

(No Model.)

H. W. LIBBEY.
VESTIBULE CAR.

No. 575,484.

Patented Jan. 19, 1897.

Fig. 1.

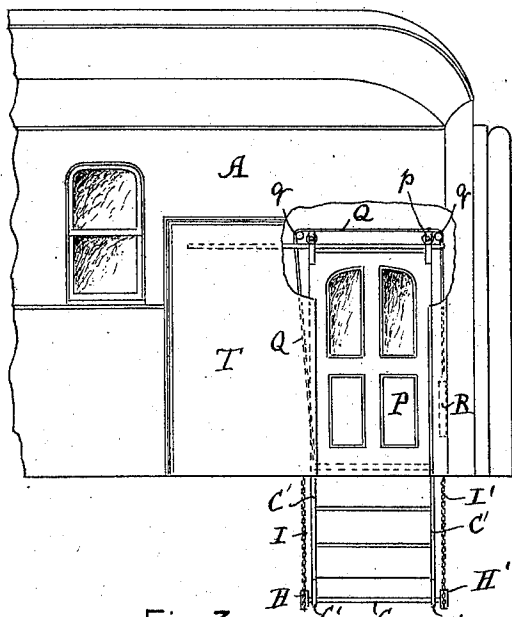


Fig. 2.

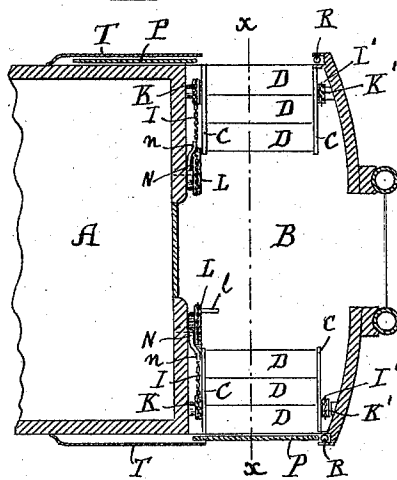


Fig. 3.

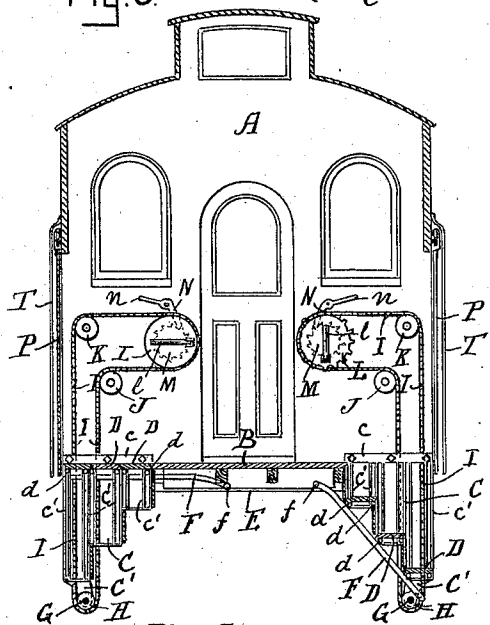


Fig. 4.

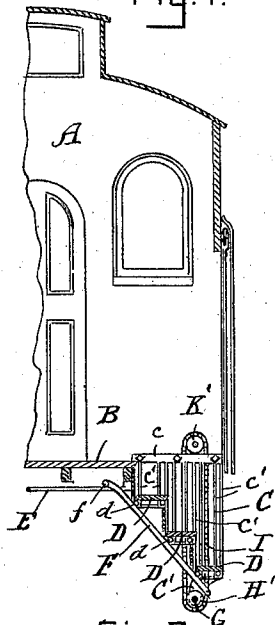


Fig. 5.

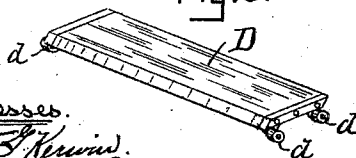


Fig. 6.

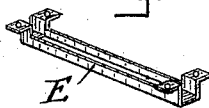
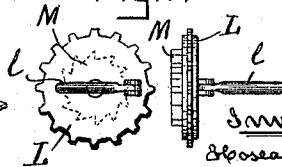


Fig. 7.



Witnesses.
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Edward D. Brown

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UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

VESTIBULE-CAR.

SPECIFICATION forming part of Letters Patent No. 575,484, dated January 19, 1897.

Application filed March 7, 1894. Serial No. 502,667. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Vestibule-Cars, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in the steps and doors for vestibule-cars.

The invention consists in constructing the steps so that they can be raised to form a continuation of the platform and in means for operating the outside door, inclosing the same, so that it will be closed when the steps are raised and opened when the steps are lowered.

Referring to the accompanying drawings, Figure 1 represents a side view of one end of a vestibule-car fitted with steps and door embodying my invention. Fig. 2 is a horizontal section of same, showing the steps raised and the door closed on one side and the steps lowered and the door open on the opposite side. Fig. 3 is a vertical section taken on the line *xx* of Fig. 2. Fig. 4 is a vertical section of one side looking toward the rear of the car and showing the steps lowered. Fig. 5 is a detail view of one of the steps. Fig. 6 is a detail view of the track carrying the elevating-bars. Fig. 7 shows a front and side view of the sprocket-wheel and handle.

A represents the car; B, the platform.

C are the step-hangers, one of which is secured to the end sill and the other to the platform end timber in the usual manner. These hangers consist of an upper cross-piece *c* and a series of vertical bars *c'*, dependent therefrom and forming slots in which work small rollers *d*, secured to the steps D, the ends of these slots being closed by a cross-piece, so as to form a rest for the steps.

To the under side of the platform-sills, on a line with the outside of the step-hangers C, is secured a track E.

F F are elevating-bars, that is to say, bars for raising and lowering the steps D, the upper ends of each of said bars being provided with small rollers *f*, that run upon the tracks E.

G G are shafts supported in brackets C', formed on the lower edge of the step-hangers

C, and are fitted at each end with a sprocket-wheel H H'.

I I' are endless sprocket-chains. The one next to the end wall of the car passes from the large sprocket-wheel L over the guide-pulley J and thence down and under the sprocket-wheel H, thence up and over a guide-pulley K to the large sprocket-wheel L.

The sprocket-wheel L and guide-pulleys K are carried by bearings secured at a proper height on the end walls of the car. At the rear of the sprocket-wheel L is ratchet-wheel M, which is secured thereto or cast in one therewith, and N is a pawl that takes into the teeth of said ratchet-wheel and prevents its turning in the wrong direction. The pawl N is formed with a handle *n*, so that it can be raised out of contact with the ratchet-wheel when desired.

The endless sprocket-chain I' at the outer ends of the steps passes under the sprocket-wheel H' and over a sprocket-wheel K', carried by a suitable bearing fastened to the platform end timber. The lower ends of the elevator-rods F are attached to the sprocket-chains I I', so that when motion is communicated to the chain I by turning the sprocket-wheel L the sprocket-wheel H will be rotated and through the shaft G impart a corresponding movement to the sprocket-wheel H' and chain I', so that whether the steps are being raised or lowered a similar motion will be imparted to the elevator-rods F on each side.

When being raised, the elevator-rods F come into contact with the rear rollers *d* on the ends of each step D and force them upward, the bars *c'* acting as guides for said rollers to work in, and when the steps are raised to their full height, that is to say, on a level with the platform B, all the rollers *d* will be resting upon the elevator-bars F, and thus securely held in place.

I prefer to bevel the edges of the steps where they come together, as shown, so that when raised they will form a weather-tight joint.

The sprocket-wheel L is turned by a handle *l*, which I prefer to connect thereto by a hinge-joint, as shown, so that when not in use the said handle can be turned down out of the way.

P is a sliding door suspended on the side of the car from an overhead track by hangers. To the outer hanger *p* of the door is secured a rope or small chain Q, which passes over pulleys *q*. On the outer end of this rope or chain is fastened a weight R, which is sufficiently heavy to draw the door into the closed position. The other end of this rope or chain is attached to the side of the lowest step, so that when the steps are lowered the weight of said steps being greater than that of the weight the door will be drawn open as the steps are lowered, and when the steps are being raised the weight R will close the door.

15 A metallic weather-casing T is secured to the side of the car to inclose the door mechanism and also the door when open.

What I claim is—

1. In a car, step-hangers consisting of an upper cross-bar and a series of vertical bars forming slots, steps having rollers at their ends to work in said slots in combination with elevating-bars a track under the platform for the upper end of said bars to run in, a sprocket-chain to which the ends of said bars are attached and suitable sprocket-wheels to carry said chains and means for operating same as set forth.

2. In a vestibule-car, step-hangers C, secured to the under side of the platform, steps D, having rollers *d*, at each end working in said hangers, tracks E, secured to the under

side of the platform, elevating-bars F, carried at their upper ends by said tracks, shafts G, supported in brackets from the step-hangers, sprocket-wheels H, H', mounted upon the ends of the shafts G, sprocket-wheels L, K', guide-wheels J, K, and a ratchet-wheel M at the rear of the sprocket-wheel L, a pawl N, and endless sprocket-chains I, I', all arranged and operating substantially as set forth.

3. In combination with a car having steps capable of being raised and lowered a sliding door for closing the side entrance to the platform, said door being suspended from an overhead track secured to the outside of the car-body, a rope or chain secured to the top of the door and passing over pulleys secured to the side of the car one end of said rope or chain being secured to the lower step and a weight attached to its other end whereby the door is opened when the steps are lowered and shut when the steps are raised and a casing secured to the car-body to inclose the door when open substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of January, A. D. 1894.

HOSEA W. LIBBEY.

Witnesses:

CHAS. STEERE,
EDWIN PLANTA.