No. 742,687. PATENTED OCT. 27, 1903.

F. M. LIVINGSTON.

STREET CAR REFLECTOR.

APPLICATION FILED MAY 1, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

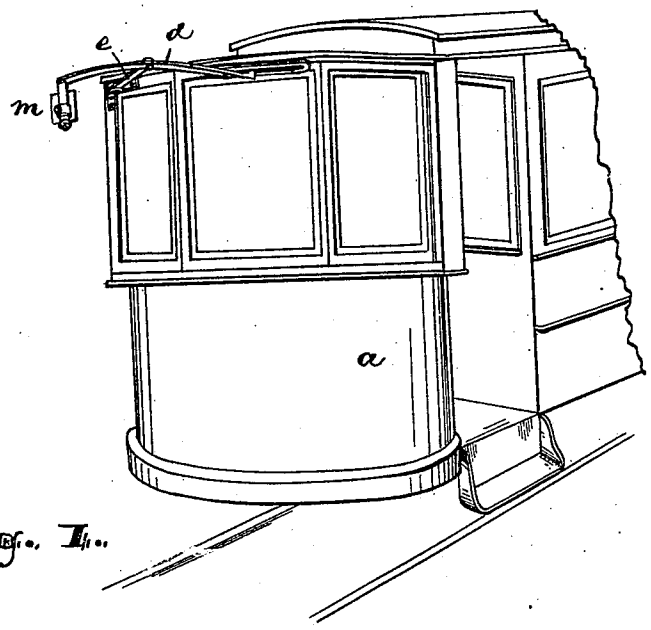


Fig. 1.

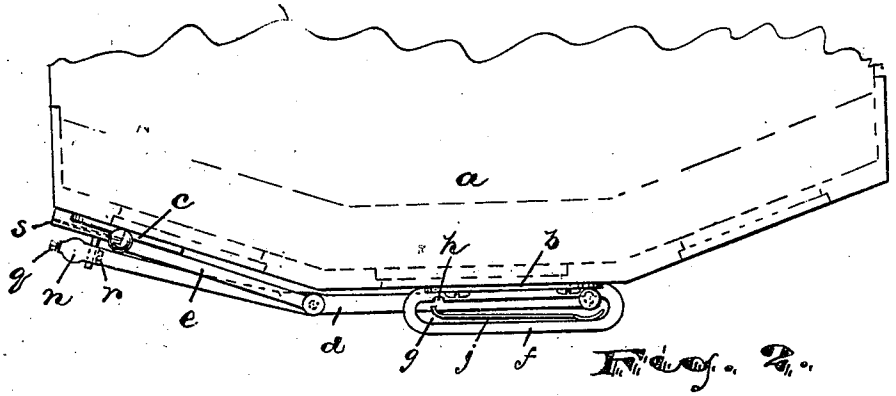


Fig. 2.

WITNESSES:

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INVENTOR:

Francis M. Livingston,

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ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

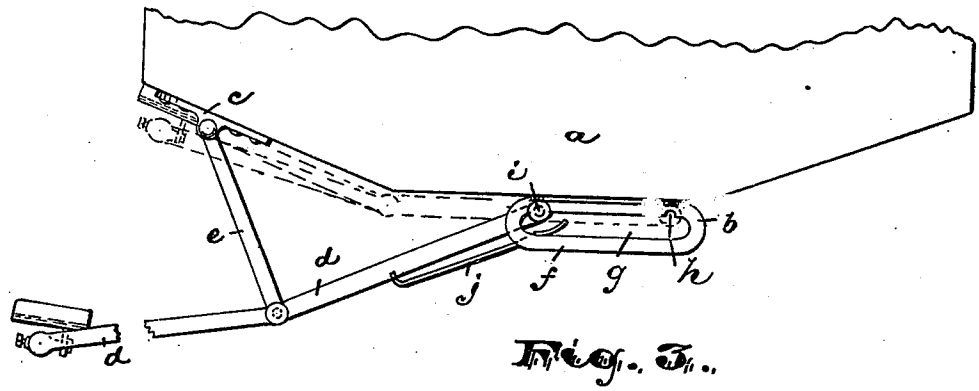


Fig. 3.

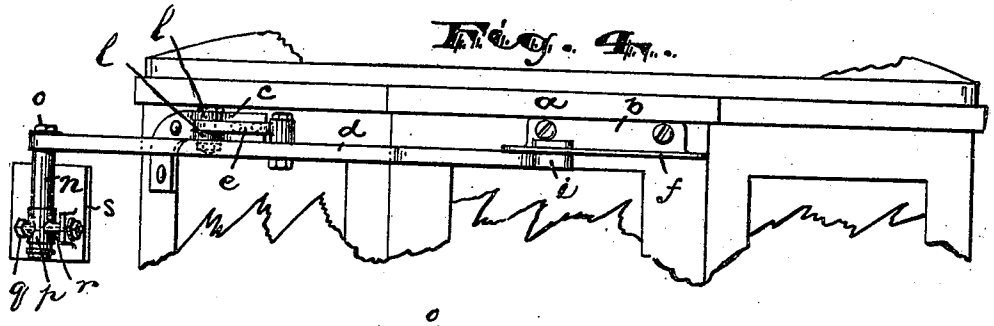


Fig. 4.

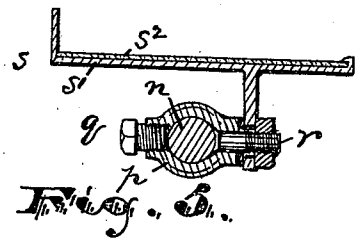


Fig. 5.

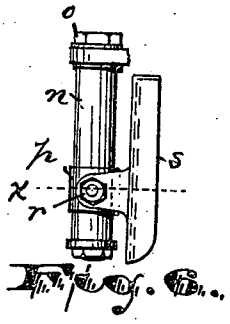


Fig. 6.

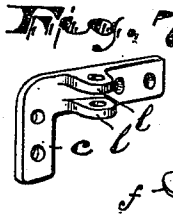


Fig. 7.

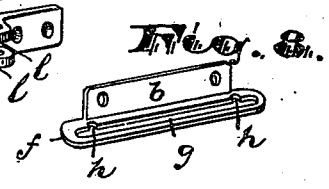


Fig. 8.

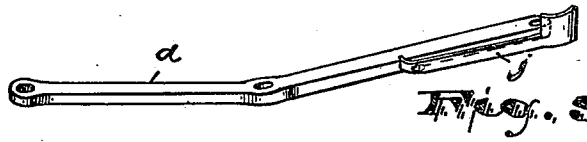


Fig. 9.

WITNESSES:

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No. 742,687. Patented October 27, 1903.

UNITED STATES PATENT OFFICE.

FRANCIS M. LIVINGSTON, OF NEWARK, NEW JERSEY.

STREET-CAR REFLECTOR.

SPECIFICATION forming part of Letters Patent No. 742,687, dated October 27, 1903.

Application filed May 1, 1902. Serial No. 105,553. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. LIVINGSTON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Street-Car Reflectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to enable a motorman standing at his usual position upon the front platform of a trolley-car to clearly observe the passengers as they get on or off the rear platform of the car, and thus enable him to defer starting the car until all is in readiness, thus avoiding the accidents heretofore resulting from a premature starting of the car upon a bell-signal from the conductor standing within the car, for example, and only partly understanding the conditions at said back platform and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the car having a rear-entrance reflector attached to the front thereof and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a perspective view of a portion of a car to which my improvements have been applied. Fig. 2 is a plan of the same, showing the reflector out of service. Fig. 3 is a view similar to the last, showing the reflector in service. Fig. 4 is an elevation of the same. Fig. 5 is a sectional detail of the glass-carrier, taken at line x of Fig. 6; and Fig. 6 is a side elevation of the same; and Figs. 7, 8, and 9 are detail perspectives of certain fixtures to the car and a carrier-supporting arm, respectively, which will be hereinafter more fully explained.

In said drawings, a indicates the car-body, to the end of which and preferably at the opposite ends of which are applied the fixtures b and c, on which the supporting-arm d and a brace e have their bearings.

The fixture b is provided with a horizontal flange f, having a slot g of considerable length, at the inner sides of which near its opposite ends are notches h, adapted to receive a vertical pin i, extending up from the inner end of the arm d. Said pin is preferably of a smaller diameter than the width of the slot, so that the end of a spring j may lie in said slot beside the pin, as indicated in Figs. 2 and 3. The pin has a head by which it is prevented from dropping down out of said slot. The spring j, is fastened firmly at one end to said arm d, and extends approximately parallel with the arm to a point near the pin i, where said spring is preferably enlarged, as shown in Fig. 9, so that there will be no danger of disengagement with the outer wall of the slot on which it slides. The said spring permits the pin i to be drawn out from the notches when considerable pressure is applied, but normally holds said pin in one or the other of the said notches, so that the reflector-glass may be held in either its effective or ineffective position.

The second fixture, c, is fastened to the car near the side thereof and is provided with ears l, to which is pivoted the bracing-rod e. Said rod e at its outer end is pivoted upon the arm d at a point about midway of its ends. At its outer extremity said arm supports the glass or reflector carrier m, which latter consists of a depending bar n, adapted to be adjusted pivotally on said arm d and when adjusted is adapted to be rigidly fixed to said arm by the nut o. On said bar is a collar p, having bosses at opposite sides to receive one a set-screw q, adapted to set the collar in any desired adjustment on the depending bar, and the other to receive the pivotal bolt r, on which the reflector s is adjustably fixed. Said reflector consists of a frame s', preferably of metal, having an arm to engage the pivotal bolt and the glass reflecting-plate s^2, facing the rear of the car and adapted to reflect the figures of passengers as they enter or emerge from the car.

The parts being arranged on the car as shown, the motorman preliminary to starting

on a trip simply pushes the reflector forward, when it is thrown laterally outward to one side of the forward end of the car, as indicated in Fig. 3, the glass being so adjusted as to enable the motorman to see conveniently the movements at the rear platform. At the end of a trip the arm *d* is drawn toward the car, when the glass moves toward the longitudinal center line of the car, the pin *i* entering the inner notch, so that the said glass is held against the body of the car, and thus protected when the platform to which it is attached is not being used by the motorman.

I am aware that various changes may be made in the construction from what is above positively described without departing from the spirit or scope of the invention.

Having thus described the invention, what I claim as new is—

1. The combination with the body of a trolley-car having platforms for the motorman, of fixtures stationed at the front of said car-body one of which is slotted and the other having a pivotal bearing, of an arm slidably arranged in connection with said slotted fixture and adapted to close toward or against said car-body and a brace connecting said arm and pivotal bearing and adapted to turn toward the car-body with the closing arm, and a reflector supported by said arm and adapted to open out from the front of the car-body to a point beyond the longitudinal line of the side of the car-body, substantially as set forth.

2. The combination with the slotted fixture *b*, and pivotal fixture *c*, of the arm *d*, slidable on the slotted fixture and the brace connecting pivotally the fixture *c*, and arm and a reflector carried by said arm substantially as set forth.

3. The reflector for car-motormen, comprising fixtures adapted to be fastened to the car, an arm *d*, slidable on one of said fixtures and pivotally connected to the other, and a reflector carried by said arm, substantially as set forth.

4. The combination with the fixture *c*, and slotted fixture *b*, each adapted to be fastened to the car, of the arm having a pin in the slot of said fixture *b*, a brace pivoted upon said fixture *c*, and pivoted on said arm, a bar depending from said arm and adjustable in relation thereto a collar adjustable on said bar and a reflector pivoted on said collar and means for fixing said parts at the desired adjustment, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of April, 1902.

FRANCIS M. LIVINGSTON.

Witnesses:
CHARLES H. PELL,
C. B. PITNEY.