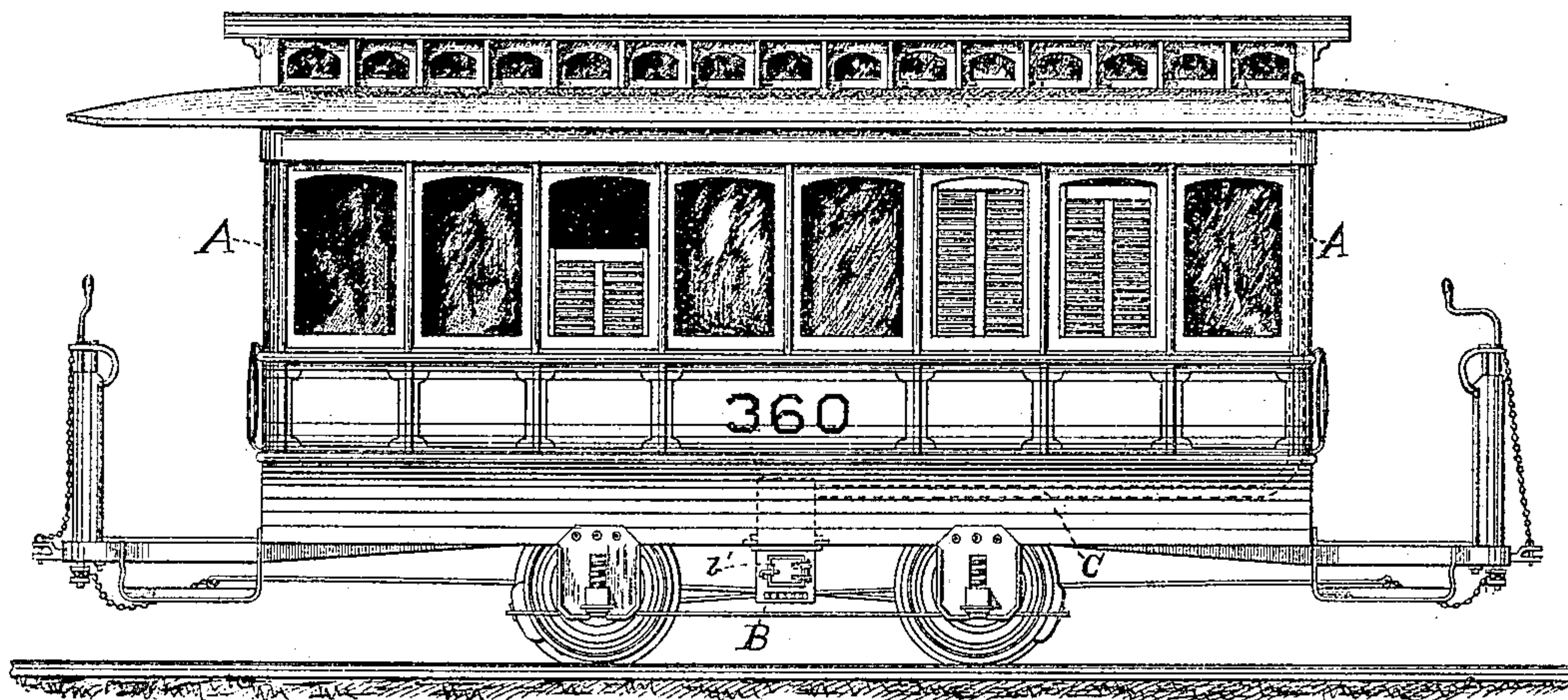


(No Model.)

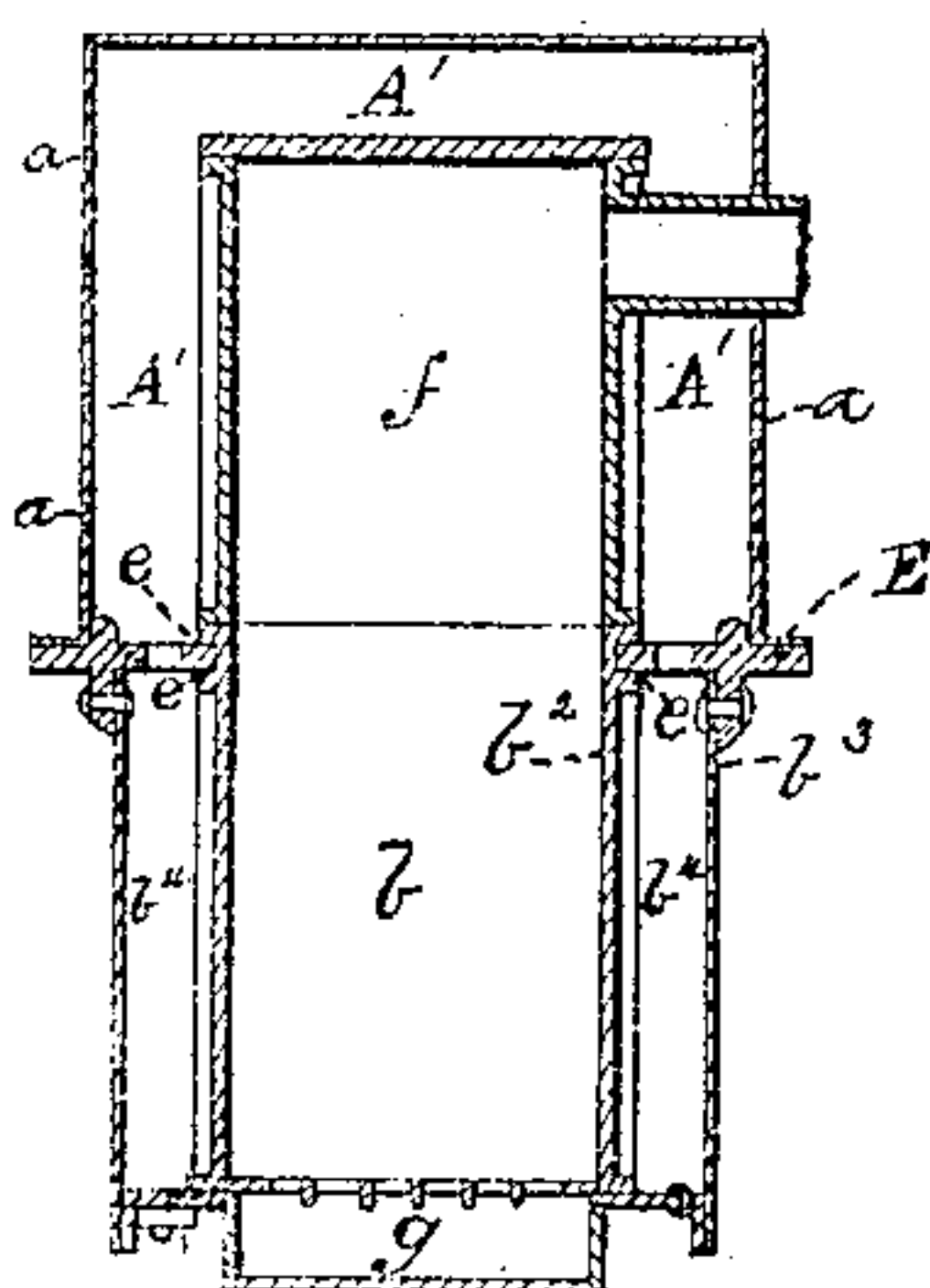
W. D. NELSON.  
STREET CAR HEATER.

No. 270,553.

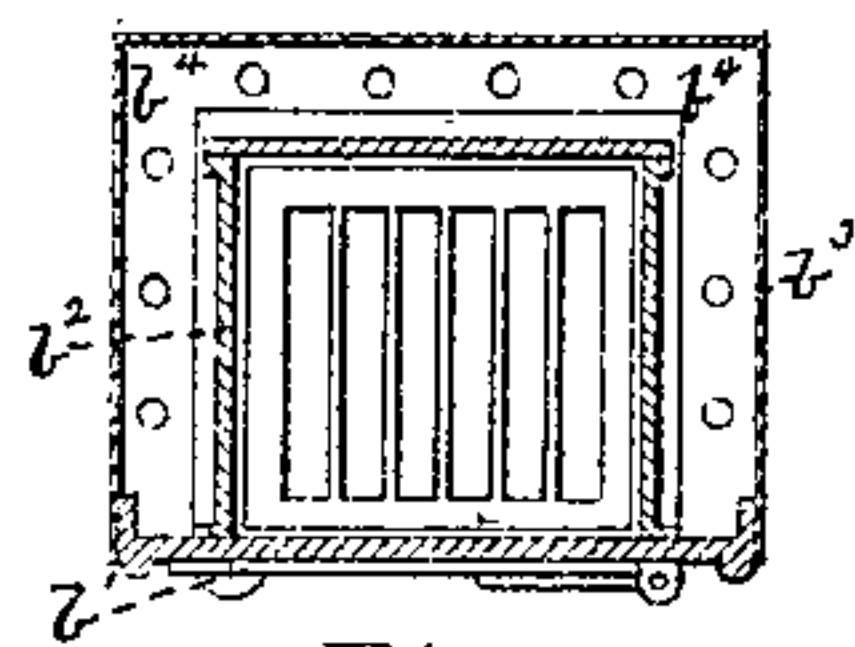
Patented Jan. 9, 1883.



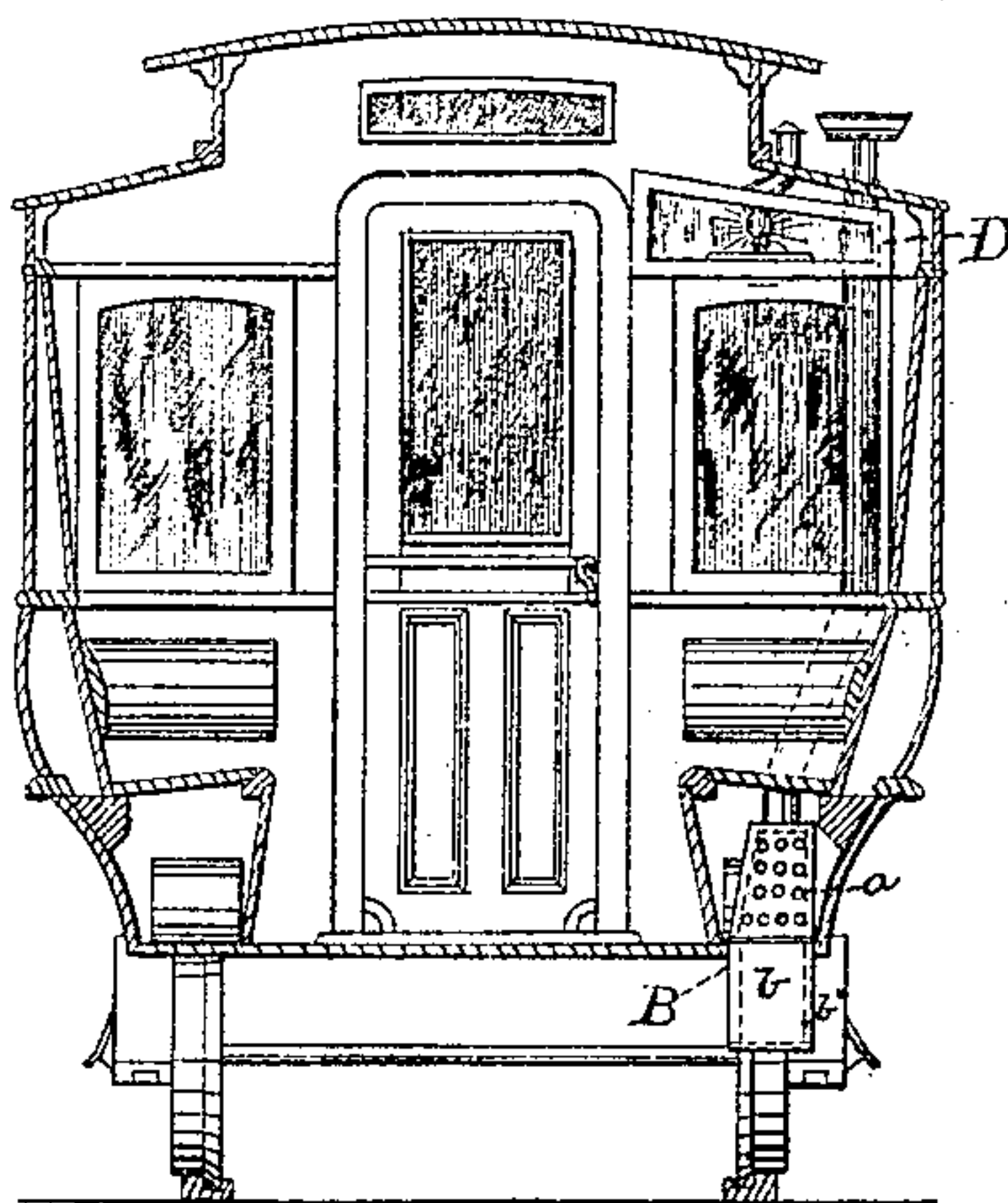
*Fig. 1*



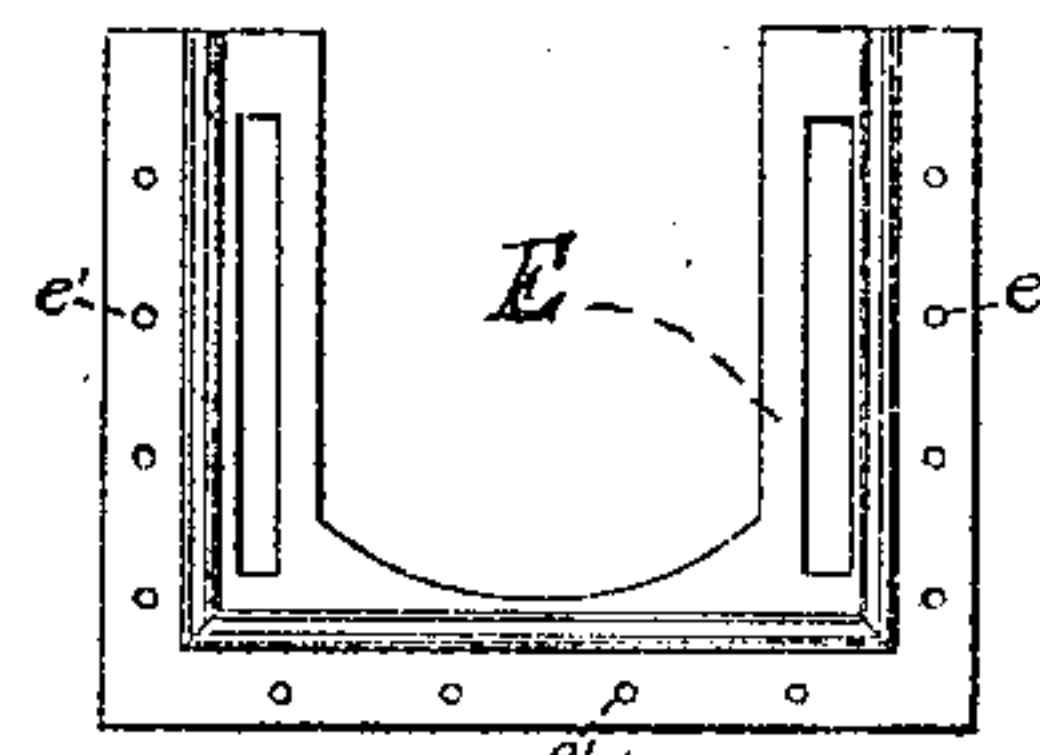
*Fig. 3*



*Fig. 4*



*Fig. 2*



*Fig. 5*

Witnesses

*John H. Brown*  
*Fred B. Swift*

Inventor.

*Wm. D. Nelson.*  
*By his attorney*  
*M. Randolph*



# UNITED STATES PATENT OFFICE.

WILLIAM D. NELSON, OF NEW YORK, N. Y.

## STREET-CAR HEATER.

SPECIFICATION forming part of Letters Patent No. 270,553, dated January 9, 1883.

Application filed July 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WM. D. NELSON, of the city, county, and State of New York, have invented a new and useful Improvement in  
5 Method of and Apparatus for Heating Street-Cars; and I hereby declare the following to be a full and clear description thereof.

The object of this invention is to provide a heater for warming street-cars of such simplicity of construction and application as to  
10 make it easily introduced into street-cars now in use.

The invention consists of a stove or heater secured to the bottom of the car, so as to allow  
15 the smoke-pipe to pass along under the seat to the end of the car and rise up at the end of the car through the lamp-box, thereby taking no valuable room for the heating apparatus from the inside of the car. Cold air from the  
20 outside of the car is sent through a hot-air or heating chamber by the sides of the fire-box of the stove or heater, and sent from thence up into the body of the car, thereby securing excellent ventilation, as well as the warming of  
25 the car. Details of the construction will be hereinafter more fully explained.

The invention will be readily understood by reference to the accompanying drawings, Figure 1 of which represents a side elevation of a  
30 car fitted with my improved heater. Fig. 2 is a transverse sectional elevation of the same. Fig. 3 is a detail of the stove or heater. Fig. 4 is a detail of the securing bed-plate or clamping-iron by means of which the stove or heater  
35 is secured to the car. Fig. 5 is a plan view of the supporting-plate.

The car A is of the ordinary street-car pattern. In fact, any street-car may be fitted with these heaters.

40 The stove or heater B (seen in detail in Fig. 3) has a central fire-box, *b*, with an outside door, *b'*, for introducing the fuel, and an upper portion, *f*, through which the products of combustion pass, and from which the heat radiates into the surrounding hot-air chamber *A'*.  
45 When in place in the car this fuel-door will be below the car-body and open outwardly, so as to be easy of access for applying fuel to the fire or removing ashes therefrom. The bottom of the stove or heater casing is preferably

hinged to open downward, so as to allow the ashes to drop down and out when it becomes necessary to remove them.

In the construction of the stove or heater I use an inner shell or fire-box, *b*<sup>2</sup>, which depends from the bottom of the car, and an outer  
55 shell or casing, *b*<sup>3</sup>, partly above and partly below the bottom of the car, which, being appropriately secured to the bed-plate *E*, forms an inclosed hot-air chamber, *b*<sup>4</sup>, between them. Cold air from the outside of the car enters the  
60 heating or hot-air chamber *b*<sup>4</sup>, at or near its bottom, through openings made for that purpose, and while the air is passing up through the chamber *b*<sup>4</sup>, it being in direct contact with  
65 the fire-box *b* and chamber *f*, it becomes rapidly warmed, and thence it passes up into the car through perforations *a*, made in the housing or hot-air box *A'* below one of the seats of the car.  
70

The smoke from the heater or fire-box *B* passes out from the top part of the heater through the smoke-pipe *C*, the first section of which lies along under the seat in a nearly-  
75 horizontal line, and the second section of which rises up through the double wall formed for the lamp-box *D* at the end of and near one corner of the car, thereby occupying no room of the car that is available for passenger use, and  
80 incommoding or inconveniencing no passenger, as the riser-pipe will be protected by an outer covering or shield at a short distance from it, so as to prevent burning or uncomfortably warming any one.

The stove *B* is formed with grooves *e* in its  
85 sides, and a bed-plate or clamping-iron, *E*, made somewhat in a *U* form, but having right-angled angles for a square or rectangular stove, is made to slide into and fit snugly in the said  
90 grooves *e*, and it projects perpendicularly from the sides of the said stove or heater, when in position therewith, sufficiently to form a flange or bearing capable of holding the said stove or heater up to or in connection with the car  
95 floor or bottom, and the said plate *E* is perforated with numerous holes, *e'*, for the reception of screws, by means of which it is fastened to the car floor or bottom.

Having described my invention, I claim—

1. The herein-described car-heater, consist- 100

...posed ...  
...ward side of said base-plate ...  
...suitable two-part casing seat of the ...  
...fire-box and separated therefrom by ...  
...space b<sup>1</sup>, and united by the interposed base-  
...plate E, and adapted to receive the outside air ...  
...and discharge the same in a heated condition ...  
...into the car, substantially as shown and de-  
...scribed.  
2. In a car-heater, the fixed bed or floor

...with vertical longitudinal ap- 15  
...passages located between its inner ...  
...and adapted to support at its ...  
...upper and lower portions ...  
...and at its outer edge inde-  
...outer casings, and to ...  
...allow free circulation ...  
...the said

Witnesses:

J. B. THURSTON  
WM. H. ...