

E. C. NOE.
VENTILATOR.
APPLICATION FILED APR. 15, 1909.

932,490.

Patented Aug. 31, 1909.

Fig. 1.

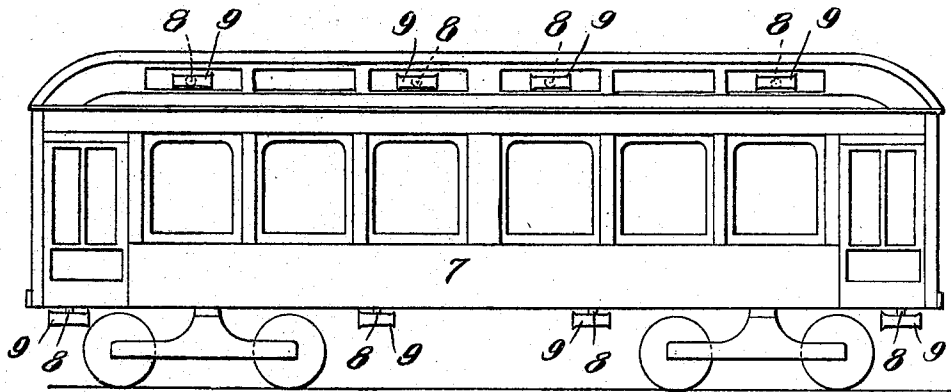


Fig. 2.

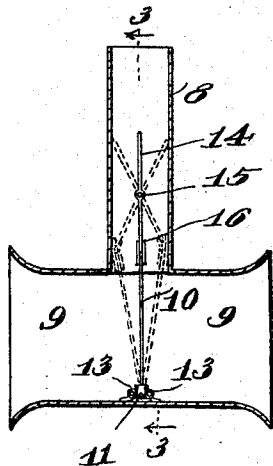


Fig. 4.

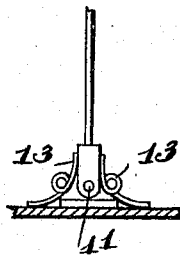


Fig. 3.

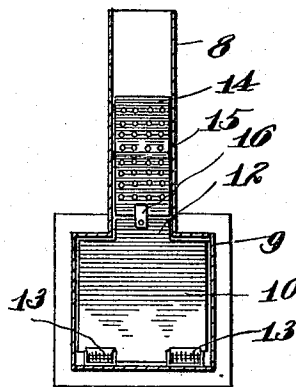


Fig. 5.

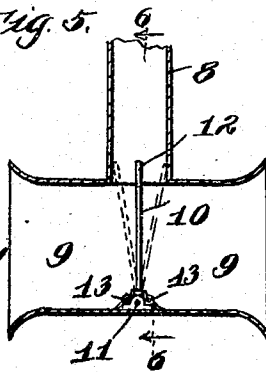
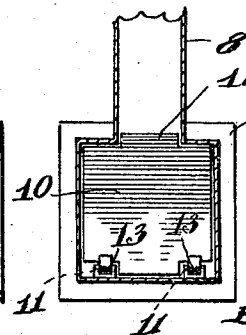


Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

ELZER CURTIS NOE, OF CHICAGO, ILLINOIS.

VENTILATOR.

932,490.

Specification of Letters Patent.

Patented Aug. 31, 1909.

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To all whom it may concern:

Be it known that I, ELZER C. NOE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to ventilators, and particularly to ventilators adapted to supply air to the interior of cars, boats or buildings.

The primary object of my invention is to provide a ventilator having a damper which will automatically shift in the intake pipe to divert air into a supply pipe depending upon the direction of motion of the ventilator or air, a further object being to provide a secondary damper which will be automatically operated by the primary damper to control the amount of air passing into the interior of the car, boat or building.

The invention consists in the matters hereinafter described and pointed out in the appended claims.

In the accompanying drawings which illustrate a practical embodiment of the features of my invention:—Figure 1 is a view showing a car in side elevation provided with a plurality of my improved ventilators; Fig. 2 is a sectional view of one of the ventilators shown in Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 2; Fig. 4 is a detail view of the lower portion of the damper in the intake; Fig. 5 is a sectional view of a form employing but a single damper, and Fig. 6 is a sectional view on the line 6—6 of Fig. 5.

In the drawings the reference numeral 7 indicates a car body which is provided with a plurality of my ventilators to supply air to the interior thereof, it being of course understood that the car is employed merely as a means of illustrating an application of my invention and that in the practical use of the invention this car structure may be in the form of a boat or building or other analogous structure. The ventilators may be applied at any desired point, and as shown in Fig. 1 they are located to supply air to the interior at various places on the car as through the floor or the roof. Each ventilator consists of a supply pipe 8 suitably attached to the body or structure and leading to the interior, and a two-port intake pipe or funnel 9 connected to the outer end of the supply pipe. In the case of a car or boat the ports open or lead toward the front and rear

thereof, while in the case of a building they may open in a plane parallel with the line of the window (for example) as illustrated at the top of the structure of Fig. 1 or in any other suitable disposition and arrangement. The supply pipe and intake pipe may of course be of any size or form such as round, square or oval, and generally in practice the cross-sectional area of the intake pipe will be larger than the cross-sectional area of the supply pipe; in the present embodiment they are square or rectangular in cross-section, and the ports are more or less flared or funnel-shape.

A movable damper is located in the intake pipe and in the present embodiment it consists of a plate 10 pivoted as at 11 upon the lower portion of the interior of the intake pipe at or near the median line of the supply pipe and extending across and corresponding to the width of the intake so as to close the passage therethrough, its upper end being extended a slight distance as at 12 into the pipe 8 so that the latter will act as a stop to limit its movement on its pivot in both directions, the extended portion in the present form being substantially the width of the supply pipe. I prefer to balance the damper in intermediate position with respect to the supply pipe by any suitable means, such for example as a spring or dash-pot, to normally hold it substantially neutral and approximately in the central line of the supply pipe when not subjected to wind pressure or when the air pressure is substantially equal on its two sides. For this purpose I use a spring hinge arrangement, such for example as that shown in Fig. 4, it being understood that the same or similar arrangement may be used in either of the embodiments shown in Figs. 2 and 5. In this arrangement a spring or springs 13 is or are adapted to bear at one end upon the damper and at the other upon the floor of the intake so as to hold the damper in its central position as shown in full lines in Figs. 2 and 5.

In the form illustrated in Figs. 2 and 3 a regulating damper 14 is centrally mounted in the supply pipe 8 upon a pivot 15 and is flexibly connected at its lower end to the upper or free end of the primary damper 10, as by any suitable joint 16, so that when the primary damper moves more or less toward either of its extreme positions the secondary damper will be correspondingly moved to more or less close the pipe 8 to control the

amount of air passing to the interior through the pipe. The second damper is preferably perforated or reticulated as shown in Fig. 3 for example, so that the air is not blown into the car in a compact mass or draft under conditions of high speed or velocity but is diffused and broken up.

The controlling damper 10 is normally balanced in central position, and when the wind pressure is increased upon either side, as when the car or boat is moved more or less rapidly in either direction or when the wind enters either end of the intake, the damper shifts more or less toward either of its extreme positions represented by dotted lines in Figs. 2 and 5 and diverts the air entering the intake pipe into the supply pipe leading to the interior. It is obvious that the ventilator works when the car or boat moves in either direction or when the wind or air pressure enters through either port or mouth of the intake pipe, and as the damper does not restrict or cut off the area of the intake or supply pipes, the ventilator will automatically keep the amount of air so diverted into the interior approximately uniform regardless of the velocity or direction of the wind or intake funnel.

The regulating function of the secondary damper may be accomplished by making this damper imperforate and smaller than the supply pipe so that a predetermined quantity of air may pass it in any position of adjustment.

By the use of this invention the ventilators may be adjusted or set to supply a predetermined quantity of air according to conditions of velocity of wind or funnel; the springs may be set or adjusted for different resistances or pressures to allow the primary damper to yield more or less to insure a uniform supply under estimated pressures dependent upon speed or velocity of wind or funnel, and also to open the regulating damper more or less to control the amount of air passing to the interior under similarly

variable conditions. By reason of these capabilities of the present invention all manual manipulation or adjustment after the dampers are set is dispensed with, and attention or care by a user or attendant is eliminated.

Having described my invention, I claim:—

1. A ventilator comprising a supply pipe, a two-port intake pipe leading to the supply pipe, and a damper mounted in and closing the passage through the intake pipe and balanced in substantially intermediate position in the supply pipe and adapted to be automatically shifted by wind pressure to direct air into the supply pipe from either port.

2. A ventilator comprising a supply pipe, a two-port intake pipe leading to the supply pipe, and a balanced damper movably mounted in and closing the passage through the intake pipe in approximately the median line of the supply pipe and having its upper end extending into the supply pipe, whereby the damper will divert to the interior a uniform supply of air under varying velocities of funnel or wind.

3. A ventilator comprising a supply pipe, a perforated damper mounted in the supply pipe, a two-port intake pipe leading to the supply pipe, a balanced damper mounted in the intake pipe and closing the passage there- through to divert air to the interior from either port, and a connection between the dampers.

4. A ventilator comprising a supply pipe, a regulating damper mounted in the supply pipe, a two-port intake pipe leading to the supply pipe, a balanced damper mounted in the intake pipe and closing the passage therethrough to divert air to the interior from either port, and a connection between the dampers.

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

ELZER CURTIS NOE.

Witnesses:

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