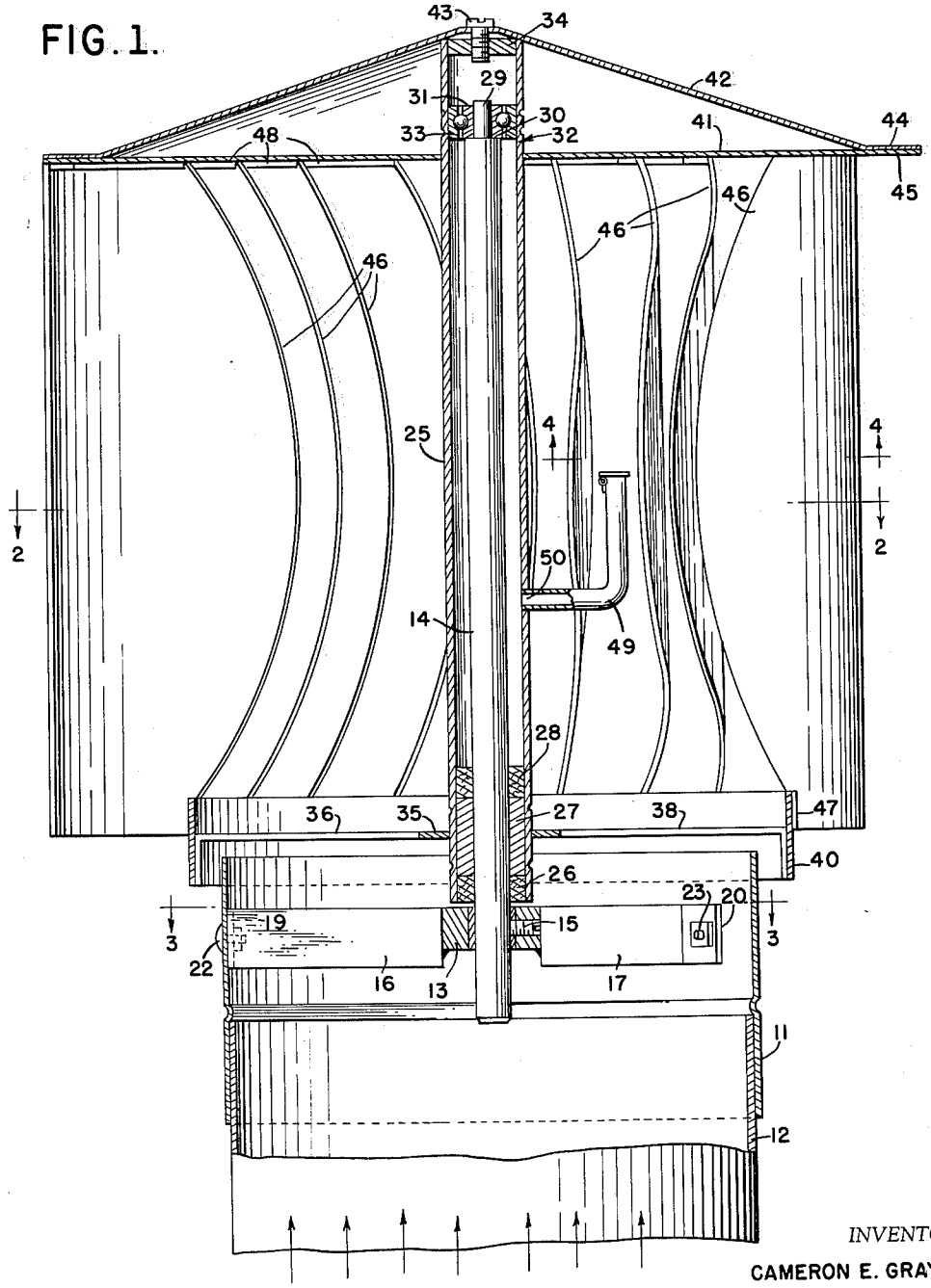
Dec. 4, 1962 C. E. GRAY ET AL 3,066,596

WIND POWERED TURBINE EXHAUSTER

Filed April 8, 1958 2 Sheets-Sheet 1

FIG. 1.



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Filed April 8, 1958 2 Sheets-Sheet 2

FIG. 2.

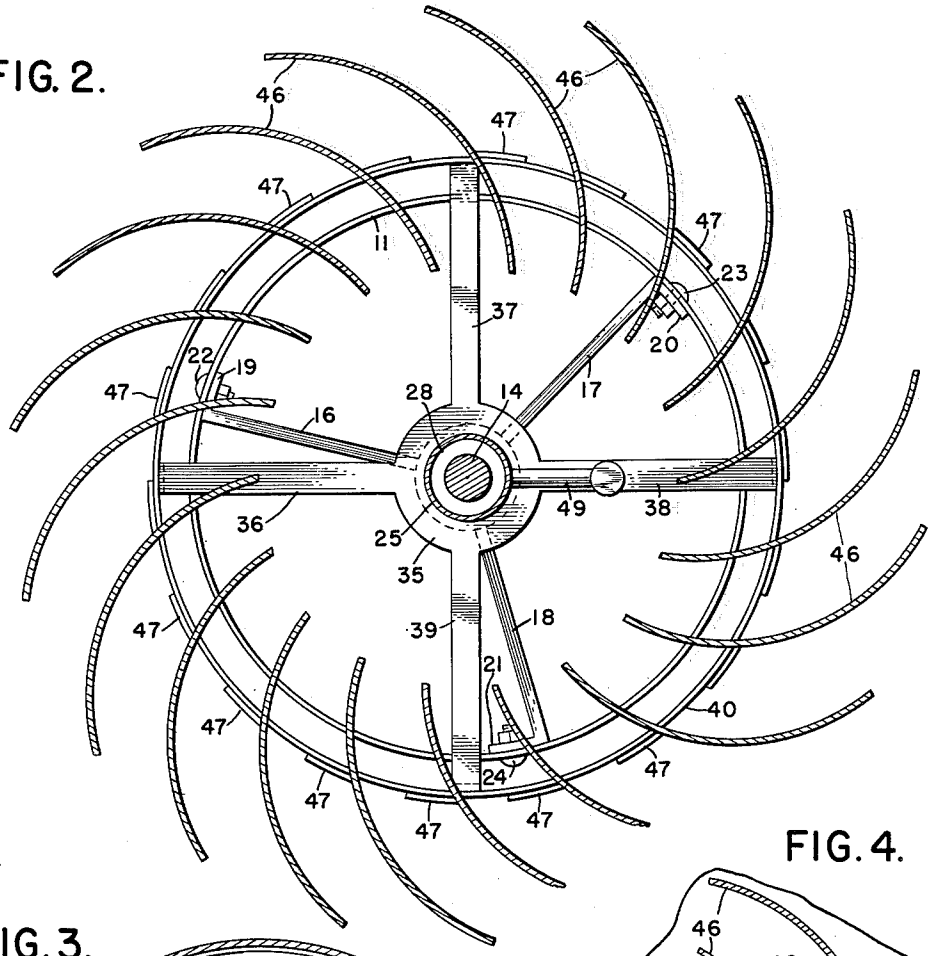


FIG. 3.

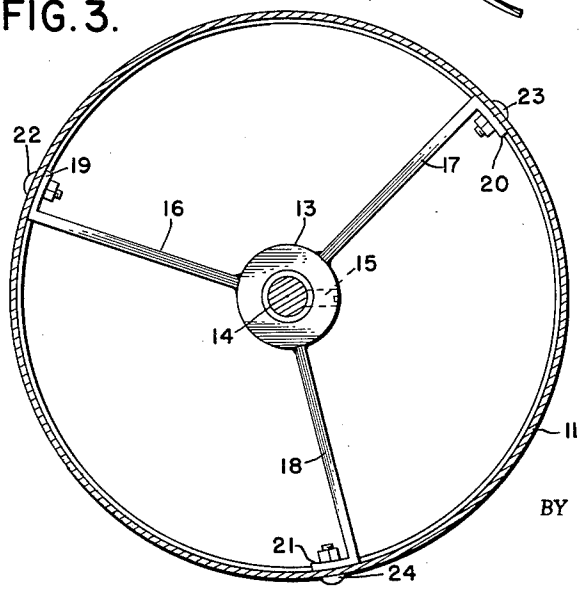
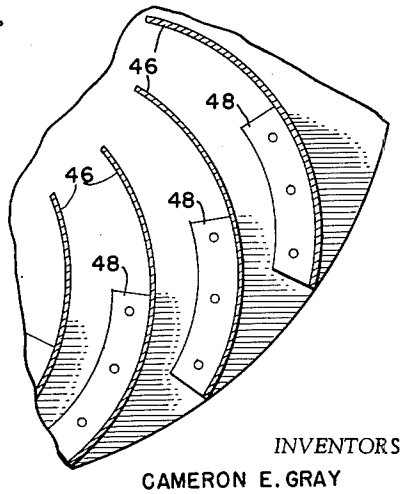


FIG. 4.



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WIND POWERED TURBINE EXHAUSTER

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1 Claim. (Cl. 98—72)

This invention relates to exhausters or ventilators and it is more particularly concerned with the type thereof adapted to be actuated by the force of the wind on the exterior of a building.

One of the objects of this invention is the provision of such an exhauster or ventilator which is highly efficient as compared to conventional wind powered exhausters.

Another object of the invention is the provision of such an exhauster which is capable of operating efficiently for prolonged periods under adverse conditions, including rain, freezing temperatures, dust, and other conditions.

A further object of the invention is the provision of a ventilator of the type mentioned that is particularly adaptable for dependable use on granaries, bins and other storage structures for various commodities requiring ventilation, such as grain, corn, milo and others that present substantial resistance to air flow.

A still further object is the provision of ventilators of the type mentioned which are rugged, which can be made of only a few and relatively simple parts and which can be assembled rapidly and easily.

These and still further objects and advantages of the invention and various features thereof will appear more fully from the following description and the accompanying drawing to which reference is made in the description.

In the drawing:

FIG. 1 is a vertical sectional view of an embodiment of the invention.

FIG. 2 is a section along the line 2—2 of FIG. 1.

FIG. 3 is a section along the line 3—3 of FIG. 1.

FIG. 4 is a section along the line 4—4 of FIG. 1.

Referring with more particularity to the drawing in which like numerals designate like parts, the embodiment illustrated comprises a tubular base support 11 adapted to fit over the upper end of a vertically disposed air duct 12, such as those projecting from the roof of a building or structure to be ventilated.

Within the tubular member 11 there is concentrically disposed a thrust collar 13 for a vertical shaft or post 14. The post 14 is secured to the collar by means of a set screw 15. Spider arms 16, 17, and 18 are radially disposed between the collar 13 and the inner wall of the tubular member 11, the inner ends of these arms being welded to the collar and the outer ends being bent to provide flanges 19, 20 and 21 that are secured by bolts 22, 23 and 24 to the support 11.

Above the collar 13 a tubular housing 25 surrounds the shaft 14. At the bottom of the housing 25 there is disposed a grease retainer packing 26 about the shaft 14. Above this packing 26 there is disposed an Oilite or self-lubricating bearing 27 surmounted by oil packing rings 28.

An upper end portion 29 of the shaft 14 is recessed to provide an upwardly facing annular shoulder 30. The

inner race 31 of a ball bearing 32 fits over the portion 29 and rests on the shoulder 30. The outer race 33 of the ball bearing is press fitted against the wall of the housing 25.

The housing 25 extends above the bearing 32 and is provided with a closure cap 34 on the inside which is welded to it.

To the bottom of housing 25, just above the upper end of the tubular support 11, a hub 35 is welded or otherwise secured. Spokes 36, 37, 38 and 39 project outwardly from the hub and support at their ends a ring or band 40.

To the upper part of the housing 25, a disc 41 is welded or otherwise secured. The disc is surmounted by a conical roof 42, the center of which is secured to the cap 34 by means of a screw 43. The peripheral edge 44 of the roof 42 is flat to lie against a marginal edge 45 of the disc 41 and it is welded thereto or secured by any other suitable means.

Between the disc 41 and band 40 there are disposed in circumferentially spaced relation a plurality of blades 46. These blades are so shaped and so disposed as to function as a wind turbine and to cause a movement of air from the interior to the exterior. As shown in the drawing, the blades are each transversely arcuate and set in a vertical position substantially as shown, generally transverse to the periphery of the band. A bottom flap 47 is bent outwardly in a vertical position to lie adjacent the band 40 and is spot welded or otherwise secured to the band. At the upper end of each blade, a flap portion 48 is bent horizontally to provide a flange against the bottom of the disc 41 and it is spot welded thereto or secured by any other suitable means.

From the description above, it will be apparent that the provision of the rotating housing 25 about the post 14 shields the post and the bearings 27 and 32 from elements of the weather and ambient dust, thus eliminating an important cause of difficulty in conventional devices which frequently break down from exposure to weather conditions and dust.

An oil cup 49 may also be provided in an aperture 50 of the housing 25 above the oil ring 28.

The blades as they are shaped and mounted direct the incoming air from the wind on the windward side across the interior to opposite blades on the leeward side. As the air passes over and out a venturi or throttling action is effected which lowers the pressure to pull air upward.

Having thus described our invention, we claim:

A wind exhauster for a vertical flue comprising a tubular section adapted to engage the upper end of the flue and be supported thereon; a stationary post; means secured to the interior of the tubular section for releasably engaging and supporting the lower end of the post in different vertical positions; a tubular housing surrounding the post; means rotatably supporting the housing on the post; a circular band, larger in diameter than the tubular section, surrounding the lower end of the housing and the upper end of the tubular section; a hub at the center of the said band, spokes rigidly connecting the hub to the band; a horizontal disc concentrically disposed at the upper end of the housing; means securing the disc to the housing, said disc being larger in diameter than the band; members connecting said band to said disc,

said members consisting solely of a group of spaced vertical vanes circularly disposed in spaced relation between the disc and band and extending from the disc to the band, said vanes being disposed laterally between an outer circumference larger than the band and an inner circumference smaller than the tubular section, the inner edges of said vanes being vertically convex and disposed in the path of air flowing upwardly through the section, and means securing the upper ends of the vanes to the disc and the lower ends of the vanes to the band.

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