(No Model.)

E. L. BRADY.

APPARATUS FOR VENTILATING CARS.

No. 307,087. Patented Oct. 28, 1884.

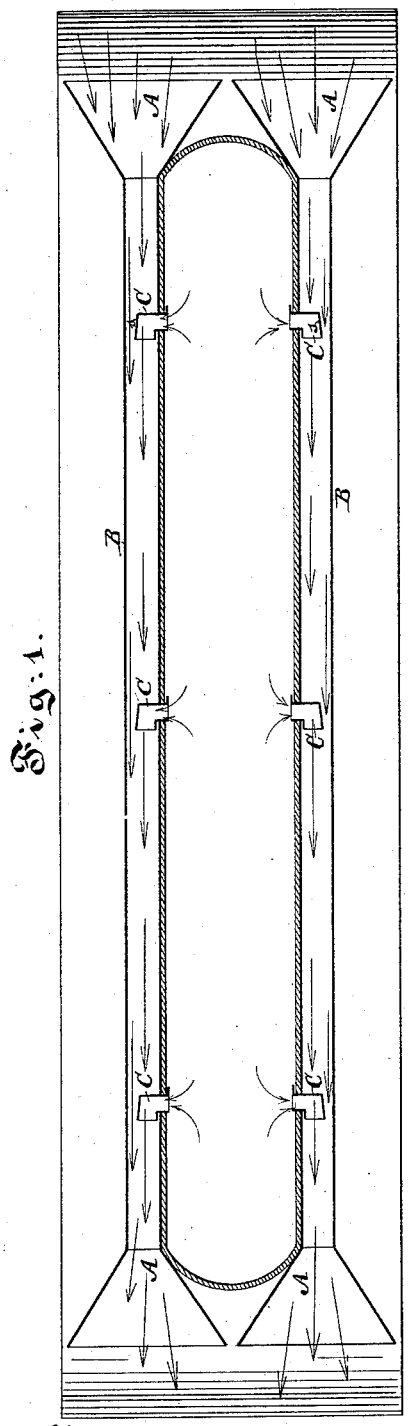

Fig: 1.

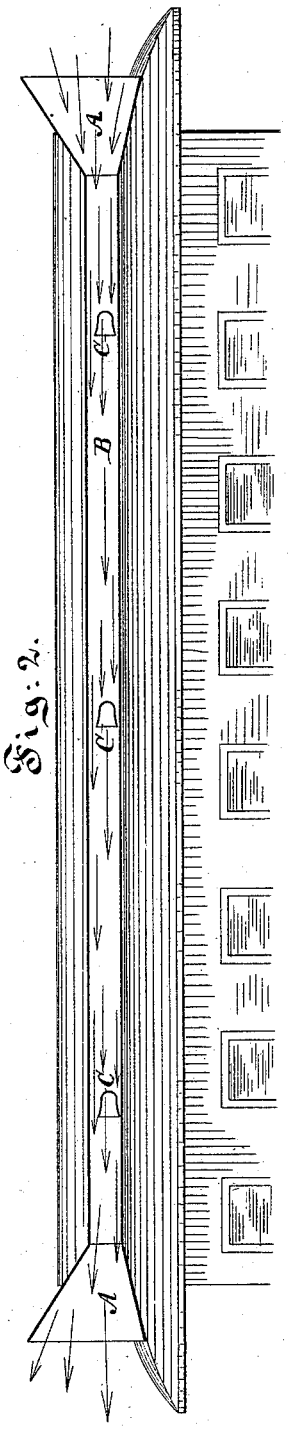

Fig: 2.

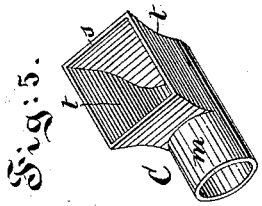

Fig: 5.

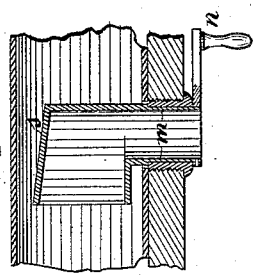

Fig: 4.

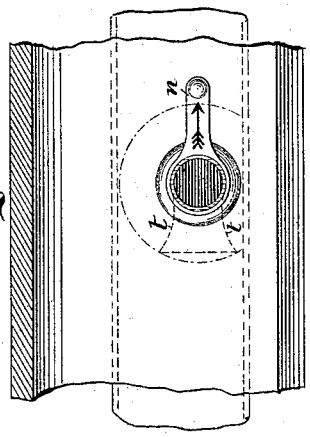

Fig: 3.

Witnesses:
A. D. Gentner
Thos. Toomey.

Inventor:
E. L. Brady
by his Atty
H. C. Townsend

UNITED STATES PATENT OFFICE.

EDWIN L. BRADY, OF NEW YORK, N. Y.

APPARATUS FOR VENTILATING CARS.

SPECIFICATION forming part of Letters Patent No. 307,087, dated October 28, 1884.

Application filed September 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. BRADY, a citizen of the United States and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Ventilating Railway-Cars and other Vehicles, of which the following is a specification.

This invention relates to systems of ventilation for railway-cars or other vehicles, and is designed more especially to remove quickly from the interior of a railway-car or other vehicle all impure air, and to replace the same by pure fresh air.

With ventilating apparatus as heretofore constructed for railway-cars, the efficiency of the apparatus has been limited by the speed of the car, that being approximately the speed with which the exhausting-current of air passes the outlet or exit openings of the ventilating pipes or jacks leading to the interior of the car. By my invention I seek to increase the velocity of the air-currents (passing the angles of the air-passages or pipes leading into the car and commonly called "ventilators") beyond the actual speed of the car itself; and this I do by inclosing the outlets of such air-openings, be they called ventilators, pipes, or jacks, in a pipe or conduit, which I call an "aspirator" or "condensing-pipe," to which pipe is affixed a flaring or funnel-shaped air-collector, of wood or metal or other suitable material, which opens in the direction in which the car is moving, and is adapted to collect and condense the air through which the car is passing. Said air-collector or funnel is of several times greater area or size than the air-pipe to which it leads, to the end that a large volume of air may be caught or collected and compressed into the smaller air-pipe or conduit, and compelled to pass through said air-pipe containing the true ventilators with great speed and force, so that as it rushes past the protruding angles of the outlets of the jacks, pipes, or ventilators in the pipe, it will act as an aspirator on said jacks, pipes, or ventilators, forming a vacuum in the same, and drawing out through them impure air from the interior of the car, which impure air is replaced through a partially-open window in the rear door of the car, or through any other suitable opening. By this arrangement I can induce and compel a compressed current of air to rush by and act on the jacks, ventilators, or air-passages at a greater speed than the car itself is actually moving, the induced currents thereby compelling very active and violent aspiration or exhaustion of the air in the car through the jacks, pipes, or ventilators leading from the car-interior into the air-pipe or aspirator-pipe. In conjunction with such air-collecting-pipe I employ a novel form of jack or ventilator opening into the aspirator-pipe and adapted by its peculiar shape to cause a better and more efficient exhaustion to be produced by the rush of the air past the mouths of said jacks.

In the accompanying drawings, Figure 1 is a plan of the roof and top of a car to which my invention is applied. Fig. 2 is a side elevation of the upper portion of the same. Fig. 3 is a view from the interior of the car toward the side of the car dome or roof in which the ventilator or jack is set. Fig. 4 is a horizontal section of the ventilator-jack in position. Fig. 5 is a perspective view of my improved ventilator or jack, showing the shape of its eduction post or mouth that extends into the aspirator-pipe, conduit, or air-passage.

In the drawings, B B are the condensed-air pipes or conduits placed on the car-roof, and having at either end the flaring collector A, of any suitable shape, adapted to collect and condense the air into the pipes B.

C indicates the ventilators or jacks set into the sides of the car roof or dome, in suitable openings, in which the horizontal cylindrical portion *m* of the ventilator may be turned by means of a handle, *n*, so that its mouth or exit-opening *p*, which is in the aspirator-pipe, may be turned to open in an opposite direction from that in which the car is moving. I give these ventilators the form shown in Figs. 3, 4, 5, the flaring mouth being inwardly curved at *t*, as shown. The end *s* of the mouth is also made flaring, as indicated. This form I find by experiment to be that best adapted to produce a deflection of the air from the edges

of the mouth of the jack, and to therefore produce a vacuum in the space behind the mouth, so as to exhaust the air from the interior of the car. When the car is moving, the air is collected and condensed by the collectors A, that open in the direction in which the car is moving, and moves with accelerated speed past the flaring or conical mouths of the ventilators or jacks C, and exhausts the air from the interior of the car. The arrows show the course of the blast or condensed air and the exhaust air.

My plan of ventilation is obviously applicable to refrigerator and fruit cars, it being only necessary to cause the air admitted to the car to pass through the usual cooling-chamber after the well-known manner.

When the car is running, the apparatus can be made to pump out and exhaust the air contained in the car, leaving a vacuum or partial vacuum in the car interior, as desired, and when the train stops the mouths of the inlets to the ventilators can be hermetically closed by any of the well-known means employed in the art, so as not to admit any outside air while the car stands at rest. When the train again starts, the mouths of the inlets can be opened and exhaustion goes on again at once.

What I claim as my invention is—

1. The combination, substantially as described, of the air-passage or conduit B, mounted on the car-roof and having at each end a flaring mouth, of the jacks or ventilators C, consisting of a cylindrical portion passing through the side of the deck and into the conduit B, and a flaring mouth for said jack projecting at right angles from said cylindrical portion, and contained within the conduit B, said jack having its mouth set to open in an opposite direction to that in which the car is moving.

2. The combination, with the air-pipe or conduit B, having a flaring mouth at each end, of the jacks C, having a tubular portion extending into said pipe, and having flaring curved mouths contained within the conduit B, and projecting at right angles to the tubular portion of the jack, said curved mouths being arranged to open in the opposite direction to that in which the car is moving.

3. The combination, with the air-pipe or conduit B, of jacks having mouths, formed as described, with inwardly-curved portions, as at *t*, and a flaring end, as at *s*.

Signed at New York, in the county of New York and State of New York, this 13th day of September, A. D. 1883.

EDWIN L. BRADY.

Witnesses:
THOS. TOOMEY,
GEO. C. COFFIN.