

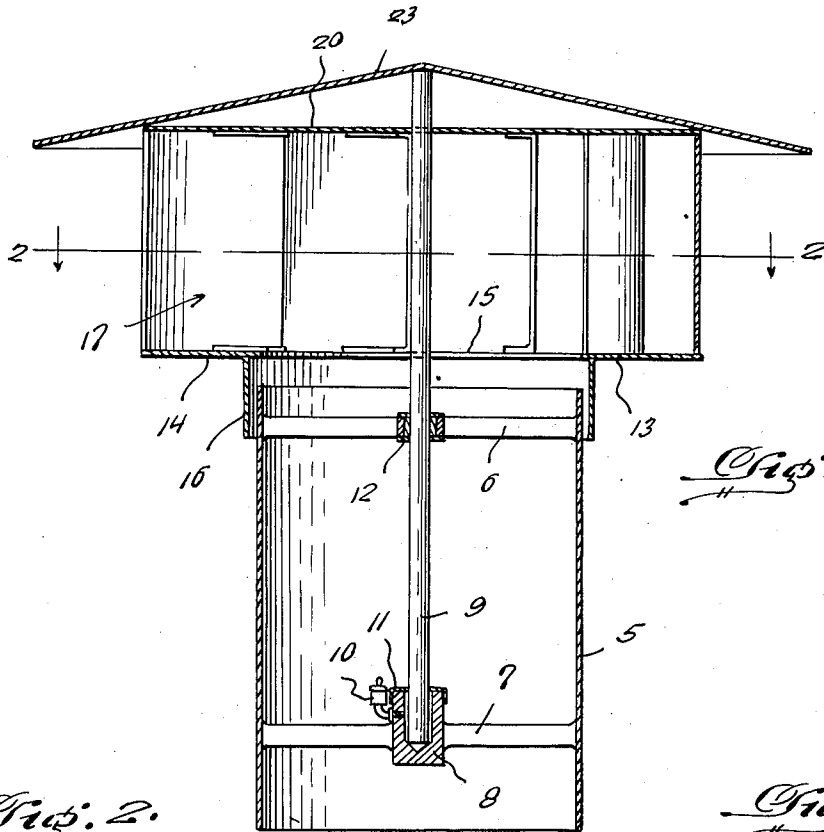
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W. C. WILSON

2,469,096

VENTILATOR

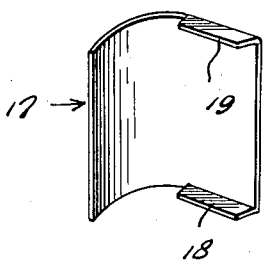
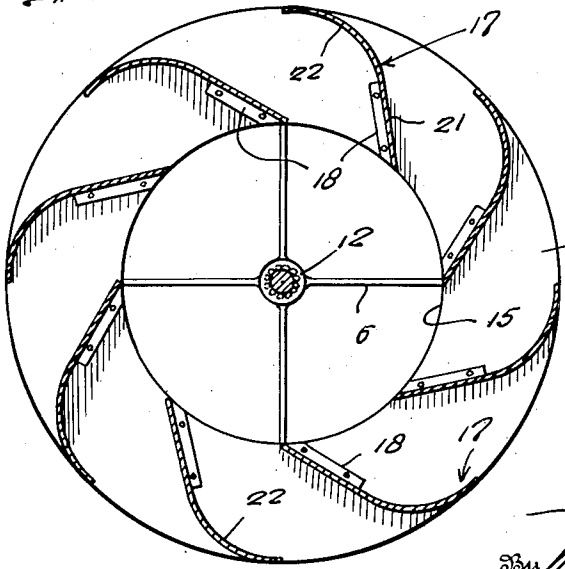
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*Fig. 1.*

*Fig. 2.*

*Fig. 3.*



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# UNITED STATES PATENT OFFICE

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## VENTILATOR

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1 Claim. (Cl. 98—75)

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The present invention relates to new and useful improvements in ventilators for buildings and other purposes and the invention has for its primary object to provide a turbine type ventilator including a wind-operated rotor in which the blades of the rotor are arranged to exert a suction force at the center thereof whereby to withdraw foul air from the building.

An important object of the present invention is to provide a wind operated rotor of this character provided with a conical cover for the top of the rotor and projecting over the side edges thereof to prevent downdraft and also in which the top of the rotor is constructed with a flat top under the cover to prevent trapping of rising currents of air under the cover.

A further object of the invention is to provide a device of this character of simple and practical construction, which is efficient and reliable in performance, relatively inexpensive to manufacture and maintain in operation and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is a vertical sectional view.

Figure 2 is a transverse sectional view taken substantially on a line 2—2 of Figure 1, and

Figure 3 is a perspective view of one of the blades of the rotor.

Referring now to the drawings in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention, the numeral 5 designates a cylindrical stack having its lower end adapted for connecting in any suitable manner to the outlet pipe of a ventilator, the stack having upper and lower spiders 6 and 7 secured therein, the central portion of the lower spider having a socket 8 closed at its bottom and adapted to rotatably support the lower end of a shaft 9. A grease or oil cup 10 is attached to the socket by means of which a suitable lubricant may be maintained in the socket. The top of the socket is closed by a cap 11 through which the shaft extends.

The upper spider 6 is formed with a ball-bearing assembly 12 in which the upper portion of the shaft is rotatably mounted.

A rotor 13 is secured to the upper portion of the shaft 9 and includes a bottom plate 14 having a central opening 15 of a diameter substan-

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tially equal to the diameter of the stack 5, the opening being aligned with the stack as shown more clearly in Figure 1 of the drawings.

To the underside of the bottom plate 14 is secured a skirt 16 extending downwardly therefrom and surrounding the upper portion of the stack 5 in spaced relation therefrom.

A plurality of blades 17 are secured in upright relation on the lower plate 14 by means of a flange 18 on the lower edge of the blade, the blades also having a flange 19 on the upper edge thereof and to which an upper plate 20 is secured, the flanges 18 and 19 being secured to the upper and lower plates 14 and 20, respectively, by welding, soldering or other suitable attaching method.

The blades 17 include a straight portion 21 at the inner ends of the blades which terminate at the edge of the opening 15, the blades extending substantially tangentially of the rotor and have their outer ends curved laterally as shown at 22. The blades are arranged in spaced apart relation between the plates 14 and 20, and the outer curved ends 22 of the blades extend in a common direction and terminate at the outer edges of the plates 14 and 20 as shown to advantage in Figure 2 of the drawings.

Accordingly, the blades are subject to the influence of wind to thus cause a rotation of the rotor. The rotary movement of the rotor will produce a suction effect at the opening 15 which communicates with the stack 5 and will thus serve to draw foul air from a building or other structure to which the stack is attached and thereby serve to ventilate the building. The shaft 9 extends upwardly above the upper plate 20 of the rotor and to the upper end thereof is secured a cover 23 of conical form having its underside secured to the top plate 20 at the outer edges thereof, the cover extending outwardly beyond the upper plate 20 of the rotor to provide a hood of a diameter greater than the diameter of the rotor whereby to eliminate downdraft in the stack 5.

The space between the cover 23 and the top plate 20 of the rotor is closed thus preventing the trapping of air under the conical cover.

It is believed that the details of construction, operation and advantages of the device will be readily understood from the foregoing without further detailed explanation.

Having thus described the invention, what I claim is:

A ventilator, comprising an upstanding cylindrical sleeve open at its top and bottom, a lower

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end thrust bearing disposed centrally within the sleeve and mounted thereon, an upper bearing disposed centrally within the sleeve and mounted thereon, a vertical shaft rotatable within the bearing and projecting above the sleeve, and a rotor arranged above the sleeve and concentric therewith, said rotor comprising upper and lower circular plates, the upper plate being imperforate and the lower plate having a large central opening in substantial alignment with the sleeve, an annular skirt arranged beneath the lower plate and secured thereto and surrounding the large opening in the lower plate and receiving the upper end of the sleeve therein, a plurality of spaced longitudinally curved blades arranged between the upper and lower plates and extending from the opening in the lower plate to the outer edges of the upper and lower plates and secured to such upper and lower plates, and a cover of considerably greater diameter than the upper and lower plates and arranged above the upper plate in concentric relation thereto and projecting radially beyond the upper plate for a considerable distance, the upper imperforate plate

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having a central reduced opening, the vertical shaft extending through the reduced opening of the upper plate and having its upper end engaging the lower face of the conical cover at the apex of the conical cover, the upper plate covering the lower face of the conical cover to prevent air being trapped therein.

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