J. B. HILL.

VENTILATOR.

No. 186,251. Patented Jan. 16, 1877.

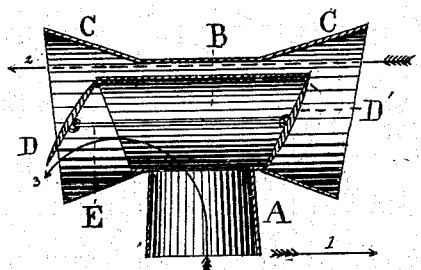

Fig. 1.

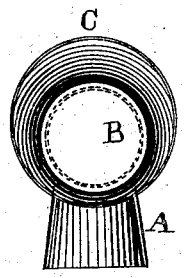

Fig. 2.

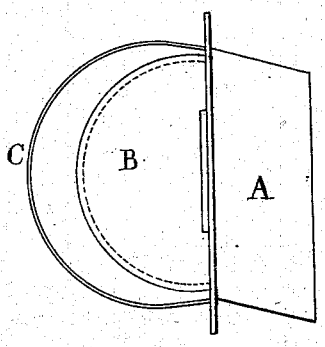

Fig. 3.

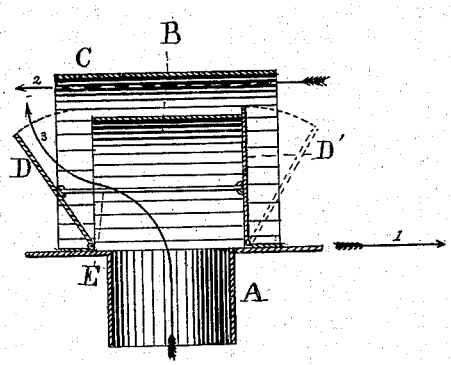

Fig. 4.

WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN B. HILL, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN VENTILATORS.

Specification forming part of Letters Patent No. **186,251**, dated January 16, 1877; application filed August 5, 1876.

To all whom it may concern:

Be it known that I, JOHN B. HILL, of Jersey City, in the county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Ventilators; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a central sectional elevation, showing the funnels, the outer cylindrical portion, the interior cylinder placed eccentric to the outer one, and the automatically-operating valves and their connecting-rod; and Fig. 2 is an end view, showing the projecting pipe for conducting the air from the car to the ventilator. Fig. 3 is an end view, and Fig. 4 a sectional elevation, of a modified form of the ventilator.

Corresponding letters are used to designate like parts in the several figures.

This invention relates to what may be termed exhaust-ventilators, it being designed primarily for use upon railroad-cars and other vehicles that have a somewhat rapid movement imparted to them; and it consists in providing such ventilators with two automatically-operating valves, so arranged that in the act of opening one the other is closed by means of a positive connection, which extends from one to the other, it being of such length as to hold one in its open position while the opposite one is closed, and vice versa; and the invention further consists in certain combinations and arrangements that will be more fully described hereinafter.

Relieving railroad-cars, steam and other vessels, and especially water-closets constructed in or upon such structures, from foul air is an acknowledged necessity, and the device herein described is designed to accomplish such purpose; and to this end I construct the ventilator with a projecting pipe, A, which may be placed at a right angle to the body thereof, or at such an angle as to admit of its passing through the wall or roof of the structure to which it is attached, and leave the outer portion in line with the movement of the car.

The pipe or conduit A, communicates directly with the interior cylinder B, of the outer portion of the ventilator; said cylinder or conduit being open at both its ends, except when closed by valves, soon to be described. This cylinder or conduit is placed eccentrically within an open cylinder or casing, C, in order that the movement of the car, or other structure to which it is attached, may cause a current of air to pass around all parts thereof, except the point where it is united to the pipe or conduit A; the effect of which is to form a partial vacuum within and near the receding end of the cylinder, and thus to induce the outflow of any foul air that may have accumulated within the apartment, such foul air, as soon as it leaves the end of the cylinder, coming in contact with the current that is passing outside of the interior cylinder or conduit B, and within the outer cylinder or casing C; the directions of the two currents being shown by arrows 2 and 3, in Figs. 1 and 4 of the drawings, the arrows 1, in same figures, indicating the direction in which the ventilator is moving.

To provide for the automatic closing of one of the valves and the opening of the other, when the direction in which they are moving is reversed, and the consequent closing of one of the ends of the cylinder or conduit through which the foul air escapes, and the simultaneous opening of the other end thereof, the valves D D′ are hinged thereto, and are united by a rod, E, which is of such a length as to cause one of the valves to open when the opposite one is resting upon its seat, and as a consequence the apartment of the structure to which the ventilator is attached is always in communication with a current of air between the outer portions of the ventilator, which causes said apartment to be freed from any offensive or foul air, and leaves it in a condition to be supplied with fresh air from any available source.

This device is particularly adapted for use upon water-closets in cars and steam-propelled vessels, but will be found well adapted to any structure which has sufficient move-

ment imparted to it to form a current of wind sufficient to take out the foul air.

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

The combination of the pipe or conduit A, the cylinders B and C, and the connected automatically-moving valves D D′, the parts being arranged to operate, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN B. HILL.

Witnesses:
JAMES CORRIGAN,
CHARLES TAYLOR.