(No Model.)

2 Sheets—Sheet 1.

L. STOCKDALE.

HEATER.

No. 278,466. Patented May 29, 1883.

Fig. 1.

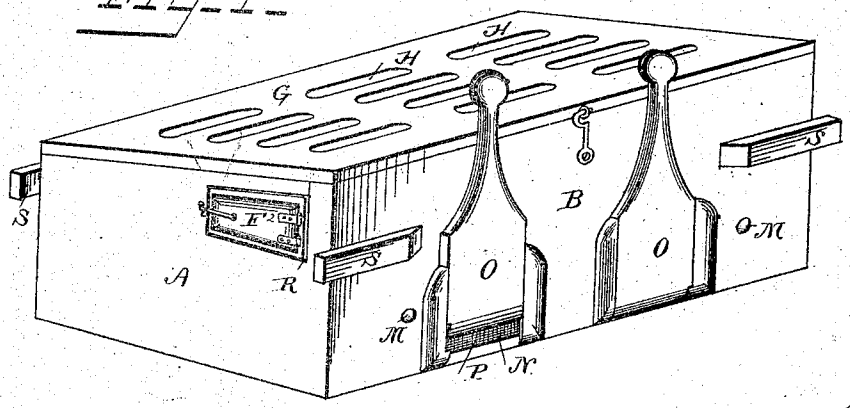


Fig. 2.

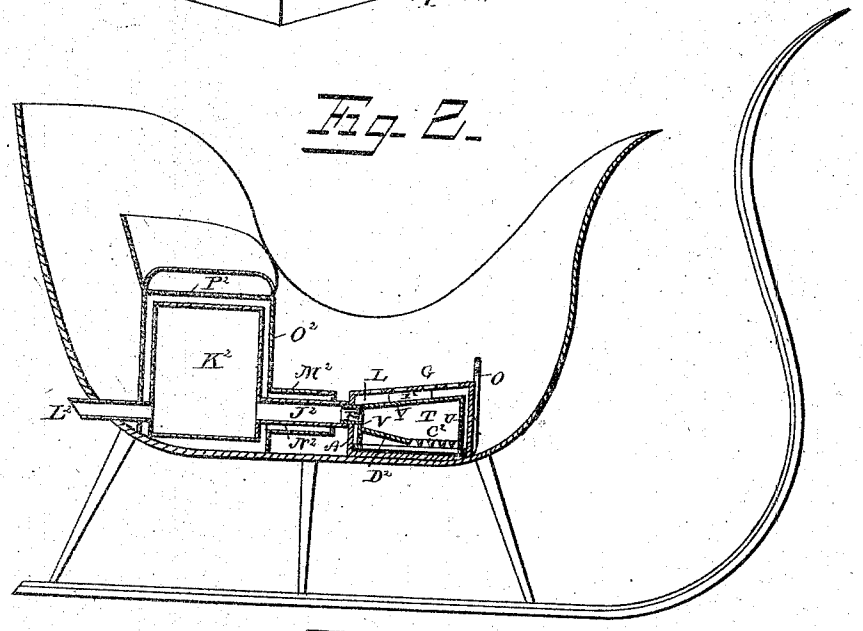
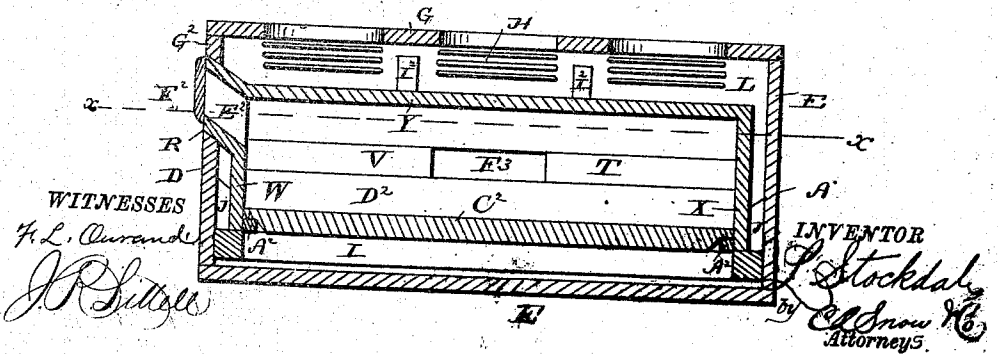


Fig. 3.



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(No Model.)

2 Sheets—Sheet 2.

L. STOCKDALE.

HEATER.

No. 278,466. Patented May 29, 1883.

Fig. 4.

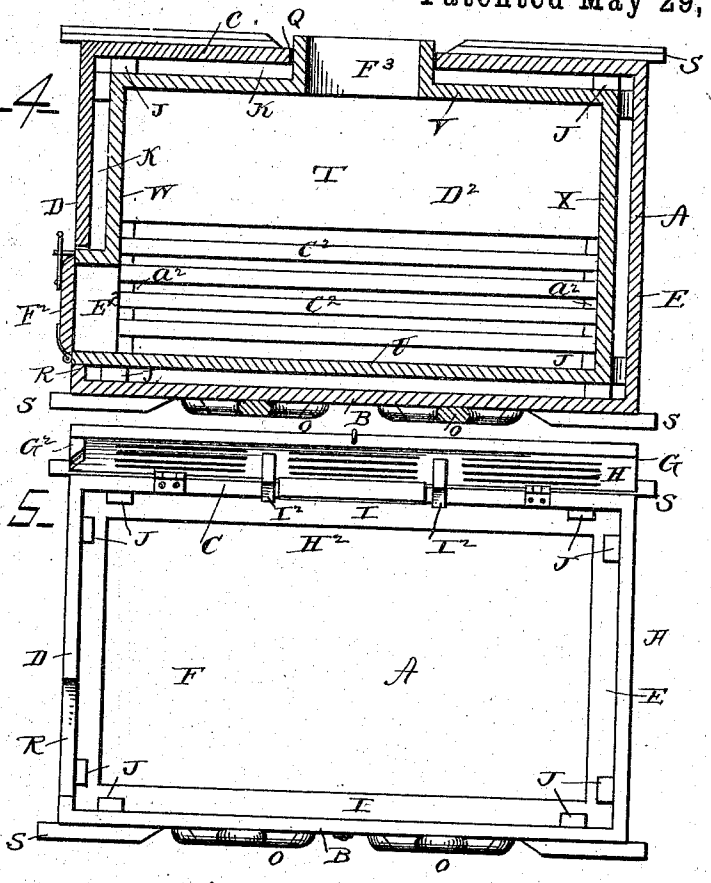
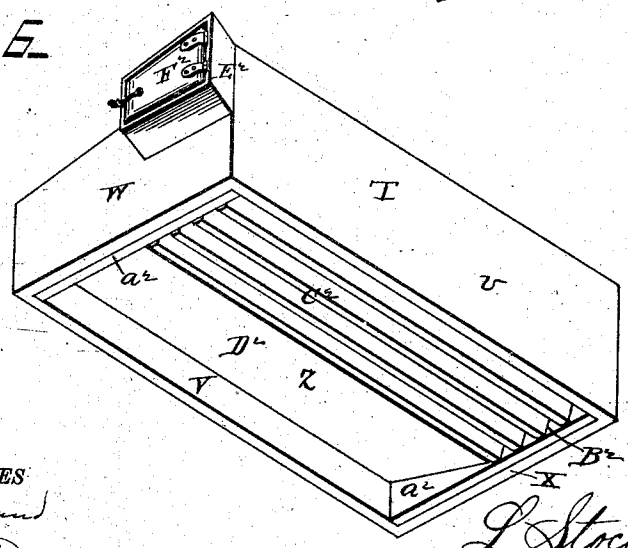


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

LEVI STOCKDALE, OF ZANESVILLE, OHIO.

HEATEP

SPECIFICATION forming part of Letters Patent No. 278,466, dated May 29, 1883.

Application filed February 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEVI STOCKDALE, a citizen of he United States, residing at Zanesville, in the county of Muskingum and State of Ohio, have invented a new and useful Heater, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to heaters, and is especially adapted for use in sleighs, carriages, and other vehicles, to warm the feet of the occupants and to otherwise distribute heat in the conveyance.

The invention has for its object to provide a simple, inexpensive, and efficient heater that will effect economy in fuel, can be conveniently operated, and obviates all liability of setting fire to the vehicle.

In the drawings, Figure 1 is a perspective view of my improved heater. Fig. 2 is a vertical sectional view, illustrating its application to a sleigh. Fig. 3 is a longitudinal vertical sectional view of the heater. Fig. 4 is a horizontal sectional view on the line *x x*, Fig. 3. Fig. 5 is a plan view of the outside box. Fig. 6 is a perspective view of the inside box or fire-chamber.

Referring to the drawings, A designates the outside box, that is preferably cast in one piece of malleable iron, and forms a hot-air compartment, as hereinafter specified. This outside box consists of the vertical sides or walls B, C, D, and E, respectively, a hinged bottom, F, that forms the bottom of the ash-pit, and by operating which on its hinges the ashes can be conveniently dropped or deposited when desired, and a hinged top, G. The top G is formed with perforations H, through which the hot air escapes to warm the feet, which are rested on the said top plate.

I is a horizontal flange or supporting-shoulder that projects interiorly around the outside box, A, near its bottom, and on this flange rests the removable inside fire-chamber when the latter is in position. Above the flange I are arranged projections J, that retain the inside box or fire-chamber in position to preserve the hot-air space K between the inside and outside boxes. This hot-air space K extends around the heater, as shown, and opens into the hot-air chamber L, between the top of the inside box and the top plate, G.

M are small perforations that are provided in the vertical walls of the box A, above the flange I, to supply pure air to the hot-air space. In the face B of the box A are provided openings N N, at the ash-pit and below the flange I, which are arranged to be closed by a slide, O, to regulate the draft. These openings N are to be covered by a metallic network, P, to prevent escape of the ashes through them. The back wall, C, of the box A is cut away to form a recess, Q, and a similar recess, R, is formed in the side wall, D. The box A is also provided with extensions or projections S at its corners, by which it can be secured to the floor.

T is the inside box, which, like box A, is preferably cast in one piece of malleable iron, and it forms the fire-chamber. This box T comprises the vertical side walls, U, V, W, and X, respectively, and the top Y, and has its bottom Z formed by the grate. The end or side walls of the box T, W, and X are provided with interior shoulders, A^2 A^2, that are formed with recesses B^2 in their top edges, and into these recesses are set the grate-bars C^2 and an inclined plate, D^2, in rear of the bars, the purpose of which plate is to keep the fuel on the latter and effect more direct action of the draft on the fire. The bars and back plate are not secured in their seats, and they are, therefore, readily removable for substitution or other purposes. The side wall W is provided with a flanged opening, E^2, having a door, F^2. This flanged portion rests in the recess R, and through the opening fuel may be fed to the fire without removing the box T from the outside box, A. The rear wall, V, of the box T is likewise provided with a flanged opening, F^3, and this flanged portion rests in the recess Q.

The top plate, G, is provided with flanges G^2 and H^2 on its under surface, which project against the flanges E^2 and F^3, and also with flanges I^2 I^2, that project against the top of box T and secure the same down. By opening the top G the inside box can be readily removed from or placed in the box A. The products of combustion in the chamber T pass off through the rear opening, F^2, and cannot escape into

the hot-air space, and the heat radiated from the said chamber T heats the air in the hot-air space.

From the flange F^3 a pipe, J^2, can be arranged to extend to a drum, K^2, and the latter is to be provided with a pipe, L^2, through which the smoke and other products of combustion can escape. This conducting-pipe J^2 is to be inclosed in a larger outside pipe, M^2, so that a hot-air space, N^2, is provided between the two pipes, and this outer pipe, M^2, opens into a drum, O^2, that incloses the drum K^2. The hot air which thus passes into the drum O^2 makes its exit through openings P^2 in the top thereof to heat the vehicle, these drums being usually arranged under the seat.

I claim as my invention—

1. The combination, with the outside box having a hinged perforated top, and provided with an interior shoulder or flange near its bottom, above which are arranged the projections, said box having perforations in its walls above the flange, and also openings below the flange, of the inside removable chamber having closed sides and top, an open grate bottom, and an exit-flue extending to the outside of the heater, as set forth.

2. The combination, with the outside box having a hinged bottom, a hinged perforated top, an interior flange or shoulder near its bottom, projections above the flange, openings below the flange, perforations in its walls above the flange, and the recesses in its walls, of the inside fire-chamber having closed sides and top, an open grate bottom, a flanged feed-opening, and a flanged exit-opening, as set forth.

3. The combination, with the outside box, A, having the hinged bottom F, perforated hinged top G, provided with flanges on its under surface, the interior horizontal supporting-flange, I, the projections J above the flange, arranged to form hot-air space K, and the draft-openings M and N, of the inside removable box, T, arranged to rest on flange I and form the top hot-air chamber, L, and provided with the grate-bottom, the side flanged opening, E^2, and the flanged opening F^2, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

LEVI STOCKDALE.

Witnesses:

MAY GEIGER,

O. W. BURRON.