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VENTILATOR

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Fig. 1.

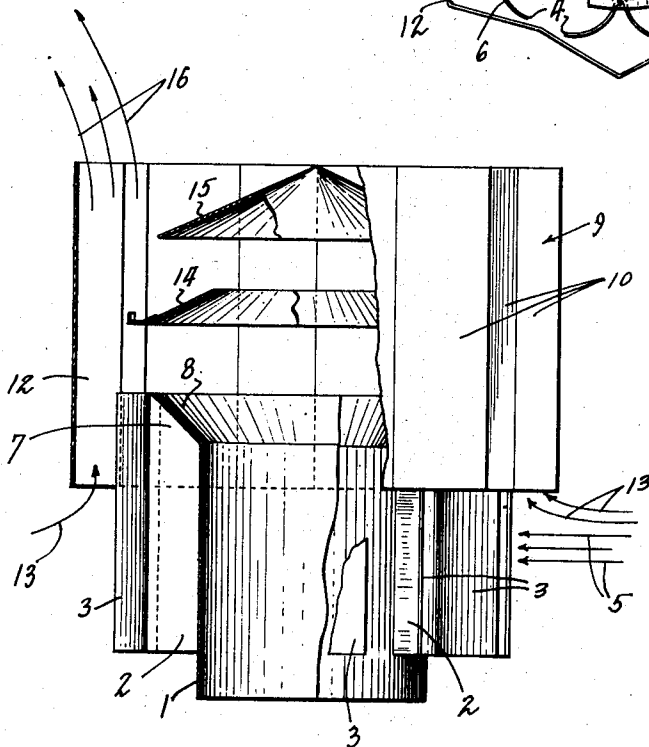
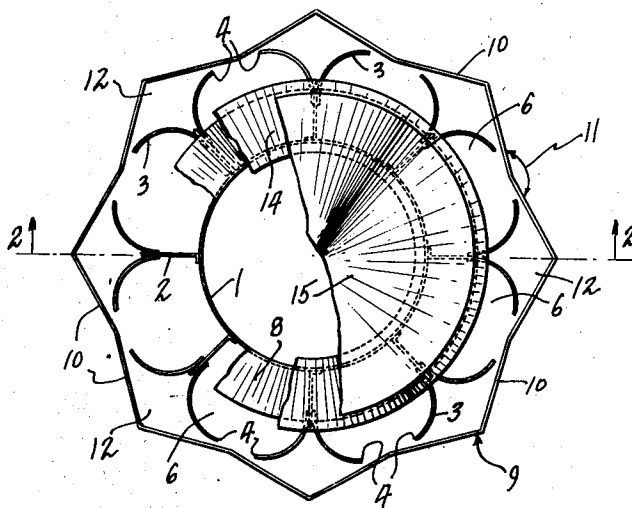


Fig. 2

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VENTILATOR

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2 Claims. (Cl. 98—84)

This invention relates to ventilators of the type employed for the drawing of foul air, gases, or the like, through a stack or from an enclosure, and is more particularly directed to a ventilator of the type adapted to maintain a reduced pressure for the purpose of facilitating the flow of foul air or gases from a stack of ventilating pipe or from an enclosure.

Ventilators of the type here under consideration are generally positioned upon the roof of a building or in other position where they are exposed to the currents of air flowing over the structure. The practicability of such a ventilator depends upon its ability to protect the ventilating passage from a down draft of air as well as to maintain a condition of reduced pressure facilitating the withdrawal of the foul air or gases from within the structure.

It is an object of my invention to provide a ventilator having means for maintaining a high degree of low pressure which will act to facilitate the liberation or withdrawal of foul air or gases from within the structure to which it is applied.

Another object of this invention is to provide a ventilator adapted to be positioned within the air screen or wind as it passes over a structure and which uses the flow of air or the wind currents irrespective of their direction of flow for the maintenance of a low pressure region for facilitating the flow of foul air or gases from within the structure to which the ventilator is applied.

Another object of my invention is to provide a ventilator which includes a drum member operating in conjunction with a multiplicity of fins positioned within the air screen over a structure in such manner as to obstruct the flow of air and direct the flow of air upward to produce above the stack a low pressure area into which the foul air or gases ventilated from the structure flow.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a top plan view partly in horizontal section of a ventilator embodying my invention.

Figure 2 is a fragmental sectional side elevation thereof.

In the preferred embodiment of my invention as illustrated in the accompanying drawing, I indicate a funnel adapted to be connected with a stack ventilator pipe or opening through which

foul air or gases are desired to be expelled. The ventilator embodying my invention is preferably placed upon the roof of the structure in such position that it is in the line of flow of air or wind passing over the structure. Secured by suitable dividing plates 2 to the outer periphery of the funnel 1 are a plurality of curved direction fins 3 which preferably extend to or near the upper end of the funnel 1 and terminate at an elevation above the lower end of the funnel 1 or above the upper elevation of the structure upon which the ventilator is mounted. The fins 3 are open at their adjacent edges 4 in the path of air or wind as may be indicated, for example, by the arrows 5 (Figure 2). The wind thus passes into the air channels 6 defined by the inner periphery of the fins 3, the dividing plates 2, and the outer periphery of the funnel 1 forming a multiplicity of independent stacks or air passages upon the outer periphery of the funnel 1.

The upper portions of these air channels are preferably restricted as indicated at 7 in Figure 2 by the flaring section 8 of the funnel 1. This restriction of the air passages 6 causes an increase in velocity of the air passing through the channels with the result that the air will pass above the funnel 1 at an increased velocity, creating an ejector action which tends to draw the air from within the funnel 1. In order to permit this increased air velocity action to take place, I mount around the upper end of the funnel 1 and fins 3 a multiple-sided protecting drum 9. This drum is multiple-sided and the side members or sections 10 are positioned so as to form what may be defined as a re-entry angle 11 immediately adjacent the upper portion of the air channels 6 to confine the passage of air to these channels within the drum 9. Where the side members or sections 10 flare outward from the re-entry angle 11, they are joined together, forming at the outer surface of the fins 3 additional air passages 12 through which air which tends to pass under the drum 9 in the direction of the arrows 13 passes to the interior of the drum 9.

In order to further confine the direction of flow of the air and to prevent reverse flow of air downward through the funnel 1, there is mounted within the interior of the multiple-sided drum 9 a deflector vane 14 and a hood 15. The action of the vane 14 and the hood 15 is to prevent down draft of air from above, as well as to direct the air after it passes from the upper end of the channels 6 and 12 upward along the inner periphery of the drum 9 as indicated by the arrows 16.

In the use of this structure I have found that

I am enabled to increase the air flow through a ventilator embodying my invention in the neighborhood of 30 to 40% as compared with other types of ventilators showing the maintenance of the air draft due to my method of increasing the velocity of air flow. As the ventilator embodying my invention is uniform upon its exterior it will position the air flow channels 6 and 12 in position to receive the air directly irrespective of the direction in which it is blowing or passing over the structure. Thus the ventilator embodying my invention is a non-directional ventilator, and which does not require means for rotating it into position to properly receive the air flow. As is well understood in this art, the respective parts of my ventilator may be suitably spot welded or secured together by means of strap fasteners 7 illustrated in the Belknap Patent No. 1,103,734.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claims.

I claim:

1. In a ventilator, the combination of a funnel, a drum positioned to surround the upper end of the funnel and having its inner wall spaced from the funnel, a hood mounted within the drum over

the funnel, a vane member supported by the drum between the funnel and the hood, a plurality of dividing plates mounted on the funnel in the space between the funnel and the drum and extending toward the inner surface of the drum but terminating short of said drum, a pair of curved fins continuing from the extremities of each dividing plate, the said fins being curved oppositely from the dividing plates to define within the space between the funnel and the drum substantially enclosed channels.

2. In a ventilator, the combination of a funnel composed of a vertically extending cylindrical section and an upper flare section, a drum member surrounding the upper portion of the funnel including the flare section and having its inner wall positioned outwardly of the funnel including the flare section, a multiplicity of radially extending dividing plates carried by the funnel extending part way into the space between the funnel and the drum, and each of said dividing plates being provided at its outer end with a pair of oppositely curved fins continuing therefrom toward said drum whereby there is defined between the drum and the funnel a plurality of independent substantially enclosed vertically extending channels.

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