

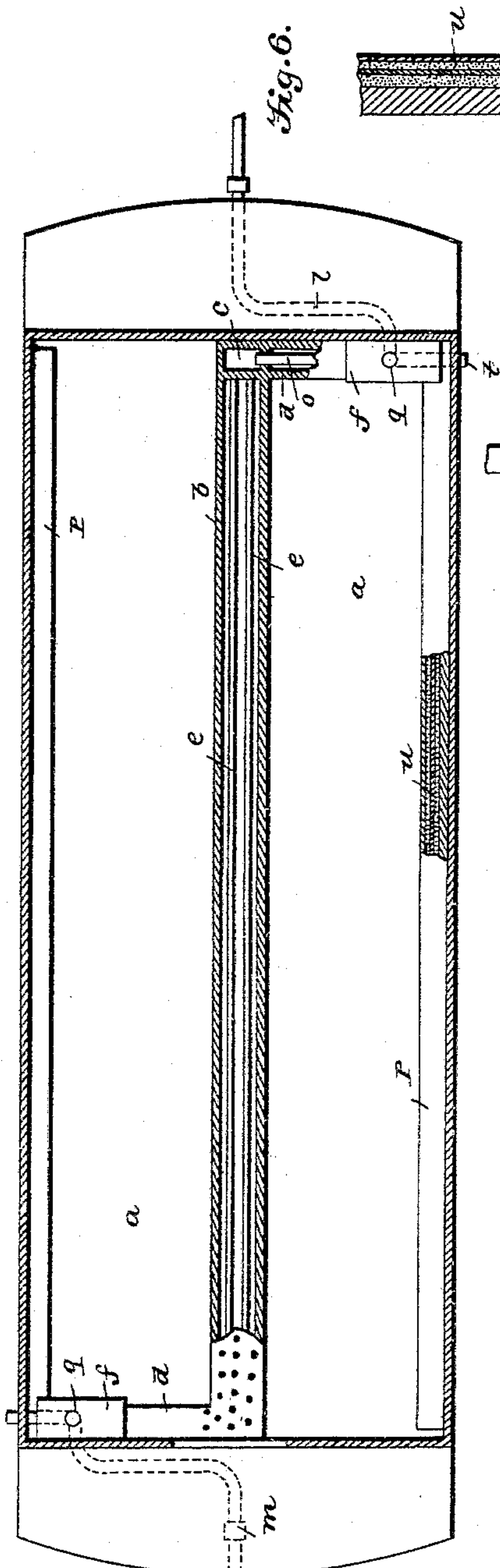
(No Model.)

T. M. MORTON.
RAILWAY CAR HEATER.

No. 388,065.

Patented Aug. 21, 1888.

Fig. 1.



WITNESSES

W. J. Ashlee
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Fig. 5.

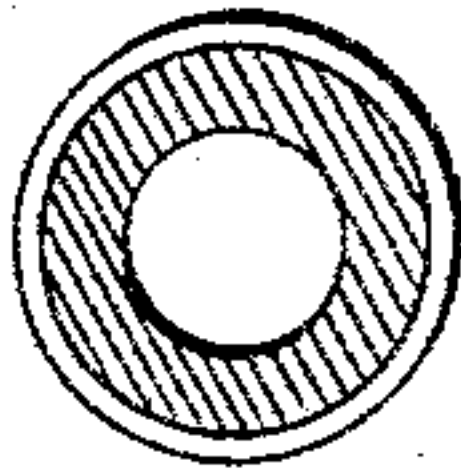


Fig. 3.

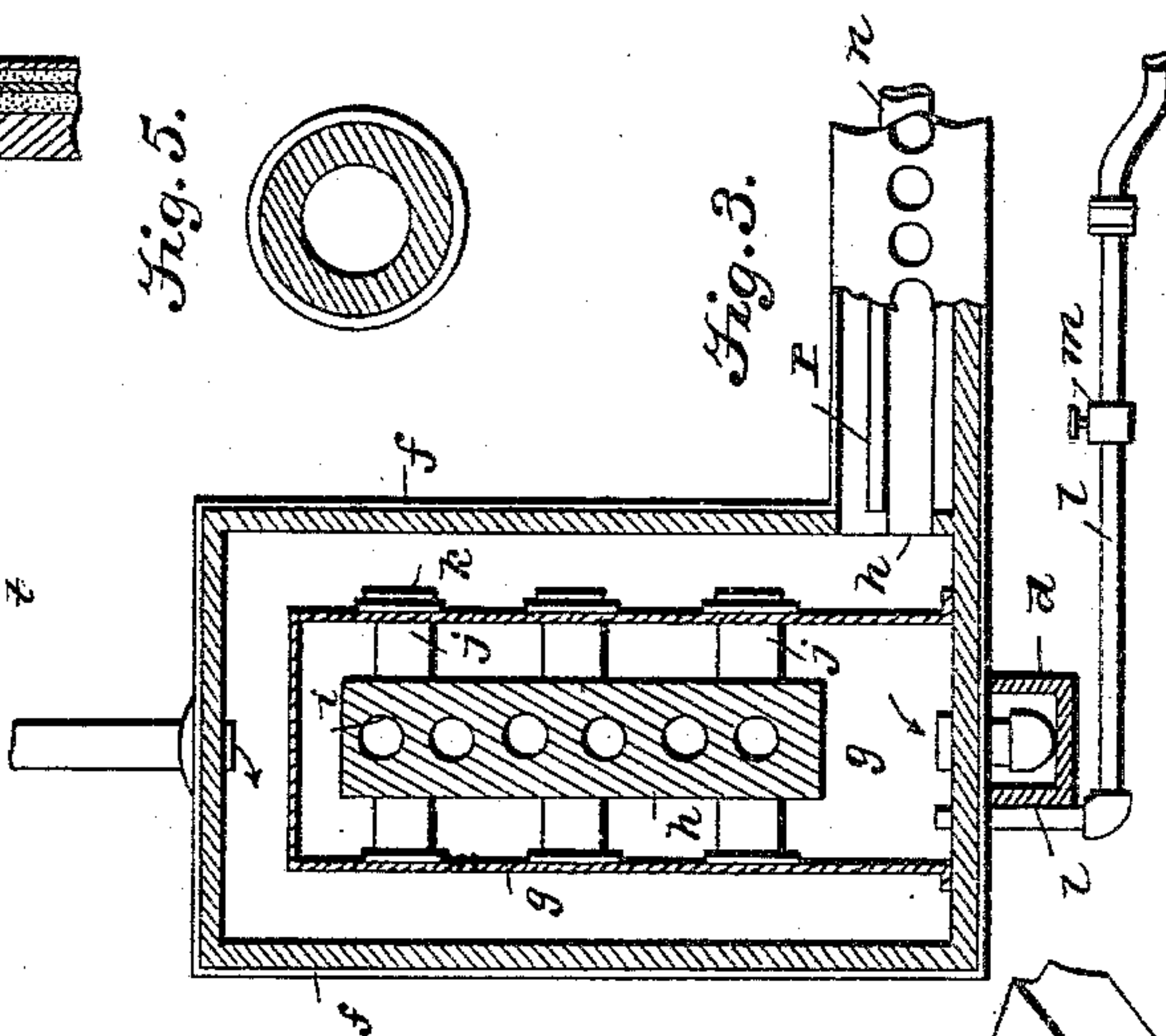


Fig. 4.

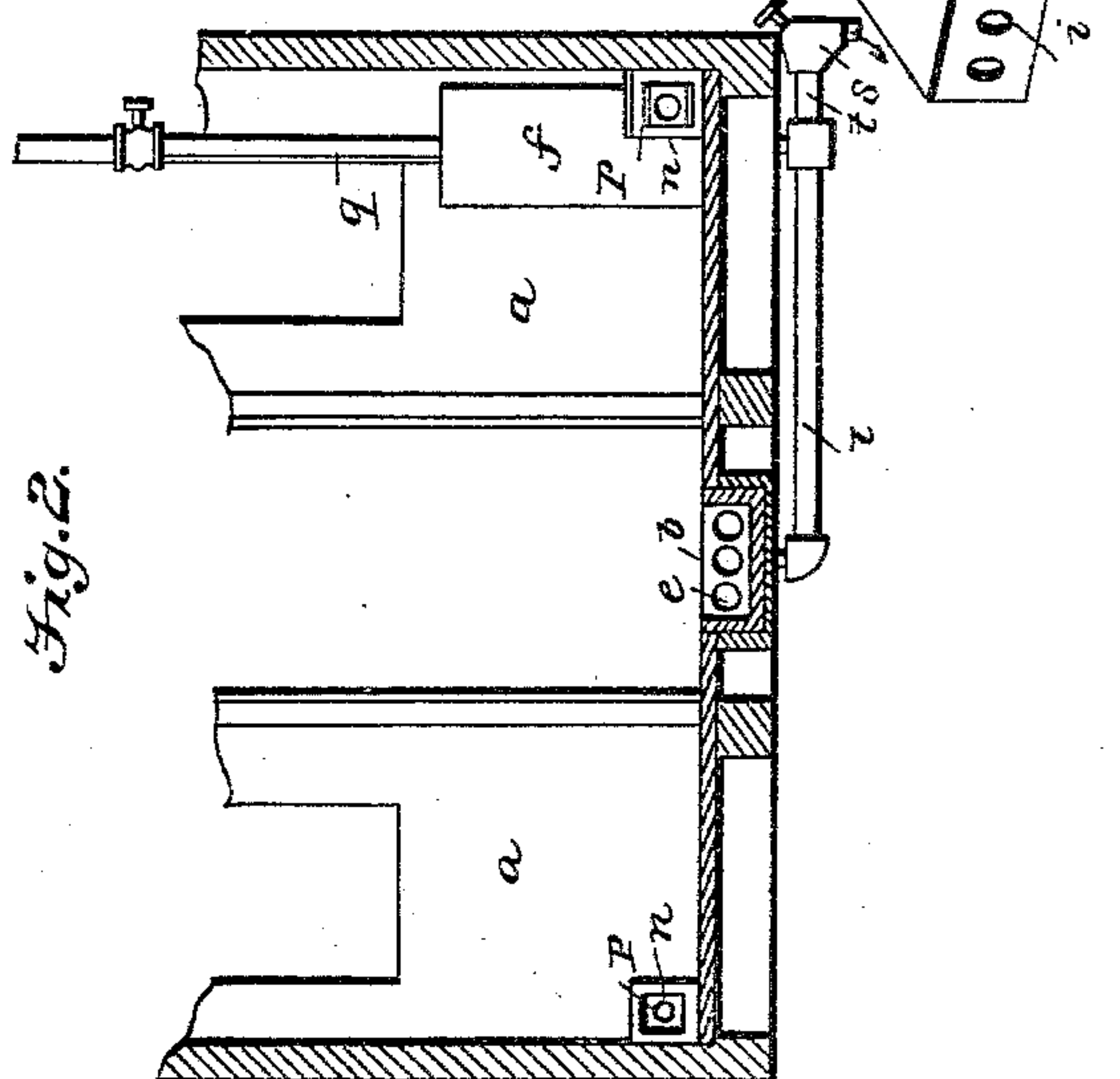
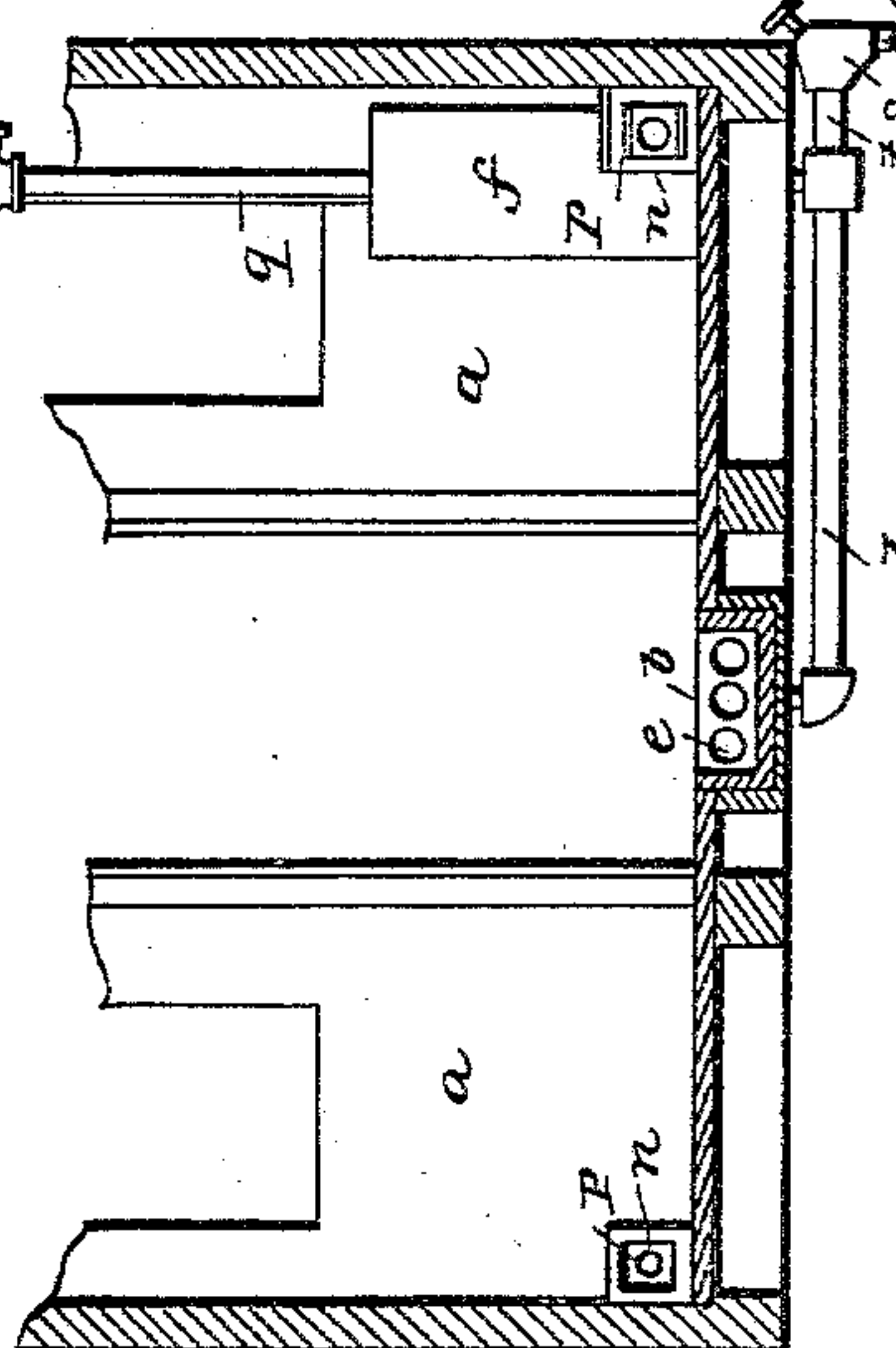


Fig. 2.



INVENTOR,

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UNITED STATES PATENT OFFICE.

THOMAS M. MORTON, OF PITTSBURG, PENNSYLVANIA.

RAILWAY-CAR HEATER.

SPECIFICATION forming part of Letters Patent No. 388,065, dated August 21, 1888.

Application filed March 8, 1888. Serial No. 266,628. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. MORTON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Car Heaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in railway-car heaters; and it consists of a steam-chest having one or more air-passages leading into and out of the same, in combination with an inner and smaller chest or chamber provided with a pipe for admitting steam thereinto and a valve or cock for its proper control and regulation and one or more pipes leading therefrom, whereby the steam may be caused to circulate and escape, the said pipes having an inner lining, of terra-cotta or any other material or substance that shall retain for a long time such heat as may be imparted thereto by a current of steam, together with a large perforated block or slab centrally located in the inner chest, having a series of short tubes affording a number of direct passage-ways for the air transversely through said steam chest or chamber, that said air may become highly heated, together with certain other details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a plan view of the floor of a railway-car, showing the manner in which the various portions of my improved apparatus are arranged. Fig. 2 is an enlarged sectional elevation of the same. Fig. 3 is a detailed vertical section of the heater, showing its form and construction, in combination with such pipes as are connected therewith, together with its interiorly-arranged steam-box and the several essential parts thereof. Fig. 4 represents a perspective view of a portion of a perforated porous non-metallic slab or block. Fig. 5 is a cross section of one of the steam-pipes lined with a dense non-metallic heat-retaining substance. Fig. 6 is an enlarged sectional elevation of the walls of the air-passages and their compound lining.

To put my invention into practice with a railway-car, *a*, I construct along the center of the same in the direction of its length a trough, *b*, and line the sides and bottom with one or more layers of steatite, gypsum, terra-cotta, or any other durable and heat-retaining material. At each end of this trough *b* is formed a small chamber, *c*, which is connected to another, *d*, at right angles to that before described. Secured in this central trough, *b*, are three pipes, *e*, communicating with the small chambers *c*, which pipes *e* are lined with a dense non-metallic substance which retains the heat imparted thereto by the steam for some time after the supply has been cut off. I now provide two heaters, *f*, consisting of a suitable sheet-iron box or chest, *f*, which by preference is made rectangular in form, and line such parts of the same as are deemed useful or necessary with a suitable heat-retaining material. Within this large chest *f*, and attached to the base of the same, is a smaller chest, *g*, containing a centrally-located non-metallic porous terra-cotta or earthenware slab or rectangular block, *h*, through which extends a number of longitudinal holes, *i*, one above the other in a vertical plane. Transversely through this smaller chest, *g*, and its centrally-located block or slab *h*, is a series of short stout tubes, *j*, open at both ends, each tube *j* being provided with a suitable screw-nut, *k*, by means of which they are held firmly in position and the intervening joint made tight.

Extending through the bottom of the inner box, *g*, is a steam-inlet pipe, *l*, that is fitted with a suitable cock or valve, *m*, whereby the flow of steam thereinto may be properly admitted, regulated, or shut off, and from the opposite end from the inlet-pipe *l* is an outlet-pipe, *o*, leading downward through the short trough *d* and into the small chamber *c*.

Connected at one side of the hot-air chamber is a perforated pipe, *n*, lined with a non-metallic substance, which extends through a trough, *p*, similar to that *b* in the center of the car *a*, the said trough *p* having an open or perforated front, which allows the hot air traveling through the pipe to escape into the car.

Connected with the interior of the large outer chest, *f*, at the top is an air-supplying pipe, *q*, provided with a valve, *r*, for controlling and regulating the supply of air passing

through the same, and said pipe *q* having a hood or cap fitted to that portion projecting above the roof the car.

At each end of the car *a* is placed one of the
5 above-described heaters in a manner that the steam, entering one through the inlet-pipe *l*, circulates through the inner chest, *g*, and perforated earthenware block or slab *h*, through the short pipe *o*, connecting the heater with
10 the small chamber *c*, thence through the three pipes *e* to the small chamber *c* at the opposite end of the trough *b*, thence in and through the heater *f* at the opposite end of the car *a*, and from this point through an outlet-pipe, *m*, into
15 a similar heating device arranged in the next car.

By means of the valve and a short branch, *t*, from the inlet-pipe *l* the water that may accumulate in the inner chest, *g*, and steam-pipes
20 by the condensation of steam may be drawn off from time to time.

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

25 1. In a car-heater such as described, the combination consisting of the heaters *f*, having an air chamber and pipe, *q*, for conducting a supply of air thereto, the steam-chest *g*, having centrally located therein a porous non-me-

tallic slab, *h*, the trough *b*, arranged in the cen- 30
ter of the car *a*, the pipes *e*, arranged in the said trough *b*, the small chambers *c* at each end of the same, the perforated distributing-pipes *n*, communicating with the heaters *f*, and a pipe, *o*, connecting the steam-chest *g* 35
of the heater with the small chamber *c*, substantially as set forth and described.

2. In a car-heater, the combination of the heaters *f*, arranged at opposite ends of a car and each having a steam-chest arranged cen- 40
trally therein to leave an intermediate air-space between said steam-chest and the exterior shell of the heater, the side troughs, *p*, having the perforated pipes *n* housed therein, one of said pipes communicating with the air- 45
space of the heater at one end of the car and the other pipe with the air-space of the other heater at the opposite end of said car, and the central trough, *b*, having pipes communicating with the steam-chests of both heaters, substan- 50
tially as described, for the purpose set forth.

In testimony that I claim the foregoing I hereunto affix my signature this 16th day of February, A. D. 1888.

THOMAS M. MORTON. [L. S.]

In presence of—

C. C. LEE,

M. E. HARRISON.