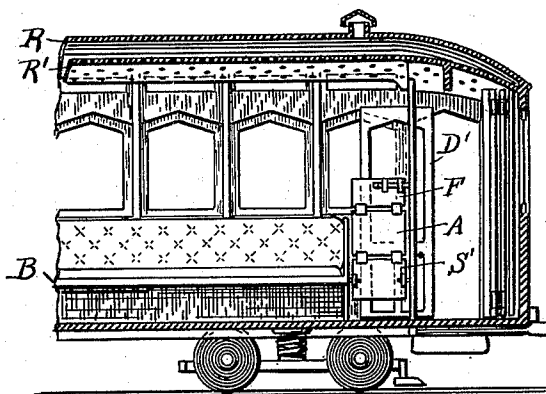


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALBERT W. LILIENTHAL, OF YONKERS, NEW YORK.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 579,276, dated March 23, 1897.

Application filed February 29, 1896. Serial No. 581,370. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. LILIENTHAL, a citizen of the United States of America, residing at Yonkers, county of Westchester, State of New York, have invented certain new and useful Improvements in Cars, of which the following is a specification.

These improvements relate to the location and construction of the doors, partitions, and seats, whereby the ends of the car are inclosed and the entire area of the car is more completely utilized than at present for carrying passengers, and all passengers, whether seated or standing, are shielded from the weather, and their passage into and off the car is greatly facilitated. The improvements further relate to an inclosure for the car-operator, to a door-balancing system, to the construction of the upper part of the car for the purpose of giving additional strength and giving better ventilation, and to other details hereinafter specifically pointed out and claimed.

In the accompanying sheets of drawings, which form a part of this specification, Figure 1 shows the floor of the car and a plan of the arrangement, the roof being removed. Fig. 2 is an elevation of the side of the car. Fig. 3 is a plan view of one end of a modified form. Fig. 4 is a vertical section showing the interior of one end of the form shown in Fig. 3. Fig. 5 is an enlarged plan view of one end of a car in which a device is shown for balancing the doors. Fig. 6 is a perspective view of the end shown in the preceding figure, in which one side is broken away to show the interior. Fig. 7 is a longitudinal section showing the interior of one end of the form of car illustrated in Figs. 3 and 4.

In the form shown in Figs. 1 and 2 an entrance is provided on one side of the car at one end and on the other side of the car at the other end. These entrances are about at the point where the platform of the ordinary car is located, but there is no platform. Each entrance is provided with a door D, which, as shown in Fig. 1, is hinged at the side nearest the end of the car at which the entrance is placed and swings back toward that end of the car. At each entrance there is a short seat S, facing toward the end of the car near-

est to which it is placed, and on each side of the car extending from this short seat there is a bench B, running the length of the car. If preferred, these benches may be replaced by one or more rows of transverse seats. At each end is provided a space for the car-controlling apparatus E and for the car-operator, that is, for the gripman, motorman, driver, or whoever directly controls the movement of the car. I also provide a sectional partition P, which can be closed across the car at the end which for the time is the front end, so as to cut off a space for the car-operator, but which can be folded back, so as to be out of the way at the rear end of the car.

At the right of Fig. 1 the partition is shown as inclosing the space for the car-operator. This will therefore be the front end. The end of the car is shown as the section of a polygon, and the partition is a similar section of a polygon starting from a point where the front and side of the car meet on the opposite side from the entrance, running back somewhat into the car, then straight across the car, then forward to the point where the door at the car-step is hinged. At this door there is a jamb extending out on each side of the entrance somewhat into the body of the car, which gives a sort of an L-shaped corner on one side of the car within the space inclosed and reserved for the car-operator, as shown at the right of Fig. 1.

Referring now to the other end of the car at the left of Fig. 1, which is supposed to be for the moment the rear of the car, the partition or fence is shown partly in dotted lines in the same position as at the front. The full lines at this end show the position of the parts when the partition is folded back. The door is shown as swung partly open. The section of the partition just back of the door is shown as bolted down in a position which is the same as that of the corresponding piece at the other end of the car. However, it is hinged so that it and the door can be folded back against the end of the car. The section of the partition which is intended to cross the middle of the car is shown as folded behind the other section just referred to. The two additional sections which complete the chain of sections forming the partition are repre-

sented as folded together and back against the end of the car, one of the sections being hinged at the corner of the car. In this construction the passenger may enter at either
 5 end of the car, but as a general rule the entrance at the front end of the car will be closed. Passengers will enter and get out at the other end of the car and find easy exit in the position in which the parts are set. The
 10 entire rear of the car can be utilized for standing-room. When the car-operator wishes to get into or out of his place in the car, he has only to open the middle section of the partition which is thrown around him.

15 Figs. 3, 4, and 7 show the end of a car of a modified form. It is adaptable both as a front and as a rear end and is a rear end when arranged as shown. There is an entrance at each side of the car and at each end, but all the doors D' will not usually be open for pas-
 20 sage at the same time. At each of the doors is a seat S' , which turns up. This seat is pivoted to the post J , which forms a part of the door-jamb, and to a transverse partition T , which extends out even with the front of the
 25 seat when turned down. The door instead of swinging open, as in Fig. 1, slides along the length of the car and toward the front end thereof.

30 In Fig. 3 the door at the top of the figure is shown as closed and at the bottom is shown as open. The door slides in between the pivoted seat above referred to and the side of the car, so that this pivoted seat forms a door-
 35 guard when turned up. The post forming a part of the jamb to which this seat is pivoted is between the door and the middle of the car, and when the seat is turned down it is in the way, so that the door cannot be slid back.
 40 This locks the door shut. The construction of this pivoted seat in its preferred form is shown in Figs. 4 and 7, where it appears that the "apron" A of the seat, by which I mean the piece fastened to the front end thereof and
 45 extending down to the bottom of the car, is hinged to the seat itself in such manner that when the seat is turned up this apron may be turned up. To the lower edge of this apron I hinge a flap F , which turns in under the seat
 50 when down, but which can be turned up in line with the seat and apron. These three parts, when so turned up along the side of the car, form a door-guard. The sections of the partition to inclose the space for the car-op-
 55 erator is shown in Fig. 3, in full lines, as folded back against the end of the car, three sections being hinged together and folded back at one side and two sections being hinged together and folded back on the other side. These
 60 pieces are shown in dotted lines. When the end is converted to a front end, these sections are opened out and strung across the car, as shown in dotted lines.

The construction of the roof R of the car is
 65 illustrated in Figs. 2 and 4. Instead of building up a monitor roof with ventilating-openings around the monitor roof these ventilators

are cut through the side of the car just above the observation-windows and just under the roof, and they are provided with drop or other
 70 suitable sashes V . Without increasing the height of the car or diminishing the height of the ventilators or windows I am enabled to make the section of the car-body between the
 75 windows and the roof wider, thereby strengthening the car, and the roof is stronger than with the monitor-roof construction because it extends across the car without a break.

The car is provided with a perforated false roof R' . This false roof is cut away opposite
 80 the ventilators to allow the ventilator-sashes to pass. As shown in Fig. 4, this roof is so positioned that when the ventilators are partly opened air is admitted between the roof and the false roof. When the ventilators are
 85 fully open, air is admitted below the false roof.

It is clear that each style of car herein shown may be provided with a door at any one or
 90 more up to all of the corners, as preferred; that either style of door may be used or both styles on the same car. How many doors are provided and which doors are open and which
 95 closed in the operation of the car will depend on the character of the track system, whether it is single or double track, whether it is a loop system, or otherwise.

In the form shown in Figs. 5 and 6 a device is illustrated for balancing the car-doors,
 100 so that when partly open or unlatched they will not be thrown open or shut by either the sudden stopping or starting of the car or by
 105 the car end being suddenly thrown to one side in turning a corner or jolting from any other cause.

A weight W is mounted on the end of a lever-arm L , which is pivoted under the roof
 105 of the car. This lever is coupled to a pulley p . Over the hinges of the doors are other pulleys $p' p'$, which are connected by belts to the pulley which is attached to the weighted
 110 lever. One of the doors is coupled to the pulley mounted above it by means of a bolt K and the other is disconnected, as it is only intended that the door on one side at the
 115 same end should be used at the same time, and the balancing device, which can be coupled to either door, cannot be operated by both at the same time. If there is but one
 120 door at the end, but two pulleys will be necessary.

When the door to which the balancing device is attached is closed, it is in the position
 125 indicated by dotted lines, and the weight is in the position also indicated by dotted lines. When the door is opened to the position shown
 130 by full lines, the weight is swung to the position in which it is shown in full lines. The weight at all times moves simultaneously with the door, but in a diametrically opposite direction. As any sudden jerking of the car would act to move both door and weight in the same direction, it will be seen that their connection is such as to completely neutralize the effect.

Having now described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A car provided with an entrance through the side at one end, an inwardly-swinging door at the entrance, a sectional partition separating the end from the body of the car, one section of the partition being behind the door so that when left in place it will act as a door-guard, substantially as described.

2. A car provided with an entrance through the side and near an end thereof, a bench along the side of the car, a hinged door, and a cross-seat between the door and the bench and turned toward the door, the door swinging away from the cross-seat in opening, substantially as described.

3. In combination with a car-door, a door-

balancing device consisting of a weighted lever, a pulley attached to the door, a pulley attached to the lever, and belt connections between the pulleys, substantially as described.

4. In combination with car-doors, a door-balancing device consisting of a weighted lever, pulleys mounted over the doors, a pulley attached to the lever and belt connections between the pulleys, and means for attaching the mechanism operatively to any one of the doors at will, substantially as described.

Signed by me, in New York city, this 27th day of February, 1896.

ALBERT W. LILIENTHAL.

Witnesses:

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SAMUEL W. BALCH.