(No Model.)

P. L. McGOVERN.

CAR HEATING APPARATUS.

No. 405,112. Patented June 11, 1889.

FIG. 2.

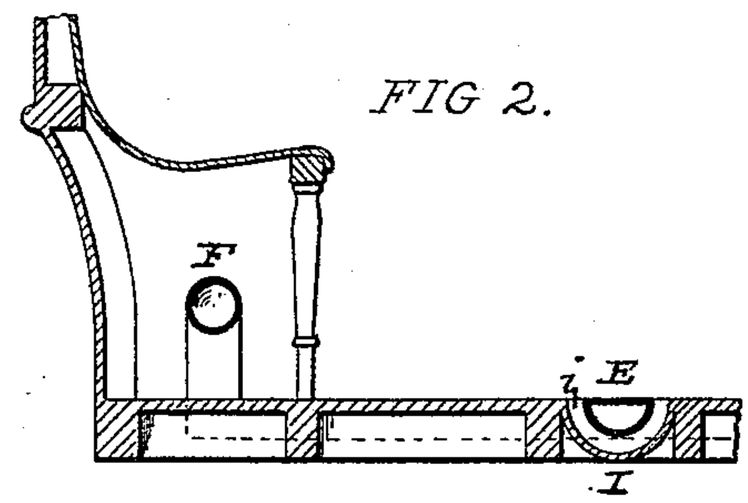

FIG. 3.

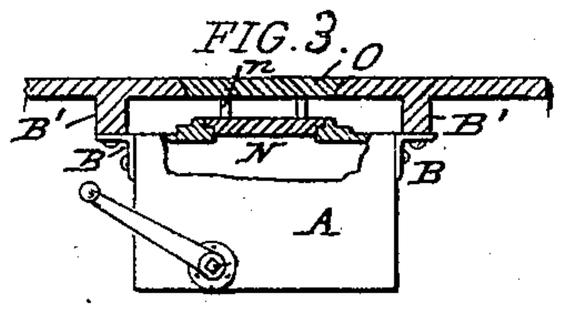

FIG. 1.

ATTEST:

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CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 405,112, dated June 11, 1889.

Application filed April 30, 1888. Serial No. 272,367. (No model.)

To all whom it may concern:

Be it known that I, PATRICK L. McGOVERN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to that class of heating apparatus for street and other cars in which the heated products of combustion from a stove or furnace are carried through a series of flues within the car to heat the interior of the same; and the present improvement has for its object to provide a simple, cheap, and durable apparatus for such use, embodying the features of uniform and economical heating of the car interior and the convenient regulation of the heat. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view illustrating my improved heating apparatus disconnected from the car; Fig. 2, a detail transverse section of a street-car, illustrating the arrangement of my invention in the same; Fig. 3, a detail end view, partly sectionized, illustrating the manner of arranging the stove or furnace underneath the car-platform.

Similar letters of reference indicate like parts in the several views.

Referring to the drawings, A represents the pendent stove or fire-box suspended underneath the car-platform by means of side brackets B, through which bolts screw into the timbers B′ of the car-platform.

C is the outlet-flue, discharging into a main cross-flue D, which has a central longitudinal branch flue E, and two longitudinal side flues F F, that carry the heated products of combustion into the uptake pipes or chimneys G, by the following connections: The longitudinal branch flue E connects with a cross-flue H, that extends to and connects with the vertical uptake-pipes G G, while the longitudinal side flues F F connect directly with such uptake-pipes, as clearly illustrated in Fig. 1.

g g are dampers in the uptake-pipes G, to regulate the draft through the same; and *c* is a damper in the outlet-flue C, to close such flue in dumping the fire, &c.

The cross-flues D and H and longitudinal flue E will be of a flattened form, preferably semicircular, as shown, and sunk to a level in the car-floor, while the longitudinal side flues F F will be arranged some distance above the floor and occupy the space underneath the car-seats, as shown in Fig. 2.

The central longitudinal flue E will be arranged in a trough or channel I in the center of the car, with a space *i* around the flue to drain away the water used in washing out the car. (See Fig. 2.)

The fire-box A is formed with a rearwardly-projecting flue-extension A′, so that the grate will not be directly underneath the outlet-flue C, as I find by such construction a more uniform combustion is effected in the stove or fire-chamber.

M is a hinged door at the front of the fire-box, through which the fire can be raked, clinkers removed, &c., as required.

The feed-opening to the fire-chamber is at top and closed by a cover N, which is secured by distance-blocks *n* to a wooden cover or trap-door O, fitting the floor of the car-platform, as indicated in Fig. 3. An insulating-space is thus left between the two, which can be filled with a body of suitable fire-proof non-conducting material, if desired. Similarly a filling of non-conducting material can be arranged between the top of the stove and the floor of the car-platform.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A street-car heater comprising, in combination, the stove A, suspended underneath the car-platform, outlet-flue C, cross-flue D, trough I, extending longitudinally along the center of the car, longitudinal central flue E,

located in the trough I, and having its upper surface flush with the floor of the car, side flues F F, located under the car-seats, and uptake-pipes G G, located at the end of the longitudinal flues, opposite to that at which they connect with the stove, essentially as herein described.

Witness my hand this 28th day of April, 1888.

PATRICK L. McGOVERN.

In presence of—
ROBERT BURNS,
GEO. H. ARTHUR.