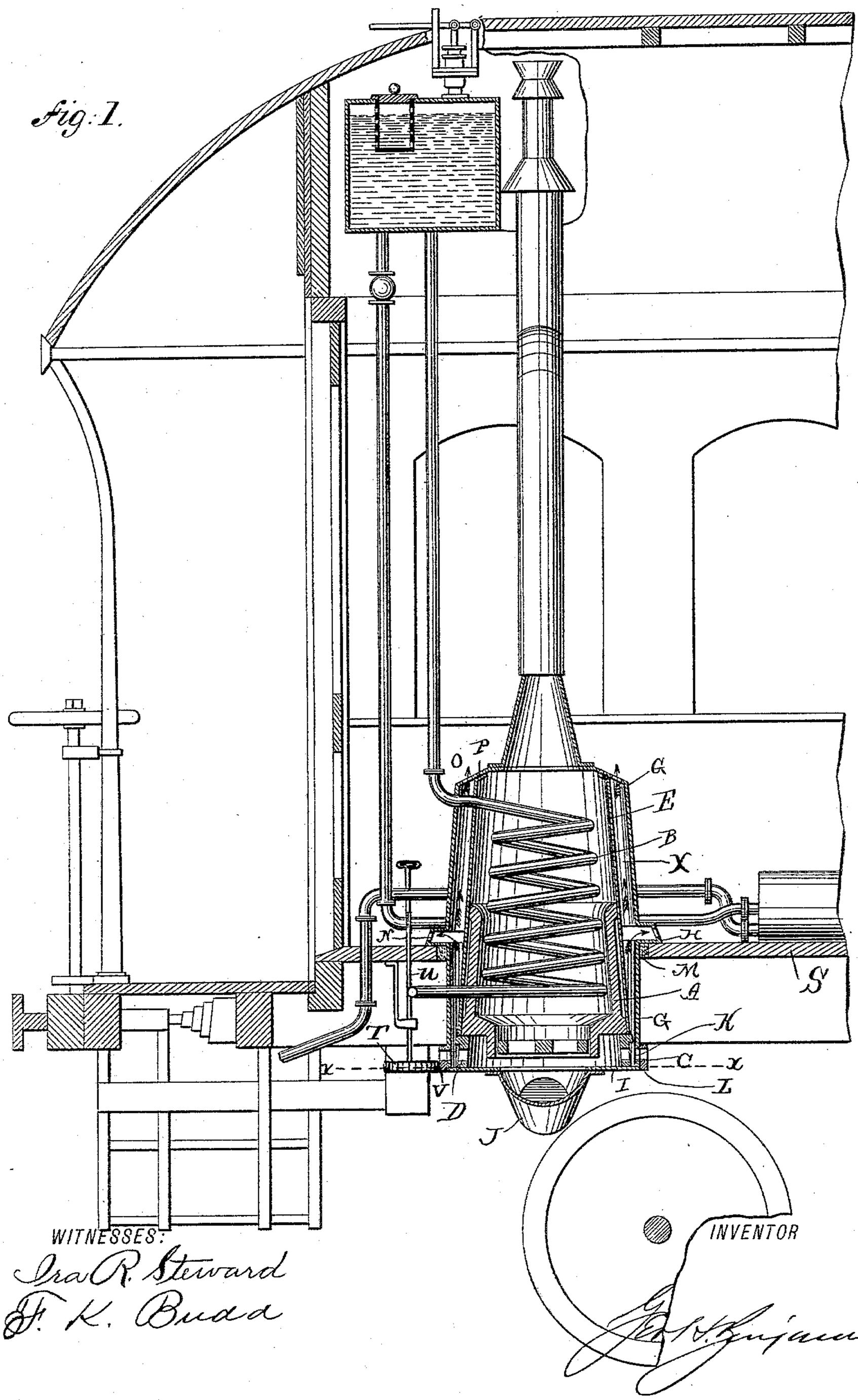
(No Model.) 2 Sheets—Sheet 1.

G. H. BENJAMIN.

APPARATUS FOR HEATING RAILWAY CARS.

No. 401,245. Patented Apr. 9, 1889.

Fig. 1.



WITNESSES:
Ira R. Steward
F. K. Budd

INVENTOR
G. H. Benjamin

(No Model.) 2 Sheets—Sheet 2.

G. H. BENJAMIN.

APPARATUS FOR HEATING RAILWAY CARS.

No. 401,245. Patented Apr. 9, 1889.

Fig: 2.

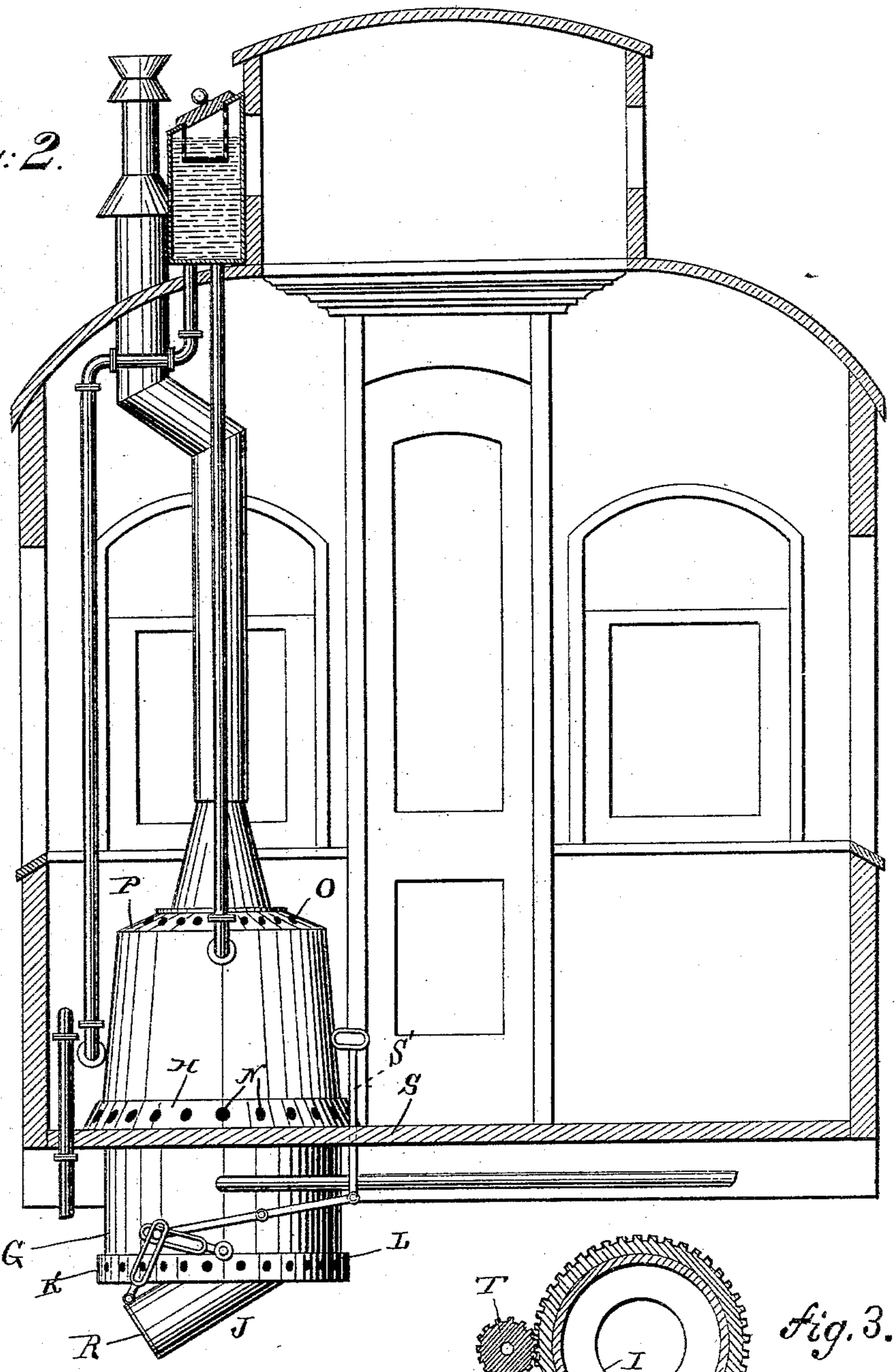


Fig. 3.

WITNESSES:

Ira R. Steward.

F. K. Budd.

INVENTOR

Geo. H. Benjamin

UNITED STATES PATENT OFFICE.

GEORGE H. BENJAMIN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SAFETY CAR HEATING AND LIGHTING COMPANY, OF NEW JERSEY.

APPARATUS FOR HEATING RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 401,245, dated April 9, 1889.

Application filed October 19, 1887. Serial No. 252,780. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BENJAMIN, a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Heating Railway-Cars, of which the following is a specification.

My invention relates more especially to car heaters or stoves of the type described in the Letters Patent granted to W. C. Baker on March 10, 1868, and numbered 75,345—that is, a heater located within the car to be heated containing a coil of piping, through which water may be made to circulate and while in circulation heated. Car-heaters of this description have usually been placed wholly within the car, or with the fire-pot sunken just below the level of the floor of the car. With all heaters of the latter class experience has demonstrated that they are not only unreliable, by reason of imperfection in the draft apparatus, but are liable to ignite the car by radiation from the fire-pot. In order to overcome these objections and to produce a heater from which the fire may be dumped external to the car by means of apparatus within the car, thereby avoiding the dust and the danger of removing the fire within the car, I have devised the heater which I will now proceed to describe.

In the accompanying drawings, which illustrate my invention, similar letters of reference indicate like parts.

Figure 1 is a vertical section of a car and a heater therein. Fig. 2 is a transverse section of a car, showing a heater in elevation and the mechanism for operating the dumping apparatus. Fig. 3 is a transverse section of the base of the heater, showing the draft-ring and operating mechanism, taken on the line *x x* of the Fig. 1.

In the drawings, A indicates the fire-pot, and B a steam-coil within the heater connected to the circulating system within the car in the well-known manner. The fire-pot I prefer to locate in such a manner that two-thirds of its vertical depth shall be below the floor of the car; but this particular depth below the floor of the car is not essential. Arranged under the fire-pot is a ring, C, provided with the draft-openings D, through which the air required to support combustion in the fire-pot is allowed to enter.

To the ring C is riveted or otherwise securely fastened the inner casing, E, which is secured in a similar manner at its upper end to the crown-ring P and outer casing, G, which in turn is supported by the base-ring, H, which rests upon the floor of the car. The casing G is carried downward through the floor of the car S and supports the bottom plate, I, and ash-chute J. The casing G is perforated at K—that is to say, is provided with openings around the periphery of the casing, over which is placed a damper-ring, L, the orifices in which coincide with those of the ring C and casing G.

M represents a portion of asbestus located between the floor of the car and the lower portion of the casing G. The ring H is perforated with the openings N.

It will be observed that by this construction I provide an annular air-space between the casings E and G, and the air which is allowed to enter by means of the orifices in the damper-ring follows two paths, one of which is the annular space X between the casings and the other through the material in the fire-pot A. The air passing upward through the annular space finds egress through the holes N in the base-ring H over the floor of the car and through the holes O in the crown-ring P on the top of the heater, as shown by the arrows in the drawings. By this construction the radiated heat from the stove is taken up by the air-current and distributed in the most effective location in the car. By the same means the casing G is kept sufficiently cool to avoid all danger of ignition of the car-floor.

In order to dump the contents of the stove from the interior of the car, I provide the ash-chute J with the damper R, which damper may be operated by the lever S′ from within the car. Normally the damper R is kept closed; but it may be used is conjunction with the damper-ring L to give draft to the heater. The damper may be operated from within the car by means of the rod *u* and the gear T on its end, which meshes into a rack, V, on the damper-ring, thus allowing the damper to be

moved circumferentially to bring the orifices of the ring C in apposition with those of casing G and ring D.

I claim as my invention—

1. A car-heater comprising an inner and an outer casing arranged to leave a space between them, upper and lower openings in said outer casing, and eduction-openings in the latter between said upper and lower openings, and a fire-pot secured to the inner casing, substantially as described.

2. A car-heater comprising an inner and an outer casing arranged to leave a space between them, said casings projecting below the car-floor, a perforated base-ring on the outer casing for supporting the heater, said outer casing also having upper and lower draft-openings, and a fire-pot within the inner casing.

3. A car-heater comprising an inner and an outer casing arranged to leave an air-space between them, said casings projecting below the car-floor, a perforated base-ring on the outer casing, a fire-pot arranged within the inner casing, and a draft-ring for closing the lower openings in the outer casing.

4. A car-heater comprising an inner and an outer casing projecting below the car-floor and having upper and lower openings, as described, a base-ring having perforations communicating with the space between the casings and supporting the casings, the perforated ring to which the inner casing is secured, and the damper-ring for opening and closing the lower openings.

5. A car-heater comprising an inner and an outer casing having upper and lower openings and arranged to leave a space between them, said casings projecting below the car-floor, a base-ring having openings communicating with the space between the casing, the perforated base-ring to which the inner casing is secured, the fire-pot, the perforated damper-ring to close the lower openings, and mechanism, substantially as described, for operating said damper-ring from within the car.

6. A car-heater comprising two casings arranged to leave a space between them and projecting below the car-floor, said outer casing having upper and lower openings, as described, a damper-ring, and means, substantially as described, for operating it to close the lower openings, the fire-pot, the ash-chute arranged under the latter, and means, substantially as described, for operating the latter from a point within the car, substantially as described.

In witness whereof I have hereunto set my hand this 15th day of October, 1887.

GEO. H. BENJAMIN.

Witnesses:
F. J. ABBOTT,
G. W. ARNDT.