Oct. 4, 1927. 1,644,186

J. T. FITE

VEHICLE VENTILATOR

Filed Nov. 14. 1925

Fig. 1.

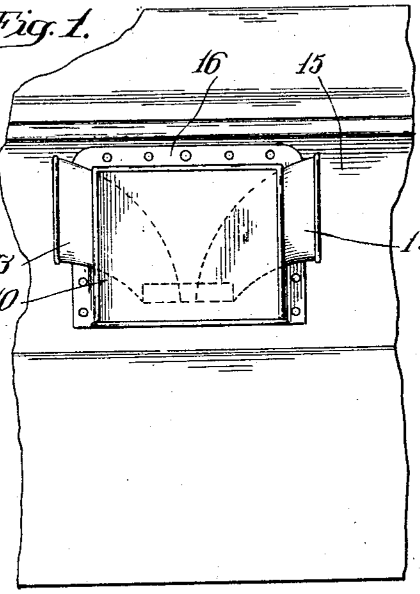


Fig. 2.

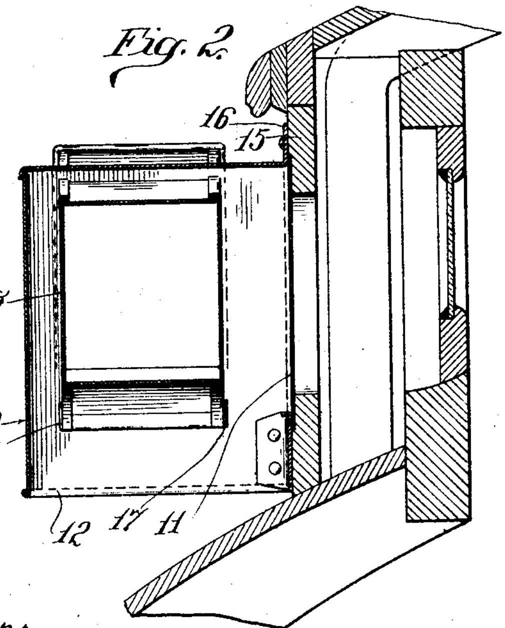
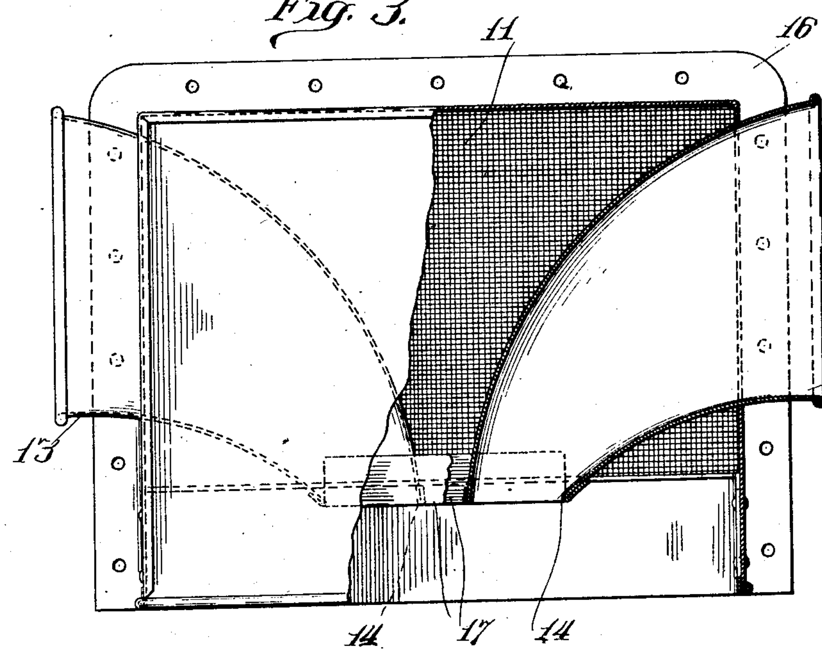


Fig. 3.



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UNITED STATES PATENT OFFICE.

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VEHICLE VENTILATOR.

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The invention relates to ventilators especially adapted for use in connection with railway cars, though applicable to any moving vehicle. Its principal object is to secure a high degree of efficiency.

A preferred embodiment of the invention is hereinafter described, and is illustrated in the accompanying drawings, in which

Fig. 1 is a detail side elevation of the body of a railway car with the improved ventilator applied thereto;

Fig. 2 is a detail transverse vertical section of the car and centrally through the ventilator; and

Fig. 3 is a side elevation of the ventilator, partly in section and some parts being broken away.

The improved ventilator comprises a sheet metal casing 10, oblong rectangular in shape and having an opening in one of its side walls for communication with the interior of the car, this opening being preferably crossed by a screen 11. The casing 10 is open at the bottom, preferably, as indicated at 12, a bottom wall is entirely omitted.

Through each of the end walls of the casing there enters a trumpet-shaped air flue 13, the contracted inner end 14 of which terminates within the chamber of the casing and is preferably directed downwardly toward the open bottom thereof.

The ventilator is advantageously applied to the vertical wall 15 of the deck of a railway car, this wall being apertured to register with the screen opening 11. The casing 10 is provided with a lateral flange 16, adapted to fit against the wall to which the ventilator is applied and through which may be passed the necessary attaching screws or nails.

The flues 13 may be secured in place by any suitable means. Their inner ends may be braced, as shown, by a tie-plate 17 connecting them together.

The details of the opening in the car wall will, of course, be determined by the character of the wall. As this feature is not involved in the invention, a mere aperture is shown. It is customary to use, in connection with car ventilators, some sort of damper for regulating the outflow, and such a device may be used in connection with the improved ventilator.

Whether the ventilator is applied to the side wall of a car deck, or to any other portion of the car, it is so placed that the mouths of its air flues 13 are directed toward the ends of the car. The speed of the vehicle causes a rush of air into the mouth of the flue which faces in the direction of travel and by reason of the contracted inner end of the flue air is discharged into the chamber of the casing at an accelerated velocity. By the action of the well known law that a rapidly moving current induces a flow of fluid laterally into it, the column of air issuing from the smaller end of the flue and passing out through the bottom of the casing carries with it the air within the chamber of the casing and consequently induces an overflow from the interior of the vehicle. This suction action of the air column becomes highly effective, because it takes place within the chamber of the casing and consequently must be entirely satisfied by the contents thereof.

The flue which opens through the rearward wall of the casing has but little effect upon the operation of the ventilator, though tending to increase its efficiency, as any movement of air therethrough will be outward. It follows that should the ventilator be applied to a vehicle which moves in one direction only, the rearward flue might be omitted.

The inner ends of the air flues are preferably, as shown, directed toward the external opening of the casing, and also preferably terminate back of the walls of such opening. Should these flues be prolonged to bring their ends nearer to the external opening than as shown, it is believed that the efficiency of the device would be lessened, although to a much less degree than would otherwise be the case because the flue ends are well within the area of the opening, and consequently the suction action of the current issuing from them, being exerted on all sides, will still act upon the contents of the chamber of the casing.

Changes may be made in the details of construction without departing from the scope of the invention. For example, while the trumpet form of the air flues is desirable because it will intensify the velocity of the air current as it issues from the flue, it is apparent that the device will function efficiently if the flue be of uniform cross-section, especially where the movement of the vehicle is at high speed.

I claim as my invention:—

A vehicle ventilator comprising a casing having a top, side and end walls, its inner

side being open for the major portion of its vertical extent, means for securing said casing to the side wall of a vehicle about an opening therethrough, said casing having its bottom open and unobstructed, a trumpet shaped air flue entering through each end wall of the casing, the larger ends of said flues projecting beyond the ends of the casing, the smaller ends of the flues terminating independently within the chamber at a plane above the bottom of the casing and slightly below the inner side wall opening, said smaller ends being spaced apart and spaced from the walls of the casing and being directed downward toward the bottom of the casing.

In witness whereof I affix my signature.

JEREMIAH T. FITE.