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T. A. HEPPENSTALL

2,080,476

VENTILATOR

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Fig. 1.

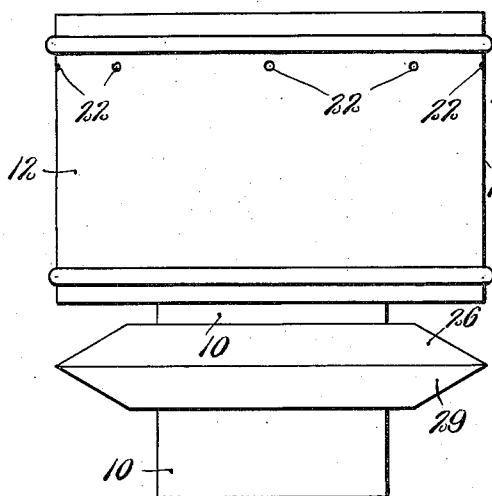


Fig. 2.

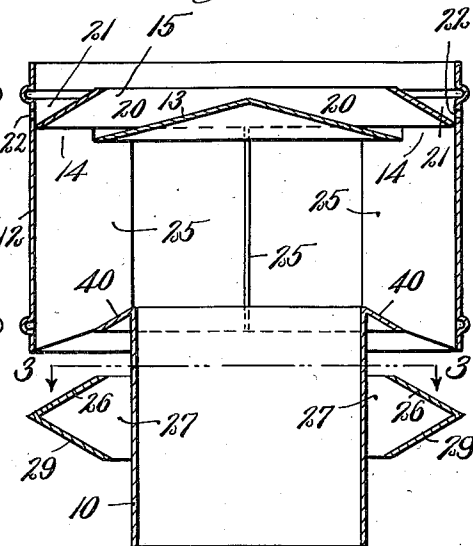


Fig. 3.

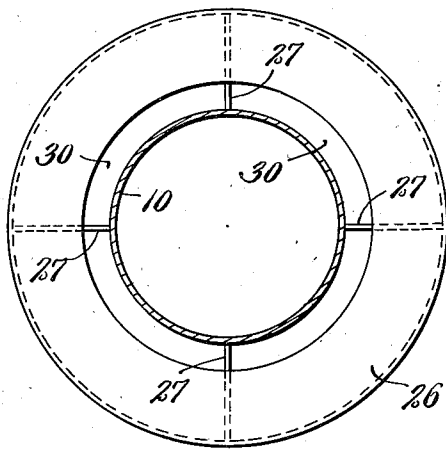


Fig. 4.

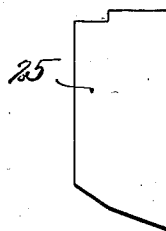
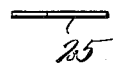


Fig. 5.



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UNITED STATES PATENT OFFICE

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VENTILATOR

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3 Claims. (Cl. 98—81)

This invention relates to ventilators for use on buildings, ships, and other structures and has for its object to provide a ventilator capable of functioning efficiently with the wind blowing from all directions.

According to this invention a ventilator comprising a cap member supported above and in line with an eduction pipe and cooperating with a storm band to form a gas outlet, is provided with a rain baffle located within the storm band, below the upper edge of the said storm band, and extending above the lower edge of the cap member to form with the cap member within the storm band a continuation of the gas outlet between it and the cap member and to prevent rain entering the storm band at its top from passing into the eduction pipe, and to form a gutter within the storm band below the upper edge thereof.

In the accompanying drawing,

Fig. 1 is an elevation of a ventilator embodying the invention;

Fig. 2, a vertical section of the same;

Fig. 3, a section on the line 3—3, Fig. 2, looking down, and

Figs. 4 and 5, details of supporting plates or vanes to be referred to.

The ventilator herein shown comprises an eduction pipe 10, which communicates with the interior of the building or other structure and has its upper end extended up into the lower end of a materially larger storm or suction band 12 having within it a cap member 13 located above the eduction pipe 10 in line therewith to prevent rain falling vertically downward from passing through the eduction pipe into the building.

The cap member 13 forms with the storm band 12 an outlet passage 14 for the gases sucked out of the ventilator by air currents outside of the ventilator and flowing against the same horizontally or in an inclined direction either upwardly or downward.

The eduction pipe 10 is provided at its upper end with an outwardly extended lip 40, preferably inclined downward and acting to trap air which may strike the eduction pipe below the storm band and pass upwardly along the eduction pipe.

Horizontally and upwardly inclined air currents which strike the outside of the storm band or suction pipe pass upwardly over the upper edge of the storm band and create within the ventilator a suction which draws the gases from the eduction pipe and out of the ventilator through the gas outlet passage 14. It is highly desirable to have the gases sucked out of the

eduction pipe flow freely out of the ventilator with the least obstruction, and yet prevent the rain and air flowing in a downward inclined direction from entering the eduction pipe. This is accomplished by locating within the storm band above the gas outlet passage 14 a baffle 15 which is inclined upwardly and inwardly from the storm band 12 (see Fig. 2), and for the best results is made of such width as to have its upper edge project over the lower portion of the cap member and thereby prevent vertically descending rain or air currents from passing into the ventilator through the outlet passage 14 in a straight vertical path and thereby prevent the liability of rain or air currents, which may enter the ventilator at its top from reducing the suction of the gases out of the eduction pipe to such extent as to cause back draughts in the eduction pipe and in the building or other structure on which the ventilator is mounted.

The baffle 15 in the present instance is shown as a frustum of a cone and is preferably of a different inclination than the cap member, so as to form with the latter a passage 20 which forms an inclined continuation of the gas outlet 14 and increases in width toward its outlet end.

The inclined baffle 15 forms with the storm band 12 a gutter 21 in which rain water may accumulate and flow to the outside of the ventilator through weep holes 22 in the storm band. The baffle 15 has its lower end located below the top of the storm band so as to utilize the portion of the storm band which extends above the lower edge of the baffle, to obtain maximum suction by wind currents flowing upwardly on the outside of the storm band.

The baffle 15 forms an effective barrier to rain passing downward at an angle over the top edge of the storm band, and prevents such rain from passing through the gas outlet directly into the eduction pipe.

The baffle 15 and cap member 13 may be supported by a plurality of vertically arranged plates or vanes 25, which may be suitably secured to the storm band and are shown in elevation and plan in Figs. 4 and 5. Alternately, in place of the plates or vanes 25, any convenient arrangement of straps, bars, angle irons, or the like may be provided to support the storm band, baffle and cap member in the required relative positions.

Wind and rain which may enter the top of the ventilator over the upper edge of the baffle 15 strikes the conical cap member and is caused to flow downward and outwardly toward the storm band through the gas outlet 14 and pass in a

substantially vertical path through the storm band and out through the bottom thereof, while currents of air flowing down the outside of the storm band 12 create a suction in the space between the bottom of the storm band and the deflecting member 26 whereby air and gases would be drawn from the eduction pipe and drawn through this space.

The downward inclined deflecting ring 26 may be secured by vanes or plates 27 to the eduction pipe, and said vanes have secured to their underside an upwardly inclined deflecting ring or member 29, which serves to deflect to the outside of the storm band upwardly inclined air currents.

The deflecting members 26, 29 form a double cone, which is located below the storm band and may be supported on the eduction pipe 10 by straps, bars, angle irons, or the like, and said double cone is separated from the eduction pipe 10 by an air space 30 of a width substantially equal to the width on a horizontal plane of the lip 40 on the upper end of the eduction pipe, so that any air which may pass through said space along the eduction pipe will be trapped by the lip 40.

Having thus described the invention, what is claimed is:

1. In a ventilator of the character described, in combination, an eduction pipe, a cap member above and in line with said eduction pipe, a storm band co-operating with said cap member to form a gas outlet, a rain baffle located within the storm band below the upper edge of the storm band to form with the cap member within the storm band a continuation of the gas outlet between it and the cap member and to prevent rain entering the storm band at its top from passing into the eduction pipe, and to form a gutter within the storm band below the upper edge thereof, and a double cone surrounding the eduction pipe below the storm band.

2. In a ventilator of the character described, in combination, an eduction pipe, a cap member above and in line with said eduction pipe, a storm band co-operating with said cap member to form a gas outlet, a rain baffle located within the storm band below the upper edge of the storm band to form with the cap member within the storm band a continuation of the gas outlet between it and the cap member and to prevent rain entering the storm band at its top from passing into the eduction pipe, and to form a gutter within the storm band below the upper edge thereof, a double cone surrounding the eduction pipe below said storm band and separated from the latter, and a lip on the eduction pipe above said double cone to trap air passing upwardly lengthwise of the eduction pipe through the space between the eduction pipe and said double cone.

3. In a ventilator of the character described, in combination, an eduction pipe, a cap member above and in line with said eduction pipe, a storm band cooperating with said cap member to form a gas outlet, a rain baffle located within the storm band below the upper edge of the storm band to form with the cap member within the storm band a continuation of the gas outlet between it and the cap member and to prevent rain entering the storm band at its top from passing into the eduction pipe, and to form a gutter within the storm band below the upper edge thereof, a conical air deflector surrounding the eduction pipe below said storm band and separated from the latter, and a lip on the eduction pipe above said double cone to trap air passing upwardly lengthwise of the eduction pipe through the space between the eduction pipe and said double cone.

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