

J. STEPHENSON.

Street-Car.

No. 161,567.

Patented March 30, 1875.

FIG. I.

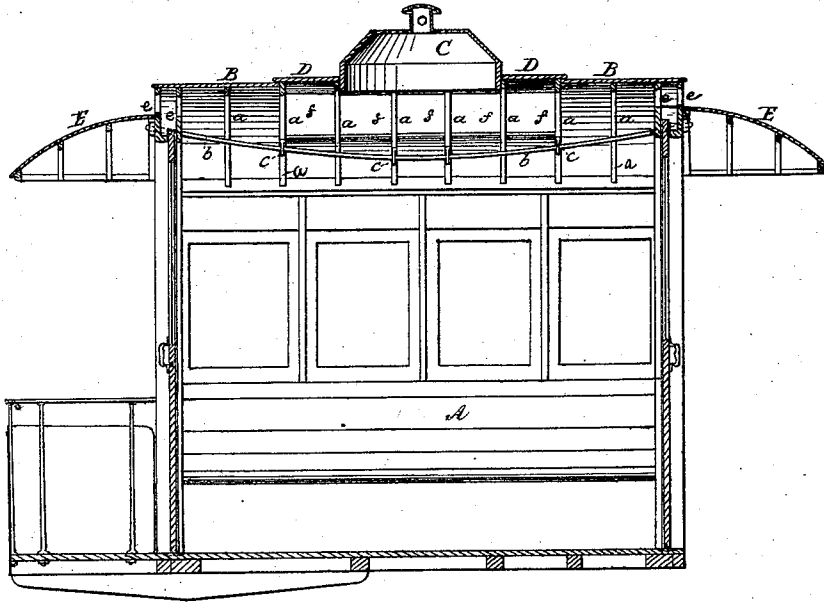
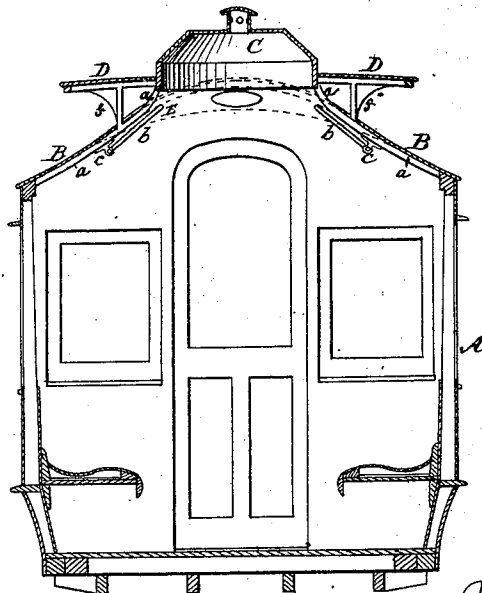


FIG. II.



WITNESSES:

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per *D. Hamay*
Attorney

UNITED STATES PATENT OFFICE.

JOHN STEPHENSON, OF NEW YORK, N. Y.

IMPROVEMENT IN STREET-CARS.

Specification forming part of Letters Patent No. **161,567**, dated March 30, 1875; application filed March 2, 1875.

CASE G⁴.

To all whom it may concern:

Be it known that I, JOHN STEPHENSON, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Street-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a vertical longitudinal section taken through the center of a street-car having my improvements applied thereto; and Fig. 2 a vertical transverse section of the same, the running-gear in both views being removed.

The roofs of street-cars, because of their form and lightness of structure, are apt to settle, thus not only destroying the comeliness of their outline, but damaging the strength of the car. This is more especially true where the roofs are provided with seats, and with openings for ventilation or other purposes.

My invention relates to an improved mode of constructing the upper portion of the car, and is designed to remedy this weakness and consequent ill results; and it consists, first, in shortening the length of the roof to the length of the body or thereabout, and then providing the latter with independent and detachable canopies or bonnets at its front and rear ends; secondly, in re-enforcing the support of the roof by the arrangement of one or more rods, so connected to its under side by a system of brackets, and to the ends of the car, as that each shall form a suspension-truss for the purpose; and, thirdly, in the arrangement of an additional ventilating opening or openings at each end of the car, immediately between the under side of the roof and the outer side of the canopy or bonnet.

To enable others skilled in the art to make, construct, and use my improvement, I will now proceed to describe it in detail.

The lower part of the main body of the car need not be made in any other than the ordinary way, so far as my present improvements

are concerned. A car suitable for the purpose is represented in the drawings, in which the body A is of the ordinary construction, with the exception of the roof B, which is shortened to the length of the car or thereabout. This roof is supported in the ordinary way upon arched ribs or rafters *a*, and may or may not be provided with a dome, and with seats on its top. In this instance, however, it is represented as being provided with a dome, C, and with a seat, D, on each side of the latter. The roof, as well as some of its rafters, is cut through to receive a dome, which may be of any relative length of the car required. This construction is necessarily weak in itself, and hence I strengthen it by means of two rods, *b*, bent into curved form in the line of their length, they being curvilinearly deflected from each end toward the sides and bottom of the car, as shown in Figs. 1 and 2, one being arranged on each side of the car, as shown in Fig. 2. Each of these rods is made to pass through an opening in each of a series of brackets, *c*, made fast to the under side of rafters *a*, and through the two ends of the car near their upper verge. The ends of these rods have screw-threads cut on them, and are provided with corresponding nuts *d*, by means of which to adjust and secure them to the ends of the car when passed through for that purpose. These nuts bear against washers having their surfaces in the same plane as that of the nuts. These nuts, when properly tightened up, cause the rods to carry the weight of the roof, the rods for this purpose, as before stated, being slightly deflected or curved in the middle, thus forming a suspension-truss with secure anchorage, and may be made of size and strength sufficient to sustain any necessary burden that may be reasonably required of it.

These truss-rods are made of metal, either solid or tubular, but I prefer the latter. In fact, a gas-pipe of three-fourths of an inch in diameter answers admirably the purpose. Ordinarily these tubes will answer as a hand-rail, and thus dispense with the latter, though hand-rails may be also used, if deemed either desirable or advantageous.

Instead of using two truss-rods, *b*, one at

each side, only one may be used. Where but one is used the brackets *c*, through which they pass, would require to be made double—that is to say, of two joined in one, and then secured to the opposite rafters; but I prefer to use two instead of a single truss-rod. In fact, in some cases even more might be used with advantage.

These trusses may be adjusted to sustain a greater or less proportion of the weight of the roof by simply turning the nuts upon their threaded ends, according to the direction required to lessen or increase their curvature, as by lessening it the rods will sustain more, and vice versa.

Each end of the car is provided with a bonnet or canopy, *E*. These bonnets are secured to their respective ends at a short distance below the line of the roof, and in such manner as to be readily detachable therefrom. In each end of the car, between the roof and bonnet, is formed a ventilating opening or openings, *e*. Other suitable ventilating-openings *f* are also formed in the roof immediately beneath the supplementary roof or seats *D*. Each of these openings may be provided with a ventilator of approved pattern and construction, or with a small door and glass transparency, if desired.

Where the supplementary roof *D* is used as a seat for outside passengers the car may be provided with appropriate foot-rests and safety-railings, and with suitable ladders wherewith to ascend to and descend from the roof.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a street-car, the combination of one or more adjustable truss-rods, *b*, with a short roof, *B*, and detachable canopies, substantially as set forth.

2. The combination of one or more curved adjustable truss-rods, *b*, with the roof and ends of a car, substantially as and for the purposes set forth.

3. A street-car roof, with an opening therein, in combination with one or more adjustable truss-rods, substantially as and for the purpose set forth.

4. In a street-car, the combination of an elevation above the general plane of the roof with one or more adjustable truss-rods, as and for the purpose set forth.

5. The combination of a street-car roof, with seats thereon, and one or more adjustable truss-rods, as and for the purpose set forth.

6. In a street-car, the combination of supporting-trusses with the roof and ends, having openings for ventilation between the under side of the roof and the upper side of the respective bonnets, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN STEPHENSON.

Witnesses:

WM. JOHN WALKER,
JOHN SMITH.