

I. S. JUSTH.  
Street-Car Warmer.

No. 220,718.

Patented Oct. 21, 1879.

Fig. 1.

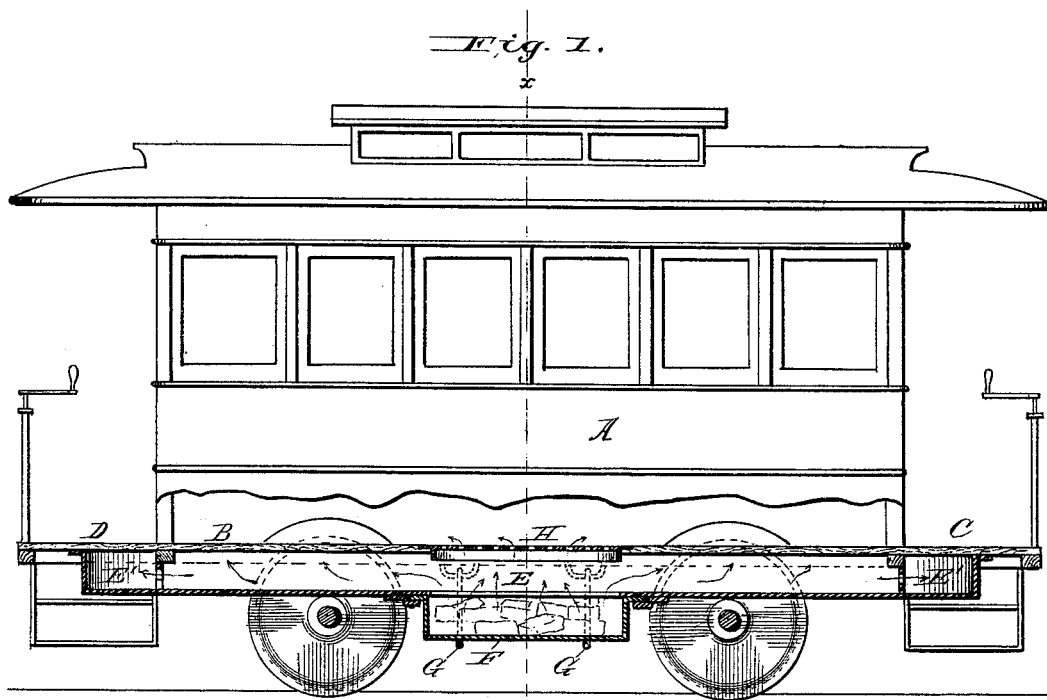
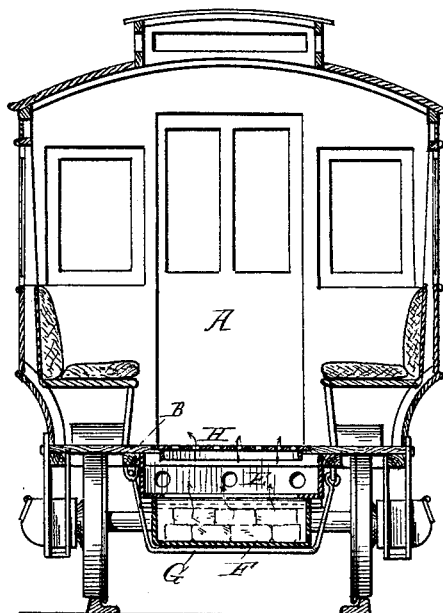


Fig. 2.



Attest:  
H. L. Perrine  
Notary Public

Inventor:  
Isaac S. Justh  
by his attorney  
J. E. B. Smith

# UNITED STATES PATENT OFFICE.

ISAAC S. JUSTH, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO HIMSELF AND EMANUEL S. JUSTH, OF SAME PLACE.

## IMPROVEMENT IN STREET-CAR WARMERS.

Specification forming part of Letters Patent No. **220,718**, dated October 21, 1879; application filed September 1, 1879.

*To all whom it may concern:*

Be it known that I, ISAAC S. JUSTH, of Washington, in the county of Washington, District of Columbia, have invented certain new and useful Improvements in Warming the Floors and Platforms of Street-Cars, and 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 my invention is primarily to warm the floor and platforms of street-cars in such a manner that there shall be absolutely no danger from fire or explosion, and that the use of straw or hay, or other such like materials, for covering the floors of street-cars in cold weather may be dispensed with.

To this end my invention consists in placing under the floor and platforms of ordinary street-cars a false bottom or heating-chamber, extending the whole length of the car, and in width about equal to the distance between the seats therein, so as to reach all parts of the car floor and platforms where it is desirable to apply heat or warmth, and which is to be periodically supplied with heated sand, or heated bricks, or heated iron, or other suitable heated materials which readily give out their surplus of heat. The heat radiated from these heated materials distributes itself through the warming or heating chamber, and will keep the floor and platforms comfortably warm, so that passengers, as well as conductor and driver of the car, can keep their feet warm.

In order that my invention may be clearly understood, I have illustrated in the annexed drawings, and will proceed to describe, the best form thereof which I have devised as yet.

Figure 1 is a side elevation of a street-rail-road car, the lower part being drawn in section to more plainly exhibit my invention. Fig. 2 is a transverse section of the same.

The same letters of reference are used in designating identical parts in the two figures.

The car A may be of the usual construction, having a wooden floor, B, and front and rear platforms, C and D, respectively.

The warming-chamber E is built under the floor of the car lengthwise, having a width about equal to the space between the seats in the car, so that that portion of the floor occupied by the feet of the passengers will have the direct benefit of the warmth emitted from the warming-chamber. In the example illustrated the warming-chamber is a single flue the length of the car, and it has at each end a branch, E', extending under the respective platforms.

The heating material—sand, hot bricks, or the like—is placed in a separate receptacle or drawer, F, with an open top, placed under a corresponding opening in the bottom of the warming-chamber, so that the heat radiating from such heated material may readily distribute itself through the entire warming-chamber.

The drawer may work in guides on the bottom of the warming-chamber, and may be further supported by hinged bails G, which are then also used for holding the drawer in place, as shown.

After every round trip the contents of the drawer are to be removed and it refilled with freshly-heated material for another round trip.

If desirable, some of the heat may be directly radiated into the car through a suitable register, H, in the center of the car and directly over the drawer F; but the main object is to warm the floor, as heretofore explained.

In practice the warming chamber and drawer should be covered exteriorly with some good non-conductor of heat—any such non-conductor as will best answer the purpose and the peculiar circumstances of location and use.

I am aware that it is not new to use heated sand or other equivalent substances or materials to warm street and other cars, or to warm a car-floor by heat introduced into a

warming-chamber under such floor. My claim of invention is confined to the application of a warming-chamber under the floor of a street-car in the manner set forth, and using such heating agents as are entirely harmless.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, substantially as before set forth, of a street-car and a warming-chamber under that portion of the wooden floor between the seats, with ends extending under

the platforms, to warm said floor and platforms by heat radiated from hot sand or equivalent substance applied to such warming-chamber.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of August, 1879.

I. S. JUSTH.

Witnesses:

B. E. J. EILS,  
CHAS. A. NEALE.