

J. E. WARD.
VENTILATOR FOR RAILWAY CARS.
APPLICATION FILED NOV. 10, 1911.

1,059,241.

Patented Apr. 15, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

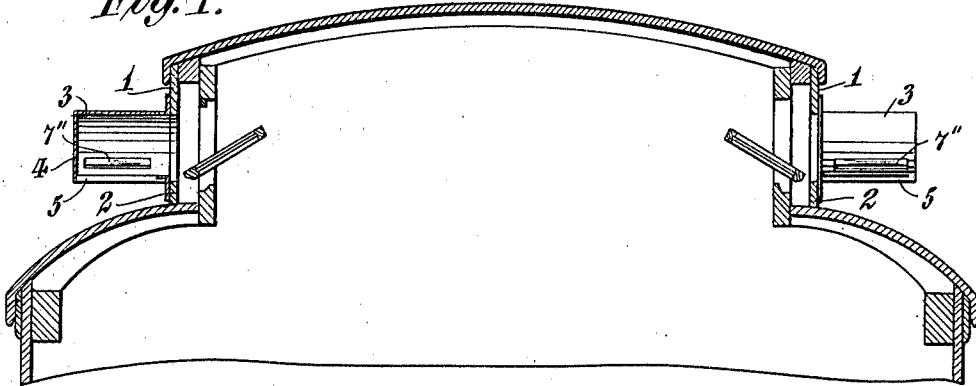


Fig. 2.

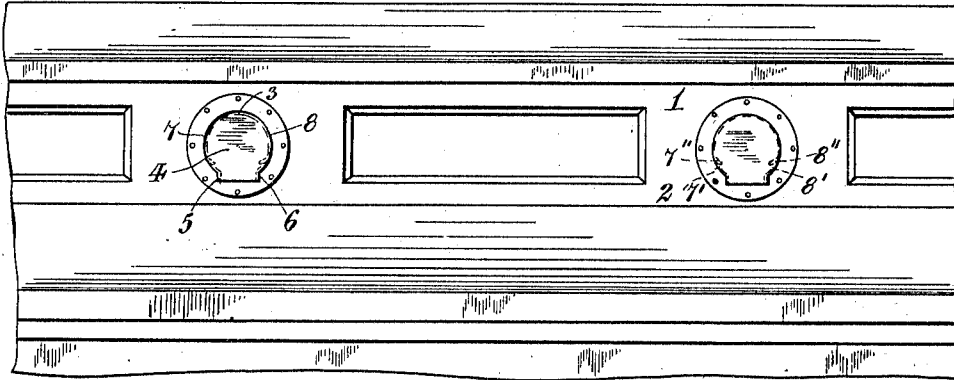


Fig. 3.

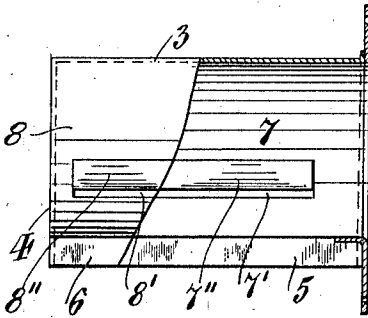
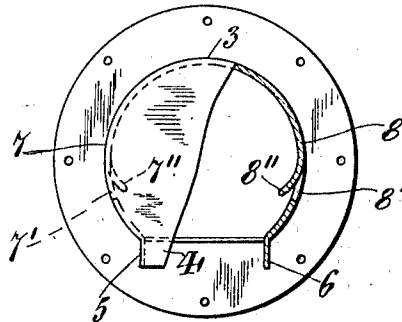


Fig. 4.



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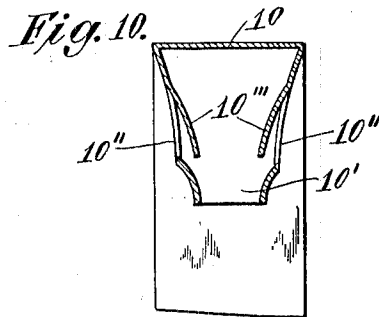
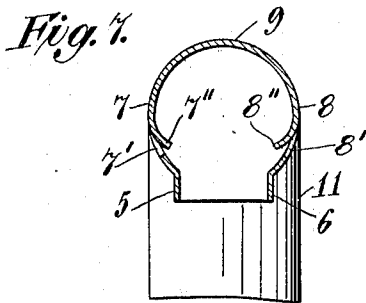
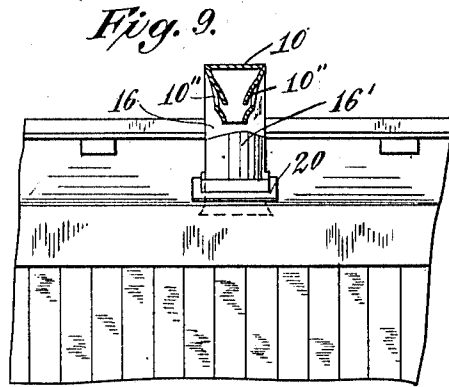
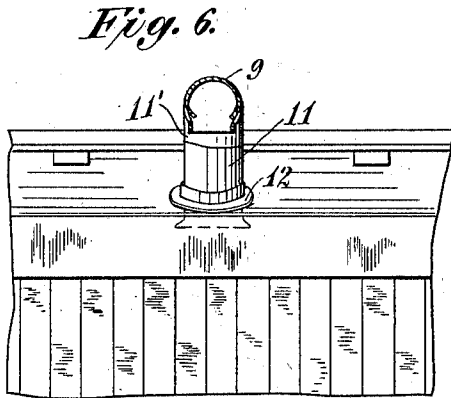
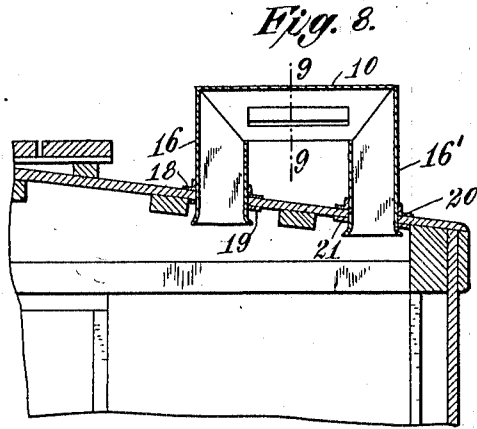
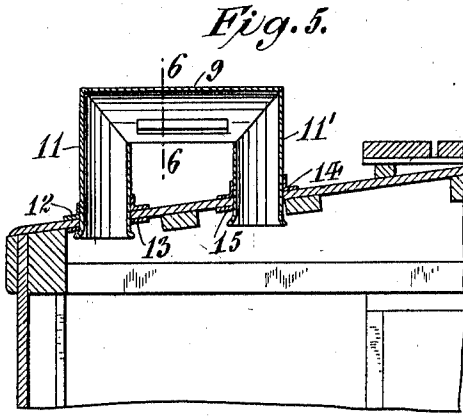
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN E. WARD, OF NEW YORK, N. Y., ASSIGNOR TO STANDARD HEAT AND VENTILATION COMPANY, INC., A CORPORATION OF NEW YORK.

VENTILATOR FOR RAILWAY-CARS.

1,059,241.

Specification of Letters Patent.

Patented Apr. 15, 1913.

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To all whom it may concern:

Be it known that I, JOHN E. WARD, a citizen of the United States, and a resident of the borough of Manhattan of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Ventilators for Railway-Cars, of which the following is a specification.

The invention relates to improvements in ventilators for railway cars which are designed to suck the air from the interior of the car when the latter is in motion.

The invention particularly relates to details of construction due to which a comparatively large suction is created by means of inwardly and downwardly inclined parts which direct air, entering the interior of the ventilator through openings in the lateral walls or sides thereof, outwardly through the discharge opening of the ventilator.

As showing some specific embodiments of the invention, reference is made to the drawings forming a part of this specification and in which—

Figure 1 represents a transverse sectional view through the roof portion of a car which roof portion is provided with vertical walls to which is secured one form of the ventilator. Fig. 2 is a partial side elevation of the car shown in Fig. 1, the ventilator being shown in position thereupon. Fig. 3 is a partial side and longitudinal sectional view through the ventilator shown in Figs. 1 and 2. Fig. 4 is a partial end and transverse sectional view of the ventilator shown in the preceding figures. Fig. 5 is a sectional view of a car having an inclined roof to which is attached another form of ventilator. Fig. 6 is a side view of the car shown in Fig. 5 with a ventilator thereupon, the ventilator however being partially broken away so as to show the cross section of the air delivery portion thereof taken on the line 6—6 of Fig. 5. Fig. 7 is an enlarged view taken on the line 6—6 of Fig. 5. Fig. 8 shows another form of ventilator which may be utilized. In this figure the ventilator has been applied to a car having an inclined roof. Fig. 9 is a side view of the car shown in Fig. 8, the ventilator in Fig. 9 being partially broken away so as to show the cross section on the line 9—9 of Fig. 8. Fig. 10 is an enlarged view taken on the line 9—9 of Fig. 8.

In Figs. 1 and 2, 1 designates the vertical walls of the roof of the car to which is secured the base 2, meaning that portion which is applied to the wall or roof of the car and serving as means for holding the ventilator in place thereupon. It will be observed that the ventilator having the cylindrical body portion 3 is open at the bottom and provided with vertical walls or flanges 4, 5 and 6 which surround this opening. In the sides or lateral walls 7 and 8 there is provided the opening 7' and 8' for the passage of air as the car moves long the track. The air passing these openings strikes the inwardly and downwardly extending portions 7'' and 8'' which deflect the air toward and through the lower delivery opening of the ventilator. The downwardly extending flanges 5 and 6 that are located at the lower portion of the inwardly and downwardly inclined side walls cause a suction to be created within the ventilator as the car moves forward and this suction is materially aided by the air passing through the opening 7' or 8', which is forced inwardly and downwardly and out through the opening at the bottom of the ventilator. From an inspection of Fig. 3 it will be observed that the openings 7' and 8' and also the inwardly and downwardly extending portions 7'' and 8'' extend substantially the full length of the cylindrical body portion 3.

The forms shown in Figs. 5 and 7 and that shown in Figs. 8 to 10 have both been applied to a car having an inclined roof. It will be observed that in all of the forms above referred to there is a suction producing and air delivering portion that is open at the bottom or underside and which extends substantially horizontally. In the forms shown in Figs. 1 to 4 and also in Figs. 5 to 7 the cross section of this air suction and air delivering portion is substantially the same as can be seen from a comparison of Figs. 4 and 7. In Fig. 5 the air suction and air delivering portion is designated by the reference character 9 and in Figs. 8 to 10 the corresponding air suction and air delivering portion of the ventilator is designated by the reference character 10.

The opposite ends of the suction and air delivering member 9 are connected with the interior of the car by parallel vertical tubes 11 and 11', one of which is shorter than the other, dependent upon the inclination of the

roof of the car. This utilization of a plurality of tubes at the opposite ends of the suction member allows a comparatively free passage for the air from the interior of the car to said suction portion of the ventilator. These vertical tubes are provided with flanges 12, 13, 14 and 15 which serve as means for holding the ventilator in place upon the roof of the car.

In the form shown in Figs. 5 to 7 the cross section of the air suction and air delivering portion as above stated is substantially the same as that shown in Figs. 3 and 4. In Figs. 3 and 4 and also in Figs. 5 and 7 it will be noted that this air suction and air delivering portion comprises a cylindrical body provided with an opening at the bottom or underside thereof which extends substantially full length and it will also be noted that the openings in the sides of this cylindrical body are located in the downwardly approaching portions of the body.

In the form shown in Figs. 8 to 10 the air suction and air delivering portion is practically flat on top and is provided with downwardly approaching sides for substantially its entire height. This horizontal portion however, the same as the structure shown in Figs. 1 to 7, comprises downwardly approaching sides provided with openings therein and with downwardly approaching portions for directing the air passing through said openings to a discharge opening located at the bottom or underside and extending substantially the full length of the horizontal portion. In the form shown in Figs. 8 to 10 the horizontal air suction and air delivering means comprises the discharge opening 10' which extends substantially the full length of the horizontal portion 10. The air inlets at the sides of the horizontal portion are designated by the reference characters 10'' and the downwardly extending portions against which the air impinges when passing through said openings 10'' is designated by the reference character 10'''. The horizontal portion 10 is provided with parallel vertically extending tubes 16 and 16' which serve as conducting tubes leading from the interior of the car to the suction portion of the ventilator. The flanges 18 to 21 serve as means for holding the ventilator in place on the car.

From an inspection of the drawings it will be observed that the deflecting portions 7'' and 8'' are a part of the material which forms the sides of the ventilator and are consequently integrally connected with the horizontal flange portions 5 and 6 (see Figs. 1 to 7) and that the deflecting portions 10''' are a part of and integral with the material in which the openings 10'' and 10''' are formed and which material provides the downwardly projecting side por-

tions between which is located the air delivering opening 10' (see Figs. 8 to 10).

It is obvious that various changes and modifications may be made without departing from the spirit and scope of the invention.

I claim as my invention:

1. The combination of a car roof and a ventilator thereupon for sucking air from the interior of the car when the latter is in motion, the air delivering and suction creating portion of the ventilator extending transversely of the car and the delivery end of the ventilator located at the under side of the ventilator, said delivery end having at the opposite sides of its delivery opening vertically extending flanges which are located at the lower ends of downwardly and inwardly inclined sides, said downwardly and inwardly inclined sides of the ventilator being provided with openings through which air can pass when the car is moved longitudinally, the ventilator also being provided with inwardly and downwardly inclined air deflecting portions for causing the air passing in through said openings in the sides to move downwardly and outwardly through the discharge opening, there being a direct communication between the air delivering means and the interior of the car, said air deflecting portions each being integral with the material which forms the lower portion of one of the sides.

2. A ventilator having a hollow cylindrical body portion adapted to communicate with the interior of and to be secured to a railway car, said body having extending longitudinally thereof and located upon opposite sides of an opening in the lower portion thereof vertically extending flanges, openings in the lateral walls of the body and inwardly and downwardly deflecting portions to engage the air passing inwardly through said openings, said last mentioned deflecting portions and said vertically extending flanges being integrally connected with each other.

3. A ventilator comprising approaching sides having between the adjacent portions thereof an air discharge opening, said sides being provided with openings to permit air to pass inwardly, and portions or members between but integral with said approaching sides, which portions or members approach each other and also approach the air discharge opening and also being arranged to deflect the air passing through the openings in the sides toward the air discharge opening.

4. A ventilator having a horizontal air suction and delivering means having the air delivery opening at the under portion, said horizontal portion connected with parallel vertical tubes at opposite ends thereof which serve as means through which air sucked from the interior of the car can pass

to the opposite ends of the horizontal means and means on said vertical tubes for holding the ventilator in place on a car roof, said horizontal portion being provided with
5 openings in the sides and also having air deflecting portions which downwardly approach each other and which are arranged so as to cause the air which passes inwardly through the openings in the sides to pass
10 outwardly through the air delivery opening, said deflecting portions being part of the material which constitutes the sides.

5. A ventilator for railway cars having a longitudinally extending hollow cylindrical
15 body provided with an air-delivery opening at the under portion thereof, openings in

the lower part of the side walls thereof and within said body, deflecting plates which are a part of the side walls and which plates extend downwardly and approach each
20 other, said deflecting plates being spaced apart and arranged so as to deflect air passing inwardly through said openings in the said walls out through the air delivery
25 opening.

This specification signed and witnessed this 6th day of November A. D., 1911.

JOHN E. WARD.

Signed in the presence of—

G. McGRANN,

EDWIN A. PACKARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
