

H. J. ROTH.
VENTILATOR.
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974,829.

Patented Nov. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1

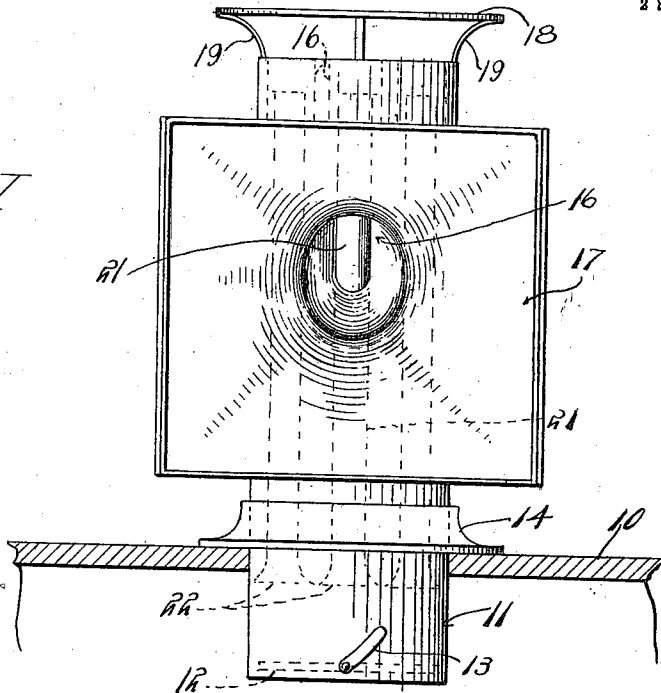
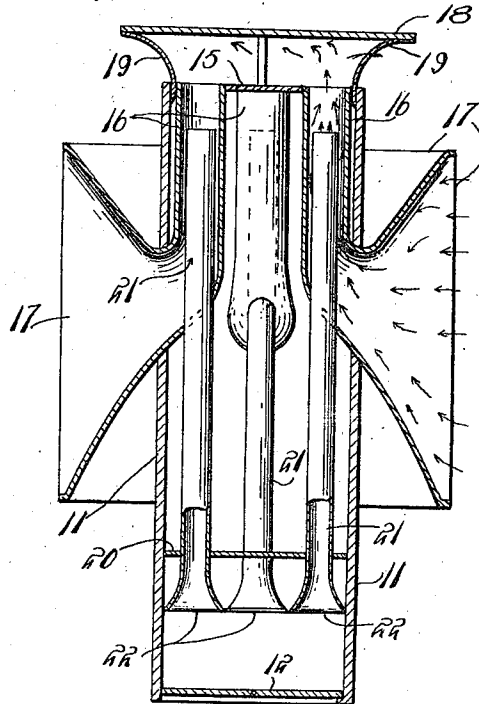


Fig. 2



Witnesses
J. C. Simpson.
L. N. Gillis

Inventor
H. J. Roth.

By *Charles Chandler*
Attorney

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2 SHEETS-SHEET 2.

Fig. 3.

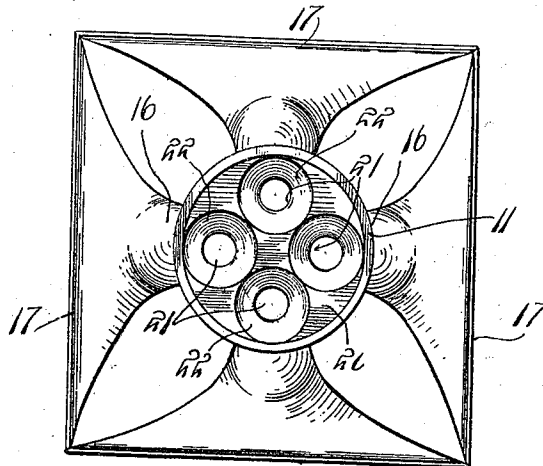


Fig. 4.

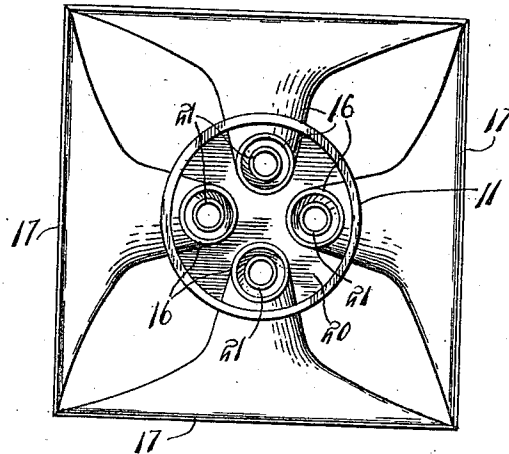
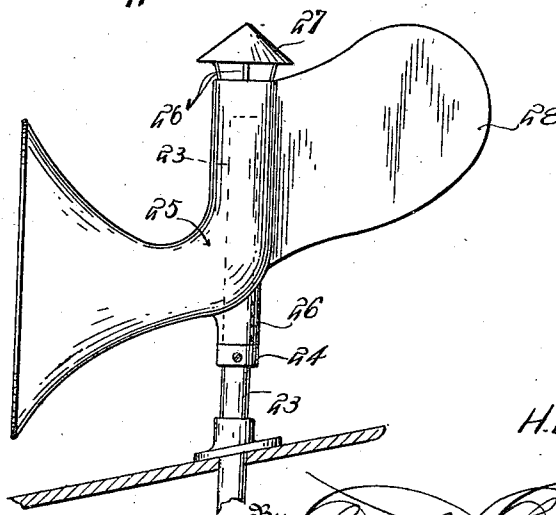


Fig. 5.



Witnesses
J. C. Simpson.
L. N. Gullis

Inventor
H. J. Roth.

By *Donald C. Donald*

Attorneys

UNITED STATES PATENT OFFICE.

HENRY J. ROTH, OF DOVER, MINNESOTA.

VENTILATOR.

974,829.

Specification of Letters Patent.

Patented Nov. 8, 1910.

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To all whom it may concern:

Be it known that I, HENRY J. ROTH, a citizen of the United States, residing at Dover, in the county of Olmsted, State of Minnesota, have invented certain new and useful Improvements in Ventilators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to ventilators and has special reference to an induced draft ventilator.

One object of the invention is to provide a structure wherein an improved arrangement of ventilating and draft pipes will cause an improved manner of inducing a draft through the ventilating tubes.

Another object of the invention is to provide a novel stationary structure arranged to induce draft in ventilating tubes no matter from which direction the wind blows.

With the above and other objects in view, the invention consists in general of certain ventilating tubes arranged in an improved manner in connection with draft inducing tubes.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a side elevation of the preferred form of the improved ventilator as applied to a railroad car. Fig. 2 is a vertical section through the center of such a ventilator. Fig. 3 is a bottom view of the ventilator. Fig. 4 is a top view of the ventilator with the cap removed, the better to disclose the tube arrangement. Fig. 5 is a view of a modified form of the ventilator, the arrangement being such that the ventilator swivels about a vertical axis so as to face the wind no matter which direction it may blow.

In the preferred form of the invention the roof of a car is indicated at 10 and through a suitable opening in this car roof extends a cylindrical casing 11. The bottom of this casing projects within the car and is provided with a damper 12 controlled by means of a lever 13. This casing also extends well above the car and a thimble 14 is preferably

fitted on the car roof to keep moisture from working through the opening in said roof. At the upper end of the casing 11 is a transverse partition 15 provided with suitable openings to receive the upper ends of draft tubes 16 which extend downwardly and thence extend outwardly through the sides of the casing 11. The outer ends of these tubes are flared to form a species of trumpet shaped receiving end 17 preferably square in contour as can readily be seen by reference to Fig. 1. Above the upper end of the casing 11 is a cap or hood 18 which is supported on spaced arms 19 and this cap or hood extends well over the casing 11 so that rain is prevented from passing down the tubes 16. Adjacent the lower end of the casing 11 is a transverse partition 20 where-through extend the lower ends of ventilating tubes 21, the upper ends of these tubes extending into the tubes 16 and lying concentric with the axes of said tubes. The lower ends of these ventilating tubes 21 terminate above the damper 12 and are flared as at 22. By means of this construction the wind which enters the ends 17 of the draft tubes passes up between the ventilating tubes 21 and the draft tubes 16. Now, since the area of the annulus between one of the draft tubes and its ventilating tubes is comparatively small when considered in connection with the mouth of the draft tube the flow of air will be correspondingly rapid. This will have the effect of creating a partial vacuum at the mouths of the outlet ends of the ventilating tubes, said tubes terminating below the outlet ends of the tubes 16, and this partial vacuum will induce a draft through such of the tubes 21 as may be affected thereby. The course of the air will be readily observed by reference to an inspection of Fig. 2 wherein the small arrows indicate the air currents.

In the preferred form of the ventilator as illustrated in Figs. 1 to 4 it will be seen that the ends 17 of the draft tubes entirely surround the casing 11 so that no matter from which direction the wind may blow or in which direction the train is moving one or more of these draft tubes will constantly face the wind or draft and thus insure constant ventilation. In the form shown in Fig. 5 but one ventilating tube is used and this ventilating tube is without a casing as indicated at 23. The ventilating tube 23 is provided with a collar 24 held thereon by

any suitable means and on this tube is swiveled a draft tube 25 precisely similar in construction and arrangement to the draft tubes 16. This draft tube 25 is provided with a downwardly extension 26 which rests on the collar 24 so that the draft tube may rotate around the axis of the ventilating tube. In this form there is provided a hood 27 secured directly to the draft tube 25 by means of braces 26', and directly opposite the inlet end of the draft tube 25 is a vane 28 which serves to keep the inlet end of the draft tube facing constantly in the direction in which the wind is blowing. In both of these forms it is to be noted that the draft tube surrounds the ventilating tube in concentric relation thereto and terminates above the top of said ventilating tube.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

Having thus described the invention, what is claimed as new, is:—

1. In a ventilating device, a vertical cylindrical casing, a transverse partition extending across the upper end of said casing and provided with a series of spaced openings, a series of draft tubes having flared inlet ends arranged around said casing and extending through the casing, said draft tubes being bent upwardly within the casing and having cylindrical outlet ends held in the openings of said partition, a second partition adjacent the lower end of said casing and provided with a series of openings equal in number to the draft tubes and immediately beneath said tubes, and a ventilating tube extending through each of the openings in the lower partition and into a respective draft tube, each of said ventilating tubes having its outlet end concentric with the outlet end of the respective draft tube and terminating short of the outlet end of said draft tube.

2. In a ventilating device, a vertical cylindrical casing, a transverse partition extending across the upper end of said casing and provided with a series of spaced openings, a series of draft tubes having flared inlet ends arranged around said casing and extending through the casing, said inlet ends being rectangular in outline and having their lateral edges contacting to entirely surround the casing, said draft tubes being bent upwardly within the casing and having cylindrical outlet ends held in the openings of said partition, a second partition adjacent the lower end of said casing and provided with a series of openings equal in number

to the draft tubes and immediately beneath said tubes, and a ventilating tube extending through each of the openings in the lower partition and into a respective draft tube, each of said ventilating tubes having its outlet end concentric with the outlet end of the respective draft tube and terminating short of the outlet ends of said draft tube.

3. In a ventilating device, a vertical cylindrical casing, a transverse partition extending across the upper end of said casing and provided with a series of spaced openings, a series of draft tubes having flared inlet ends arranged around said casing and extending through the casing, said draft tubes being bent upwardly within the casing and having cylindrical outlet ends held in the openings of said partition, a second partition adjacent the lower end of said casing and provided with a series of openings equal in number to the draft tubes and immediately beneath said tubes, a ventilating tube extending through each of the openings in the lower partition and into a respective draft tube, each of said ventilating tubes having its outlet end concentric with the outlet end of the respective draft tube and terminating short of the outlet end of said draft tube, and a damper at the bottom of said casing.

4. In a ventilating device, a vertical cylindrical casing, a transverse partition extending across the upper end of said casing and provided with a series of spaced openings, a series of draft tubes having flared inlet ends arranged around said casing and extending through the casing, said inlet ends being rectangular in outline and having their lateral edges contacting to entirely surround the casing, said draft tubes being bent upwardly within the casing and having cylindrical outlet ends held in the openings of said partition, a second partition adjacent the lower end of said casing and provided with a series of openings equal in number to the draft tubes and immediately beneath said tubes, a ventilating tube extending through each of the openings in the lower partition and into a respective draft tube, each of said ventilating tubes having its outlet end concentric with the outlet end of the respective draft tube and terminating short of the outlet ends of said draft tube, and a damper at the bottom of said casing.

In testimony whereof, I affix my signature, in presence of two witnesses.

HENRY J. ROTH.

Witnesses:

E. E. RANK,
H. BROWN.