

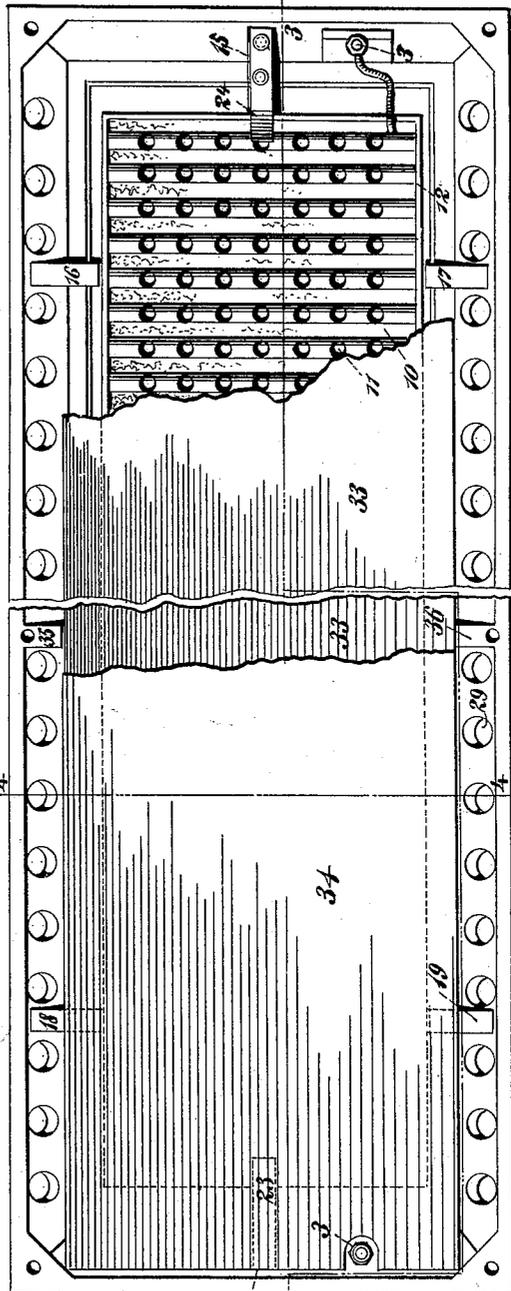
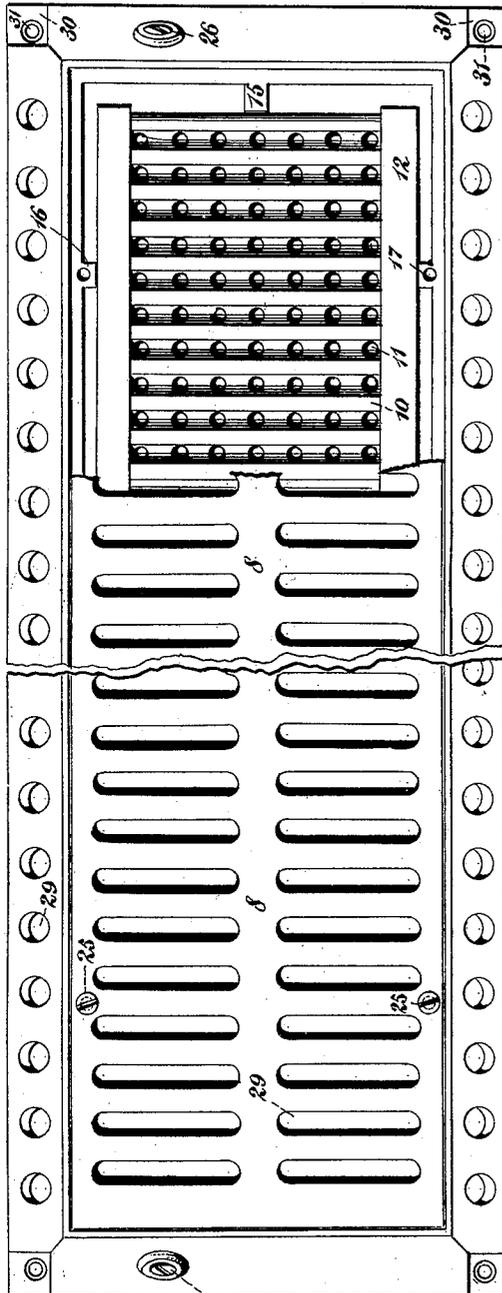
(No Model.)

2 Sheets—Sheet 1.

J. G. NOYES.
ELECTRIC CAR HEATER.

No. 568,168.

Patented Sept. 22, 1896.



WITNESSES: 27

Gustave Peterson
Edw. A. Mason

FIG. 1.

FIG. 2.

INVENTOR

Joseph G. Noyes

BY *Brisen Knauth*

ATTORNEYS.

(No Model.)

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Fig. 3.

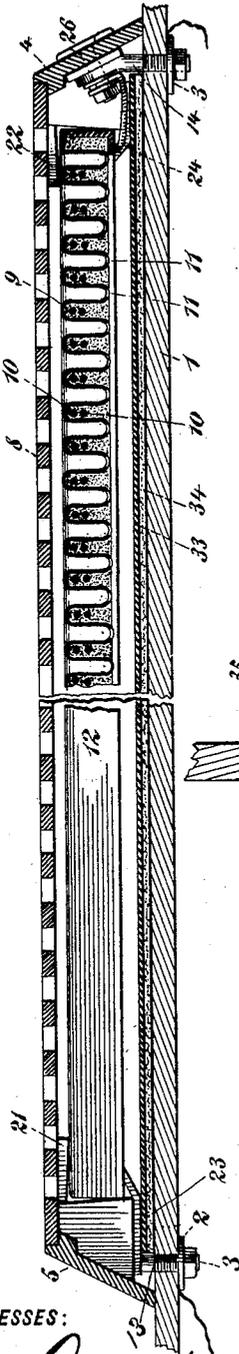
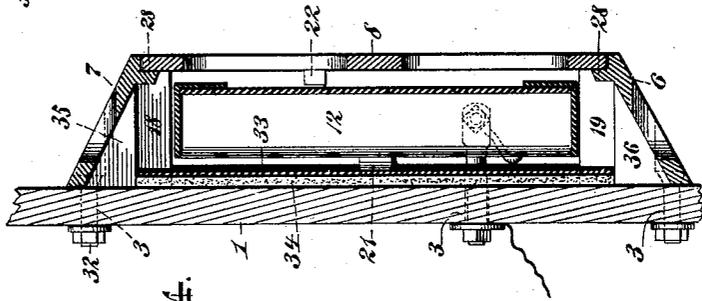


Fig. 4.



WITNESSES:

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INVENTOR

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH G. NOYES, OF MILFORD, CONNECTICUT.

ELECTRIC CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 568,168, dated September 22, 1896.

Application filed April 8, 1896. Serial No. 586,668. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH G. NOYES, a resident of Milford, New Haven county, State of Connecticut, have invented certain new and useful Improvements in Electric Car-Heaters, of which the following is a specification.

My invention relates to heaters especially adapted for use in tram-cars. The invention is not confined to such use.

My invention will be understood by referring to the accompanying drawings, in which—

Figure 1 is a broken-away front face view of a heater embodying my invention. Fig. 2 is a broken-away rear view of the same. Fig. 3 is a section on line 3 3 of Fig. 2, and Fig. 4 is a section on line 4 4 of Fig. 2.

The figures illustrate a form of heater embodying my invention which I have found advantageous to employ in carrying out the object of my invention, which is to provide a heater especially adapted for use in cars by reason of its structure, cheapness, and ready applicability to cars of existing makes without marring the car or necessitating a change in the structure of the car to accommodate it. It will be understood that in heaters of this character which require to remain in place it is essential that some means shall be provided for the removal of the active or heating portion of the device, so that this delicate part may be stored away where it will be guarded from damage or deterioration.

To these ends my invention consists in the construction and arrangement hereinafter set forth and claimed.

Referring particularly to Figs. 3 and 4, 1 is the supporting-board for the heater, which board is usually the front face-board under the car-seat. This board may be apertured at 2 3 for the passage of suitable fastening devices of the heater. The heater is shown as attached to this board, and comprises walls 4, 5, 6, and 7 and a face-plate 8, which walls and plate constitute the casing of the heater. The heating or active member of the heater is shown as comprising a plate 9, having wires 10 in the corrugations, and perforated, as at 11, for the circulation of air. This active element may be contained in an

envelop 12, which envelop and active element are supported in the casing of the heater, so as to permit a free circulation of air around the active element. This active element may be of any suitable form or character, the essential feature being that it shall be mounted in the casing so as to permit circulation of air and to be readily removable. The terminals of the heater are secured to the posts 13 14, which also assist to hold the heater in position against the supporting-board 1. The active element or heater proper is in the present instance held from longitudinal and lateral movement by means of lugs 15, 16, 17, 18, 19, and 20 (best seen in Figs. 1 and 2) and from a front and backward motion by the lugs 21 and 22. (Seen clearly in Fig. 3.) The active element or heater proper is held against the lugs 21 22 by means of clips 23 24, which are carried upon the lugs 20 and 15, respectively. The front plate of the heater is removable and leaves an opening of such size as to permit the removal there-through of the active portion or heater proper. This front plate 8 is shown as secured to the walls of the heater by screws 25 25, which pass through the said front plate and are tapped into the lugs 16, 17, 18, and 19. By removing these screws 25 the front plate of the heater may be removed to admit of cleaning, &c., the screws 26 27, which hold the terminals of the heater proper to the posts 13 and 14, being readily removable, so that by removing the front plate 8 the envelop containing the active portion or heater proper may be removed with ease and quickly in case a new heater is to be put in, or stored away for the summer, and the plate be replaced, resting against the rim 28 of the walls of the heater.

The walls and face-plate of the heater may be provided with apertures 29, which permit the free circulation of air. The walls may be also provided with feet 30, pierced with holes 31 for the passage of screws 32, which hold the heater to the supporting-board 1.

It will be obvious that by this organization of apparatus the active material or heater proper will be supported in such a manner as to admit a ready circulation of air there-around, and may be readily removed from the front of the heater, the face-plate being

removed for that purpose. The active element may be backed by a heat-reflecting plate 33 and non-conductor 34, which may be held in place by the lugs 35 36 on the walls
5 of the heater.

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

In a heater organism, the combination of a casing comprising perforated walls having
10 lugs thereon extending inwardly, a removable perforated face-plate 8 having lugs 21, 22, on the inside face thereof, a removable active element or heater proper of such a
15 size as to pass readily through the front of the heater-casing when the face-plate is re-

moved, the said active element resting against the lugs on the walls and face-plate of the casing, and clips 23, 24, carried by the lugs and resting against the heater proper to hold the same in place in the casing, where-
20 by the heater proper will be supported clear of the casing and a circulation of air may be permitted therethrough, while at the same time the heater proper may be removed from the casing after detaching the casing from
25 its support.

JOSEPH G. NOYES.

Witnesses:

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HARRY M. TURK.