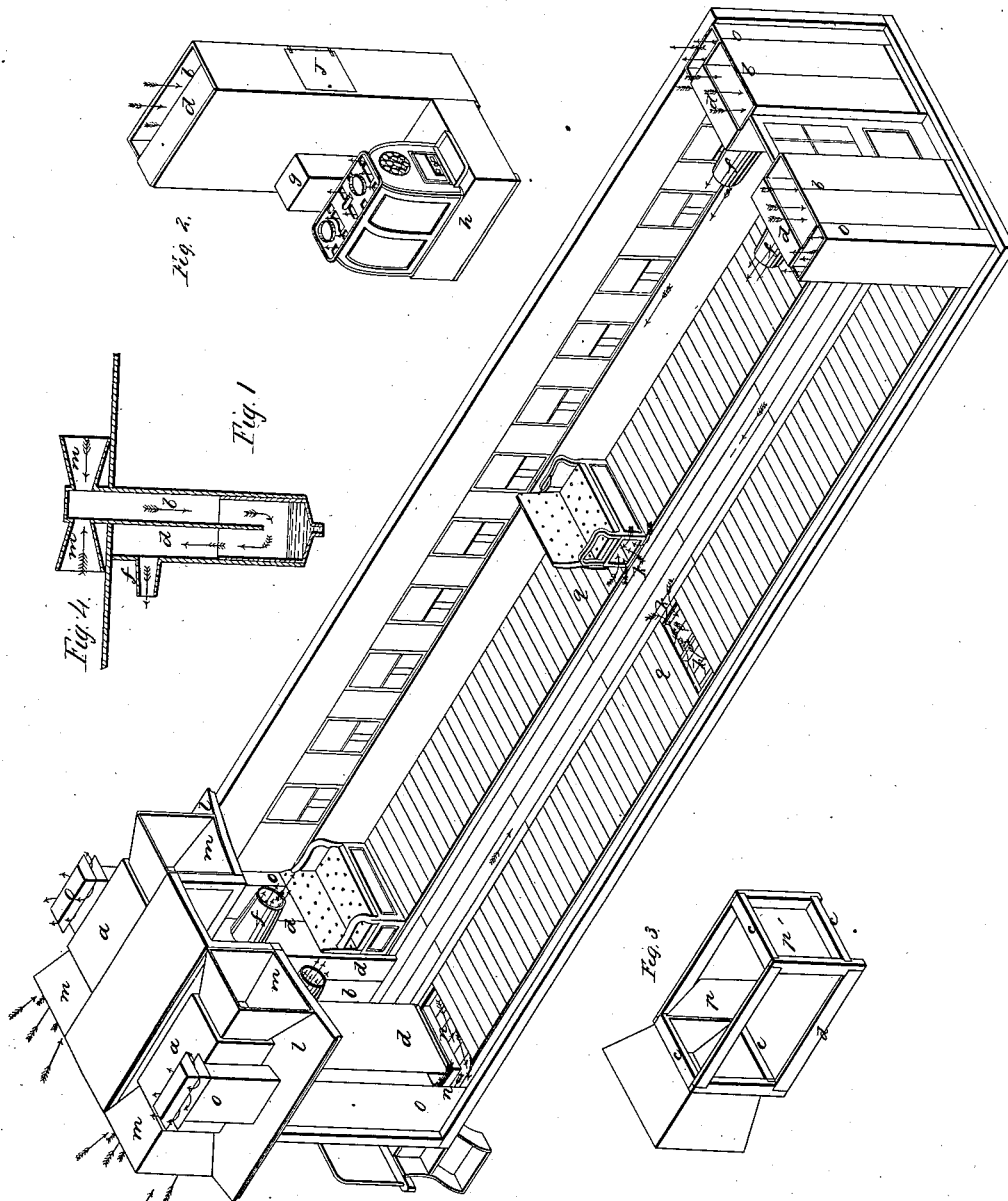


H. J. Ruttan,
Car Ventilator,

N^o 52,009,

Patented Jan. 9, 1866.



Witnesses:
Edward H. Smith
Atty. & C. H. H. H. H.

Inventor,
H. J. Ruttan

UNITED STATES PATENT OFFICE.

H. JONES RUTTAN, OF COBOURG, CANADA WEST.

IMPROVEMENT IN APPARATUS FOR VENTILATING RAILROAD-CARS.

Specification forming part of Letters Patent No. 52,009, dated January 9, 1866.

To all whom it may concern:

Be it known that I, H. JONES RUTTAN, of Cobourg, in the county of Northumberland and Province of Canada West, have made new and useful Improvements in the Ventilation of Railroad-Cars; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, sufficient to enable one skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is an isometric perspective view, a portion of the roof and one side of the car being removed. Fig. 2 is an isometric view of the heating-stove attached to one of the inlet-apertures of the car. Fig. 3 is a view of one of the receiving caps or funnels to inhale the air, and Fig. 4 is a vertical section through the chambers in Fig. 4.

My improvements consist, first, in the arrangement of the inlet and exit air-chamber, with the water-tanks for purification at the ends of the car; second, in the mode of delivery of the purified air into the car; third, in the mode of withdrawing the impure air from the saloon of the car; fourth, in the arrangement of the air-warmer, in connection with the inlet air-chamber.

There are several requisites to the effectual and convenient ventilation of railroad-cars, among which may be mentioned, first, the abundance, purity, and moisture and agreeable temperature of the air; secondly, economy of construction and freedom from liability to get out of order; thirdly, convenience of location, leaving the central and most desirable portion of the car free from obstruction; fourthly, such a delivery of the air as shall be most conducive to the comfort of the passengers and most effective in securing a supply of wholesome air to every part of the car.

The railroad-car represented in Fig. 1 of the drawings has a portion at each end of the car on each side of the door occupied by the devices for the inlet and exit air-chambers. A portion of the roof of the car is shown at *l*, and above this are the air-receiving caps *m m*, which have funnel-shaped openings forward or backward for the purpose of collecting the air as the car moves or as the wind blows in such a direc-

tion as to be inhaled by their open mouths. Pointing in each direction of the car's motion, they are adapted to gather in the air, opening the valve *p* or *p'*, Fig. 3, according to the direction of the entering-air, and closing the valve opposite to the entrance. The incoming air is then deflected downwardly into the trunk *b*, at the bottom of which is a tank of water of a few inches depth—say from six to eight—and after coming in contact with the water is then received upwardly around the lower edge of the plate, which divides the downcast trunk *b* and the upward cast *d*. The water splashing about in the tank makes the contact of the water still more decided and complete, and the water becomes possessed of the flying particles mechanically suspended in the air, and imparts to the air a freshness and purity which form an agreeable contrast to its former aridity and foulness. After undergoing this purification in the entrance-trunks the air is introduced in the saloon of the car through the entrances *f* at a height which causes it to visit first the faces of the passengers, which is by all odds the most felicitous mode of application, the various contrivances which bring the blast from below keeping the dust in a turmoil and reaching the respiratory organs freighted with the odor of the inevitable concomitants of a public floor.

In my arrangement the air introduced at the openings *f f*, after circulating through the upper portion of the saloon, descends to the lower regions, and reaches the recesses under the floors *g* on each side of the aisle. Openings *k* for this purpose are left under one of the seats on each side of the aisle, and the air, finding its way under the floor *g* and between that and the lower flooring-boards of the car, is conducted toward each end to the upcast chutes *o*, which occupy the corners of the car, and thence finds its exit at a cowl-chimney or other opening in the roof.

In winter time, or at other times when artificial heat is required, the air in the upcast chamber, *d*, (see Fig. 2,) instead of being introduced into the saloon through openings *f*, is conducted by a spout, *g*, to a water and air chamber, *h*, under a stove, which latter is provided with tubes, through which the air is passed before entering the saloon, receiving in its passage such an increment of heat as may

Bredt

be judicious and comfortable. As many of the corners may be thus provided with heaters as may be necessary to accomplish the purpose of warming the interior of the car.

The transverse sectional area of the chambers *b d*, collectively, may be thirty-three by twenty-four inches, divided equally between them, the top of the inner chamber or upcast shaft only coming to the roof, while the shaft *b*, penetrating the roof, is capped by the receivers *m a m*.

The description of one corner answers for each of the others.

Suitable arrangements are made for the introduction of water into the tank, which occupies the lower portion of the chamber *b d*, and for its discharge when necessary. The former is obtained by the door J, Fig. 2, and the latter by a plug in the floor of the tank, which may be reached from below, or through the door J.

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

1. The arrangement of the inlet and exit chambers *b, d*, and *o*, with the water-tank at the ends of the car, as and for the purpose described.

2. The combination of the chambers *b d*, divided by a partition, and their lower portion forming a tank, as described.

3. The mode of withdrawing the impure air by openings in the floor leading to an upcast-shaft delivery above the roof.

4. In combination with the shafts *b d*, the tubular warming-stove, arranged substantially as described and represented.

H. JONES RUTTAN.

Witnesses:

JOHN A. WIEDERSHEIM,
ALEX. A. C. KLAUCKE.