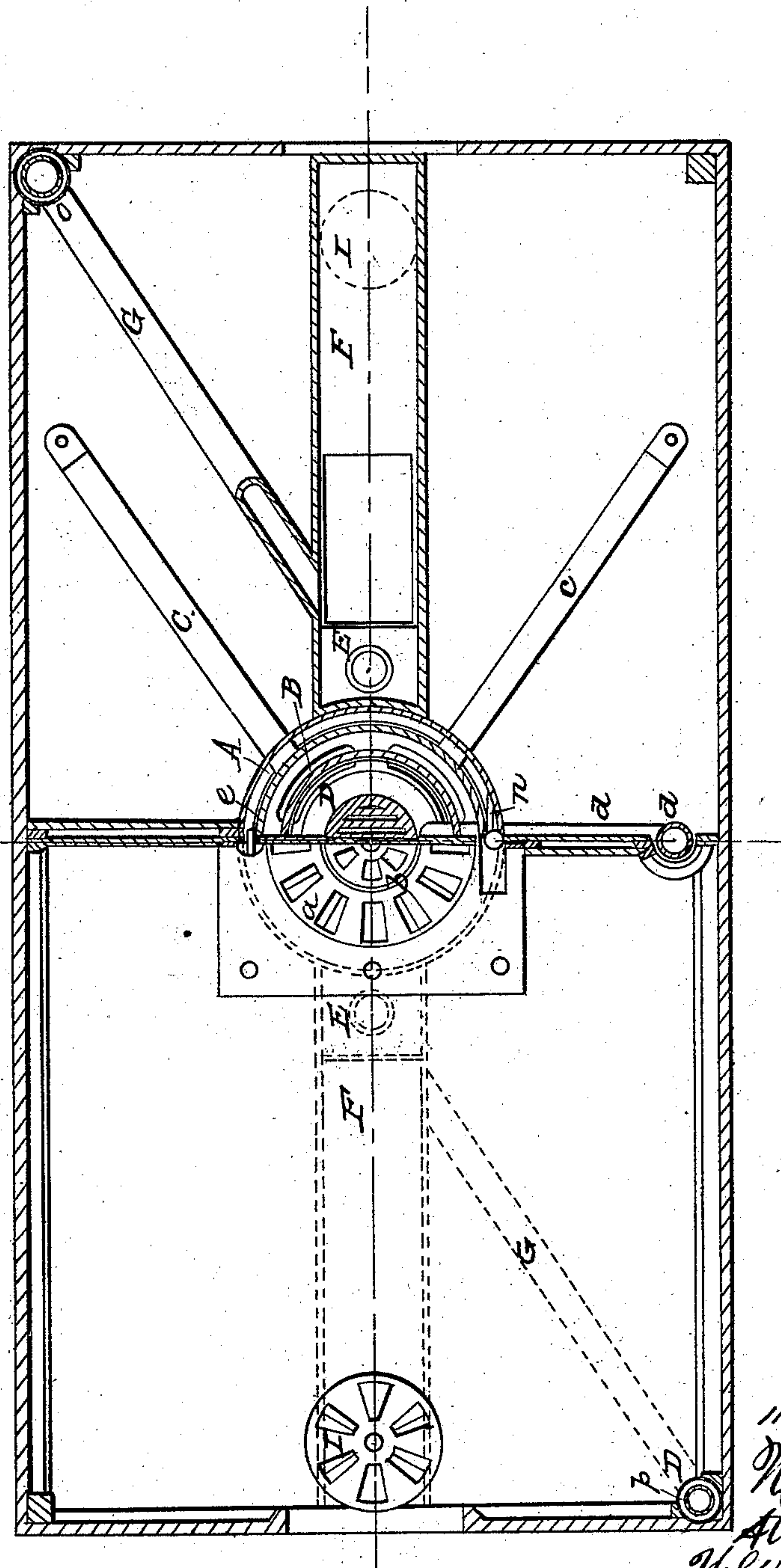


W. G. KENDRICK.
Railroad Car Heater.

No. 67,770.

Patented Aug. 13, 1867.

Fig. 1



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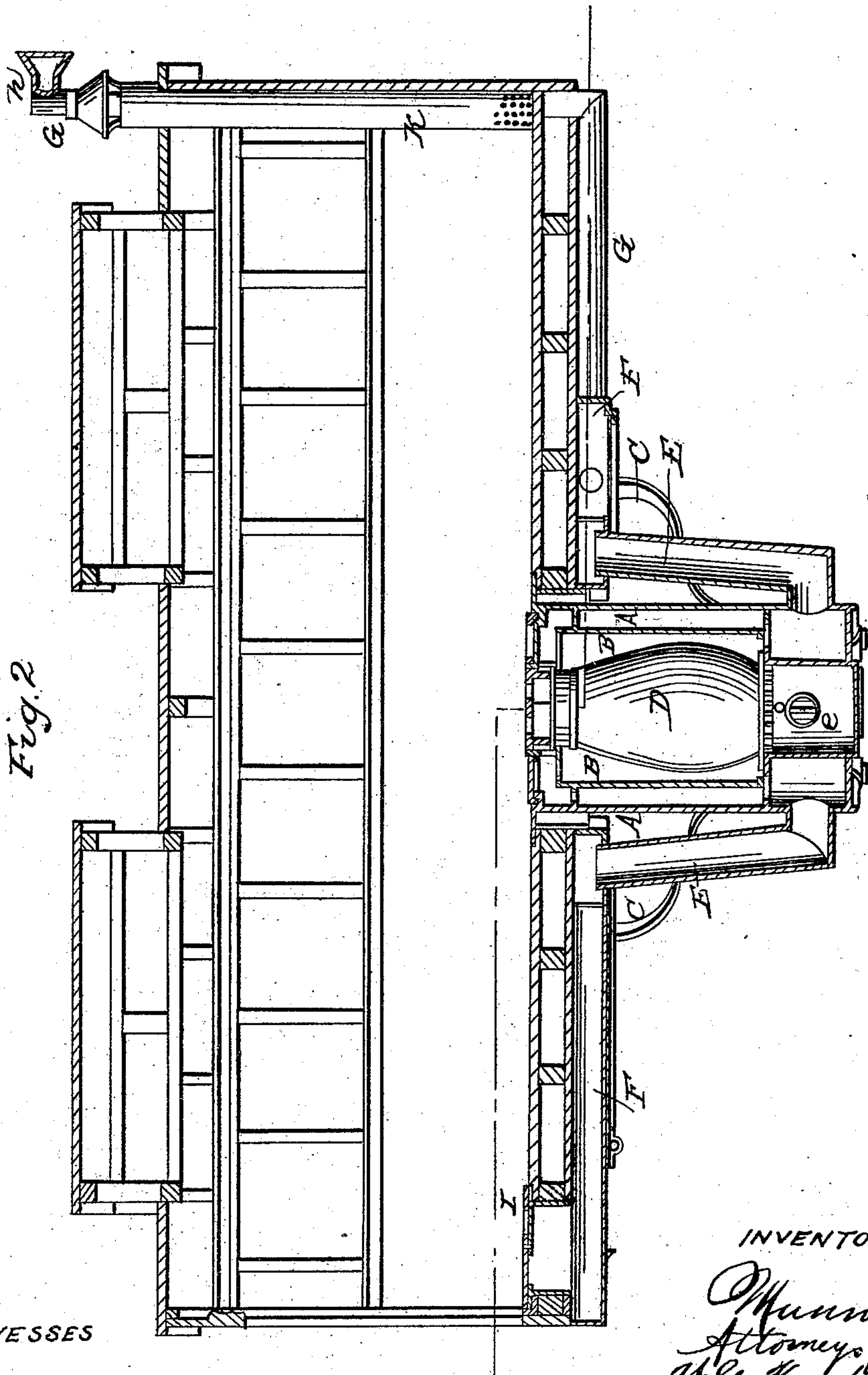
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3 Sheets—Sheet 2.

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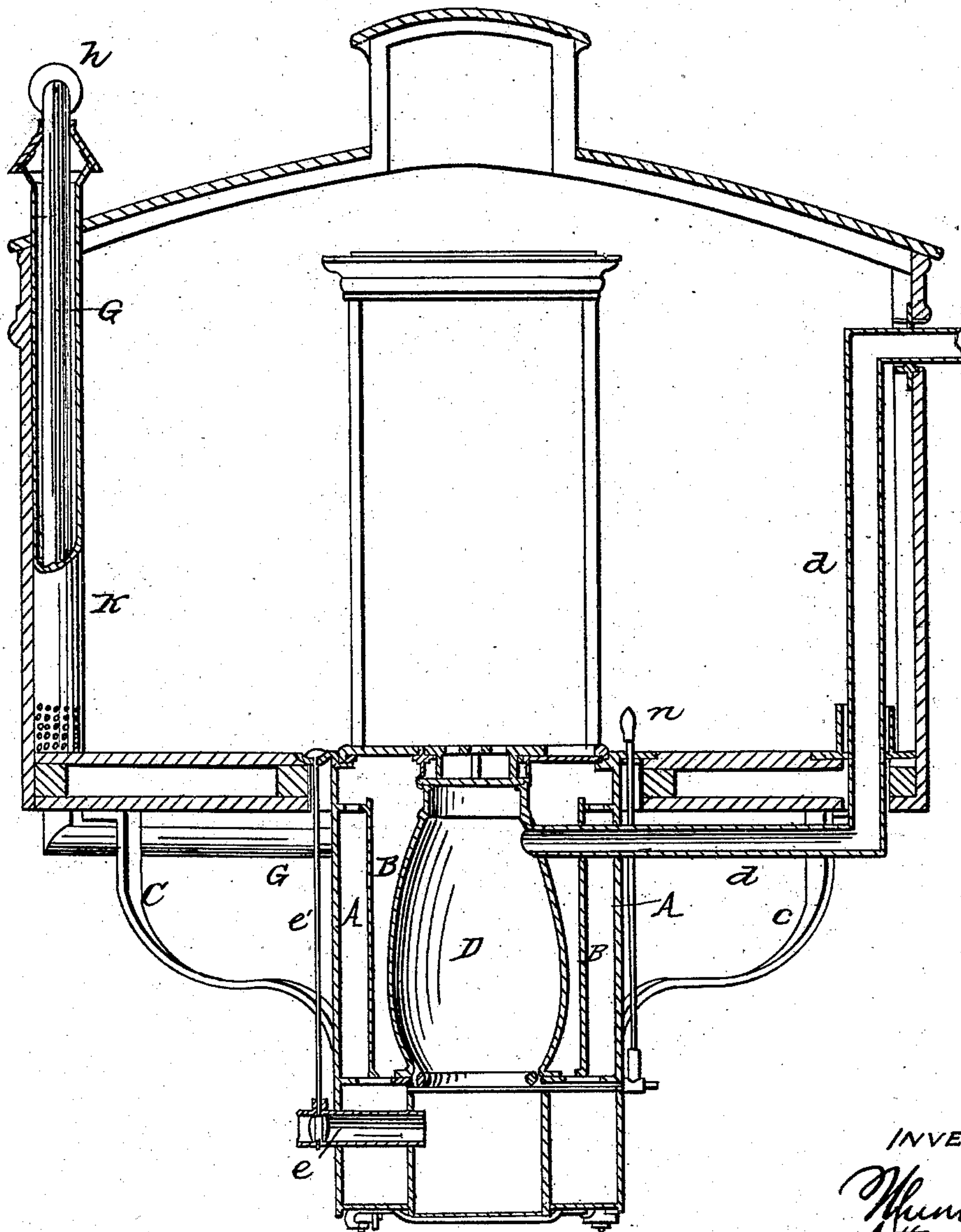
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3 Sheets—Sheet 3.

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Fig. 3



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United States Patent Office.

W. G. KENDRICK, OF WILMINGTON, DELAWARE.

Letters Patent No. 67,770, dated August 13, 1867.

RAILROAD-CAR HEATER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. G. KENDRICK, of Wilmington, in the county of Newcastle, and State of Delaware, have invented a new and useful Improvement in Railroad-Car Heaters; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is a plan or top view with a portion of the floor of the car removed.

Figure 2 is a longitudinal sectional elevation showing the heating apparatus and its connection with the car.

Figure 3 is a transverse section.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a heating apparatus suspended under the centre of a car floor, in combination with certain pipes opening into the outer air, and registers to receive the air entering through and under the car doors, for the purpose of heating the same, and diffusing it when heated through the car, as hereinafter fully described.

A represents the outer casing of the heating apparatus, B an inner concentric casing, and D the fire-box, the two latter resting on a flange projecting inward from a cylindrical foot-piece attached to the outer casing A. The function of the inner casing B is to assist in keeping the heat from the fire-box in and the cold out. The products of combustion are carried off by the smoke pipe *d*. As soon as a fire is built the air in the space between the fire-box and external casing becomes heated and rises into the car. To supply its place cold air enters from the pipes E, which receive it from the boxes F on the under side of the car. The boxes F obtain their supply partly from the pipes G, which pass up through the car at the corners and out into the open air, being provided with mouths *h*, opening straight forward in opposite directions, which are covered with wire gauze to keep out everything but air, and partly from the registers I, situated just within the doors of the car at the ends thereof. It is on account of the air entering here that the greatest difficulty is experienced in heating a car with a stove, as it spreads over the bottom of the vehicle and keeps the feet of the passengers cold, while their heads and bodies may be sufficiently warm. But the register I being located close to the doors, and a current through them being created by the operation of the heating apparatus, all the air flowing in under the doors while the train is in motion is sucked through the registers, and passing through the heating apparatus re-enters the car warmed. By this simple device I am enabled to effect a thorough heating of all parts of the carriage. *a* represents a register in the bottom of the car through which the heated air ascends. The perforated disk *b* within the register is attached to the fire-box cover, which is a solid cap fitting the fire-box closely. The perforations in the disk *b* are for convenience in removing the cover to admit fuel. Those portions of the pipes G within the car are partially surrounded by casings K, which are perforated at the bottoms, as shown, with numerous small holes, and pass out through the roof of the car. Said casings are surmounted with hoods and serve to conduct away, under the pressure of the superincumbent hot air, the cold air lying on the bottom of the car. The hot air which rises from the heating apparatus to the ceiling flows toward both ends of the car and makes its exit forward by ventilation, and at the rear end by both door and ventilator. The boxes F are provided with sliding doors in the under side, covering openings through which the dirt from the registers may be removed. Pieces of wire gauze are also stretched across the ends of said boxes, near the upper end of the pipes E, for a similar purpose.

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

1. The registers I placed just within the car doors, and suitably connected with the heating apparatus for the purpose of conducting all the cold air passing in under the doors to the heating apparatus, that it may re-enter the car warmed, instead of spreading over its bottom in a cold stratum, substantially as described.

2. The casings K, perforated at their bottom, and opening into the outer air at their tops, as and for the purpose set forth.

3. The heating apparatus, constructed with an intermediate casing, B, for the purpose of helping to keep the heat in and the cold out, as explained.

W. G. KENDRICK.

Witnesses:

JOHN T. ROBINSON,

JAMES H. APPELBY.