

(No Model.)

2 Sheets—Sheet 1.

E. MOLLOY.
HEATER FOR VEHICLES.

No. 477,811.

Patented June 28, 1892.

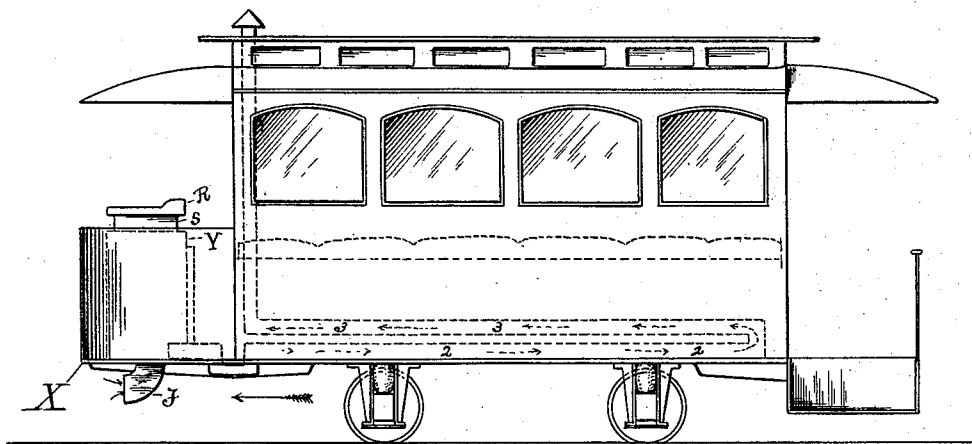


FIG. 1.

FIG. 9.

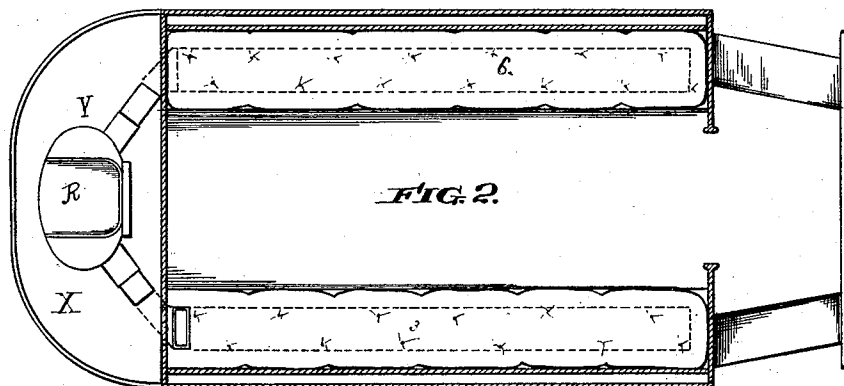
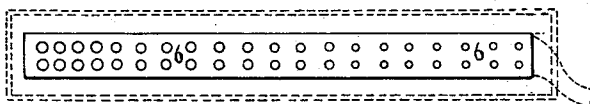


FIG. 2.

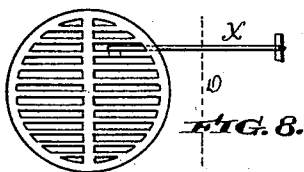


FIG. 8.

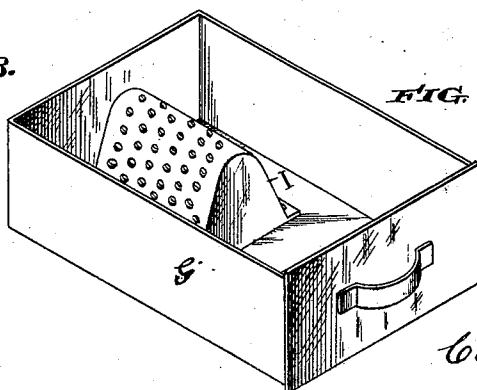


FIG. 7.

Witnesses:

Harry Dwyer
William F. Meyers

Inventor:

Edmond Molloy
by his Attys

Collet & Ryan

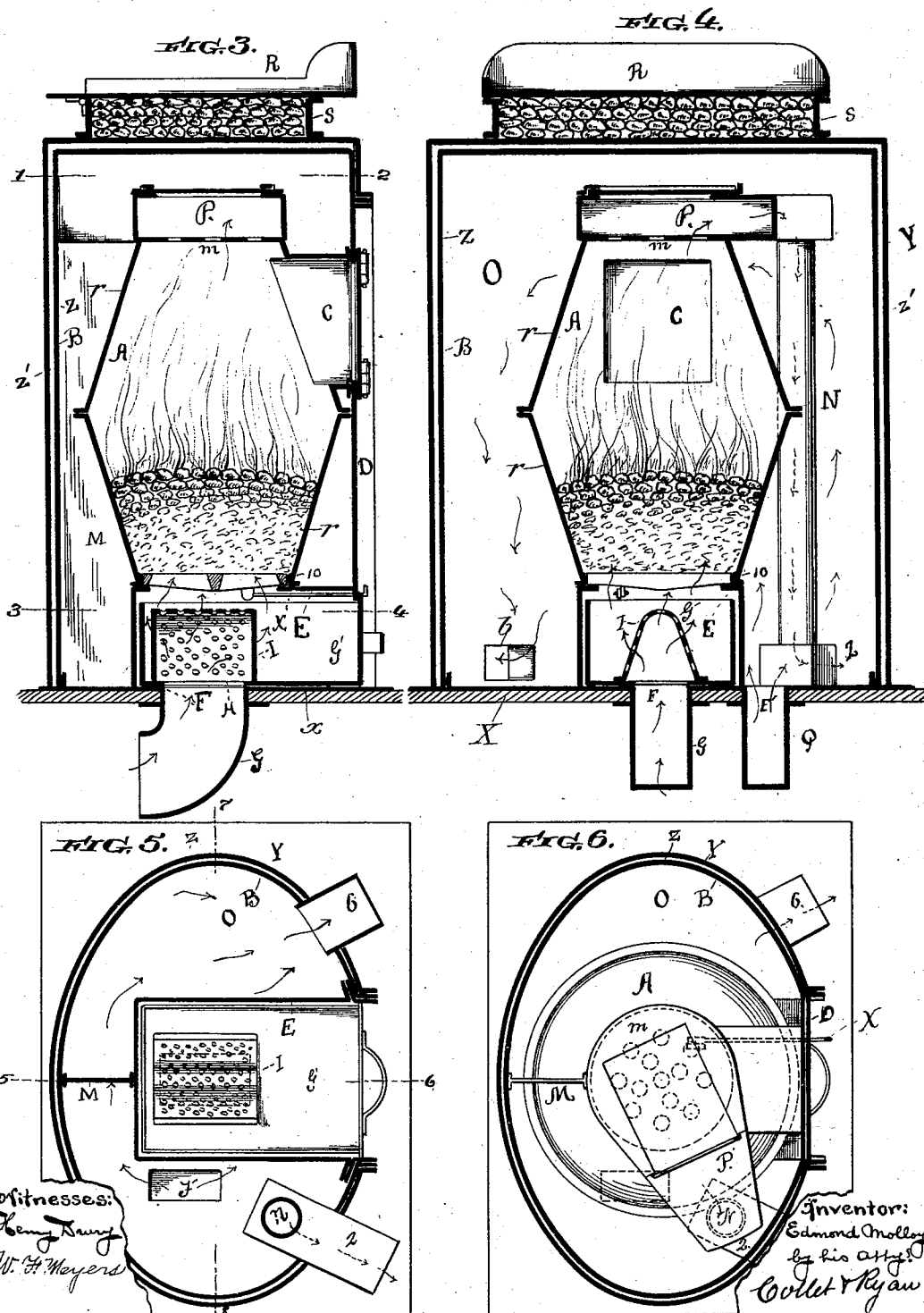
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2 Sheets—Sheet 2.

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HEATER FOR VEHICLES.

No. 477,811.

Patented June 28, 1892.



UNITED STATES PATENT OFFICE.

EDMOND MOLLOY, OF PHILADELPHIA, PENNSYLVANIA.

HEATER FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 477,811, dated June 28, 1892.

Application filed January 20, 1891. Serial No. 378,408. (No model.)

To all whom it may concern:

Be it known that I, EDMOND MOLLOY, a citizen of the United States, and a resident of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Heaters for Vehicles, of which the following is a clear and sufficient specification, reference being had to the accompanying drawings.

Heaters hitherto for street-vehicles have been constructed as "pendent" heaters, which, owing to their position under the car, must be coaled and attended to either from outside the car or by special contrivances by simple stoves placed in the interior of the body of the car, in which cases the car is very unequally heated and generally rendered close and uncomfortable and space which is badly needed taken up and the driver left exposed to the cold. Such stoves have, however, been placed at the front door, by which means the driver is somewhat warmed; but the front of the car, which is least exposed to the entrance of cold air, is superheated and the front door blocked. Stoves have also been placed on the platforms of moving vehicles, but of such forms and dimensions that the platform is blocked, or else requiring artificial draft to produce a useful result, if smaller. Both of these features render the use of such devices impracticable without such alterations in the present methods of street transit as to render their adoption impossible.

The principal object of my invention is to combine the various elements of which my heater is constructed so that it be small enough and of such form as will be convenient to be placed on the platform of the vehicle to be heated and to so combine them that the heating effects of the device will not be dependent upon an artificial draft, and will thus conform itself to the present conditions of street transit.

The construction and operation of my invented device is clearly set forth in the following portions of my specification and in the above-mentioned drawings, in which—

Figure 1 is a side elevation of a car, showing a plan of the distribution of the heat and the position of my invented device. Fig. 2 is a plan view showing same. Figs. 3 and 4 are vertical sections on the dotted lines 5 6 and

7 8, respectively, of Fig. 5 of my invented heater. Figs. 5 and 6 are horizontal sections on the dotted lines 3 4 and 1 2 of Fig. 3, respectively, of same. Fig. 7 is a view of an ash-pan. Fig. 8 is a view of a grate. Fig. 9 is a view showing the method of distribution of the air from the hot-air chamber.

I erect my heater on the front platform of the car or other vehicle, preferably at a short distance from the front door and in the place occupied by the driver's stool, which it replaces. Immediately on the platform, which is preferably covered by a protecting material, such as sheet iron or zinc *x*, I place the stove-body, which I preferably construct with the fire-box A and the ash-pit E, both above the platform X. The fire-box A can be constructed in almost any convenient form or manner since it performs simply the function of a stove; but I construct it in practice in the form of a pair of truncated cones *r r*, which can be conveniently cast and bolted together and to the walls of the ash-pit E, from which it is separated by the grate on which rests the fuel. I prefer to construct the ash-pit E with a portion extending to a point about equal to or a little beyond the most sidewise spreading part of the fire-box A, and to continue up from it a plate D, which I prefer to make of some degree of rigidity both for the purpose of supporting the stove and supporting the shells forming the walls of the air-chamber, which latter forms a prominent feature of my invention and will hereinafter be described. To the plate D, I also run a tunnel C from the interior of the fire-box A, which is closed by the door in the plate D. Through this tunnel C is introduced the fuel.

I utilize very fully both the heated gases and the heated air from the heater. I employ means which enable the heat from the heated gases to be utilized directly for heating the vehicle, and also cause by the same means a greater heat to be generated in the heater and a greater heat to be given to the air which is designed, together with these gases to heat the vehicle.

From the top of the fire-box A, I lead the flue P, which is continued downward by the flue N, which in turn communicates with the flues leading through the vehicle-body, pref-

erably under one row of seats when an ordinary horse-car is the vehicle to be heated, and passes out through the roof. A great draft is given the fire, preferably by an opening in the bottom of the ash-pit E. This draft I increase in practice by the forwardly-turned scoop G. This greatness of draft, together with the extent of pipe which the escaping gases travel, and in which of course they are considerably cooled, causes a greater heat in the fire-box A by retarding the exit of the gases therefrom, especially so when, as I consider preferable, I employ a damper, which I conveniently place at the point where the exit-flue and fire-box join to aid in retaining the heated gases in the fire-box. This damper I in practice construct of a perforated plate *m*.

The flue 2, which leads from the flue N, I preferably construct of a flattish iron box, so that it will not take up room on the platform, and when the door slides to open I carry the flue below the frame-work of the car to avoid it or avoid it in some other suitable manner.

In the ash-pit E, to collect the ashes, I generally place a pan G', which when the draft comes from beneath the platform Z, I provide with a perforated hood I or some other suitable means for preventing the dropping of ashes in the street, placed over an opening in the ash-pan's bottom, which registers with the draft-opening.

Around the fire-box is a chamber in which the air is heated. This chamber is made small in comparison with the fire-box, so that a small quantity only of air is brought into the chamber at once to be heated, and it is made in a form to cause the air to be presented in a comparatively thin layer between the fire-box and the walls of the chamber, by which means the air is rapidly and thoroughly heated.

The walls of the air-chamber in practice I construct as follows: A portion of the wall of this chamber has been described as consisting, preferably, of the plate D. To this plate I attach the shell *z*, which I bolt or secure in some other suitable manner to the floor and to the plate D. Around this shell I place the shell *z'*, having between it and the shell *z* a small air-space to prevent the conduction of much heat from the heated air within the chamber to the outside of the heater. These two shells form the wall B of the air-chamber.

On the top of the wall B, I frequently place a seat R, preferably mounted over a box *s*, in which is kept the coal, which will be heated, so that it will ignite more readily than if placed cold on the fire, and consequently will not dampen the fire so much, and by absorbing the heat protect the occupant of the seat.

I introduce the air into the air-chamber from beneath the platform by a draft-opening, which I preferably make near the flue N to bring the air entering into contact with it. To cause a greater amount of air to be discharged into the car when the car is in motion than when at rest, I sometimes pro-

vide this inlet with an air-scoop Q. At a point preferably on the opposite side from the air-inlet I place the air-exit flue 6, which can be made substantially in the same manner as has been described with reference to the flue carrying the heated gases.

The heated air can be distributed by perforated pipes or other means in the interior of the vehicle. When perforated pipes are used, they may be placed under the seats and the perforations made larger toward the back doors than toward the front, so that a greater amount of heat will be distributed where most needed. In the air-chamber I generally place a screen M or some other similar device, by which a better circulation of the heated air is secured in the air-chamber of the heater.

While I have described with great particularity my invented device, I do not limit myself to the precise mechanical details shown therein, as many changes in such details may be made by a competent mechanic without departing from the spirit of my invention.

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

1. A car-heater placed on the platform of a moving vehicle, consisting of a stove portion placed above the platform and provided with flues leading from said stove portion downward toward the platform and along the platform and through the vehicle and emerging sufficiently high to produce a draft through the stove-walls and forming an air-chamber in which the air is kept in a substantially thin layer between the walls and the stove, an air-inlet furnishing draft to the fire, a hot-air flue substantially level with the platform, discharging the heated air into the car above the level of the air-inlet, and circulating devices placed in the air-chamber between the air-inlet and the hot-air flue, substantially as described.

2. In a heater placed on the platform of a moving vehicle and provided with hot-air flues leading into said vehicle and radiating conductors carrying the heated gases from the fire-box through the vehicle, the combination, with a fire-box, of a flue leading from said fire-box toward the platform and connecting with a flue running along the platform and connecting with a flue leading into the vehicle-body, an inclosed ash-pit beneath the fire-box, in the bottom of which is an air-inlet, walls surrounding said fire-box and forming an air-chamber and being in sufficient proximity thereto to keep the air to be heated in a comparatively thin layer between the fire-box and walls, an air-inlet into the fire-box, a hot-air outlet in said air-chamber on a level with the platform and connecting with the flue leading into the vehicle, and a screen placed between said inlet and said outlet and extending from the bottom toward the top of said air-chamber, substantially as described.

3. In a heater placed above the platform of a moving vehicle and provided with flues lead-

ing into the vehicle, the combination of an inner stove portion mounted on said platform and provided with flues leading from said stove portion near its top to the platform and
5 connecting with the radiating flues passing through the vehicle, and walls surrounding said stove portion and forming a chamber in which the air is heated, said walls consisting of an upright piece D, to which are secured a
10 shell z and a shell z' , surrounding said shell z and leaving an air-space between the two shells, an air-inlet admitting air into the air-chamber, an air-exit connecting with flues leading into the interior of the car-body, and
15 a screen M, placed between the entrance and exit openings for the air, substantially as described.

4. In a heater for moving vehicles, placed above the platform of the vehicle and having
20 an air-chamber inclosed with walls formed of two shells having an intervening air-space and an upright piece D, of a seat placed on said heater and a coal-box placed between said seat and said heater, substantially as described.
25

5. In heaters for moving vehicles that have a platform, the combination of a stove-body placed above the platform, an air-inlet from

the platform into the ash-pit, a pan fitting into said ash-pit and provided with an opening in its bottom calendering with said air-inlet and covered with a protecting-hood, an air-chamber surrounding the stove portion and formed of two shells having an intermediate air-space between the same, an air-inlet
30 leading from beneath the platform into the air-chamber, and flues leading from the air-chamber and from the stove portion into the body of the vehicle.
35

6. The combination, in a heater for moving
40 vehicles, adapted to be placed on the platforms thereof and having the draft introduced into the stove portion by means of an opening through the platform, of an ash-pan fitting
45 into said ash-pit and having the draft introduced by means of an opening calendering with the draft-inlet in the bottom of the ash-pit and provided with a perforated hood placed over said opening, substantially as described.

In token whereof I have hereto set my hand, 50
in the presence of two subscribing witnesses,
this 3d day of January, A. D. 1891.

EDMOND MOLLOY.

Witnesses:

MARK WILKS COLLET,
WILLIAM F. MEYERS.