July 10, 1956 H. WHITE 2,753,786

VENTILATOR

Filed Dec. 7, 1953

FIG. 1

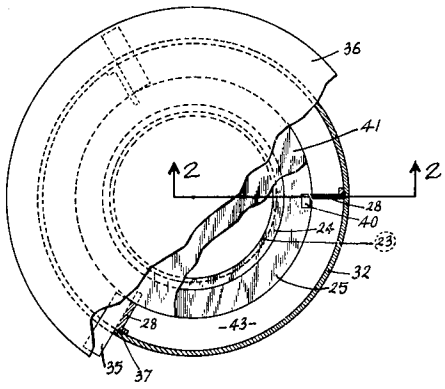
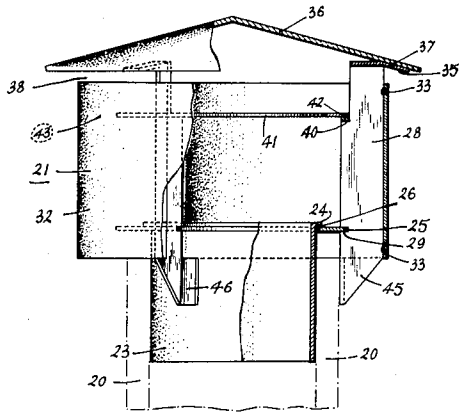


FIG. 2



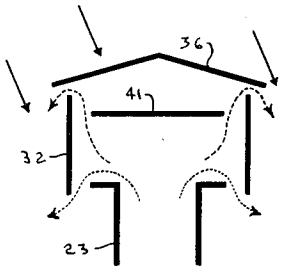


FIG. 3

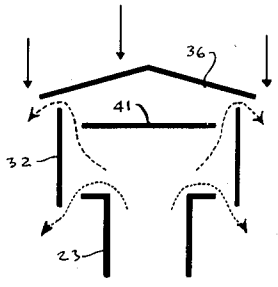


FIG. 4

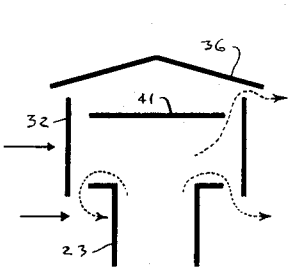


FIG. 5

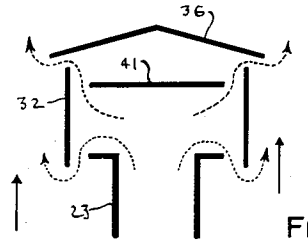


FIG. 6

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VENTILATOR

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2 Claims. (Cl. 98—84)

The present invention relates to ventilators and more particularly to that type of ventilator which is placed on the top of the stack or on top of a conduit through which exhaust gases or foul air passes.

Ventilators of this type are subjected to various directions of air flow and rain, and one of the objects of the present invention is to provide a ventilator which prevents rain from entering the stack or tube while maintaining a reduced pressure at and above the top of the stack, regardless of the direction of the flow of air about the stack.

In carrying out the above object, I provide an impervious rain baffle directly above the top of the stack and surround this rain baffle and the outlet to the ventilator with a skirt. Such skirt is provided with the usual type of roof, and the roof is spaced vertically from the top of skirt so as to permit the free flow of gas out of the ventilator. While the rain baffle overlies the top of the exhaust tube, the area of the space, between the periphery of the baffle and the skirt is at least, and is preferably, larger than the circumferential area spanning the top of the sleeve and the bottom of the roof.

Another object of the invention is to provide a ventilator of this nature which is simple in design and rugged of construction whereby it may afford a long and useful service life.

A further object is to provide a ventilator of this nature which may be constructed by simple manufacturing process and sold at a low price.

Yet an additional object is to provide a ventilator that is extremely easy to install upon its supporting stack or tube.

These and other objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the invention is shown:

Figure 1 is a top plan view partly in elevation and partly in section, part of the roof being broken away for the purpose of showing parts therebelow, and part of the rain baffle is broken away to show the top of the exhaust neck and the flange carried by the neck;

Figure 2 is a side view partly in elevation and partly in section, the section being taken substantially along line 2—2 of Figure 1.

Figure 3 is a diagrammatic view of the ventilator in section; the arrows in full line show the direction of the current in the environment air and the arrows in dotted line show the direction of the flow of air within and from the ventilator; in this figure, the direction of air is downwardly and from the left;

Figure 4 is a view similar to Figure 3 but showing the environment air as flowing directly downwardly;

Figure 5 is a view similar to Figure 3 but showing the air moving substantially in a horizontal plane from left to right; and

Figure 6 is a view similar to Figure 3 showing the environment air as flowing upwardly.

Referring more in detail to the drawings, I have shown the exhaust tube or stack in phantom at 20. The ventilator 21 is arranged to rest upon the top of the tube 20. The ventilator includes a tubular neck 23 which is arranged to telescope within the stack 20. The top of the tube 23 is provided with a ledge 24. A radially extending ring-shaped flange 25 is suitably secured to the underside of the ledge 24 as by solder or welding, shown at 26.

Although the parts herein described may be any desirable shape, such as square, oblong, etc., for simplicity purposes, I have shown the elements as being circular and cylindrical.

A plurality of brackets 28 (preferably three) are suitably secured to the circular flange or ring 25 and extends radially therefrom. Like all of the other elements in the ventilator, these brackets are formed of sheet material and preferably sheet metal. These brackets 28 are formed of flat strap material which extends generally vertically. Each of the brackets 28 is notched at 29 for receiving the edge of the flange 25. A tubular skirt 32 is suitably secured to the outer edges of the brackets 28 as by solder or welding 33. Skirt 32 is axially aligned with the tubular neck 23. The lower part of the skirt 32 extends below the top of the neck 23 and the upper part of the skirt extends a substantially farther distance above the top of the neck 23.

The upper ends of the brackets 28 are bent outwardly and then angle downwardly as at 35 to provide a shelf for supporting a slightly conically shaped roof 36, the apex of which intersects the axle of the tube 23 and the skirt 32. The roof may be secured to the shelf 35 as by solder or welding indicated at 37. The bends in the strips 28 are above the upper edge of the skirt 32 whereby a vertically extending circumferential exhaust space 38 is provided between the top of the skirt 32 and the bottom of the roof 36.

The inner edges of the brackets 28 are provided with a step portion 40 and this step portion is disposed below the upper edge of the skirt 32 and above the top of the neck 23 and ring-shaped flange 25. It will be observed that the distance from the top of the neck 23 to the step 40 is considerably longer than the distance between the step 40 and the upper edge of the skirt 32. The steps 40 carry an impervious rain baffle 41 which is suitably secured to the step 40 as by solder or welding 42. The peripheral edge 41 is spaced a substantial distance from the inner surface of the skirt 32 so as to provide a circumferential exhaust space 43. This circumferential space 43 should have an area, in a horizontal plane, at least equal to the circumferential area of the exhaust space 38. Preferably the area 43 is larger than the area 38 whereby the gases which can escape through the area 38 are not impeded by the inner position of the baffle 41.

The ventilator ring 25 rests upon the top of the exhaust tube 20. The lower ends of the brackets 45 extend below the ring 25 and are arranged to engage the outer peripheral wall of the exhaust tube 20 to assist the tube 23 in bracing the ventilator against displacements by environment air currents. It will be observed from Figure 1 that the brace sections 45 of brackets 28 are bent substantially at right angles as is shown at 46 so as to provide a large contacting area with the peripheral wall of the tube 20.

The bottom of the skirt 32 is open whereby exhaust gases which pass radially outwardly beyond the peripheral edge of the ring 25 can pass downwardly and escape through the bottom of the skirt.

It will be observed from the arrows in Figures 3, 4, 5, and 6 that a low pressure area is created adjacent the bottom and adjacent to the top of the skirt 32 re-

gardless of the direction of the environment air currents. It will also be observed that although the impervious baffle 41 overlies the top of the neck 23, i. e., it being of larger diameter than the neck 23, such baffle will not impede the flow of gases as the gases flow upwardly through the skirt 32, while at the same time the baffle 41 prevents rain from entering the neck 23, should the rain pass into the skirt 32, as for example, when the air currents in the horizontal direction carry the rain into the ventilator.

While the form of the present invention herein shown and described constitutes a preferred form it is to be understood that other forms may be adopted, falling within the scope of the claims that follow.

I claim:

1. A ventilator for exhaust gas comprising a vertically extending tubular neck, the lower end thereof being adapted to telescope with an exhaust tube; a skirt surrounding said neck and radially spaced therefrom, the lower end of said skirt extending below the lower end of said neck and the upper end of said skirt extending above the upper end of said neck; an impervious rain baffle carried within said skirt below the top of the latter, said baffle being disposed directly above and spaced from the top of said neck, said baffle being of larger diameter than said neck and having its peripheral edge spaced from said skirt; a flange extending radially outwardly from the upper part of said neck above the lower end of said skirt; brackets extending radially outwardly from said flange and downwardly below the lower end of said skirt with their radially inner edges parallel to and radially outwardly spaced from said neck for supporting said skirt in axial alignment with said neck and for supporting said baffle; and a roof overlying said skirt and baffle and having its lower end vertically spaced from the top of said skirt a vertical distance shorter than the horizontal distance between the peripheral edge of said baffle and the inner periphery of said skirt.

2. A ventilator for exhaust gas for use with an exhaust tube, comprising: a vertically extending tubular neck, the lower end thereof being adapted to telescope within said exhaust tube; a skirt surrounding said neck and radially spaced therefrom, the lower end of said skirt extending below the lower end of said neck and the upper end of said skirt extending above the upper end of said neck; an impervious rain baffle carried within said skirt below the top of the latter, said baffle being disposed directly above and spaced from the top of said neck and being of larger diameter than said neck and having its peripheral edge spaced from said skirt; a flat flange extending radially outwardly from the upper part of said neck above the lower end of said skirt so as to rest upon the upper end of said exhaust tube and thereby support the weight of said ventilator; a plurality of brackets extending radially outwardly from said flange and attached to said skirt for supporting the latter in axial alignment with said neck and for supporting said baffle, the radially inner edges of the lower portion of said brackets abutting the outer peripheral surface of the upper end of said exhaust tube; and a coaxial roof overlying said skirt and baffle and having its lower end vertically spaced from the top of said skirt a vertical distance shorter than the horizontal distance between the peripheral edge of said baffle and the inner periphery of said skirt, said roof overhanging said skirt a horizontal distance greater than the vertical distance between the top of said skirt and the underside of said roof.

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