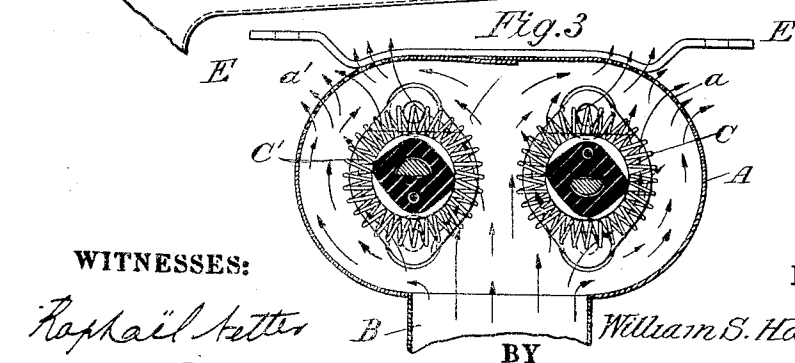
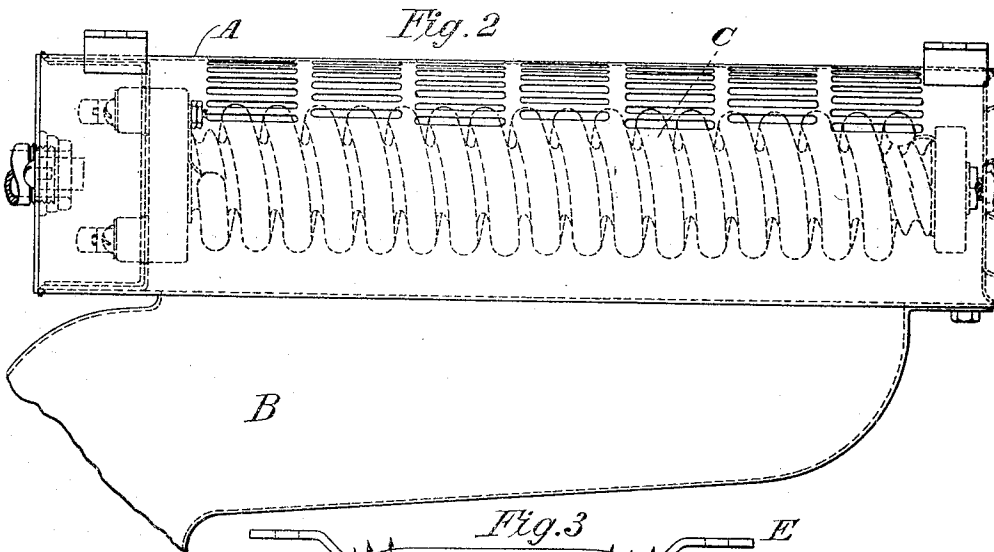
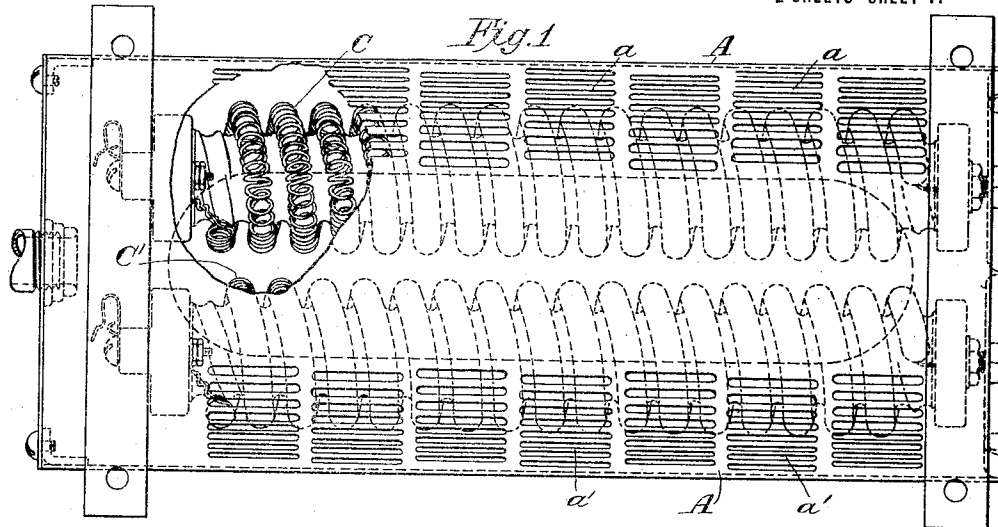


W. S. HAMMOND, JR.
ELECTRIC CAR HEATER.
APPLICATION FILED AUG. 12, 1914.

1,223,968.

Patented Apr. 24, 1917.

2 SHEETS—SHEET 1.



WITNESSES:

Raphael Better
Charles Roberts

INVENTOR

William S. Hammond, Jr.

BY

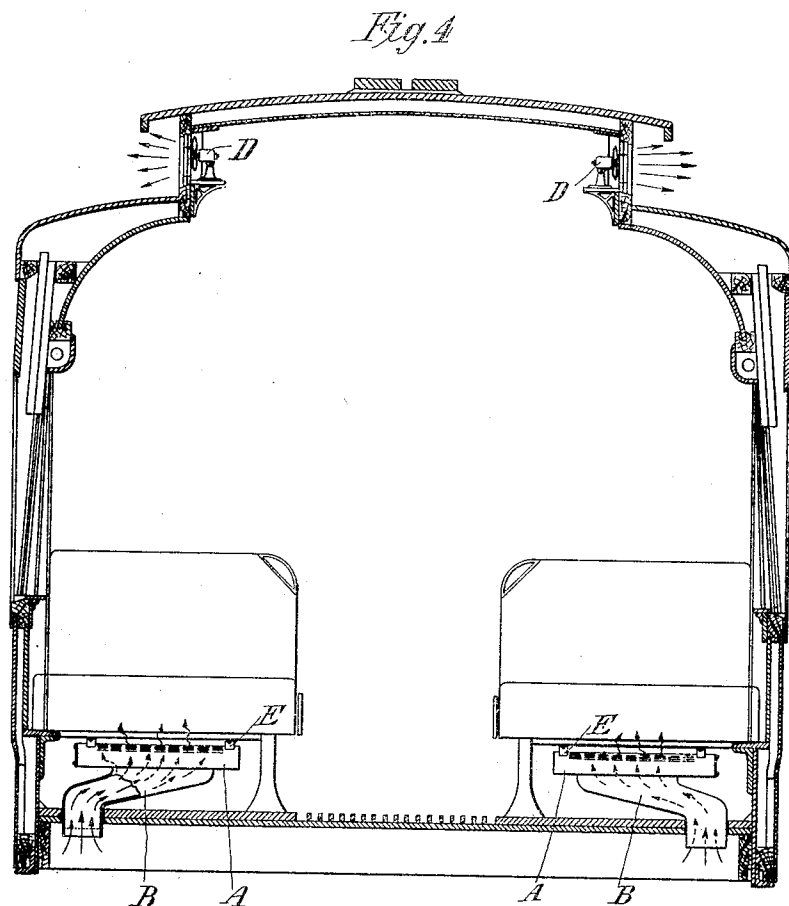
E. W. Bentley

ATTY.

1,223,968.

W. S. HAMMOND, JR.
ELECTRIC CAR HEATER.
APPLICATION FILED AUG. 12, 1914.

Patented Apr. 24, 1917.
2 SHEETS—SHEET 2.



WITNESSES:

Raphael Ketter
Charles Roberts.

INVENTOR

BY *William S. Hammond, Jr.*
E. M. Brintley
ATTY.

UNITED STATES PATENT OFFICE.

WILLIAM S. HAMMOND, JR., OF CHICAGO, ILLINOIS, ASSIGNOR TO CONSOLIDATED CAR-HEATING COMPANY, OF ALBANY, NEW YORK, A CORPORATION OF WEST VIRGINIA.

ELECTRIC CAR-HEATER.

1,223,968.

Specification of Letters Patent.

Patented Apr. 24, 1917.

Application filed August 12, 1914. Serial No. 856,477.

To all whom it may concern:

Be it known that I, WILLIAM S. HAMMOND, JR., a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Electric Car-Heaters, the following being a full, clear, and exact disclosure of the one form of my invention which I at present deem preferable.

For a detailed description of the present form of my invention, reference may be had to the following specification and to the accompanying drawings, which illustrate my invention, wherein—

Figure 1 is a plan and

Fig. 2 is an elevation of my heater;

Fig. 3 is a section thereof and

Fig. 4 shows it in a car.

In ordinary electric car heating each heater is inclosed in a casing having openings near the bottom for the admission of cool air from the interior of the car near the floor and other openings near the top of the casing through which the heated air passes into the car. It is my purpose to provide a car heater which is of the ordinary kind, such as may be placed under the cross seat of the car, or a multiplicity of them arranged at intervals under a longitudinal car-seat with openings in the riser of the seat for the outflow of heated air, but I provide the casing with no openings into the car except those on the upper side for the flow of the heated air. Each casing is provided with a duct on its under side which communicates with the outer air or with a longitudinal duct which is open to the outside. In this way the entire body of cool air to be heated comes from outside the car and none from within the car. I prefer also to provide one or more outflow fans in the car which will tend to create a slight vacuum in the car so that the suction will tend to draw in outside air through all of the several heater casings at once. This also relieves the electric motor which drives the fan from the danger of overheating by the backing up of hot air into the fan casing in the event of the motor failing and the air flow over the heating coils being stopped, such as is encountered in certain other arrangements.

In the drawing I have shown my heater in the form which it assumes when applied to a car-seat of the transverse type. A rep-

resents a sheet-iron casing of an elliptical form in cross-section as appears in Fig. 3, and of a length somewhat less than the length of the seat, as appears in Fig. 4. This casing A is secured to the under side of the seat by brackets E, shown in Fig. 3. Inside the casing and suitably mounted therein are two parallel heater coils C, C¹ which are spaced apart from each other and from the side walls of the casing to admit of an air current entering from the bottom to pass up between the two coils and also beneath and around their outer sides as indicated by the arrows in Fig. 3. On the upper side of the casing are two series a and a¹ of outflow openings through which the heated air can pass both in front of and behind the seat to which the heater is applied. On the under side the casing opens into a duct B, which is shown, particularly in Fig. 4, as extending longitudinally of the casing but transversely of the car and passing thence downwardly through the car floor to the outer air. By this means the air from inside the car can not enter the casing, but only the outside air which passes in through duct B. In order to insure an inflow through all of the heater casings taken as a whole, I provide one or more outflow fans D, D in the upper part of the car, as appears in Fig. 4. By this means there is no local circulation of air in the car but a constant drift of all the air in the car from the several heaters upward to the fans and out, this being in contrast to the usual arrangement of electric car heaters wherein the air is being constantly circulated locally in the car, being repeatedly reheated as it loses its heat and sinks toward the floor where it re-enters the heaters and passes thence into the car again.

What I claim as new and desire to secure by Letters Patent is:

1. An electric heater for cars comprising a casing having a centrally located base opening that extends longitudinally of the casing, a duct for delivering air to said base opening, the top of the casing having a series of outlet openings disposed adjacent its longitudinal edges to cause the air to be discharged from the casing in different directions and in two separate streams, and a pair of heaters within the casing arranged in spaced parallel relation to cause the air

from the inlet to circulate between and around the heaters.

2. As an improvement in electric heaters for cars and the like, the combination with
5 a closed chamber to be heated, the casing having a centrally located base opening extending longitudinally thereof, a duct delivering air through said opening, said duct
10 having its inlet end communicating with the outside atmosphere, the top of the casing having a series of outlet openings spaced from each other and disposed adjacent the longitudinal edges of the casing to cause
air to be discharged from the casing in two

separate streams, and a pair of heaters 15 within the casing arranged in spaced parallel relation on opposite sides of the base opening and contiguous to the outlet openings, to cause air from the said duct to circulate between and around the heaters. 20

In witness whereof I have hereunto set my hand, before two subscribing witnesses, this 8th day of August, 1914.

WILLIAM S. HAMMOND, Jr.

Witnesses:

CHARLES A. EGGERT,
DWIGHT I. COOKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."