

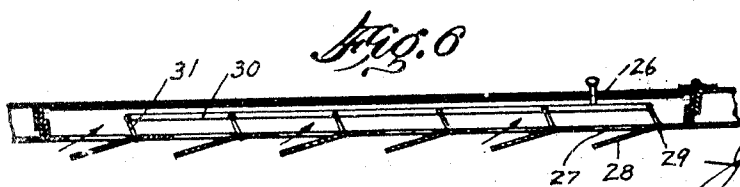
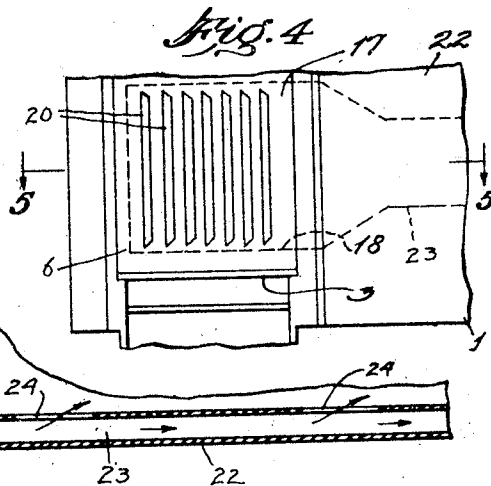
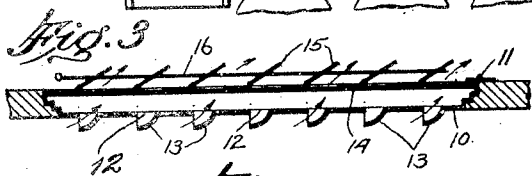
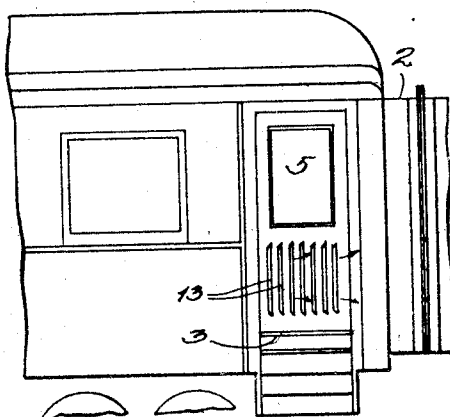
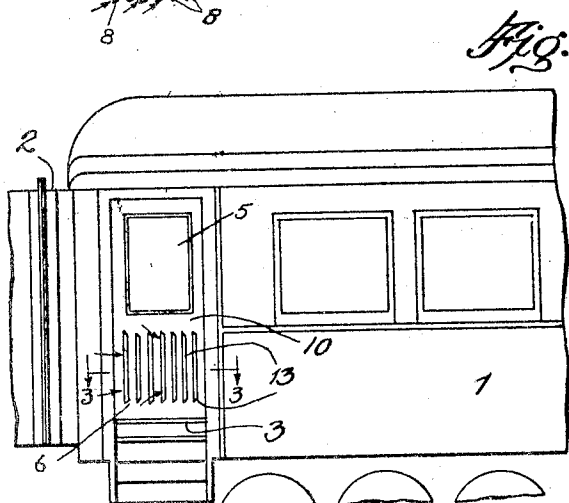
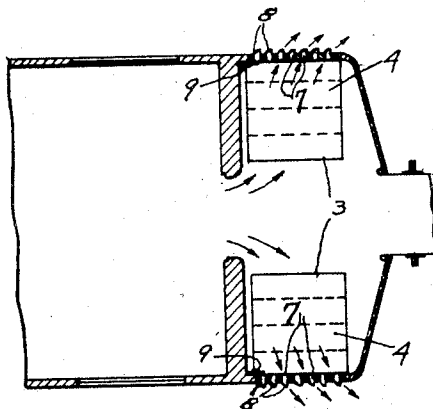
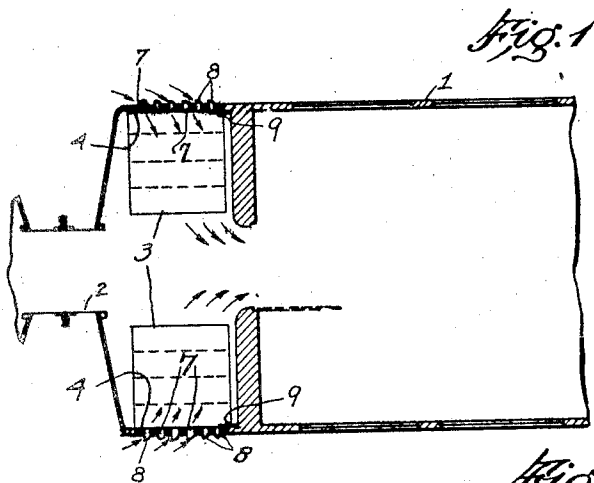
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1,720,858

VENTILATING DOOR FOR RAILWAY CARS AND THE LIKE

Filed July 22, 1927



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VENTILATING DOOR FOR RAILWAY CARS AND THE LIKE.

Application filed July 22, 1927. Serial No. 207,765.

This invention is an improvement in ventilating doors for railway cars, and more particularly in an arrangement for providing ventilation for cars of the vestibuled type.

Vestibuled cars, as usually constructed, are tightly closed at the ends, and there is a relatively close seal between adjacent cars so that any circulation of air through the car from end to end is prevented.

Ventilation must depend upon the side windows and the ventilators at the top. The windows, particularly in seasons when ventilation is especially desirable, are usually closed to prevent the influx of dust and cinders, and the ventilators are not well adapted to obtain thorough ventilation of the cars.

Substantially all the air circulation in cars of this type must be transverse to the car, because of the method in which the car is constructed, with smoking and toilet rooms at the ends, and with winding corridors at the sides of the car out of alignment longitudinally of the car.

From this results that there is a deficiency of oxygen in the car when the windows are closed, and the occupants are subjected to drafts when the windows are opened.

One of the primary objects of the present invention is the provision in a car of the vestibuled type, of an outer vestibule door, so constructed and arranged as to insure the free inflow of air through the car at all times, and particularly when the car is in motion.

Another object is the provision of a type of ventilating door wherein the movement of the car is utilized to increase the air circulation through the car.

Another object is the provision of a ventilating door, so arranged as to enable regulation of the flow of air through the door, and through the car.

Another object is the provision of a mechanism in connection with the door enabling the air to be distributed at desired points in the car.

With these and other objects in view, the invention consists in the construction and novel combination of parts fully described hereinafter, illustrated in the accompanying drawing, and pointed out in the claims appended hereto, it being understood that various changes in the form, proportion, size and minor details of construction within the

scope of the claims, may be resorted to without departing from the spirit of the invention.

In the drawings forming a part hereof:

Fig. 1 is a horizontal section of a part of a car provided with the improved ventilating doors.

Fig. 2 is a side view of one end of a car having an alternate construction of door.

Fig. 3 is a section on the line 3—3, of Fig. 2.

Fig. 4 is a fragmentary view showing a part of the car with an alternate form of door.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a sectional view similar to Figs. 3 and 5, showing an alternate arrangement.

In the embodiment of the invention shown in Fig. 1, the car 1 is of the vestibule type, and the vestibule end 2 fits closely against the corresponding end of an adjacent car.

The vestibule has the usual trap door 3, closing level with the platform and an outer vestibule door 4 adapted to open inwardly against the car wall.

In the usual construction, as shown in Fig. 2, the side doors have a glass panel 5 at the top, and an imperforate portion 6 at the bottom, which may be paneled or not, as desired. The doors are usually of metal and when closed, form a comparatively tight seal against the circulation of air. In the present construction each of the vestibule side doors is provided with a plurality of vertical slots or openings 7, substantially parallel, and spaced apart from each other, and extending from near the bottom of the door to near the glass panel 5.

Each opening is vaned, that is, the door is provided with a deflecting vane 8 at one side of each opening, the vanes being at the corresponding sides of the openings in the series. Each of the vanes is curved and is arranged with its concave face toward the adjacent opening or slot, and toward the adjacent end of the car. With this arrangement, in whichever direction the car is traveling the vanes at the front end thereof will be arranged to act as scoops, to scoop in the air, thus to insure a constant flow of air with a normal oxygen content through the openings. At their ends the vanes merge into the level of the door as shown. The doors are hinged at 9 to the car walls, and the trap doors are hinged to the platform.

In order to prevent the influx of dust, cinders and the like, it is sometimes advisable to arrange a screen over the openings. This construction is shown in Figs. 2 and 3, wherein the door 10 is hinged at 11 to the car, and is provided with the openings 12, each having the vanes 13 at one edge thereof on the outer face of the door. The screen 14, which may be of wire cloth of suitable mesh, is arranged on the inner face of the door, and preferably flush with said inner face. As shown in Fig. 3, the door is of hollow construction at the openings 12, and the screen forms the inner wall of the door. It is obvious, however, that the screen might be arranged directly against the door, that is, directly against the wall which carries the openings, if desired. The arrangement of the vanes is the same in this construction as in Fig. 1, that is, the vanes have their concave faces toward the openings, and toward the adjacent end of the car.

It is also desirable to be able to regulate the flow of air through the openings, and with this object in view, louvres 15 are pivoted to the inner face of the door in any suitable manner. These louvres are of a width to cover the openings 12, and to close the same when the louvres are closed. They are simultaneously operated to open and closed position, by means of a rod 16 connected to all of the louvres. When the rod is moved in one direction the louvres are moved to a closed position and when the rod is moved in an opposite direction, the louvres are moved to open position.

In the construction just described, the air circulates through the car. That is, it flows through the openings at the front of the car, through the car, and out at the openings at the rear of the car.

In Figs. 4 and 5 a construction is shown by means of which the circulating air may be delivered at any desired point or points in the length of the car. With this arrangement, the door 17 is hollow, or at least a portion thereof below the glass panel, to form a chest or chamber 18 in the door. The outer wall of the door is provided with openings 19 and with the vanes 20 constructed and arranged as in Fig. 1.

The door is hinged at 21 and within the wall of the car 22 a conduit 23 is provided of suitable dimensions, and having openings 24 to the interior of the car, where desired.

The conduit 23 is below the level of the windows so that there is no interference therewith. The conduit opens in the door framing, as shown at 25, and the door has an opening matching therewith when the door is closed. This provides a connection between the chest and the conduit. It will be obvious that the openings 24 may be provided at any part of the car, and they may

be above the windows, near the top of the car, or below the windows. They may also be arranged to open into the staterooms with which some cars are provided. This arrangement of the door may also be provided with a screen if desired, and the openings 24 may be valved.

In the embodiment of the invention shown in Fig. 6, the door 26, which may be any of the forms previously described, is provided with openings 27, and the louvres 28 on the outer face of the door. The louvres are hinged to the outer face of the door, as shown in 29, at corresponding edges of the openings, the arrangement being such that the louvres may close flat against the door to close the openings, or may be opened to any desired extent to act as vanes or deflectors for deflecting air to the openings. They are controlled simultaneously to open or closed position by a rod 30. This rod is pivoted to arms 31 extending inwardly from the louvres on the opposite side of the pivotal or hinge connection from the louvres, and the rod is operated in any suitable manner. If desired, the opening movement of the louvres may be limited to something less than a right angle, and they are so arranged as to deflect air into the openings at the front of the car, in whichever direction the car is moving.

It will be evident from the description and the drawings, that the improved doors will provide an efficient circulation of air through any car of the vestibuled type, and that by means of the screens the air may be delivered in a condition free from dust and cinders. By means of the louvres, the circulation may be controlled, and with the type shown in Fig. 6, the openings may be entirely closed during snow and other storms, thus preventing entrance of moisture to the interior of the construction.

What is claimed as new is:

1. A vestibuled railway car having front and rear outer vestibule doors, each provided with externally vaned openings for the admission of air, the vanes inclining outward from the door and toward the adjacent end of the car, whereby the vanes at the front end of the car incline in the direction of travel of the car.

2. A vestibuled railway car having front and rear outer vestibule doors, each provided with openings for the admission of air, and with vanes at corresponding edges of the openings inclined outwardly and toward the adjacent end of the car, and a common means for moving the vanes to vary the inclination thereof or to close the opening.

3. In a vestibule car, having front and rear outer vestibule doors, each provided with vertically-arranged ventilating openings, vanes on the door on the opposite sides of the openings from the adjacent end of the

car, and means in connection with the vanes to simultaneously vary the size of the openings of each door.

4. A vestibuled railway car having front and rear outer vestibule doors for closing the vestibules, each door being provided with air inlet openings, and each door having means arranged to direct air currents generated by the travel of the car in either direction through the openings at the front of the car, thereby to ventilate the same.

vestibules, each door being provided with air inlet openings, and each door having 15 vanes arranged to direct air currents generated by the travel of the car in either direction through the openings at the front of the car, thereby to ventilate the same, and means for moving the vanes to vary the inclination thereof or to close the openings. 20

Signed at New York city in the county of New York and State of New York this 15th day of July A. D. 1927.

5. A vestibuled railway car having front and rear outer vestibule doors for closing the

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