Jan. 27, 1953 S. HERSCH 2,626,557

VENTILATOR

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Fig. 1.

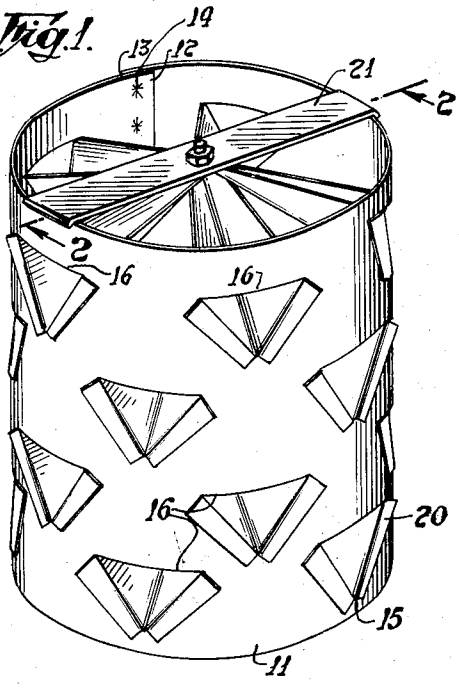


Fig. 2.

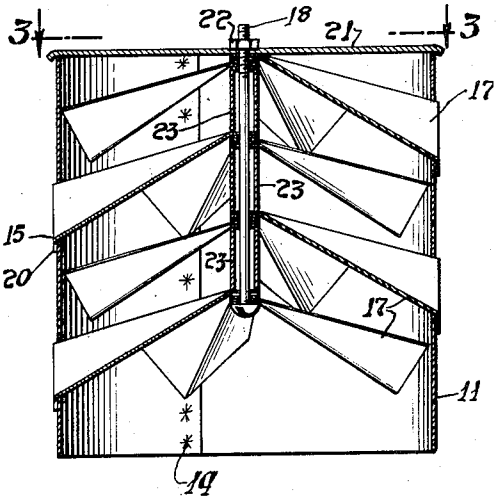


Fig. 3.

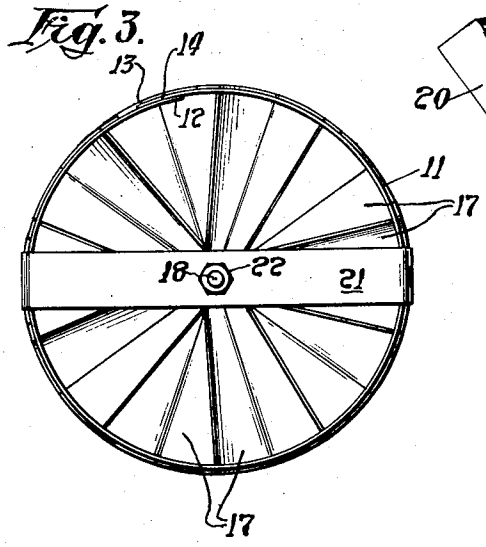


Fig. 4.

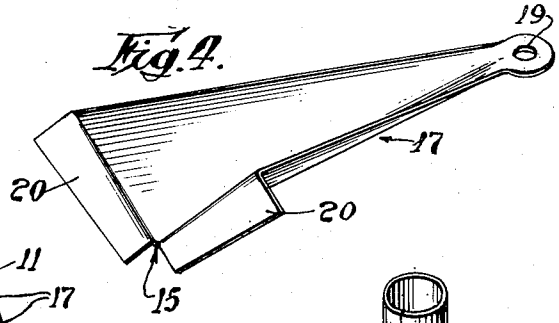
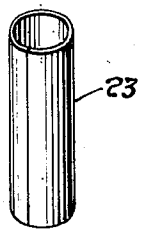


Fig. 5.



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VENTILATOR

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2 Claims. (Cl. 98—58)

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This invention relates to ventilators, or vent hoods, of the type adapted to be placed atop the roof of a building to permit passage of air or other gases, while precluding the admission of liquids or solids, principally the admission of precipitation—rain or snow.

The instant ventilator is suitable for use either at the upper, discharge end of a combustion stack venting combustion gases from a burner inside the building, or as the upper terminating portion of a ventilating duct designed to admit ventilating air naturally through the building while prohibiting entrance of precipitation.

The broad objects of the instant invention are two. First, to provide a ventilator or vent hood of improved functional quality which, when used for example as a combustion gas vent, will give improved blocking action to down drafts even under high wind conditions, and which, while permitting the ready escape of combustion gases and precluding down drafts, will effectively bar entrance of all precipitation such as rain or snow; and second, to provide a ventilator which is extremely simple and cheap to construct.

Specific objects of the first category are: to provide a ventilator which will introduce minimum impedance to the discharge of combustion gases from the duct to which the ventilator is attached; which will give improved blocking of down drafts such as often result from heavy external wind in the vicinity of the ventilator; and which will have improved blocking characteristics with respect to precipitation such as rain or snow.

The other objects of the invention are to provide a ventilator of the above listed improved functional characteristics which is at the same time constructible of inexpensive materials, and particularly with inexpensive labor time. This latter object is effected primarily by the extreme minimizing of individual connecting links such as welds, screws, bolted connections, and the like.

In accordance with these objects, there will now be described in conjunction with the accompanying drawings a preferred form of the instant ventilator. Many modifications of the ventilator which still retain the advantageous features of the instant invention will be readily apparent and it will be therefore understood that other types of ventilators are within the scope of the instant invention.

Referring to the drawings:

Fig. 1 is a perspective view of a preferred species of the instant invention;

Fig. 2 is a longitudinal cross-section of the ventilator taken along line 2—2 of Fig. 1;

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Fig. 3 is a top plan view of the ventilator taken along line 3—3 of Fig. 2;

Fig. 4 is a detailed perspective view of one of the deflecting plates or channels employed in the ventilator assembly; and

Fig. 5 is a perspective view of one of the spacers employed in the ventilator assembly.

Referring to the drawings, 11 designates an upright cylinder formed of sheet metal bonded together with a longitudinal seam formed by spot welding the overlapping edges 12 and 13, as shown at 14. The cylinder 11 has a plurality of openings or holes 15 formed about the periphery thereof. These holes are triangular in shape with one apex of the triangle pointing directly down. The holes 15 are spaced about the periphery of the cylinder 11 on different levels, four levels being shown in the Fig. 1 example. Successive levels of the openings 15 are staggered, so that, numbering from the top, the openings of the second level are spaced circumferentially between the openings in the first level, the third level openings are directly below those of the first level, and the fourth level openings are directly below those of the second level.

A plurality of deflecting plates or channels 17 extend radially from the axis of the cylinder through the openings 15; the channels 17 are triangular in shape to match the shape of the openings 15. A slit 15 is made in the end of each channel 17 to form a pair of tabs 20 which are bent down at right angles to lie against the outer surface of the cylinder 11. It is not necessary to secure the tabs 20 to the cylinder 11 in any way. The formation of the tabs serves two purposes: it removes the sharp projecting corners of the channels 17 which would otherwise render awkward the handling of the ventilator; and it facilitates fabrication of the ventilator by providing a stop for the channels 17 as they are inserted into the openings 15. Water or other precipitation falling into the cylinder 11 is caught in the channels 17, which, being sloped slightly downward, carry the water to the exterior of the cylinder 11 through the respective openings 15. Water leaving the outer edges of the channels 17 drops downward to the roof of the building on which the ventilator is located.

As best seen in Fig. 4, the channels 17 diverge radially outward in width, so that a substantially constant arcuate area is covered by any one channel as it extends radially outward. The effect of this channel construction, coupled with the staggering of the channels on successive levels results in the effective cross section of the cylinder 11 being substantially covered by the aggre-

gate of the channels 17, as best seen in Fig. 3. Thus there is no region in the ventilator where falling precipitation can drop clear through the cylinder 11, but must inevitably fall into one of the channels 17 and be carried to the exterior of the ventilator.

The channels 17 are held in position by an axial bolt 18 passing through holes 19 formed in the inner ends of the channels 17. As best seen in Fig. 2, the inner ends of the channels 17 on any one level are lapped at the axis of the cylinder 11, so that their holes 19 are aligned for the passage therethrough of the bolt 18. The bolt itself is supported by a cross-member 21 extending diametrically across the top edge of the cylinder 11, and having a central hole through which the bolt passes. A nut 22 is threaded onto the top end of the bolt 18, to secure it in place. Individual levels of the channels 17 are separated by annular spacers 23, disposed around the bolt 18 between the several levels of channels. In the embodiment shown, there are three spacers 23, one between each of the four levels of channels 17.

The assembly of the ventilator—one of the important features of the instant invention—is extremely quick and easy. Given a cylinder 11, the fabricator merely slips the channels 17 radially inward through the holes 16 until the tabs 20 abut the cylinder 11. In this position, the connecting holes 19 all lie on the cylinder axis, with the inner ends of the channels on the same level overlapping. The bolt 18 is then threaded through the holes 19 with spacers 23 being inserted between the several levels of channels. With the threading complete, the cross-member 21 is placed across the top edge of the cylinder 11 with the bolt 18 passing through the central hole therein, and the nut 22 is screwed onto the bolt. It is thus seen that as far as actual securing means are concerned, the bolt 18 serves by itself and without more to hold the ventilator together into a firm compact structure.

There are only two securing points of any nature in the instant ventilator—the weld points 14 which form the cylinder 11 originally, and the nut 22 threaded onto the bolt 18. This absolute minimum of junction points results in extremely cheap fabrication, without the least compromise with quality of function or physical strength of the completed ventilator.

Actual tests of the instant ventilator show that a cross wind tends to blow through the holes 16 and channels 17 and thence up the ventilator. Thus danger of down drafts is minimized even under windiest conditions. In fact, such cross winds produce a siphoning or aspirating effect which tends to draw gases up the ventilator.

Obviously many modifications and variations of the instant invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described above.

What is claimed is:

1. A ventilator comprising in combination an upright cylinder having a plurality of openings about the periphery thereof on different levels, a plurality of channels extending radially from the axis of said cylinder thru said openings adapted to carry liquid falling within the cylinder thru said openings to the exterior of said cylinder, the openings on successive levels being staggered so that the effective cross section of said cylinder is substantially covered by the aggregate of said channels, the inner ends of the channels on any one level having openings therein lapped at the cylinder axis, the outer ends of the channels being bent over to form tab means adjacent the exterior surface of the cylinder, a cross member extending diametrically across the top edge of said cylinder, annular spacers disposed on the cylinder axis between the several levels of channels, and an axial bolt passing thru the lapped openings in the inner ends of the channels, thru the intercalary spacers, and thru the center of said cross member, serving by itself and without more to hold the ventilator together into a firm, compact structure.

2. A ventilator comprising in combination an upright cylinder having a plurality of openings about the periphery thereof on different levels, a plurality of deflecting plates extending radially from the axis of said cylinder to said openings adapted to carry liquid falling within the cylinder thru said openings to the exterior of said cylinder, the openings on successive levels being staggered so that the effective cross section of said cylinder is substantially covered by the aggregate of said plates, the inner ends of the plates on any one level having openings therein lapped at the cylinder axis, a cross member extending diametrically across the top of said cylinder, an axial rod secured at its upper end to said cross member and passing through the lapped openings in the inner ends of the plates, and annular spacers around said rod between the several levels of plates.

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