

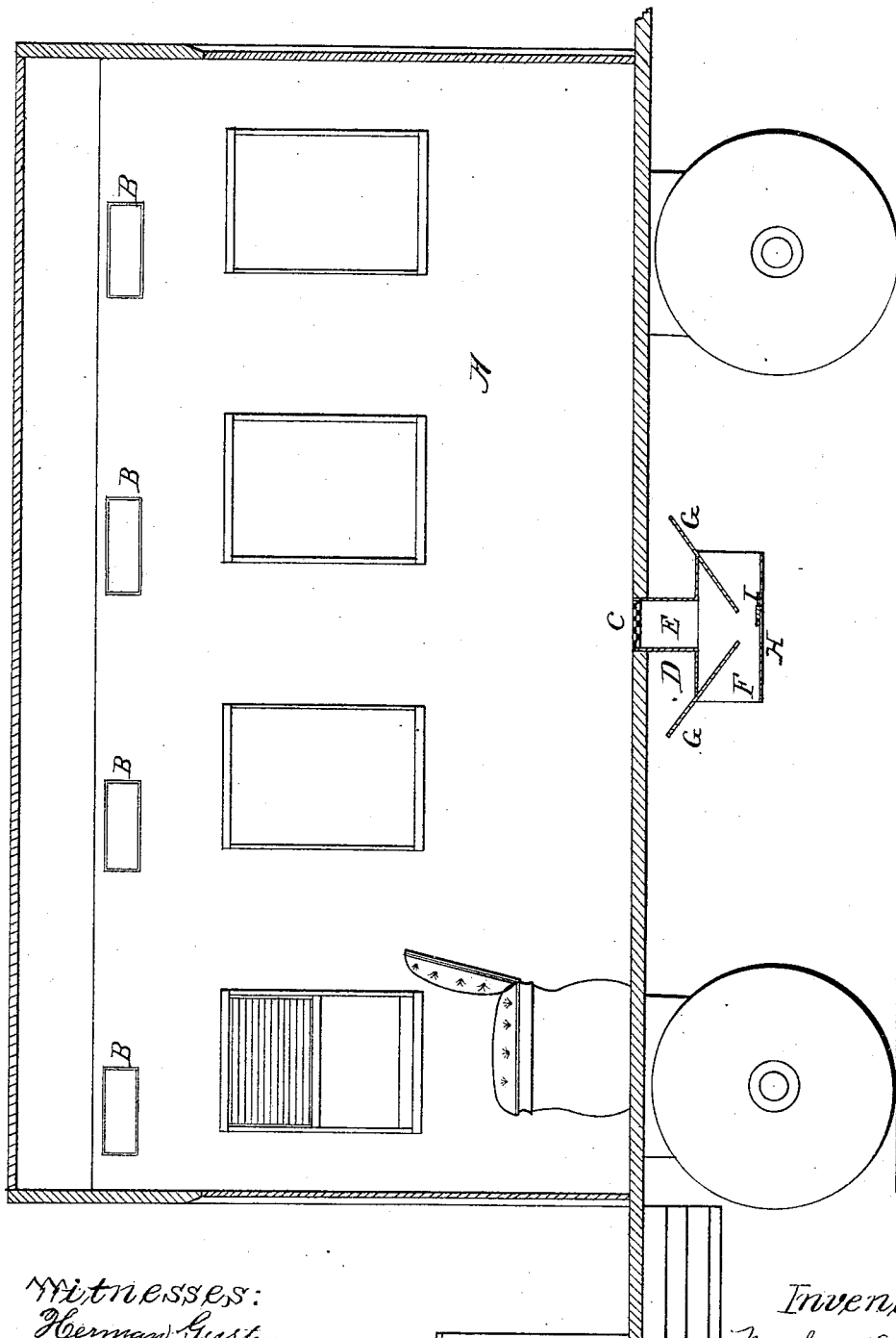
(No Model.)

M. B. STAFFORD.

VENTILATION.

No. 266,546.

Patented Oct. 24, 1882.



Witnesses:
Herman Gustow
Chas. C. Gill

Inventor;
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UNITED STATES PATENT OFFICE.

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

VENTILATION.

SPECIFICATION forming part of Letters Patent No. 266,546, dated October 24, 1882.

Application filed July 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL B. STAFFORD, of the city, county, and State of New York, have invented a new and useful Improvement in the Art of Ventilation, of which the following is a specification, reference being had to the accompanying drawing.

The invention relates to an improvement in ventilation; and it consists essentially in the novel means for ventilating cars, either for passengers or for the transportation of merchandise. By my invention I produce a vacuum which creates a current through the car, carrying off all foul air and keeping up a constant supply of fresh air.

The nature of my invention and the advantages to be derived from its use will be understood from the description hereinafter presented, reference being had to the accompanying drawing, representing a central vertical longitudinal section of a railroad-car to which my invention has been applied.

Referring to the drawing, A denotes the car, which is of the usual construction, having an inlet for air at B and supplied at some suitable point in the floor with the register C, below which is placed a vacuum-box, D. This box consists of the vertical flue E and the horizontal draft-flue F, extending outward at opposite sides from the flue E. Within the vacuum-box B are provided the inclined plates G, which enter at the upper opposite corners of the horizontal draft-flue F, and, extending slantingly downward and inward, terminating centrally below the vertical flue E. The approaching ends of the inclined plates G may project beyond the side of the box D, so as to increase the surface against which the air strikes, which assists in the consummation of the objects of the invention. The two opposite ends of the box D are open, so as to permit the passage of the air through them. In the bottom of the box D, centrally below the flue E and the space between the inner ends of the inclined plates G, may, if preferred, be formed an opening, H, provided with a damper, I, though I am able to secure a good result when the said opening and damper are omitted. The damper I turns on a pivot, a, and only covers one-half of the opening H. The purpose of the opening H and the damper I will appear hereinafter. The register C will be

adapted to be opened and closed at will, so as to regulate the draft of air through the car, according to the conditions of the weather and state of the atmosphere.

In the operation of the invention the inlet B is opened, or any other inlet that may be provided, for the purpose of permitting the entrance of air, and the car set in motion. The movement of the car causes the air to strike forcibly against the inclined plate G at the end of the vacuum-box D, pointing in the direction of the movement of the train, and when the air thus strikes the inclined plate G it is driven downward and passes out of the opposite end of the flue-box or escapes through the opening H. The movement of the air through the flue-box is in the nature of a blast caused by the rapidity of the moving train, and it is driven downward and away from the vertical flue F, forming a vacuum which the air in the car constantly seeks to fill. It will appear obvious, therefore, that while the car is in motion the blast through the flue-box will act upon the air in the flue F, as stated, whereby a fresh current of air is constantly kept moving through the car.

The operation of my device is positive, and there is no liability of its failing to accomplish the purpose for which it is intended.

In cold weather, after the air in the car is purified, it may be desirable to cut off the current, in which event it will only be necessary to close the register C.

By reason of the blast through the flue-box being driven forward, I accomplish not only the creation of the vacuum hereinbefore described, but also the important advantages of preventing dust and dirt from ascending through the register. By the peculiar construction of my device the dust and dirt are absolutely driven from the car and cannot under any possibility ascend through the flues into the car.

I am able to take the air which enters the car at any point, either at the front, rear, or sides; but I prefer to take it at the opposite end of the car to the direction in which it is moving.

The damper I is turned preferably to close that half of the opening H which is farthest from the end of the car moving in front. I have found that by closing the half of the open-

ing II opposite to the direction of the movement of the car I accomplish a better result than if the damper were otherwise turned. I have demonstrated, after careful experiment, 5 that the vacuum-box D, if constructed in any other way than with the inclined plates G, will not create a vacuum, without which the invention must prove a failure. For instance, if I had made the ends of the flue-box in the shape 10 of cones having inclined sides, top, and bottom, the result would be that, instead of creating a vacuum, the dust and dirt caused by the moving train would blow up through the flues and enter the car and fail in accomplishing the 15 purpose for which it was constructed.

The invention will admit of various modifications, which will readily suggest themselves to persons skilled in the art to which the invention relates, and need not therefore be 20 specifically mentioned herein.

The bottom of the vacuum-box D is flat or straight, as shown, whereby I secure results of a very substantial character. Heretofore, in vacuum-boxes employing inclined plates for 25 the purpose of producing a vacuum, the bottom of the box has been concave, the effect of which concavity has been found to impair the result sought to be accomplished by the box. The air, entering on one side of the box, taking 30 a downward course, and then striking the upward cavity of the opposite side of the box, produces a reactionary effect upon the entrance

of the air to the box and to the issuance of the air from the apartment to be ventilated. The obstruction to the passage of the air through 35 the horizontal flue by the concave base or bottom has rendered the apparatus impracticable, and to correct this defect is one of the objects of the present application. The objections to the vacuum-boxes now in use, above set forth, 40 I effectually overcome by the flat base or bottom of the vacuum-box which is the subject of this application.

What I claim as my invention, and desire to secure by Letters Patent, is— 45

1. The vacuum-box herein described, consisting of the vertical flue, the horizontal flue, and the inclined plate or plates, the horizontal flue having a flat bottom, substantially as set forth.

2. The vacuum-box D, consisting of the vertical and horizontal flues and the inclined plate 50 or plates G, the upper end of which projects outward beyond the box for the purpose of creating a large bearing-surface for the air, substantially as set forth. 55

3. The vacuum-box D, consisting of the horizontal and vertical flues, the plate or plates G, and the damper, substantially as set forth.

Signed at New York this 29th day of June, 1882.

MARSHALL B. STAFFORD.

Witnesses:

CHAS. C. GILL,
HERMAN GUSTOW.