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P. W. BARRON

2,188,699

DIRECT PRESSURE VENTILATOR

Filed Aug. 30, 1937

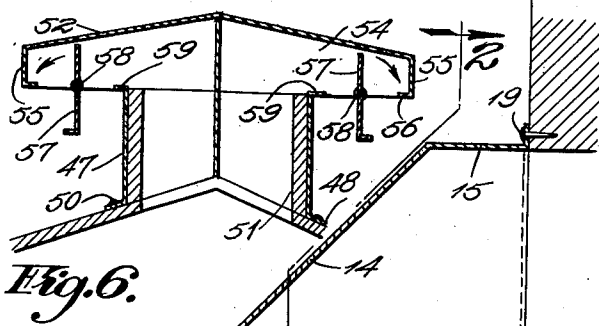


Fig. 6.

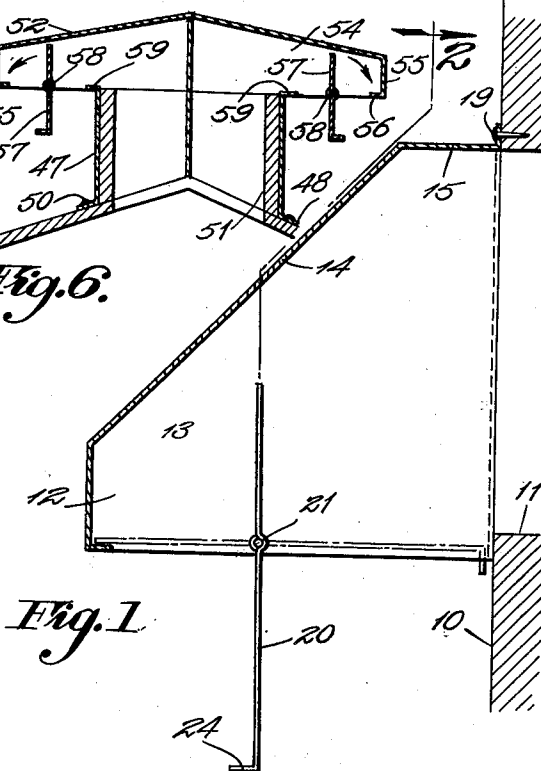


Fig. 1.

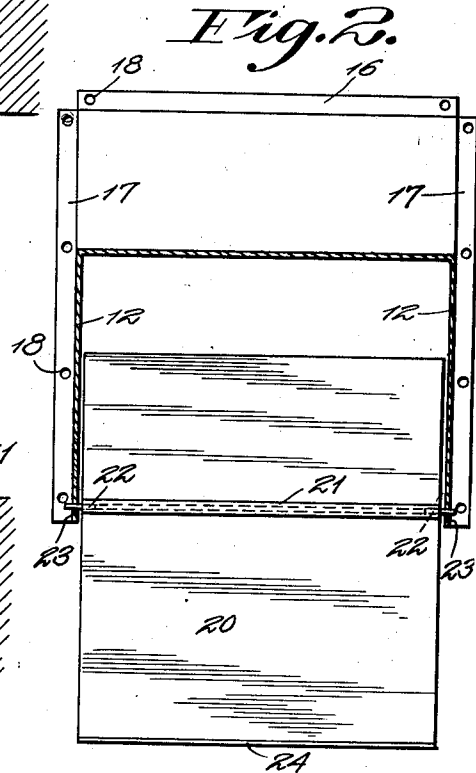


Fig. 2.

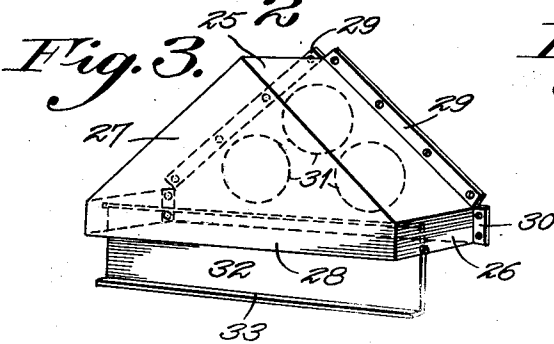


Fig. 3.

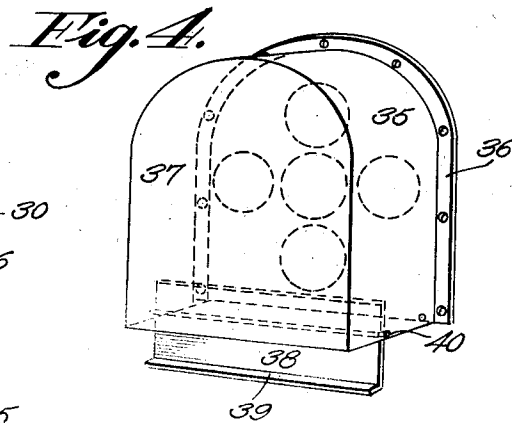


Fig. 4.

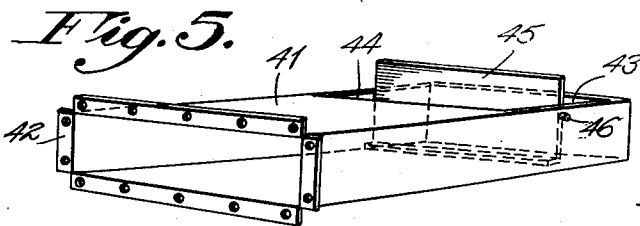


Fig. 5.

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DIRECT PRESSURE VENTILATOR

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2 Claims. (Cl. 98—119)

This invention relates to ventilators and has for an object to provide a direct wind pressure controlled ventilator adapted to close and prevent access of rain and wind when the wind is blowing in direction to blow into the ventilator and to open itself again without manual attention.

A further object is to provide a ventilator having pivoted vanes one of which is adapted to be closed on the windward side of the ventilator while the other is adapted to remain open on the leeward side of the ventilator, the open vane permitting high pressure of the interior to vent out of the building when winds of hurricane strength cause a low pressure area upon the closed vane.

A further object is to provide a ventilator of this character which will be composed of a few strong simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming part of this specification,

Figure 1 is a longitudinal sectional view of the ventilator of the wall type, constructed in accordance with the invention.

Figure 2 is a vertical sectional view of the ventilator taken on the line 2—2 of Figure 1 and looking in the direction of the arrowheads.

Figure 3 is a perspective view of a modified form of wall ventilator.

Figure 4 is a perspective view of another modified form of wall ventilator.

Figure 5 is a perspective view of a ventilator adapted to be interposed between rafters in building construction.

Figure 6 is a longitudinal sectional view of a roof type of ventilator having vanes adapted to prevent wind and rain entering the ventilator and at the same time permit venting of high pressure from the building.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates a wall having an opening 11 for ventilator purposes. A wall ventilator comprising the subject matter of this invention comprises spaced side walls 12, a

short front wall 13, an inclined top wall 14 sloped upwardly toward the building, the top wall having a flat extension 15 terminating at the free edges of the side walls. The bottom of the ventilator is open. The top wall and the side walls are respectively provided with securing flanges 16 and 17 having perforations 18 near the ends to receive securing nails 19 or other connectors.

A vane 20 is provided intermediate its ends with a tubular bearing 21 through which a hinge pintle 22 is passed, the ends of the pintle being journaled in openings 23 formed in the side walls near the lower edges thereof. The vane is hinged near the upper end and the lower end so that the lower end acts as a weight to normally hold the vane open. The lower edge of the vane is bent at a right angle to the vane to provide a flange 24 which also assists in weighting the vane and also arrests the wind striking the vane.

The device may be formed of any suitable material, preferably sheet metal, to withstand rough conditions of service.

In operation when high wind tends to blow rain through the ventilator into the building, a 40 mile per hour wind pressure against the weighted lower end of the vane will force the vane to closed position and prevent access of rain and wind. When rain is not being driven by the wind the vane will remain open.

In Figure 3 there is shown a modified form of wall ventilator including an inverted V-shaped top wall 25, narrow end walls 26, and a substantially triangular front wall 27 having a narrow oblong portion 28 integral with the narrow end walls 26. The top wall is provided with securing flanges 29 and the end walls are provided with securing flanges 30 which may be secured to the wall adjacent the ventilating openings 31 therein. A vane 32 is provided with a weighting bottom flange 33, constructed as above described. The vane is pivotally connected to the end walls by hinge pintles 34.

Another modified form of the invention is shown in Figure 4, the same including an arched top and end walls 35 equipped with a perforated securing flange 36. A front wall 37 is secured to the top and end walls and is shaped in contour similar to the contour of the top and end walls.

A vane 38 is provided with a weighting flange 39, and is pivoted to the side walls by a hinge pintle 40. In both modified forms of the invention above described, wind pressure against the vanes will close the vanes to prevent entrance of

rain and wind through the ventilator into the building.

Another modified form of the invention is shown in Figure 5, the same being a substantially oblong casing 41 adapted to be built into the building structure between rafters. The casing is open at one end and at the open end is provided with perforated securing flanges 42. The top of the casing near the closed end 43 is provided with an opening 44 which is controlled by a vane 45 similar in construction to the vanes already described and pivoted to the side walls of the casing by a hinge pintle 46.

A roof type of ventilator for use in localities having winds of cyclonic force is shown in Figure 6. The ventilator comprises a substantially rectangular casing 47 having securing flanges 48 adapted to be nailed to a gable roof, as shown at 50 outside of the ventilating chimney 51 or other structure of the building. The top 52 of the ventilator is inverted gable in contour. The sides of the ventilator are closed by side walls 54 and the end walls 55 of the ventilator are provided with intumed flanges 56 which form stops to limit closing movement of vanes 57 that are pivoted to the side walls by a hinge pintle 58.

The casing 47 is provided at the top with stop flanges 59 which coact with the stop flanges 56, limiting closing movement of the vanes.

In the event of winds of cyclonic force sweeping over the ventilator the vane on the windward side of the building will be swung closed by wind pressure to prevent entrance of the wind and rain into the ventilating chimney or flue 52. The vane on the leeward side of the building will remain undisturbed so that the high pressure in the building may vent through this open vane. On all ventilators the vanes fall back to open or normal position when there is no pressure upon them and they do not have to be given manual attention.

The ventilator, it will be pointed out, serves as either an inlet or an outlet.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. A ventilator comprising a casing having side end and top walls, and being open at the bottom, a pair of normally open vanes pivoted above the center at the ends of the open bottom of the ventilator and adapted to be disposed outside of a chimney, either vane being adapted to be swung closed by direct wind pressure while the other vane remains open, each vane having the lower portion thereof exposed wholly below the bottom of said walls, stop flanges on opposite walls of the casing limiting closing movement of the vanes, stop flanges adapted to engage the chimney and the vanes when the vanes are closed, the vanes when closed forming a closure for the open bottom of the casing outside of the chimney, and a central partition extending downwardly from said top wall between the side walls and separating the vanes from each other, said partition being adapted to extend downwardly into the chimney to divide the chimney into separate draft channels for directing draft upwardly against said side walls and downwardly past said vanes through the open bottom of the ventilator casing.

2. A ventilator comprising a casing having side, end and top walls and being open at the bottom, a pair of pivoted counterbalanced vanes in the ends of the open bottom of the ventilator, either vent being adapted to be swung closed by direct wind pressure while the other vane remains open, each vane having a lower portion thereof extending wholly below the bottom of side walls, flanges on opposite walls of the casing limiting closing movement of the vanes, a central partition extending downwardly from the top wall between the side walls and separating the vanes from each other, said partition being adapted to extend downward in a chimney and divide the chimney into separate draft channels, spaced walls extending downward from said side walls and spaced from the top wall on opposite sides of the partition, said spaced walls being adapted to engage a chimney, and flanges on the upper ends of the last named walls adapted to engage the vanes when closed, the vanes when closed forming closures for the open bottom of the casing outside the chimney.

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