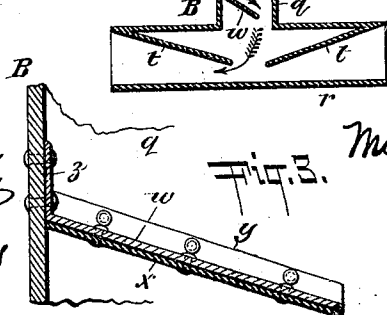
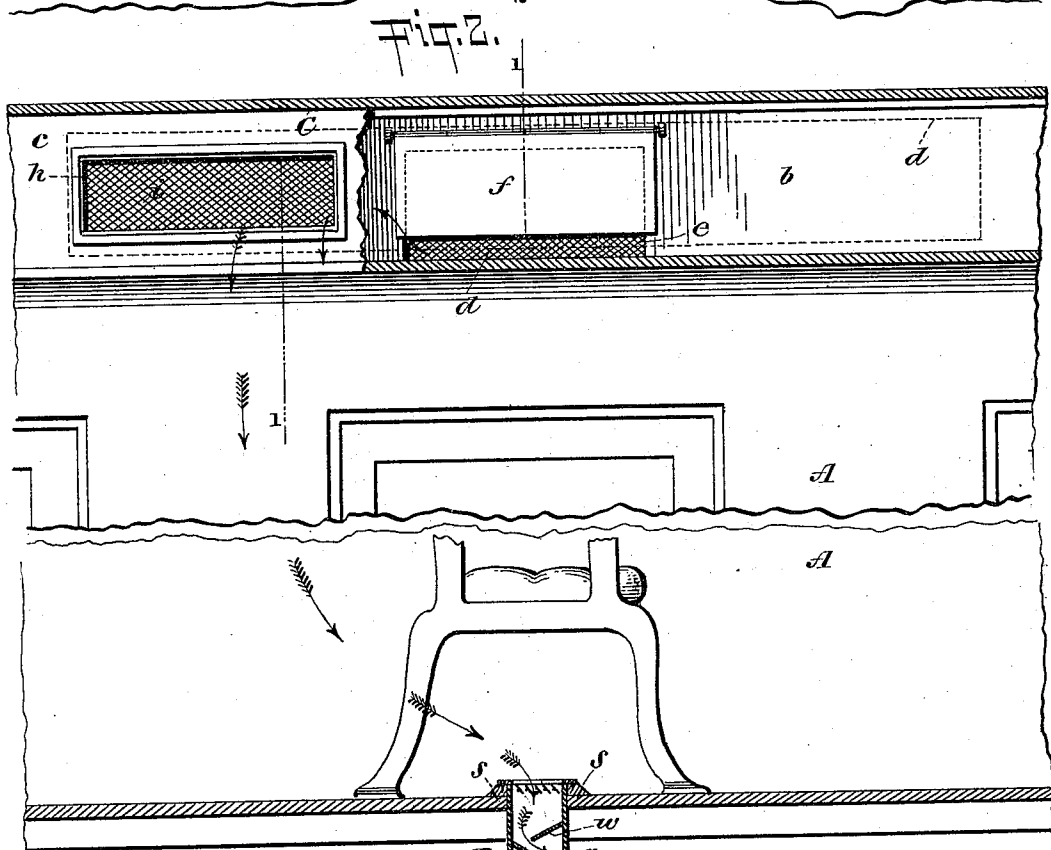
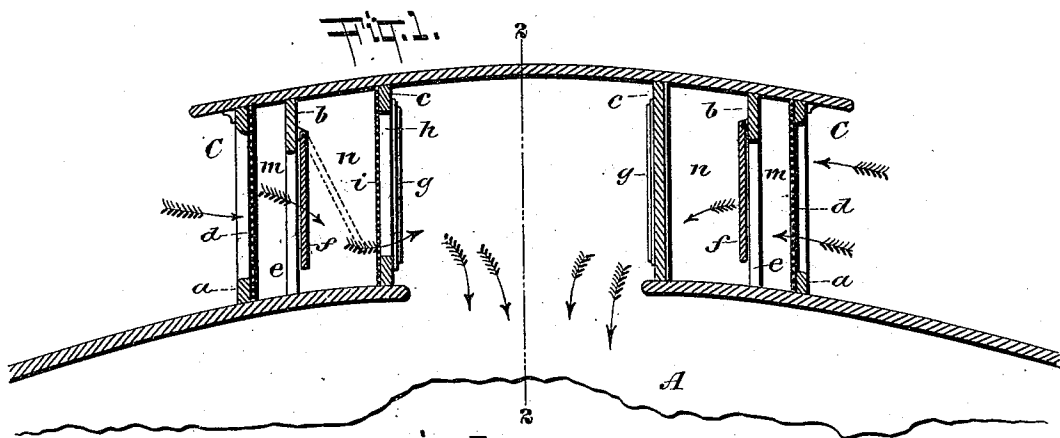


(No Model.)

M. B. STAFFORD.
CAR VENTILATOR.

No. 511,369.

Patented Dec. 26, 1893.



WITNESSES:
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MARSHALL B. STAFFORD, OF NEW YORK, N. Y.

CAR-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 511,369, dated December 26, 1893.

Application filed March 2, 1893. Serial No. 464,388. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL B. STAFFORD, 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 Ventilators for Cars, of which the following is a specification.

The invention relates to improvements in the art of ventilating railway and street cars, and consists in the novel means hereinafter described and claimed, provided at the top of the car for admitting fresh air and at the bottom of the car for exhausting or drawing off the foul air and gases therefrom.

The object of the invention is to provide a car with means whereby the air therein may be kept constantly pure and wholesome and a uniform temperature maintained, without creating drafts through the car or permitting the noise of the running gear to ascend through the exhaust or discharge apparatus at the bottom of the car.

The nature and objects of the invention and the means for carrying the same into effect will be more fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical transverse section through the upper portion of a car embodying the invention, the section being taken on the dotted line 1—1 of Fig. 2, which is a vertical longitudinal section of the same on the dotted line 2—2 of Fig. 1, the car having its middle portion broken away longitudinally; and Fig. 3 is an enlarged detached vertical section through a portion of the exhaust or vacuum box, as it is ordinarily termed, located at the bottom of the car.

In the drawings A designates the car, B the exhaust or vacuum box beneath and extending through the floor thereof and C the inlets for the admission of pure air at the upper part of the car. The inlets C are built in the roof and along each side of the car at convenient points, and consist at each side of the car of the partitions *a*, *b*, *c*, the partition *a* having an open center protected by a screen *d*, as shown in section in Fig. 1 and by dotted lines in Fig. 2, the partition *b* having an opening *e* and hinged damper or valve *f* in line with about the center of the screen *d*, and the par-

tition *c* having a solid section *g* in line with the valve *f* and the openings *h*, *h*, at the ends of said solid section *g*, the said openings *h*, *h*, being covered by screens *i*, as shown. The partitions *a*, *b*, *c*, form between them the air compartments *m*, *n*, communicating with each other through the opening *e*, which is not entirely covered by the valve *f*, as indicated in the drawings. The fresh air first passes through the screen *d* into the compartment *m* and thence through the opening *e* into the compartment *n* where it first meets the solid section *g* and then passes along the compartment *n* to the screens *i*, through which it passes into the upper part of the car. The screen *d* diffuses the current of air and prevents the entrance of cinders and dust, the valve *f* automatically regulates the supply of fresh air, and the solid section *g* breaks the force of the incoming current and deflects the same along the compartment *n* so that the air may enter the car through the screens *i* in a subdued and diffused condition without creating draft currents or sudden changes in the temperature of the car. While the cars are in motion the exhausting of the foul air at the floor causes the valve *f* to swing inward sufficiently to admit a proper supply of fresh air, and when the cars are at rest the valve *f* closes downward but leaves a part of the opening *e* uncovered thus allowing fresh air and light to enter and the lighter gases which ascend in the car to escape. The extent to which the valve *f* will swing open during the travel of the car will depend upon the degree of exhaust through the vacuum box B, and this will vary in accordance with the dimensions of the car, it being desirable that the entrance of the air to and its escape from the car shall be so gentle and gradual as to be imperceptible to the passengers and maintain a uniform temperature in the car. The inlets C will vary in number according to the length and character of the car, and likewise the vacuum boxes B will also vary in number. If the valves *f* are not used at all, the solid sections *g* will prevent the strong currents of air from passing directly into the car and will also prevent the entrance of any rain or cinders that may pass through the screen *d*.

The vacuum box B consists of the vertical neck or flue *q* and the horizontal flue *r*, and

is arranged so that the flue *r* will be in line with the length of the car. The flue *r* will be provided with the usual plates *t*, and the neck or flue *q* will have secured therein the downwardly deflecting plates *w* having a leather or soft covering *x*. The plates *w* have at each side edge a flange *y* and at the upper end a flange *z*, and these flanges serve as means for the convenient riveting of the said plates to the inner walls of the flue *q*, as indicated in Fig. 3. The leather covering *x* may be secured to the plate *w* by rivets if desired. The plates *w* with their leather covering *x* deaden the sound from the running gear so that the noise will not ascend through the flue *q* to the car, and any desired number of these plates may be employed. The deadening of the sound from the running gear is an object of importance and is accomplished by the plates *w* and their soft covering *x*. The vacuum boxes *B* are located preferably beneath the car seats, and the upper end of the flue *q* extends upward through the floor a short distance and is protected by a molding *s*. The object of extending the flue *q* upward through the floor is to prevent dirt and water from entering the same during the cleaning of the cars. The upper end of the flue *q* may if desired be provided with a register such as shown in Letters Patent No. 266,546, granted to me October 24, 1882.

The operation of the vacuum boxes *B* is well understood, having been described in said Patent No. 266,546, and also in Letters Patent No. 294,820, granted to me March 11, 1884.

The lower ends of the plates *w* project beyond each other, as shown in Fig. 2, and thus

even when used without the covering *x* are advantageous in that they prevent dust from passing upward through the flue *q*. 40

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

1. A car having at or adjacent to its top the inlets composed of the partitions *a*, *b*, *c*, the partition *a* having the screened opening *d*, the partition *b* the opening *e* and valve *f* in line with said opening *d*, and the partition *c* the solid section *g* in line with said opening *e* and the screened openings *h*, *h*, at the ends of said section *g*, substantially as and for the purposes described. 45 50

2. A car having at or adjacent to its top and at each side thereof the partition *b* provided with an opening *e*, and the partition *c* having the solid section *g* in line with said opening *e* and the screened openings *h*, *h*, at the ends of said section *g*; substantially as and for the purposes set forth. 55

3. A car having at and leading into its bottom the vacuum box composed of the vertical and horizontal flues, the former provided at opposite sides with the downwardly and inwardly inclined deflecting plates *w* and the latter with the end deflecting plates *t*; substantially as and for the purposes described. 60 65

Signed at New York, in the county of New York and State of New York, this 28th day of February, A. D. 1893.

MARSHALL B. STAFFORD.

Witnesses:

CHAS. C. GILL,
ED. D. MILLER.