

D. K. SWARTWOUT.
VENTILATOR.
APPLICATION FILED JAN. 24, 1910.

1,059,010.

Patented Apr. 15, 1913.

3 SHEETS—SHEET 1.

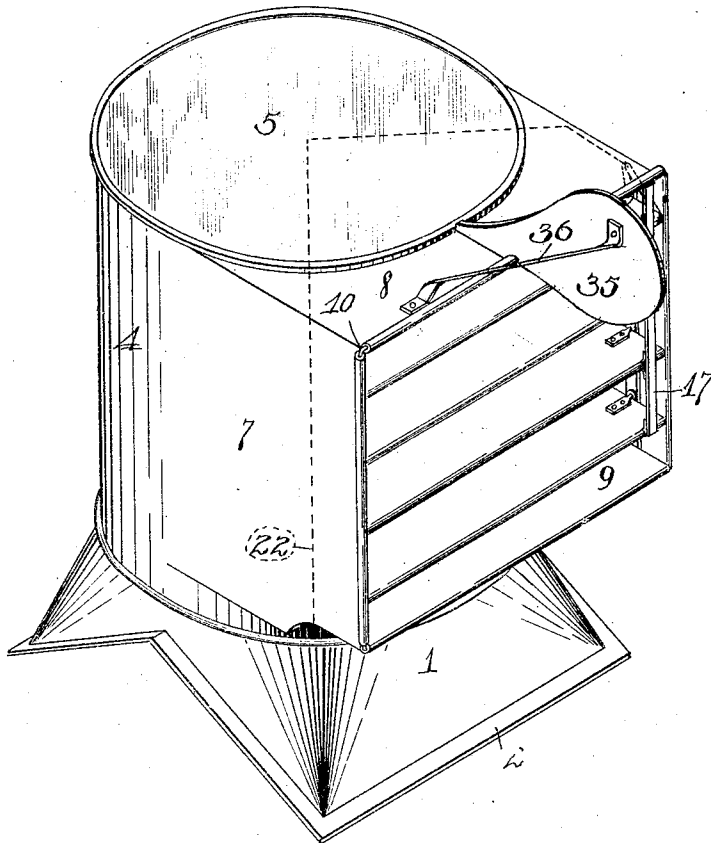


FIG. 1

Witnesses

Brennan B. West.

Oliver M. Kappeler

Inventor

Denton K. Swartwout.

Eng. Bates, Fenton & Hull.

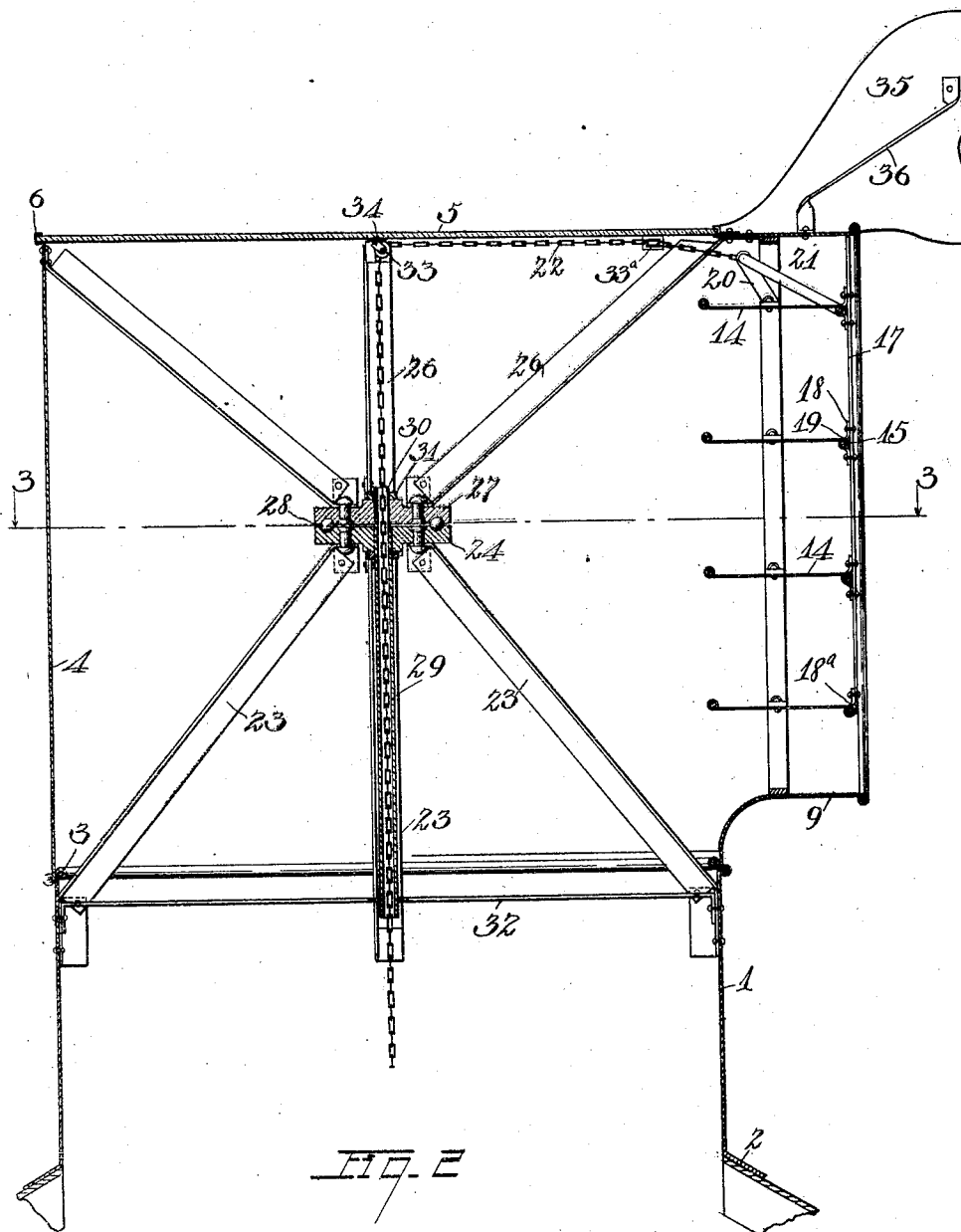
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3 SHEETS—SHEET 2.



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By Bates, Fenton & Hull,

ATTYS.

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3 SHEETS-SHEET 3.

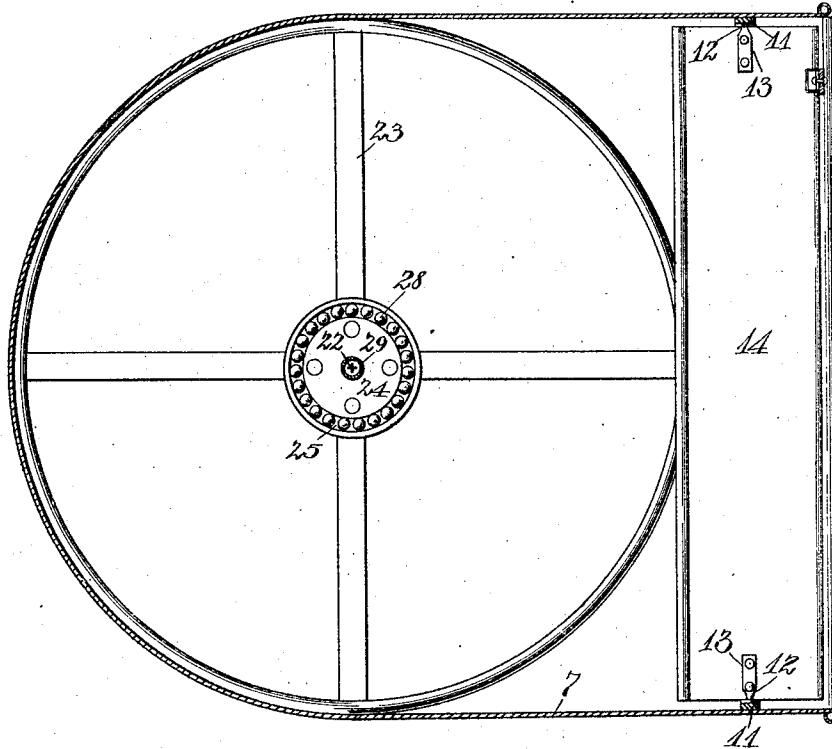


FIG. 3

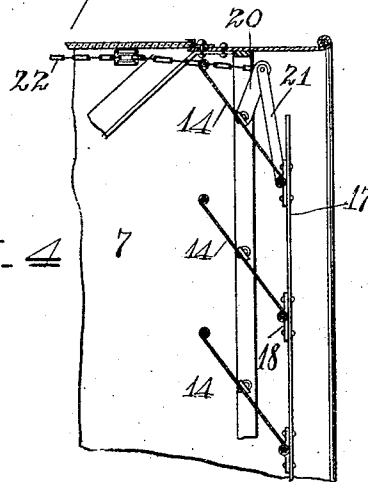


FIG. 4

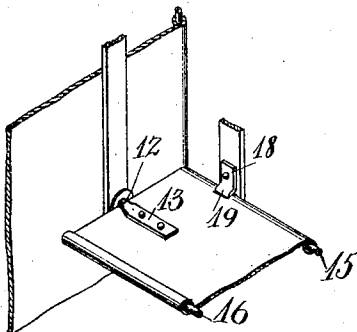


FIG. 5

Witnesses

Freeman West.
Oliver M. Kappeler.

Inventor

Denton K. Swartwout,
By Bates, Fouts & Hull
Attys

UNITED STATES PATENT OFFICE.

DENTON K. SWARTWOUT, OF MAYFIELD HEIGHTS, OHIO, ASSIGNOR TO THE OHIO BLOWER COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

VENTILATOR.

1,059,010.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed January 24, 1910. Serial No. 539,670.

To all whom it may concern:

Be it known that I, DENTON K. SWARTWOUT, a citizen of the United States; residing at Mayfield Heights, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Ventilators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention relates to ventilators of the type comprising a fixed base member and a revolving upper member or cowl provided with a discharge outlet.

15 It is the general object of this invention to provide a ventilator of this type with a particularly efficient construction and arrangement of support for the rotatable member or cowl; also to provide a ventilator of this type with an efficient damper and a particularly effective operating means therefor; also to provide a particularly effective arrangement whereby the upper ventilator section may be rotated without interfering with the damper operating devices.

20 With the foregoing objects in view, the invention may be further defined as consisting of the combinations of elements embodied in the claims hereto annexed and illustrated in the drawings forming part hereof, wherein—

30 Figure 1 represents a perspective view of a ventilator constructed in accordance with my invention; Fig. 2, an enlarged vertical section taken through the ventilator and showing the same applied to the roof of a building. Fig. 3, a transverse sectional view through the line 3—3 of Fig. 2; Fig. 4, a sectional detail of the damper and the operating mechanism therefor; and Fig. 5, a detail in perspective showing the construction of one of the louvers of the damper.

40 Describing the parts by reference characters, 1 denotes the base section or member of the ventilator. This member is provided with a flange 2 which is adapted to fit the roof of the building to which the ventilator may be applied and is shown as provided at its upper end with a wired edge 3. The member 1 is preferably of sheet metal.

50 The upper member or cowl comprises a sheet metal body 4 which is rotatably supported by the lower member. The upper member is shown as provided with a glass top 5 which is preferably circular and is retained in place on top of said mem-

ber in any convenient manner, as by bending the upper edge of said member therearound, as shown at 6.

For convenience of description, that portion of the upper member 4 which faces the 60 wind will be called the "front" of said member and the opposite part will be referred to as the "rear." The front of the upper member 4 is semi-cylindrical, while the rear is provided with a dampered discharge extension. This extension is formed in part by extending the sides from the rear of the semi-cylindrical front portion and at right angles to a diameter defining the rear end of such front portion. The top and bottom plates 8 and 9 complete the rearwardly projecting discharge portion of the member 4 and said discharge portion is provided with a rectangular outlet which is conveniently formed by bending the rear ends of the 75 sides, top, and bottom around a wire 10.

To the inner side of each plate 7 there is attached a bearing strap 11. These bearing straps are provided with suitable apertures in which are journaled pins 12 carried by 80 straps 13. These straps are in turn riveted to louvers 14. Each of these louvers is shown as rectangular in outline and is conveniently formed of sheet metal having its opposite longitudinal edges bent around 85 wires 15 and 16 respectively. These louvers are preferably of uniform size and equi-distantly spaced. Their outer rear ends are connected to a common operating rod 17. A convenient manner of forming 90 this connection is by cutting away the sheet metal at the outer edge of each louver and applying to the wire 15 a clip 18 having a rounded central portion 19 extending through the slot in the louver and receiving 95 the wire. The opposite ends of each clip 18 are secured, as by riveting to the rod 17 (see Fig. 3). The lowermost clip 18^a is merely bent around the wire and does not extend below the same, while the lower end 100 of the rod 17 terminates substantially flush with said louver. This is to permit the downward or closing movement of the louvers without hindrance by reason of the engagement of any projecting portion of the rod 17 with the bottom plate 9. 105

For the purpose of operating the rod 17, I provide the uppermost louver 14 with an arm 20 having its lower end pivotally secured at one end thereof, and preferably 110

pivoted to one of the pins 12. Connected to the upper end of said arm 20 is a link 21 having its lower or rear end pivotally connected with the rear end of said louver. 5 The louvers are pivoted slightly inside of their longitudinal centers, causing an overbalancing of the louvers, which, with the assistance of the weight of the rod 17, tends normally to close them. The arm 20 will be 10 of such length relative to the link 21 and connected to the uppermost louver in such manner that, when the louvers are in open position, as shown in Fig. 2, the arm projects forwardly. When the louvers are 15 closed, or substantially closed, the arm 20 projects nearly vertically, whereby an efficient angle is provided for operating said arm and the link 21 by means of the chain 22 which is connected to the upper end of 20 the arm 20.

For the purpose of pivotally supporting the upper member 4 the following construction is provided:—A plurality of supporting members, shown as angle bars 23, have 25 their lower ends riveted to the lower or base member 1. Four such bars are shown, having their lower ends secured to the lower member 1 approximately 90° apart. These bars converge from the points at which they 30 are supported and carry at their convergent upper ends a plate 24 having a central aperture therethrough and provided with a ball-race 25. Similar angle bars 26, similarly arranged, are secured to the upper member. 35 These bars converge downwardly from their points of attachment with the upper member and carry at their convergent lower ends a plate 27 having a race-way complementary to the race-way 25, balls 28 being inserted 40 between the plates 24 and 27 in the race-way formed therebetween. The upper plate or member 27 is provided with a central bore similar to that which is provided in the lower plate or member 24. A tube 29 projects through said bores. The upper end of 45 said tube is threaded, as shown at 30, for the reception of a nut 31, by means of which the tube is supported from the upper plate.

The lower end of the tube 29 is centered 50 by means of a suitable metallic strap 32 extending diametrically across the upper end of the lower member 1 and conveniently secured to said member by some of the rivets which extend through the down-turned ends 55 of the angle bars 23.

The manner of pivotally supporting the upper ventilator member from the lower permits the easy assembling and disassembling of these parts. The tube 29, being at 60 the center of rotation of the upper member, provides a guide-way for the chain 22 which prevents the latter from becoming entangled with any of the parts within the upper and lower ventilator members and particularly 65 the members which carry the parts of the

ball-bearing. Furthermore, the tube 29 serves as a thrust member to prevent the upper half of the ball-bearing from being dislodged laterally from the lower. The chain 22 extends upwardly through the tube 29, 70 over a pulley 33 located directly above said tube and conveniently supported by a cross bar 34 extending beneath the glass top 5, thence over a second pulley 33^a located at one side of the member 4 and to the arm 20. 75

For the purpose of rotating the upper ventilator member by the action of the wind, a vane 35 is provided, which vane is carried by the upper plate 8. The lower front edge of this vane rests upon the top of 80 the plate 8 to which it is secured at the central portion thereof, and extends forwardly substantially as far as the glass cover 5. The vane overhangs the rear or discharge end of the upper ventilator section. A 85 brace 36, which may be conveniently formed from a metal strap, is secured at one end to the plate 8 and at its opposite end to the vane for the purpose of bracing the latter.

The projection of the plates 7 in a substantially parallel direction from the rear of 90 the semi-cylindrical front of the upper ventilator member assists the vane 35 to rotate the upper member. Furthermore, these sides give such direction to the wind as will enable it to act to advantage upon the out- 95 let, to produce a partial vacuum near the discharge end of the ventilator and thus facilitate the exhaust of air therethrough.

Having thus described my invention, what 100 I claim is:

1. In a ventilator, the combination of a fixed lower air-conducting member having a circular upper end, an upper rotary air-conducting member having a circular lower 105 end and a lateral discharge outlet, a bearing plate of relatively small diameter within the upper member and carried by the lower member and having a central bore substantially coincident with the axis of rotation 110 of said upper member, a complementary bearing plate carried by the upper rotary member and having a central bore registering with the former bore, anti-friction devices between said plates and surrounding 115 said bores, a tube extending through the bore of the lower bearing plate and connected to the upper plate and depending from the bearing, damper mechanism for said outlet, and a flexible damper operating 120 device extending through said tube and operatively connected to said damper mechanism.

2. A ventilator having an outlet opening and a plurality of louvers therefor, said 125 louvers being pivoted off center to opposite sides of said opening and tending to normally close, a rod connecting the outer edges of all of said louvers, an arm projecting upwardly from and pivotally connected to the 130

vertical central portion of the uppermost louver of the series, a link connecting the upper end of said arm and the front edge of said louver, and operating means connected to the upper end of said arm.

3. In a ventilator, the combination of a fixed lower air-conducting member having a circular upper end, an upper rotary air-conducting member having a lateral discharge outlet and a circular lower end, damper mechanism for said outlet, an anti-friction bearing of relatively small diameter within the upper member, above the bottom thereof and supporting the upper member from the lower member, a tube extending from said bearing and being substantially coincident with the axis of rotation of the upper member, and an operating device extending through said tube and connected to said damper mechanism.

4. In a ventilator, the combination of a fixed lower air-conducting member having a circular upper end, an upper rotary air-

conducting member having a circular lower end and a lateral discharge outlet, a bearing plate of relatively small diameter within the upper member and carried by the lower member and having a central bore substantially coincident with the axis of rotation of said upper member, a complementary bearing plate carried by the upper rotary member and having a central bore registering with the former bore, anti-friction devices between said plates and surrounding said bores, a tube extending from the lower plate and constituting an extension of said bores, damper mechanism for said outlet, and a flexible damper operating device extending through said tube and operatively connected to said damper mechanism.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

DENTON K. SWARTWOUT.

Witnesses:

J. B. HULL,
BRENNAN B. WEST.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."