Oct. 1, 1929. J. M. DAVIE ET AL 1,730,193

VENTILATOR

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Fig. 1.

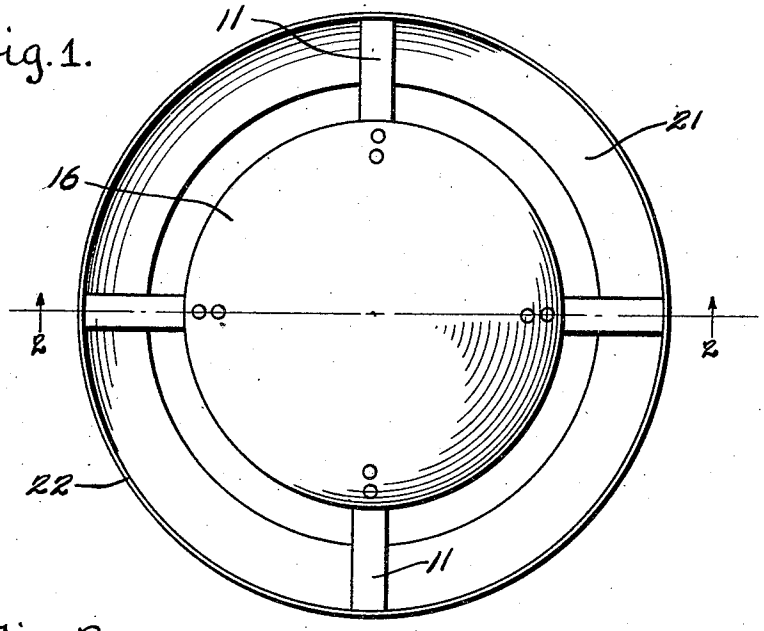
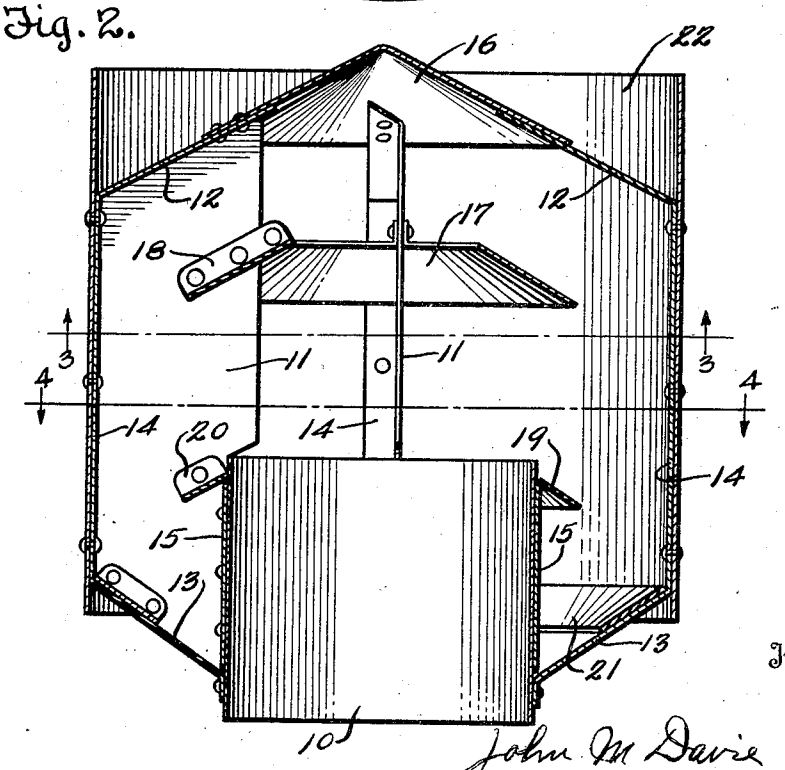


Fig. 2.



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Fig. 3.

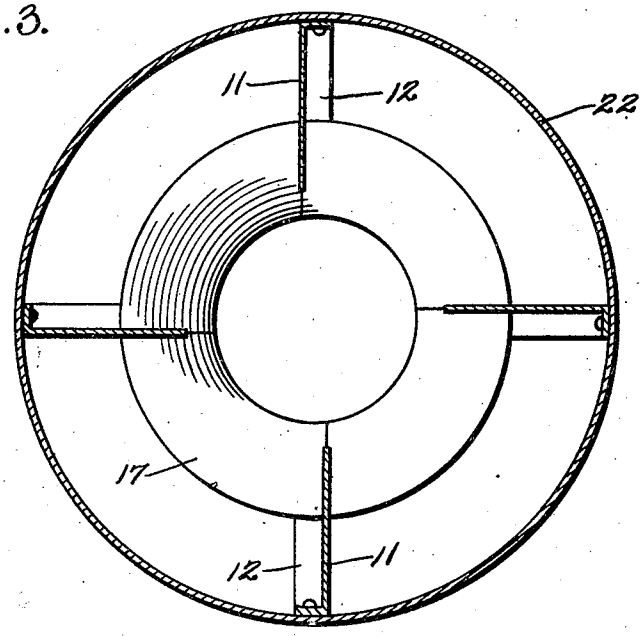
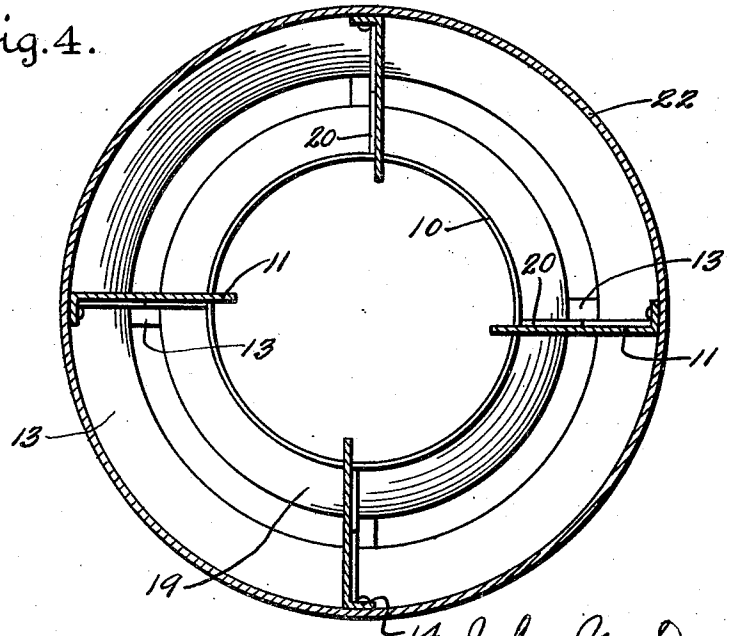


Fig. 4.



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UNITED STATES PATENT OFFICE

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VENTILATOR

Application filed November 29, 1926. Serial No. 151,394.

The present invention relates to improvements in ventilators, and has for its primary object to provide a ventilator of exceedingly durable construction to withstand the force of severe storms.

A further object of the invention is the provision of a ventilator adapted for buildings, vessels, and like structures, and designed to permit the escape of gases, smoke, etc. to the atmosphere and at the same time cause the atmospheric air currents to be deflected to obviate the entrance thereof within the ventilator.

Another object of the invention is the provision of a ventilator having rigid bracing plates to strengthen the general structure of the ventilator.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

Figure 1 is a top plan view of a ventilator embodying our invention,

Figure 2 is a vertical transverse sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2, and

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 2.

Referring to the drawings, wherein for the purpose of illustration is shown the preferred embodiment of our invention, the numeral 10 generally designates an eduction pipe adapted to be connected to a chimney or ventilating shaft and preferably of cylindrical construction.

Riveted or otherwise rigidly secured about the outer portion of the eduction pipe 10 are a plurality of vertical rigid bracing plates 11. We preferably provide four such plates arranged at equally spaced positions about the eduction pipe and extending radially therefrom. These bracing plates 11 project vertically above the eduction pipe and have their upper and lower edges inclined in opposite directions and provided with horizontally projecting flanges 12 and 13, while the outer vertical edge is formed with a transversely extending attaching flange 14. As shown to advantage in Figure 2, the lower portion of the inner edge of each plate is bent at a right angle to form a connecting flange 15, while the upper portion extends inwardly beyond said flange. The flanges 15 are riveted or otherwise secured to the eduction pipe to securely maintain the plates in position.

Rigidly secured upon the upper flanged edges of the bracing plates 11 in a superimposed position above the eduction pipe 10 is a conical cap 16 disposed a short distance above the upper end of the eduction pipe as indicated.

Secured to the intermediate portions of the bracing plates 11 below the conical cap 16 is a frustro-conical baffle ring 17 composed of four complementary sections provided with flanges 18 at their ends adapted for connection with the bracing plates and with each other, (see Fig. 2).

Secured to the bracing plates 11 and positioned about the eduction pipe 10 adjacent its upper edge is an auxiliary baffle ring 19, the end portions being bent vertically to form attaching flanges 20 for secure connection of the component sections.

Secured to the lower edges of the bracing plates 11 and positioned against the outer edges thereof is an inverted frustro-conical deflecting band 21 positioned concentrically about and spaced substantially from the eduction pipe.

Rigidly secured to the outer vertical flanges of the bracing plates and arranged in a vertical position is a storm casing 22 preferably of cylindrical formation, terminating at its upper end slightly below the tip of the conical cap 16, while the lower end terminates slightly below the outer edge of the bracing plates and some distance above the plane of the lower edge of the eduction pipe.

In use, the present structure provides a ventilator designed to permit the unobstructed passage of gases or smoke into the atmosphere and at the same time prevents the admission of atmospheric air currents into the building. As will be readily noted from Fig-

ure 2 of the drawings, the outer diameters of the conical cap 16 and the intermediate baffle rings 17 and 19 are substantially equal, while the inner diameter of the upper baffle ring 17 is somewhat less than the diameter of the eduction pipe.

The smoke or gases issuing from the eduction pipe are deflected by the upper baffle ring 17 and caused to pass upwardly about the sides of the conical cap 16. Horizontal exterior currents will be deflected by the comparatively long storm casing 22 so as to prevent passage of air into the chimney or ventilating shaft.

A further characteristic of the present ventilator construction is the arrangement of the baffle rings and band whereby rain will be deflected so as to pass through at the outer portion of the ventilator structure and will not enter the eduction pipe. Due to the peculiar arrangement of the conical cap and baffle rings, the rain will be deflected downwardly between the outer edge of the baffle rings and the storm casing and inwardly toward the eduction pipe by the lower annular deflecting band.

From the foregoing description and the drawings, it will be apparent that an unusually durable ventilator structure has been provided, designed particularly to withstand severe wind storms and arranged to permit unobstructed passage of smoke and gases to the atmosphere. The provision of the vertically extending bracing plates 11 provides an exceedingly rigid construction capable of withstanding an abnormal wind velocity.

It is to be understood that the form of our invention herewith shown and described is to be taken as the preferred example of the same, and that various changes as to the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:

1. A ventilator comprising a vertical eduction pipe, a plurality of rigid bracing plates having their lower ends secured to the eduction pipe and extending radially outward therefrom, the upper ends of the plates projecting vertically upward above the eduction pipe, a conical cap secured upon the upper edges of the bracing plates, a baffle ring secured to the intermediate portions of the plates, an auxiliary baffle ring secured to the lower portions of the bracing plates and disposed about the upper edge of the eduction pipe, a deflecting ring secured to the lower edges of the bracing plates and disposed adjacent the outer ends thereof in spaced relation with respect to the eduction pipe, and a casing enclosing the said bracing plates and baffles and secured to the outer ends of the bracing plates.

2. In a ventilator, an eduction pipe, a plurality of vertical radially projecting bracing plates having their lower portions rigidly secured to the eduction pipe and their upper portions extending vertically upward therefrom, a conical cap secured upon the upper edges of the bracing plates and disposed centrally above the eduction pipe, a frustro-conical baffle ring secured transversely to the intermediate portions of the bracing plates, an auxiliary baffle ring of frustro-conical formation secured to the bracing plates immediately below the upper edge of the eduction pipe, a deflecting ring of frustro-conical formation secured to the lower edges of the deflecting plates adjacent the outer portions in spaced relation with the eduction pipe, and a cylindrical casing extending vertically and secured to the outer vertical edges of the bracing plates, the upper and lower ends of the casing being open and its upper edge disposed slightly below the tip of the conical cap while its lower edge terminates in transverse alignment with the intermediate portion of the lower deflecting ring.

3. A ventilator comprising an eduction pipe, a cylindrical casing, vertical plates attached to the inner side of the casing to project radially inward therefrom below the top and bottom thereof, the lower portion of the inner edges of said plates being flanged laterally for attachment to the eduction pipe and so that the upper portion of said plates project inwardly beyond the vertical plane of said flanges, a cap secured to the upper inner ends of the plates leaving an annular space between the outer edge of said cap and the casing, baffle-ring sections secured between the plates at the upper portion thereof below the cap and of approximately the same external diameter as said cap, baffle-ring sections secured between the plates at the upper ends of the aforesaid attaching flanges, and downwardly projecting segmental plates attached between the vertical plates at the lower ends thereof adjoining the casing to leave spaces between the inner edges of said plate and the eduction pipe.

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