Oct. 16, 1928. 1,687,843

A. O. MILLER

VENTILATOR

Filed March 30, 1927

Fig. 2

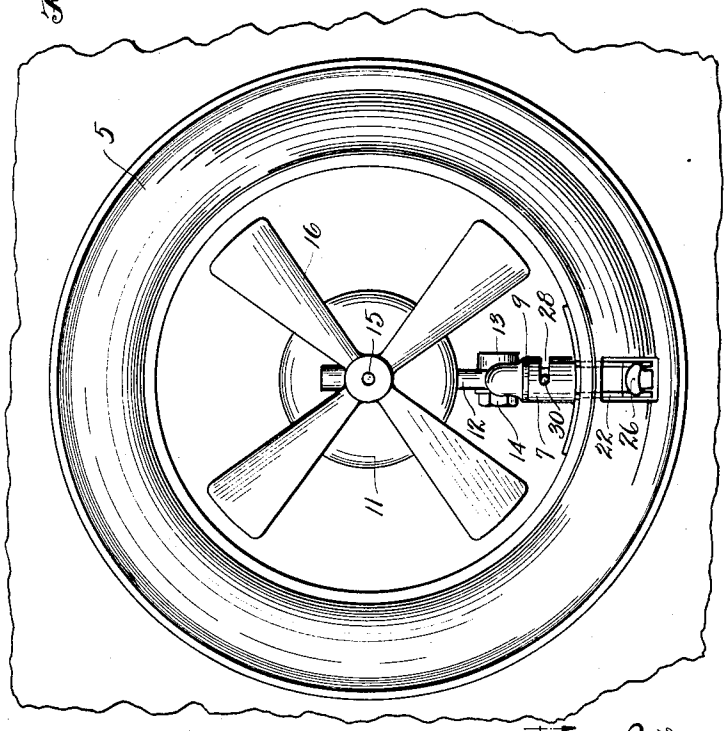


Fig. 3

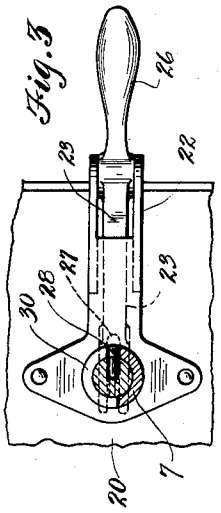
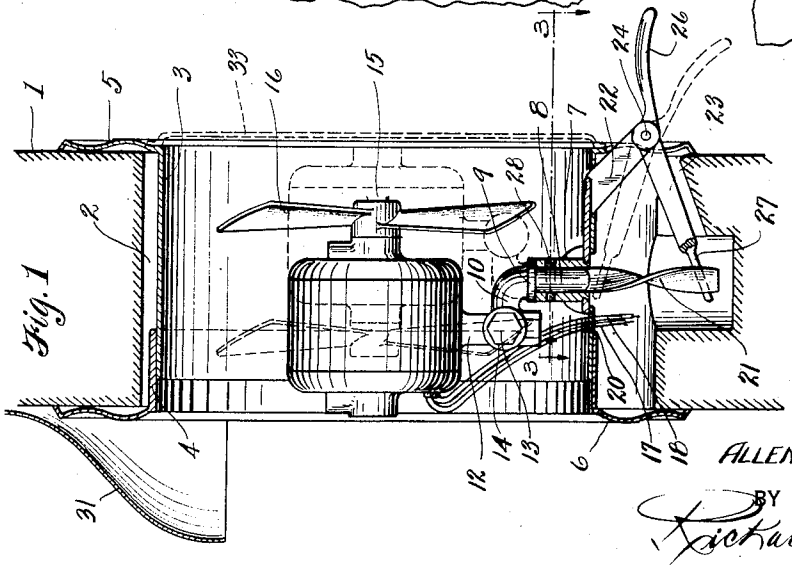


Fig. 1



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UNITED STATES PATENT OFFICE.

ALLEN O. MILLER, OF SEATTLE, WASHINGTON.

VENTILATOR.

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This invention relates to improvements in ventilators, and more particularly a ventilator of that type consisting of a fan or blower that is located within a wall opening and is operable for the purpose of driving air into or for drawing air from a room through said opening.

The principal object of the present invention is to provide a ventilator of the above character wherein the fan blower is fixed on the shaft of a driving motor that is mounted by a revoluble support to which means is connected for adjusting it to different positions at which the fan will operate to force air into or draw it from the room.

Another object of the invention is to provide a longitudinally adjustable casing for the fan and motor, that adapts it for use in walls of different thicknesses.

A still further object is to provide means of a novel character for reversing the position of the motor and fan for the purpose of reversing the direction of the air current through the opening in which the fan is located.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical, sectional view through a wall opening in which a ventilator mechanism embodied by the present invention is located.

Figure 2 is an end view of the same.

Figure 3 is a horizontal section taken on the line 3—3 in Figure 1, illustrating the bearing in which the motor support revolves and the means whereby the support is limited in its rotative movement.

Referring more in detail to the drawings—

1 designates a building wall having an opening 2 therein that is lined with a sheet metal thimble comprising inner and outer sections 3 and 4; these sections, at their inner ends, being fitted telescopically one within the other in order that the length of the thimble may be adjusted in accordance with the thickness of the wall in which it is used, and, at their outer ends, the sections have integrally formed collars 5 and 6 of an ornamental character adapted to fit flatly against the inner and outer surfaces of the wall about the opening 2.

Fixed vertically within the thimble at the bottom of section 3, is a tubular bearing 7 in which a post 8 is revolubly supported by means of a collar 9 that is formed about its upper end, and which seats upon the upper end of the bearing. The upper end of the post is provided with a laterally turned arm 10 on which a small electric motor 11 is mounted; the motor casing having a depending lug 12 at its under side that is fixed to the end of the arm 10 by means of a bolt 13 extended through the arm and through the lug, with a nut 14 threaded thereon to secure the parts together.

The motor is supported coaxially of the thimble and fixed on the motor shaft 15 is a blower fan 16. The motor is of that type that revolves in one direction only and it is connected electrically to a source of electricity by means of the circuit wires 17 and 18 which extend from the motor through an opening 20 at the base of the thimble. The motor and fan are contained entirely within the thimble opening and the fan is of such diameter that its position within the thimble may be reversed by rotative movement of the motor support without its blade coming in contact with the thimble.

Fixed rigidly to the lower end of the post 8, which mounts the motor, is a downwardly extending metal strap 21′ that is given a spiral twist of one hundred and eighty degrees, and fixed to the bearing member 7 and extending downwardly therefrom, is a bracket 22 to which a lever 23 is pivotally attached by means of a pin 24. One end of this lever extends from the wall and at its outer end is provided with a gripping piece 26 whereby the lever may be actuated upwardly or downwardly, and at its inner end the lever has a slot 27 that receives the twisted plate slidably, but not rotatably, therein. If the motor and fan are in the positions as shown in full lines in Figure 1, and it is desired to reverse the direction of the air current delivered through the opening by the operation of the fan, the lever is pressed downwardly so that its inner end moves upwardly on the spiral strip, causing the latter to be revolved through an arc of one hundred and eighty degrees, thereby reversing the position of the fan and motor to the positions in which they are shown in dotted lines in Figure 1. The rotative movement of the mounting post of the motor is limited by means of a pin 28 that is fixed in the post

and which extends into a slot 30 in the bearing, the slot extending about the bearing sufficient length to permit movement of the post through a one-half turn.

A hood or canopy of a suitable character, as designated at 31, may be fixed to the outside of the wall over the opening as a means of preventing rain from falling into the thimble opening. Also, a suitable door, as at 33, may be hingedly fixed to the inside of the thimble to close the opening when this is desired.

Assuming the device to be so constructed, with the motor in the position shown in full lines in Figure 1, air will be driven by the fan into the room. When it is desired to exhaust air from the room, the position of the fan and motor are reversed by pressing downwardly on the thumb piece of the lever, thus causing its slotted end to travel up on the spiral plate causing it to rotate and direction of the fan to be reversed so that the air is driven in the opposite direction.

Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent, is:

1. A ventilator comprising a thimble applicable to a wall opening, a motor supporting means rotatably fixed within the thimble, a motor mounted by said supporting means, a fan fixed to the motor shaft for driving an air current through the thimble and a lever connected with the supporting means operable from without the thimble for reversing the position of the motor support and motor as a means of reversing the direction of the air current.

2. A ventilator comprising a thimble applicable to a wall opening, a bearing sleeve fixed to the thimble wall, a post rotatably mounted in the bearing, a motor supported within the thimble from the inner end of the post, a fan fixed to the motor shaft and operable thereby for driving an air current through the thimble, and a lever connected with the lower end of the post and operable from outside the thimble for rotating the post to reverse the position of the motor as a means of reversing the direction of the air current through the thimble.

3. A ventilator comprising a thimble that is applicable to a wall opening, a bearing sleeve fixed to the thimble wall, a post rotatably mounted in said bearing with one end extending into the thimble and its other end extending outside the thimble wall and terminating in a flattened, spirally twisted shank, a motor mounted by the inner end of the post, a fan fixed to the motor shaft and operable thereby to drive an air current through the thimble, a pivotally supported lever having its inner end slotted to slidably receive the flattened shank and its opposite end providing an actuating portion whereby the slotted end of the lever may be made to travel lengthwise of the shank to cause it to be rotated for the purpose of reversing the position of the motor as a means of changing the direction of the air current through the thimble.

4. A ventilator comprising a thimble that is applicable to a wall opening, a bearing sleeve fixed to the thimble wall, a post rotatably mounted in the bearing with one end extending into the thimble and its other end extending outside the thimble wall and terminating in a spirally twisted, flattened shank, a motor mounted on the inner end of the post, a fan fixed to the motor shaft and operable thereby to drive an air current through the thimble, a bracket fixed to the thimble wall at the outside thereof, a lever pivotally mounted on the bracket having a slotted end slidably receiving the spiral shank and having an actuating outer end portion whereby the slotted end may be caused to travel along the spiral shank to cause it to be rotated as a means of reversing the position of the motor as a means of changing the direction of the air current.

5. A ventilator comprising a thimble that is applicable to a wall opening, a bearing sleeve fixed to the thimble wall, a post rotatably mounted in the bearing with one end extending into the thimble and its other end extending outside the thimble wall and terminating in a spirally twisted, flattened shank, a motor mounted on the inner end of the post, a fan fixed to the motor shaft and operable thereby to drive an air current through the thimble, a bracket fixed to the thimble wall at the outside thereof, a lever pivotally mounted on the bracket having a slotted end slidably receiving the spiral shank and having an actuating outer end portion whereby the slotted end may be caused to travel along the spiral shank to cause it to be rotated as a means of reversing the position of the motor as a means of changing the direction of the air current and means for limiting the rotative movement of the post in opposite directions so that the shaft of the motor will be coaxial of the thimble when at either limit.

6. A ventilator comprising a thimble that is applicable to a wall opening, a bearing sleeve fixed to the thimble wall, a post rotatably mounted in the bearing with one end extending into the thimble and its other end extending outside the thimble wall and terminating in a spirally twisted, flattened shank, a motor mounted on the inner end of the post, a fan fixed to the motor shaft and operable thereby to drive an air current through the thimble, a bracket fixed to the thimble wall at the outside thereof, a lever pivotally mounted on the bracket having a slotted end slidably receiving the spiral shank and having an actuating outer end portion whereby the slotted end may be

caused to travel along the spiral shank to cause it to be rotated as a means of reversing the position of the motor as a means of changing the direction of the air current, said bearing sleeve having a circumferentially directed slot therein and said post having a pin fixed therein and movable in said slot and adapted to limit the rotative movement of the post in opposite directions so that the motor shaft will be coaxial of the thimble when at either limit.

Signed at Seattle, Washington, this 5th day of March, 1927.

ALLEN O. MILLER.