No. 712,327. Patented Oct. 28, 1902.

R. M. PANCOAST.

AERATED CAR.

(Application filed Apr. 5, 1897.)

(No Model.) 3 Sheets—Sheet I.

Fig. 1.

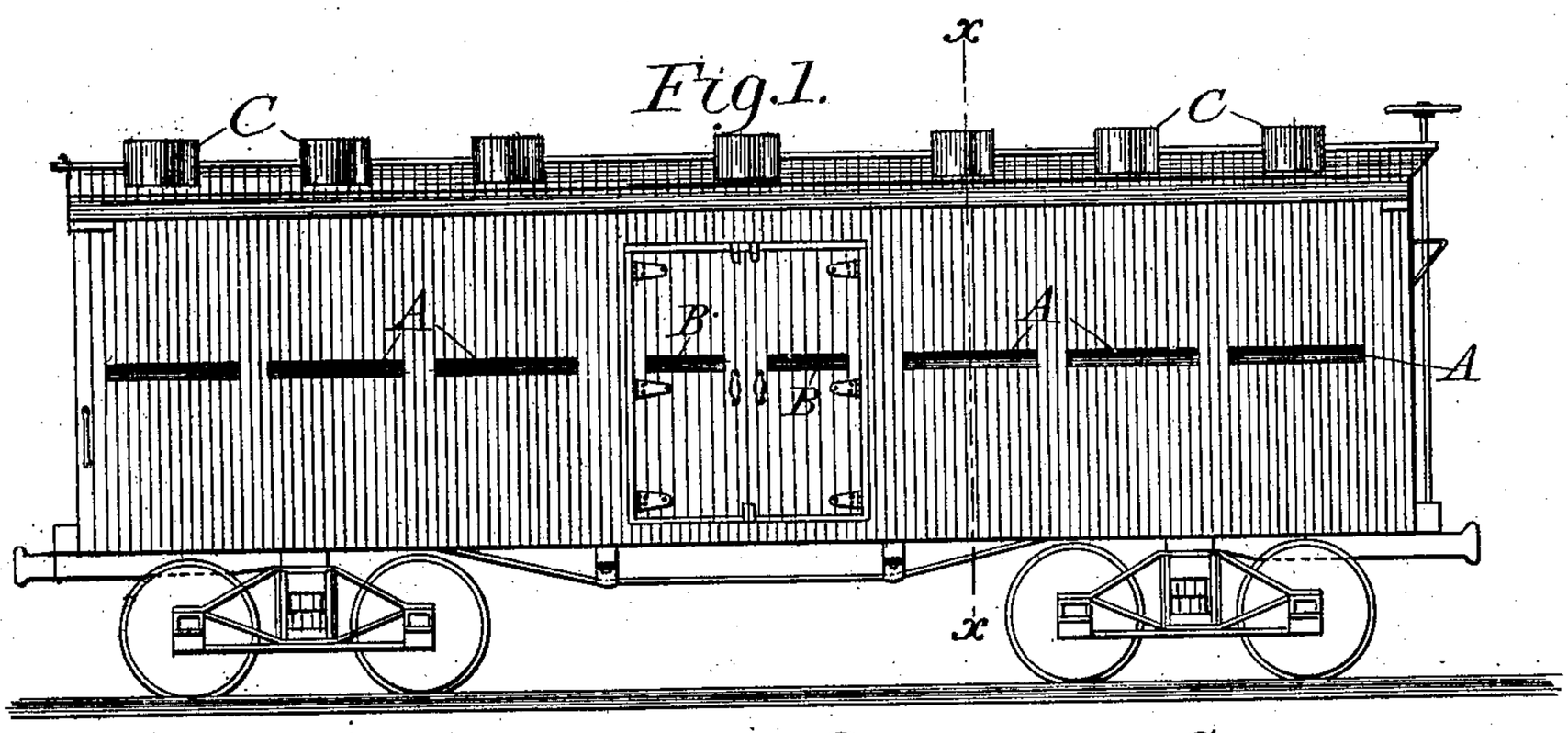

Fig. 2.

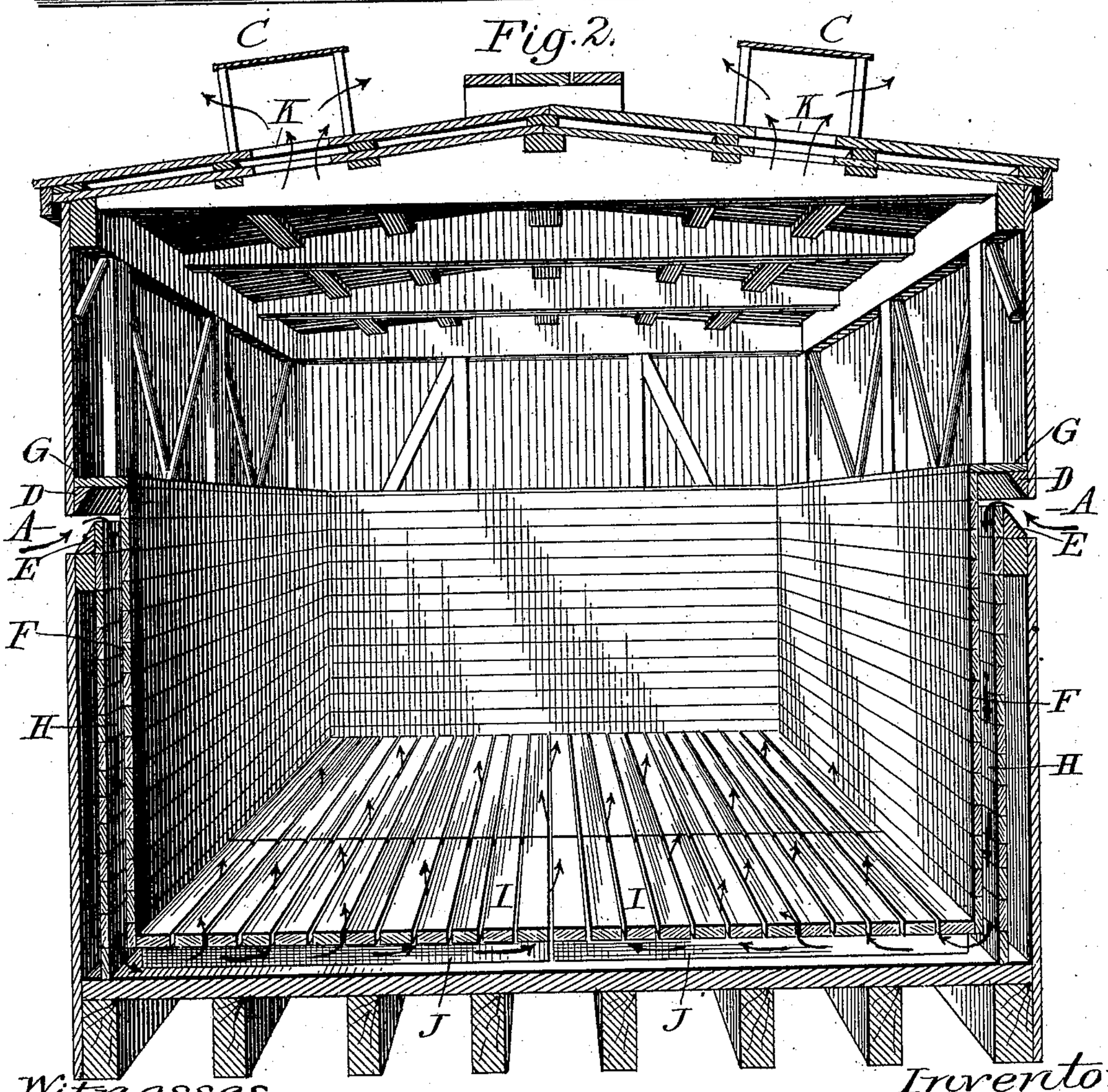

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Fig. 3.

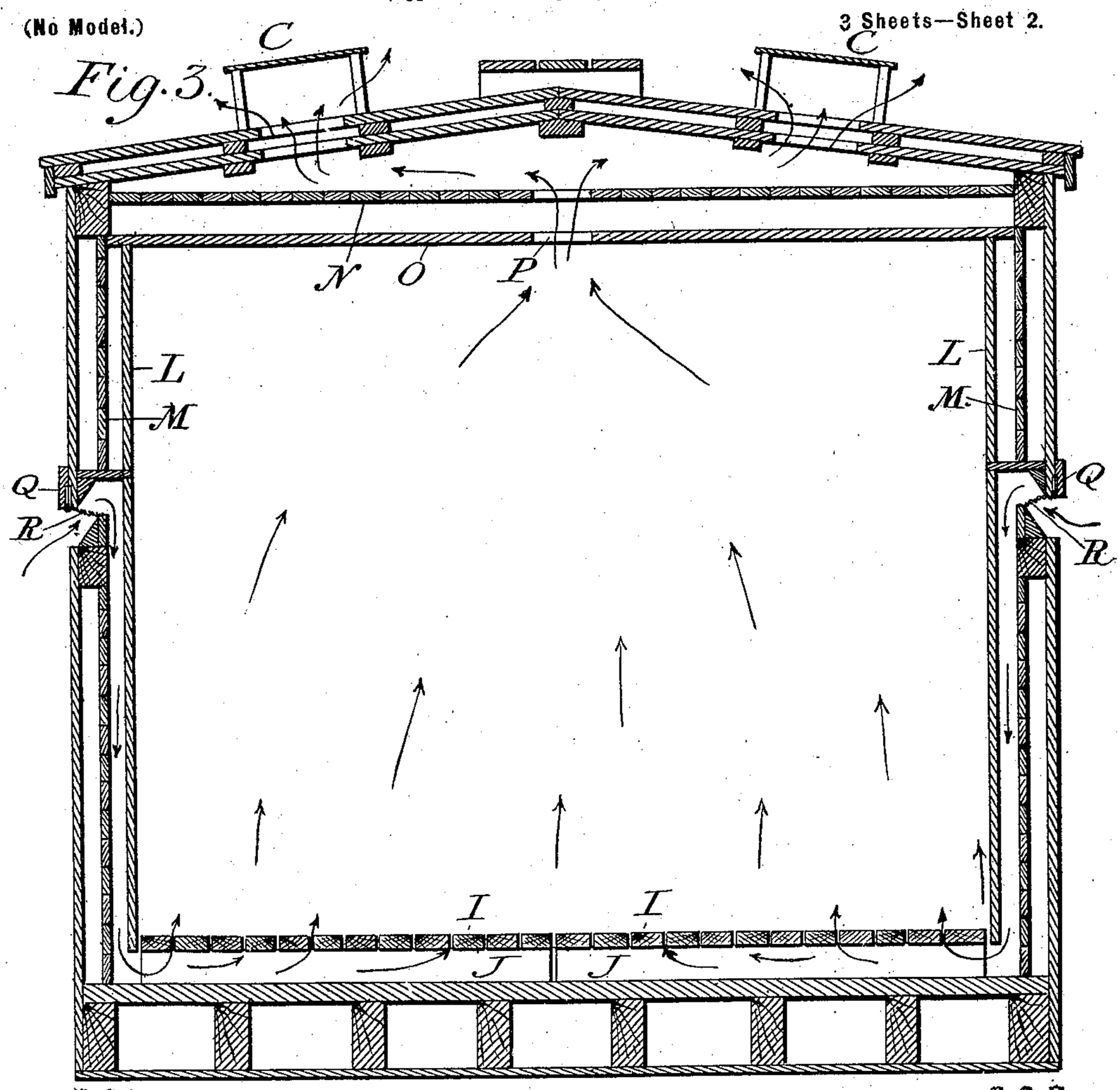

Fig. 4.

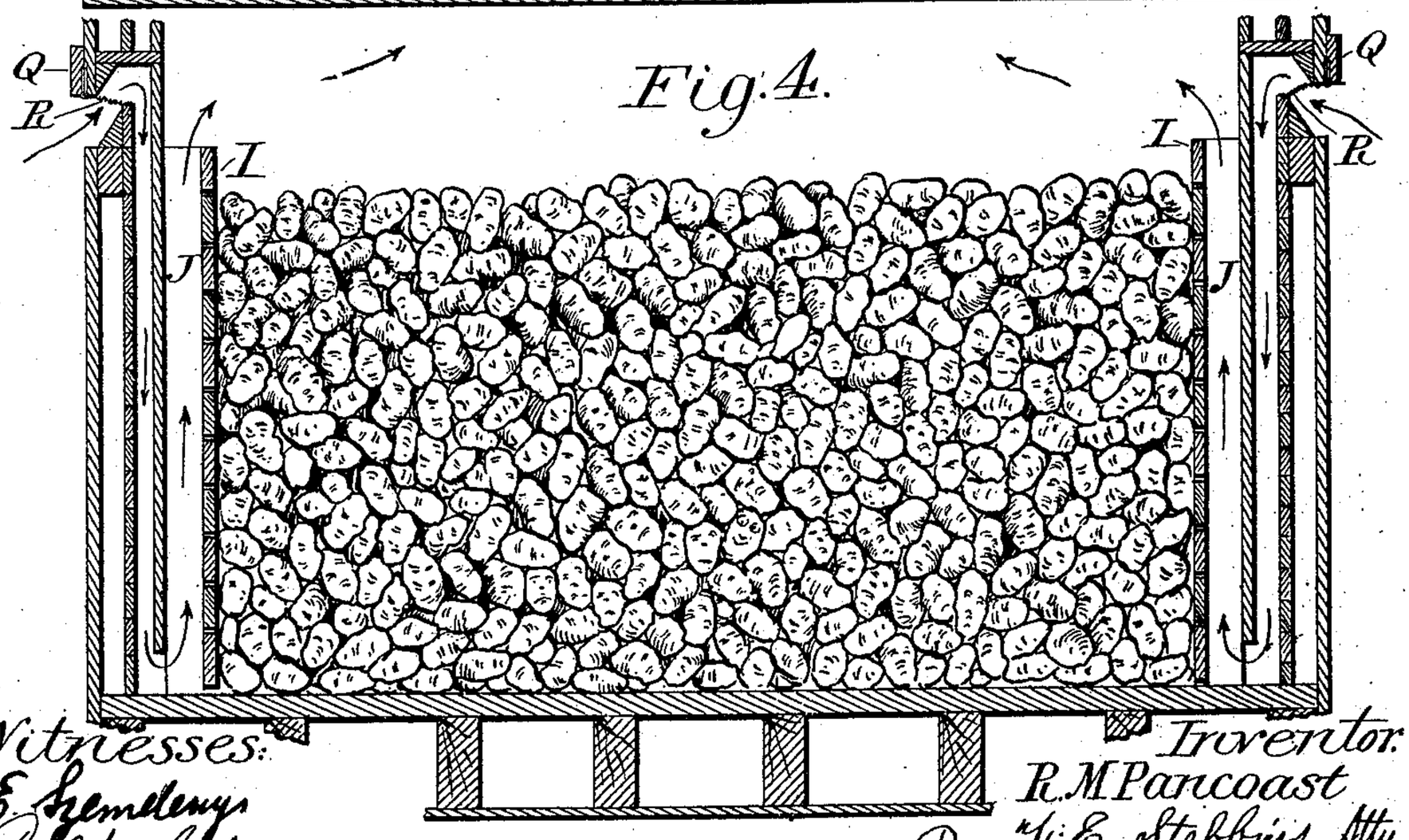

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Fig. 5.

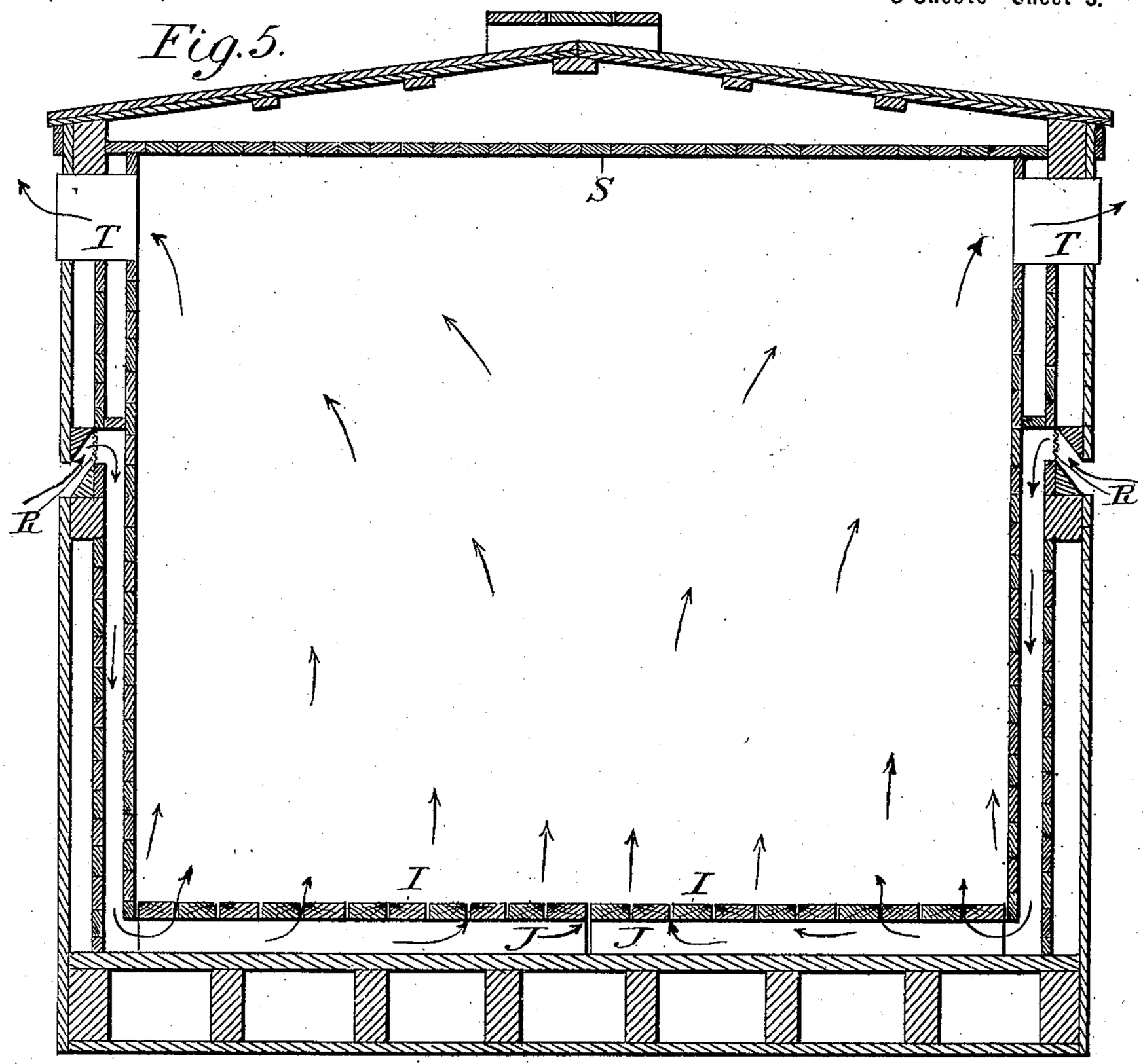
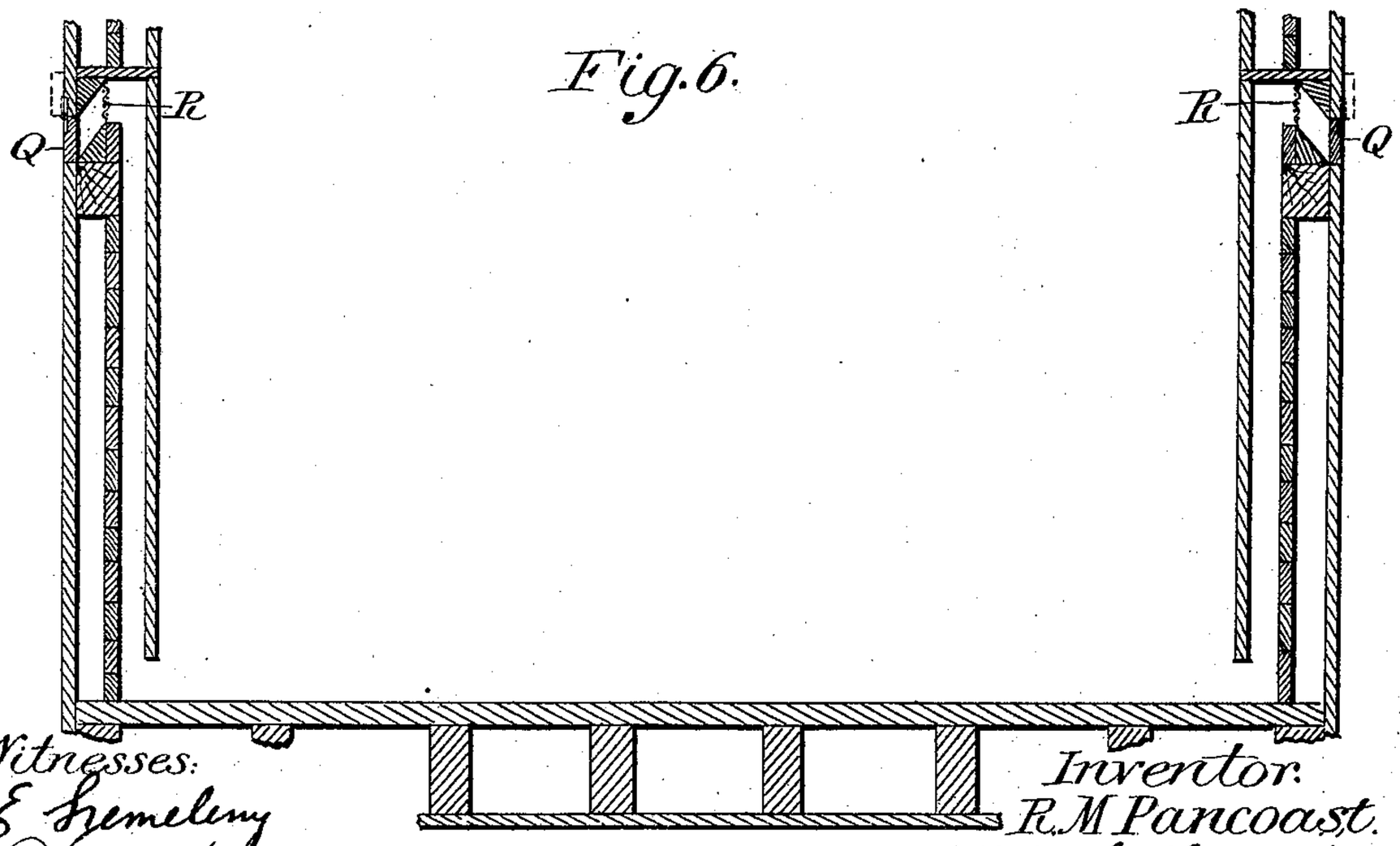


Fig. 6.



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UNITED STATES PATENT OFFICE.

RICHARD M. PANCOAST, OF CAMDEN, NEW JERSEY, ASSIGNOR TO CLARK BALCOM, OF DENVER, COLORADO.

AERATED CAR.

SPECIFICATION forming part of Letters Patent No. 712,327, dated October 28, 1902.

Application filed April 5, 1897. Serial No. 630,803. (No model.)

To all whom it may concern:

Be it known that I, RICHARD M. PANCOAST, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Aerated Cars; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is the construction of a car in such a manner that a constant supply of fresh air may be admitted from the exterior substantially along the lines of the belt-rails to the interior and be uniformly distributed underneath a perforated raised floor covering the entire area of the permanent floor and thereafter pass upwardly and to the exterior of the car through suitable outlets spaced on the roof from end to end or through a series of outlets located adjacent the plates or otherwise. The function of such an introduction and expulsion of air is to permeate the entire load within the car and carry off the heat and volatile gases and exhalations generated by fruits, vegetables, and other perishable merchandise when *in transitu*, and which gases, &c., allowed to remain stagnant in proximity to the fruit or vegetables cause speedy deterioration and decay of the same.

With this object in view the invention consists in a certain novel construction of the car-body itself and in certain novel combinations of parts therewith, all as hereinafter described, to adapt the car for the transportation of perishable goods both in summer and winter.

Figure 1 is a side view of a car embodying my invention and showing a series of air-inducts located between the sill and roof. Fig. 2 is an enlarged sectional view of Fig. 1 taken on line *x x*. Fig. 3 is a sectional view of a modified form of construction, the aerated car being provided with a double sheathing at the top thereof adapting it when the openings through the roof and sides are closed for use in the winter season as a frost-proof car. Fig. 4 shows the perforated floor set up sidewise vertically adjacent the sides of the car, which is indicated as loaded with a bulk load. Fig. 5 is a cross-section of a form in which the air is exhausted adjacent the plates. Fig. 6 shows the car with the inducts closed and the perforated floor removed.

In Fig. 1, A designates a series of inducts arranged longitudinally of the car and located between the top and bottom of the side. Each induct is of any suitable length, three or four inches wide, and slants upwardly, as shown. B designates inducts located in the doors. C designates outlets or outlet-hoods on the roof.

In Fig. 2 the inducts and outlets are designated by A and C, as in Fig. 1. The framing of the car may be of any well-known type, but I prefer that shown in the drawings and known as the "Whipple truss" style. D designates upper longitudinal beveled rails, and E lower beveled rails. F is an inside lining made up of strips extending to the horizontal cap-piece G. This inside lining is located a suitable distance inwardly from the wall of the car, and the space between the two forms an air passage-way H. A perforated raised floor made up of sections I is placed on the permanent floor throughout its entire area. Each section consists of slats three inches wide spaced a third of an inch apart and secured to cleats J; but a practicable perforated floor may be made in other ways. In the roof are openings K, over which are fixed the outlet-hoods C.

In Fig. 3 the several parts identical with those shown in Fig. 2 are designated by the same letters. L M are double linings above the belt-rails. N O are horizontal linings extending from plate to plate and provided with a series of openings P. The inducts in this illustration are shown provided with hinged doors Q and with wire-gauze coverings R.

In Fig. 4 the sections I of the perforated raised floor are set up against the wall and the car shown loaded with a bulk load resting against the said sections I I. It will be observed, as indicated by the arrows, that air from the exterior can pass through the inducts down the passage-ways and upwardly through the spaces between the linings and the sections I I.

In Fig. 5 are shown the double linings L M

of Fig. 3; but a single sheathing S is in this instance applied to the carlines and extends from plate to plate. In lieu of the outlet-hoods on the roof the outlets for the air in this example are adjacent the plates and are designated by T T. Their construction may be of any suitable type or style.

In Fig. 6 the car is represented with the doors Q closed and with the sections of the raised perforated floor removed, adapting the car for winter use. These sections may, however, be retained in position without interfering with such use.

The process of aeration, which is constant while the car is in motion and substantially so when at rest, is as follows: External air impinging against the car sides enters the inducts and traverses the passage-ways downwardly between the linings and the car-walls, where it is distributed uniformly beneath the perforated floor. Then it ascends, circulating among and permeating the fruit, vegetables, packages of goods, &c., carrying off the exhalations, volatile gases, &c., and, finally, it passes upwardly to the top of the car and through the outlets to the exterior. This process is of course ever active between the inducts at the sides of the car and the outlets at the top of the interior.

It is to be noted that the inducts, as shown in Fig. 1, are approximately continuous from end to end of the car, and thus insure a uniform as well as an ample supply of air throughout the entire area of the car beneath the raised floor. The location of the inducts about midway between the bottom and top of the sides of the car, first, insures the greatest in pressure of air; second, takes in the least dirt, &c., considering the cinders and smoke above and the road dust and dirt below; third, is better out of reach of being meddled with and damaged by wagon-wheels, &c., and, fourth, is less objectionable and expensive constructurally.

To adapt the car as illustrated in Fig. 3 for winter use, the doors over the inducts are shut tightly (see Fig. 6) and suitable means provided for closing the openings through the double horizontal lining which extends from plate to plate or other outlets to the exterior wherever they may in practice be located.

What I claim as new, and desire to secure by Letters Patent, is—

1. A box-car having means at the top for the exit of the air from the interior; a perforated raised floor; inside longitudinal linings; and series of inducts through the car-walls located midway between the top and bottom of said walls; whereby, when the air is let out of the top of the car, external air will enter the inducts, pass downwardly between the car-walls and linings underneath the raised perforated floor, and ascend through the perforations among the merchandise *in transitu* and carry off the exhalations and volatile gases to the exterior of the car; substantially as described.

2. A box-car having outlets at the top; linings L M; a horizontal sheathing secured to the carlines and extending from side to side; a sectional perforated raised floor; linings adjacent the car sides; inducts located midway between the top and bottom edges of the side walls and doors or dampers for closing the inducts; whereby the car is adapted for a summer aerated and a winter closed car, substantially as described.

3. A car-body having longitudinal air-ingress openings extending the entire available length of the same, said openings located midway between the top and bottom of the side walls, and connecting with vertical air passage-ways in the sides of the car-body, which vertical passage-ways likewise connect at the bottom with horizontal air passage-ways on top of the permanent floor, formed by said floor and a perforated floor, the latter having openings to the entire load, and egress-openings above the load-line only; as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD M. PANCOAST.

Witnesses:
WM. S. PANCOAST,
C. T. PANCOAST.