

Oct. 16, 1951

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2,571,513

VENTILATOR

Filed April 2, 1949

2 SHEETS—SHEET 1

Fig. 1

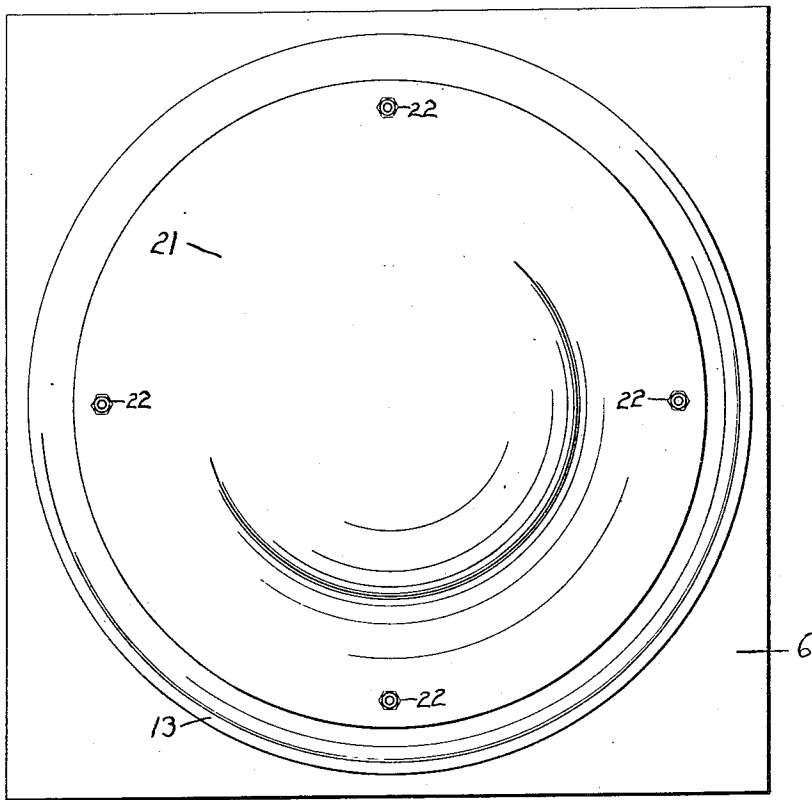
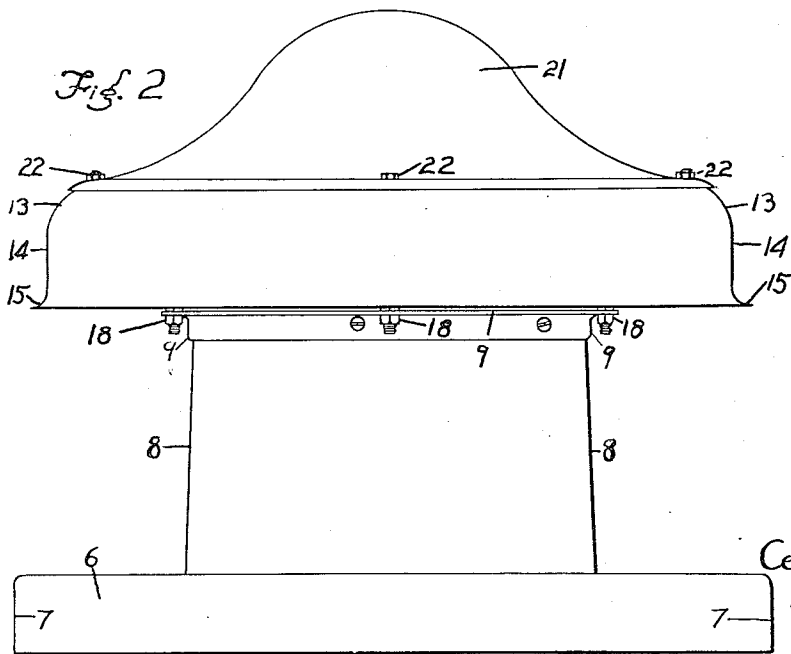


Fig. 2



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2 SHEETS—SHEET 2

Fig. 3

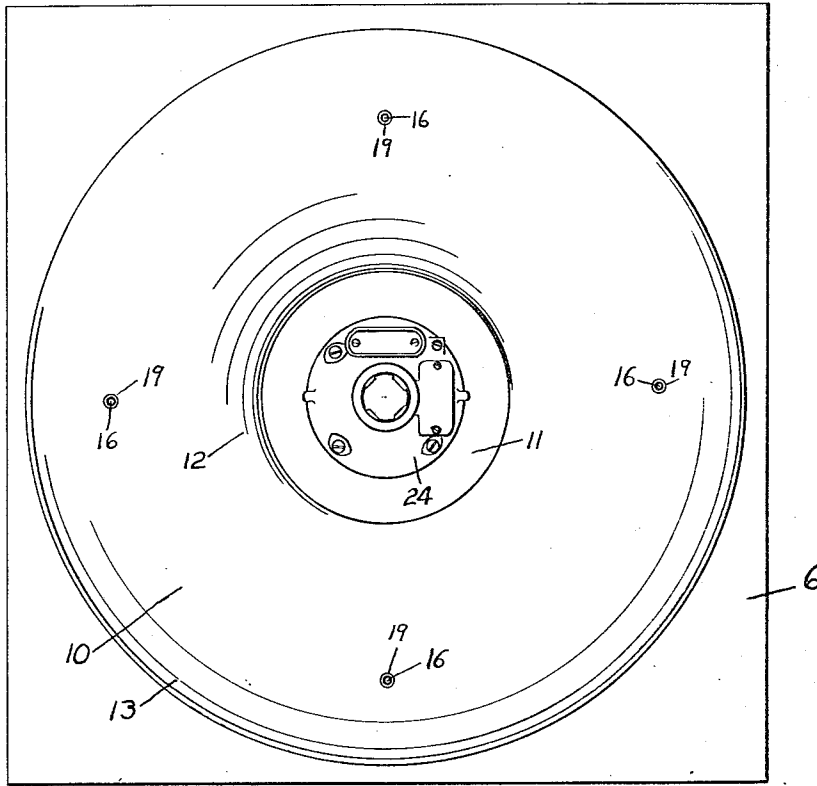
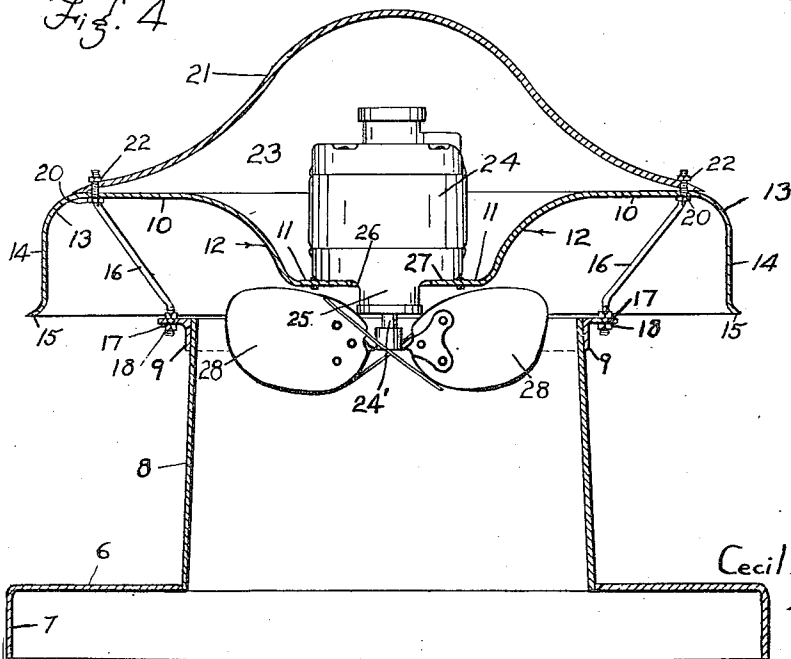


Fig. 4



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UNITED STATES PATENT OFFICE

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VENTILATOR

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2 Claims. (Cl. 98-43)

1

My invention relates to improvements in ventilators.

An object of this invention is to provide a natural draft ventilator supplemented by a motor-operated fan.

Another object of this invention is to provide a ventilator constructed and arranged to prevent back-drafts or down-drafts.

A further object of this invention is to provide a ventilator having aerodynamically correct curves that cause air to freely flow out of the ventilator by natural draft or, when supplemented by a power fan, without causing turbulence or back pressure.

A still further object of this invention is to provide a ventilator having a head provided with a recessed central portion that affords a motor support and also spreads the air as the same flows through the head.

Other objects of the invention will be apparent from the following description, reference being had to the drawings.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a plan view of the improved ventilator; Fig. 2 is an elevational view of the same;

Fig. 3 is a view corresponding to Fig. 1, with the exception that the cap has been removed; and

Fig. 4 is a view partly in elevation and partly in central vertical section, showing the invention as employed in a fresh air intake and an air recirculating system.

Referring first to the invention as shown in Figs. 1 to 4, inclusive, wherein the numeral 6 indicates a rectangular base having a capping flange 7 and an upright throat member 8: When the ventilator is installed, the base 6 will rest on a curbing built into a roof structure with the capping flange 7 overlapping the same to form a weather-tight joint, and the throat member 8 will form an extension of a stack. For the purpose of this case, it will not be necessary to show the curbing or the stack. The throat member 8 is upwardly tapered and secured to the upper end thereof, externally, is an endless angle bar 9. One flange of the angle bar 9 extends downwardly and is telescoped onto the throat member 9 and the other flange thereof extends outwardly flush with the upper end of said throat member.

2

A head member 10 is supported from and above the throat member 8 and is formed of a single sheet of metal. The central portion of the head member 10 is recessed by a depression to form a flat motor base 11 and the wall of this recess is outwardly flaring on a relatively flat curve to afford an air spreader 12 that deflects the air, as it flows outward of the throat member, in all directions to atmosphere. The head 10 extends materially outwardly of the throat member 8 and its outer portion is turned outwardly and downwardly on a curve, as indicated at 13, and then downwardly concentric with the throat member 8 to form an annular weather apron 14. This apron 14, at its lower edge, is substantially in the plane of the top of the throat member 8 and curved outwardly, as indicated at 15.

The head member 10 is supported from the angle bar 9 by a plurality of outwardly inclined rods 16 having screw-threaded end portions. The rods 16 at their lower end portions extend through holes 17 in the horizontal flange of said angle bar, are circumferentially spaced equidistantly apart and secured to said flange by pairs of opposing nuts 18, having threaded engagement with the rods 16. These rods 16, at their upper end portions, extend upwardly through holes 19 in the head member 10 and said head member rests on nuts 20 applied to said rods.

The head member 10 is provided with an annular displaceable cap member 21. This cap member 21 is formed of a single sheet of metal and its central portion is rounded and its outer portion is dished. The cap member 21, at its outer edge portion, rests directly on the head member 10 and is provided with holes through which the rods 16 extend. Nuts 22 are applied to the upper end portion of the rods 16 and, together with the nuts 20, hold the head member 10 and the cap member 21 clamped together to form a weather-tight joint therebetween. Obviously, the head member 10 and the cap member 21 afford a motor housing 23.

An electric motor 24 rests, at one end, on the motor base 11 and is rigidly secured thereto. The lower bearing 25 of the motor 24 extends through a central aperture 26 in the motor base 11 and the armature shaft 24' of said motor projects into the throat member 8. An exhaust fan 27 is secured to the armature shaft 24' and its blades 28 are spaced materially inwardly of the wall of the throat member 8.

From the above description, it is evident that the novel shape of the head member 10 lends itself to the free flow of outwardly moving air,

3

as the same is directed outwardly by the spreader 12 without turbulence or back pressure. Also, the weather apron 14 on the head member 10 prevents back pressure or down pressure in the head member 10 and the throat member 8, irrespective of the direction of the wind.

From what has been said, it will be understood that the invention described is capable of modifications as to details of construction and arrangement within the scope of the invention herein disclosed and claimed.

What I claim is:

1. The combination with an upright throat member, of a head member overlying the throat member and extending materially outwardly thereof, means removably supporting the head member on the throat member, the head member being centrally depressed to afford a cavity, the bottom of which affords a motor base and the side wall thereof being upwardly and outwardly flaring to afford an air spreader spaced inwardly of the wall of the throat member, said head member being outwardly and downwardly curved and then extended downwardly to substantially the plane of the upper end of the throat member, to afford an apron that is spaced outwardly of the throat member, an electric motor mounted on the motor base with its armature shaft extending downwardly into the throat member, a suction fan in the throat member on the armature shaft, and a cap overlying the head member supported thereon and removably secured thereto.

2. The combination with an upright throat member having on its upper end an outturned flange, and a plurality of circumferentially spaced upturned rods anchored at their lower end to the flange and having on their upper end portions shoulders, of a head member overlying the throat member, and extending materially out-

4

wardly thereof, said head member being removably supported on said shoulders and having holes through which the upper end portions of the rods project, the central portion of the head member being depressed to afford a cavity, the bottom of which affords a motor base and the side wall thereof being upwardly and outwardly flaring to afford an air spreader spaced inwardly of the wall of the throat member, said head member being outwardly and downwardly curved and then extended downwardly to substantially the plane of the upper end of the throat member to afford an apron that is spaced outwardly of the throat member, an electric motor mounted on said motor base with its armature shaft extending downwardly into the throat member a suction fan in the throat member on the armature shaft, a cap overlying the head member and resting thereon outwardly of the rods and having holes through which the rods project, and nuts having screw threaded engagement with the rods outwardly of the cap, and holding the cap clamped onto the head member.

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