W. MEHLHOSE.

ELECTRIC VENTILATOR.

APPLICATION FILED APR. 29, 1908.

955,089. **Patented Apr. 12, 1910.**

Fig. 1.

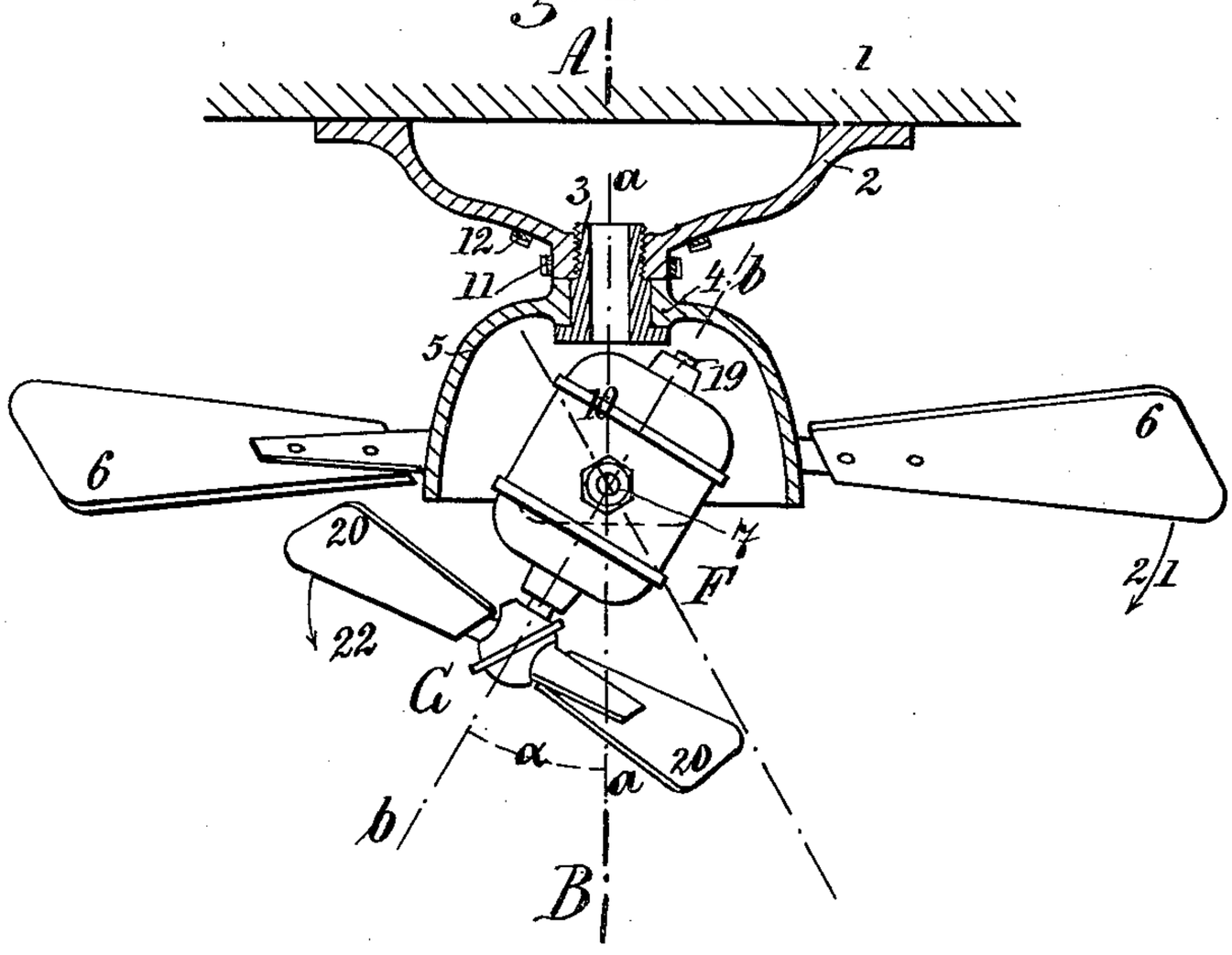
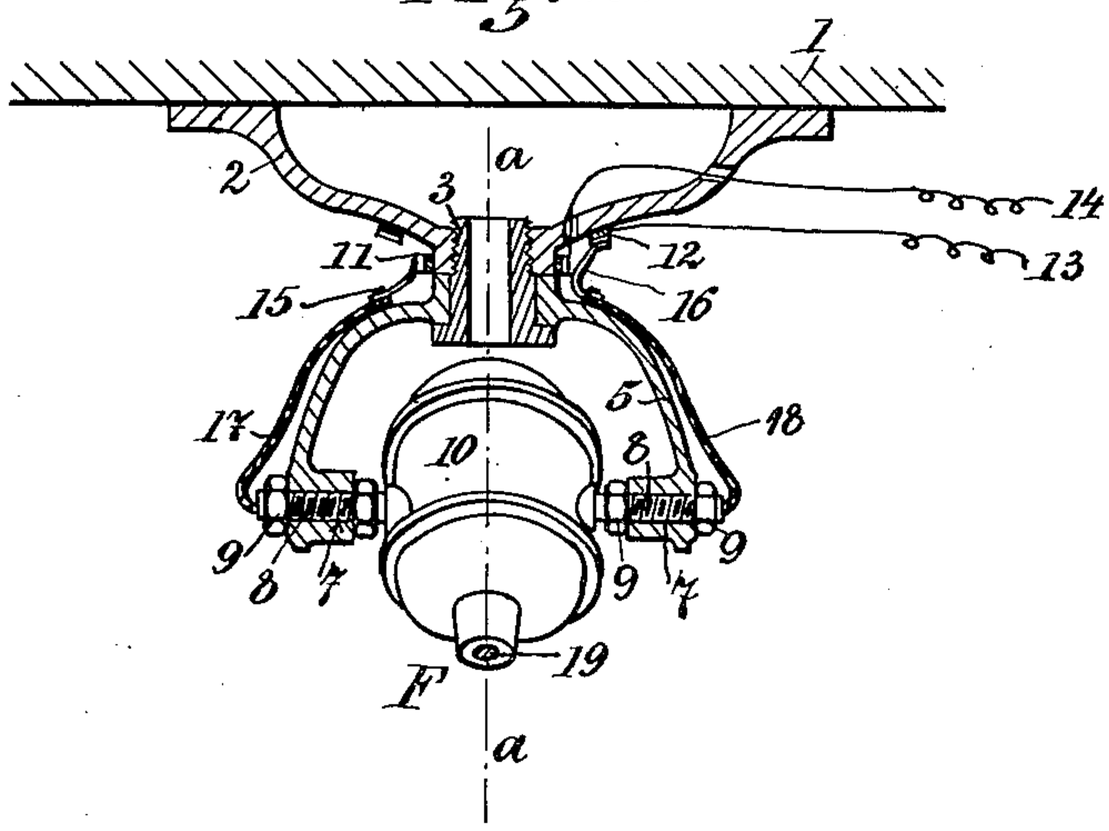


Fig. 2.



Witnesses
Willy Köhler
J. P. Davis

Inventor
Wilhelm Mehlhose
By Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

WILHELM MEHLHOSE, OF CHARLOTTENBURG, GERMANY.

ELECTRIC VENTILATOR.

955,089. Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed April 29, 1908. Serial No. 429,933.

To all whom it may concern:

Be it known that I, WILHELM MEHLHOSE, a citizen of the Empire of Germany, residing at Charlottenburg, in the Empire of Germany, have invented a new and useful Electric Ventilator, of which the following is a specification.

My invention relates to an electric ventilator consisting of an electromotor and two fans, of which one is fastened on the armature shaft of the electromotor, while the other fan is mounted on a suspended support to turn around a vertical axis and is adapted to carry within its bell-shaped nave the casing of the electromotor. The bell-shaped nave of the second fan is so arranged, that the casing of the electromotor can be turned around a horizontal axis at right angles to the armature shaft and be adjusted in any position. When the current passes through the electromotor, not only the armature shaft with the second fan will rotate in one direction, but also the casing of the electromotor is permitted to rotate in the opposite direction. Of the two fans one is preferably made to rotate more rapidly than the other one. The fan connected with the motor casing is in general made larger and to rotate less rapidly than the other fan.

I will now proceed to describe my invention with reference to the accompanying drawing, in which—

Figure 1 is a vertical longitudinal section through a suspended support and the bell-shaped nave of one fan and the elevation of an electromotor and another fan, and Fig. 2 is a vertical cross section through the line A—B in Fig. 1, the lower end of the armature shaft with the second fan being omitted.

Similar characters of reference refer to similar parts in both views.

1 denotes the ceiling or the like of some room to be ventilated. A suitable disk 2 is suspended from the ceiling 1 or the like and carries a hollow bearing 3, on which the nave proper 4 of a large fan E is mounted to turn. The nave 4 is made in one piece with a bell 5 on which the wings 6, 6 of the fan E are fastened in any known manner. The bell 5 is provided with two opposite perforations 7, 7, and in these perforations 7, 7 two supporting screws 8, 8 are disposed, which are secured by means of nuts 9, 9. The two screws 8, 8 may be at one end either pointed or provided with a concave end face and are arranged for engaging in suitable recesses on the casing 10 of an electromotor F.

The inclined line *b*—*b* in Fig. 1 illustrates for example an extreme position of the armature shaft 19 of the electromotor F, it forming an angle *a* with the vertical axis *a*—*a* of the large fan E. In Fig. 2 the axis of the electromotor F is shown as placed in the central plane of the fan E, so that the two axes *a*—*a* and *b*—*b* in Fig. 1 cut each other. When the armature shaft 19 is turned into the vertical line *a*—*a*, its axis will coincide with that of the large fan E. At the lower end of the armature shaft 19 is fastened a small fan G.

The electric current is supplied to the electromotor F in any known manner. For example two concentric contact rings 11 and 12 may be disposed on the disk 2 and insulated therefrom, while they are electrically connected with the two lines 13 and 14. Two sliding contact springs 15 and 16 may be disposed on the bell 5 and arranged to bear on the two rings 11 and 12 respectively, while they are electrically connected with the electromotor F by means of two lines 17 and 18 passing through longitudinal bores of the screws 8, 8 and insulated therefrom.

When the current is passed through the electromotor F, its armature shaft with the fan G will rotate in one direction, while the casing of the electromotor F being at liberty to move will cause the fan E to rotate in the opposite direction, since the casing drives the bell 5 of the fan E with the horizontal component of its tangential force exerted upon the screws 8, 8. As the axis of the armature shaft 19 of the electromotor F is adjusted in any angular position with regard to the bell 5 of the fan E and is obliged to partake in the movement of the latter, it follows that during the rotation of the fan E the axis of the armature shaft 19 will describe the mantle of a cone, as indicated by the dotted lines crossing each other in Fig. 1.

The construction of the two fans E and G is immaterial to my invention, the essential point being, that they are preferably made different in diameter. As the wings 20, 20 of the small fan G suffer less resistance from the air than those 6, 6 of the large fan E, the fan G will rotate more rapidly than the large fan E. The wings 6, 6 of the large fan E turning in the direction of the arrow 21 are shown as oppositely

inclined to the wings 20, 20 of the small ventilator G turning in the direction of the arrow 22. If the armature shaft 19 occupies the position shown, the current of air produced by the small fan G will constantly change its direction, since the axis of the armature shaft 19 describes the mantle of a cone as explained above.

The electric ventilator can be varied in many respects without departing from the spirit of my invention.

I claim:

1. In an electric ventilator, the combination with a support, of a fan mounted on said support to turn and having a bell around its nave, a cased electromotor adapted to rock in the bell of said fan around an axis at right angles to its armature shaft, means adjusting said electromotor in any angular position with regard to said fan, and a second fan fastened on the armature shaft of said electromotor, so that it is adapted to rotate in one direction, while the casing of said electromotor being at liberty to move is adapted to drive said fan in the opposite direction with the component of its tangential force.

2. In an electric ventilator, the combination with a support, of a fan mounted on said support to turn and having a bell around its nave, a cased electromotor adapted to rock in the bell of said fan around an axis at right angles to its armature shaft, means adjusting said electromotor in any angular position with regard to said fan, a second fan fastened on the armature shaft of said electromotor, so that it is adapted to rotate in one direction, while the casing of said electromotor being at liberty to move is adapted to drive said fan in the opposite direction with the component of its tangential force, two conductors connected with said support and insulated therefrom, and electrical devices connecting said electromotor with said two conductors irrespective of the rotation of said fan.

WILHELM MEHLHOSE.

Witnesses:

HENRY HASPER,

WOLDEMAR HAUPT.