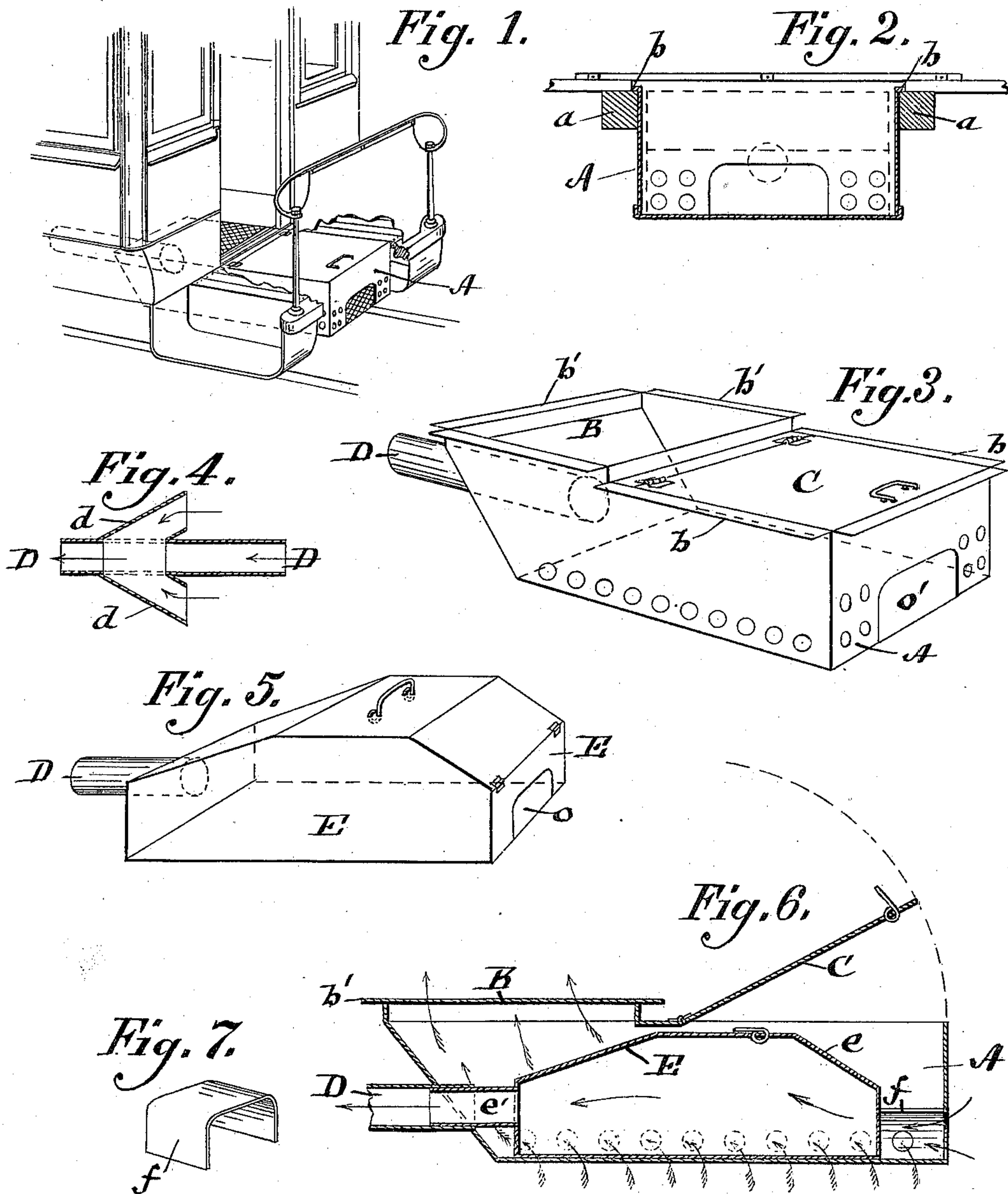


(No Model.)

J. ZIMMERMAN.  
CAR HEATER.

No. 309,279.

Patented Dec. 16, 1884.



Attest:  
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# UNITED STATES PATENT OFFICE.

JOHN ZIMMERMAN, OF CINCINNATI, OHIO.

## CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 309,279, dated December 16, 1884.

Application filed January 10, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ZIMMERMAN, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Car-Heaters, of which the following is a specification.

My invention relates to heaters for railway-cars, its object being to produce a simple, cheap, and practicable heater for street-railway cars, adapted to the exigencies of such service, which can be readily attached to existing cars and easily operated.

To this end it consists in a containing box or chamber serving the purpose of an air-heating conduit, in which is removably placed a stove or fire-pot holding the incandescent fuel, by means of which the air received into the containing-chamber is first heated, and thence delivered, through an upper opening or register through the floor, into the body of the car.

One of the main objects of my invention is to obviate certain practical objections to street-car heaters as heretofore constructed and used, such as the difficulty of disposing of the smoke in using bituminous fuels, and also of carrying a supply of fresh fuel and replenishing the fire while on the trip. These I overcome by using a removable fire-pot, which allows me to replace the spent fuel at the end of each trip by a duplicate fire-pot ready prepared for use by the stable attendants, thus relieving the conductor and driver of the car of all care and responsibility, by using charcoal, coke, or hard coal brought to incandescence by means independent of the car, and discharging the gases of combustion beneath the car.

The nature and construction of the apparatus employed will be more readily comprehended by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my heater in position beneath a car-platform, the latter being partly broken away to exhibit the apparatus more fully. Fig. 2 is a vertical cross-section of the containing-box or air-heating conduit. Fig. 3 is a detached perspective view of the containing-box. Fig. 4 is a detached plan section of the escape-pipe for the gases of combustion. Fig. 5 is a detached perspective view of the fire-pot. Fig. 6 is a

vertical longitudinal section of the apparatus complete. Fig. 7 is a detached view of the hood used to conduct air to the fire-pot for maintaining combustion.

The several parts hereinafter described are designated in the drawings by letters of reference.

The air-heating chamber A, constructed, preferably, of sheet-iron, is of substantially rectangular form, pierced at the front and sides near the bottom for admission of air, and provided at the top with large openings, one of which, B, is a vertical conduit for discharging the heated air into the car, and the other is provided with a hinged lid, C, and used for removing and replacing the fire-pot. The chamber A is preferably of suitable width to be retained between the two central sills, *a*, of the car-frame, and is provided with flanges *b*, which extend laterally over upon said sills, thus sustaining the chamber in position. The vertical conduit B is extended upward sufficiently to pass through the car-floor, and is similarly flanged to be held upon and from said floor. An ordinary hot-air register may be provided for such opening; but in general the removable floor-grating of the car will answer all purposes. The rear wall of the chamber A is slanted to the rear upward to aid the discharge of air rearward in the car, the chamber A occupying such a position that its front opening is beneath the forward platform of the car, and the conduit B opens into the car immediately in rear of the front door.

At the rear end of the chamber A is attached a short horizontal pipe, D, for the escape of the spent gases of combustion, and is preferably provided with two wings or hoods, *d*, opening forward to catch the air and assist the draft of air through the incandescent fuel. The fire-pot E is also a box approximately rectangular in form, and having a portion of its top hinged as a lid, *e*, to permit access for replenishing the fuel. From its rear end projects a short section of pipe, *e'*, adapted to fit and engage with the pipe D. At the front of the fire-pot is an opening, *o*, for admission of air, corresponding with a similar opening, *o'*, in the containing-box, the two being joined by a removable hood, *f*, when in use, as in Fig. 6, by which the draft generated by the



motion of the car forward is applied to the incandescent fuel.

From the construction just described it will be seen that the fire-pot E is in fact partly 5 suspended at front and rear within the air-heating chamber A; the weight of the fire-pot being supported on the bottom of the containing-chamber, whereby an annular air-space is formed, surrounding the fire-pot on 10 the sides and top. The air is thus heated on all sides and the useful effect of the fuel largely increased.

The operation of the device is obvious, the fire-pot being removed and a similar one 15 freshly prepared being inserted at the end of each trip. In practice I prefer to use ordinary charcoal; but coke or anthracite coal may be used. Suitable gratings are applied to the openings to prevent access of dirt, and 20 also a foot-grating to cover the opening in the car-platform upon which the driver stands.

I have thus described and illustrated my invention in simplest form; but it is obvious 25 that many improvements in constructive detail may be introduced without departing from its spirit.

I am aware that car-heaters have been constructed similar to mine, having a heating-space exposed to the heating-surface at all 30 sides, at the top, and at the bottom of an immovable fire-pot, and that such heaters were immovably fixed to the car-frame. My construction, however, allows the heater to be

taken off at pleasure, and permits the fire-pot to be removed when exhausted and a newly- 35 prepared one inserted. Moreover, by providing the pipe E' easy connection with the hooded smoke-pipe D is secured, which features, so far as I am aware, are not met in other devices. 40

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

In combination with a street-car, an elongated air-heating chamber and conduit provided with flanges adapting it to be suspended 45 between the longitudinal sills of the car-frame, having an opening in the top forward beneath the car-platform for the insertion of a fire-pot, and an opening in the top in the rear for the discharge of the heated air 50 into the car, and a short pipe extending rearward for the escape of the gases of combustion beneath the car, the latter pipe being provided with a funnel-hood opening forward to stimulate the draft, constructed and ar- 55 ranged to rest beneath the front platform, substantially as described, and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 60 witnesses.

JOHN ZIMMERMAN.

Witnesses:

L. M. HOSEA,  
C. SHAPPELL.