

No. 751,484.

PATENTED FEB. 9, 1904.

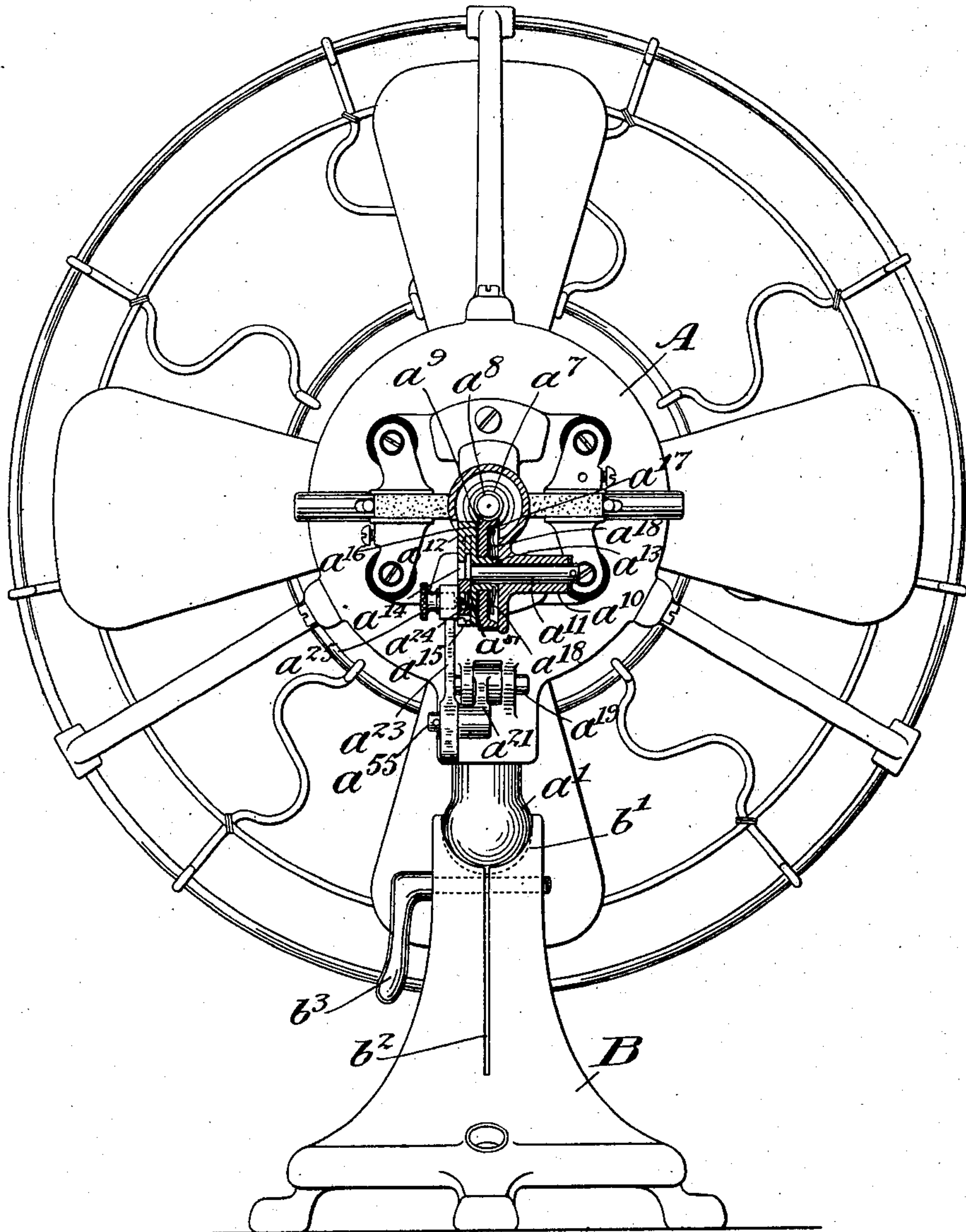
C. A. ECK.
FAN.

APPLICATION FILED APR. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses:
Chas. R. King.
Elliott Marshall

Inventor:
Chas. A. Eck
By his Attorney
J. M. Deeken

No. 751,484.

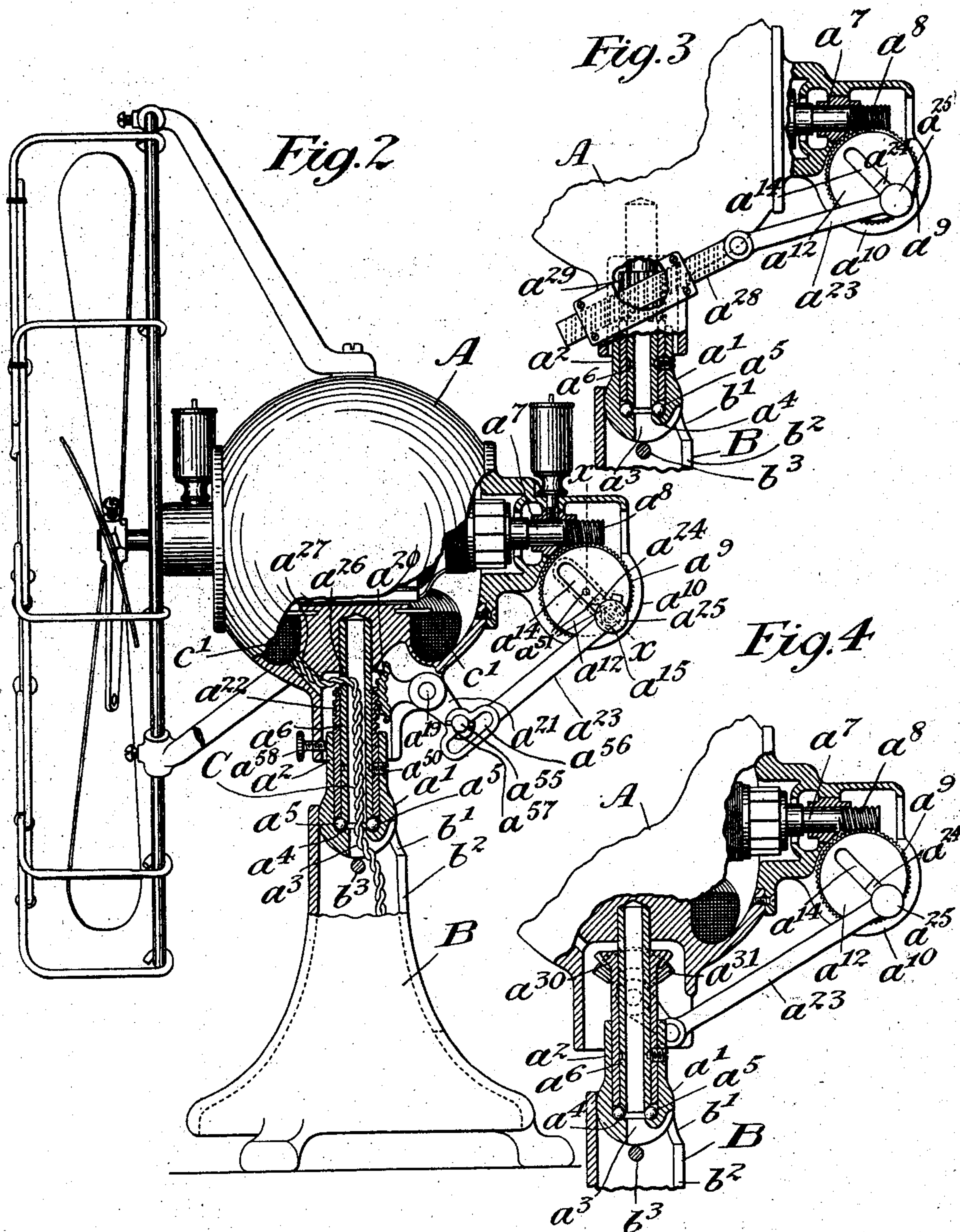
PATENTED FEB. 9, 1904.

C. A. ECK.
FAN.

APPLICATION FILED APR. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

Chas. R. King.

Elliot Marshall

Inventor:

Chas. A. Eck

By his Attorney

✓ J. H. V. Becken

UNITED STATES PATENT OFFICE.

CHARLES A. ECK, OF BELLEVILLE, NEW JERSEY.

FAN.

SPECIFICATION forming part of Letters Patent No. 751,484, dated February 9, 1904.

Application filed April 2, 1903. Serial No. 150,802. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. ECK, a subject of the King of Sweden and Norway, and a resident of Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Fans, of which the following is a specification.

My invention relates generally to fan-motors, and has more particularly reference to means for oscillating the said motor as it rotates.

I shall describe an oscillating fan-motor embodying my invention and afterward point out the novel features in the claims.

The object of my invention is to produce an oscillating fan whose action will be positive at all times and one, furthermore, having an adjustment whereby no oscillation will take place unless so desired.

A further object resides in constructing the parts so that the fan can be adjusted with relation to the base without interfering with the oscillation of the fan.

To this end my invention comprises the hereinafter-described features of construction and combination of parts.

In the drawings I have embodied my invention in suitable forms, but do not wish to be understood as limiting myself to these particular forms.

In the said drawings, Figure 1 is a rear view of a fan embodying my invention with a section through part of the driving mechanism on the line *xx* of Fig. 2. Fig. 2 is a side view of the fan shown in Fig. 1. Figs. 3 and 4 show modifications.

Similar letters of reference indicate corresponding parts in the different views.

A indicates a fan-motor of any suitable construction, but preferably adjustably secured on the hollow base B by suitable means, as the socket *b'*, carried by the said base and the corresponding ball *a'*, forming together a joint by means of which the fan can be tipped or adjusted to different positions at an angle to the base. This said base B is split, as at *b²*, and provided with the tightening device *b³* to hold the fan securely after it has been adjusted to the desired position.

The ball *a'* is provided with an extension *a²*,

the said ball and extension being provided with a vertical passage *a³*, formed with a seat *a⁴*. Resting upon the balls *a⁵* in this seat is a hollow spindle *a⁶*, carrying the fan-motor A, which in this way is mounted to turn.

The fan-motor carries upon its armature-shaft *a⁷* a worm *a⁸*, engaging with the worm-wheel *a⁹*. Mounted in the bearing *a¹⁰* is a shaft *a¹¹* at right angles to the armature-shaft. Upon this shaft is located a disk *a¹²*, carrying a bushing *a¹³* and provided with a slot *a¹⁴*, open at one end *a¹⁵*. The worm-wheel *a⁹* is mounted in the bushing *a¹³* and is interposed between two very thin insulation disks *a¹⁶* and *a¹⁷*, made, preferably, of vulcanized fiber material, which, with the worm-wheel, are held up against the slotted disk *a¹²* by means of the springs *a¹⁸* on the bushing *a¹³*, the resultant friction being sufficient to rotate the disk *a¹²* with the worm-wheel *a⁹*. Mounted in the framework of the motor and upon the pin *a¹⁹* is a segment *a²⁰*, provided with an arm *a²¹* and engaging with a spiral *a²²*, fixed to the extension *a²* of the ball *a'* by means of the screw *a²³*, so that the said spiral is fixed with the base. The arm *a²¹* carries a pin *a²⁴*, entering the slot *a¹⁴*, having an aperture *a²⁵*, of the rod *a²⁶*, which is loosely connected with a block *a²⁷* at its other end, which in turn is adjustable in the slot *a¹⁴* by means of the screw *a²⁸* and holes *a²⁹*. From this it will be understood that the rotation of the armature-shaft *a⁷* causes the worm *a⁸* to impart its motion to the worm-wheel *a⁹*, which in turn by friction rotates the disk *a¹²*, thereby causing the segment *a²⁰* to oscillate the fan-motor by engaging with the fixed spiral *a²²*. By adjusting the position of the block *a²⁷* the distance of the oscillation can be varied, or the oscillation can be entirely obviated by moving the block *a²⁷* to the center of the disk *a¹²*. The speed of the oscillation will of course depend on the speed of the rotation of the fan-motor. In case the block *a²⁷* is placed central of the disk *a¹²*, as noted above, the rotation of the worm-gear and disk will of course continue, though no oscillation will take place, and in case the fan-motor should by accident encounter any obstruction as it turns from side to side the result would not in any way stop the rotation of the motor or disturb the

operating parts, as the worm-wheel would continue to rotate, while the disk a^{12} would remain stationary, owing to the fact that the said disk is operated by friction only. The motor is thus oscillated positively by the means set forth, which are operated by the rotation of the armature-shaft, and the oscillating means except the fixed gear on the ball a' oscillate with the fan-motor. In order that the wiring may not interfere with the proper operation of the means of oscillating the fan, the wires C are carried up through the hollow base B, through the passage a^3 , hollow spindle a^6 , through the opening a^{26} in the latter, and through the passage a^{27} to the field-coils c' .

In Fig. 3 is shown a modification in which I employ a rack a^{28} and pinion a^{29} in place of the spiral and segment shown in Fig. 2. In Fig. 4 I have shown still another modification in which I employ a bevel-gear a^{30} and a bevel-segment a^{31} .

Other modifications could of course be used.

When it is desired to have a non-oscillating fan and to adjust the fan-motor around its axis with relation to the base, the pin a^{55} is disengaged from the aperture a^{57} and allowed to rest loosely in the slot a^{56} , the block a^{24} having previously been placed central of the disk a^{12} , as hereinbefore explained. This permits the fan-motor to be adjusted by turning the spindle a^6 , which is then secured in position by the screw a^{58} . When it is desired to have the fan oscillate again, the screw a^{58} is loosened and the block a^{24} moved away from the center of the disk a^{12} . The action of the motor will then move the rod a^{23} until the pin a^{55} enters the aperture a^{57} , when the motor will commence to oscillate again.

Having thus described my invention, what I claim is—

1. The combination with a base, of a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on said motor, a worm carried by the same, a worm-wheel engaging with said worm, a gear stationary with the base, a gear moving with the fan-motor engaging with the first-mentioned gear, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the gear moving with the motor, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

2. The combination with a base, of a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on

said motor, a worm carried by the same, a worm-wheel engaging with said worm, a spiral stationary with the base, a segment moving with the fan-motor engaging with the spiral, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the segment, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

3. The combination with a base, a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on said motor, a worm carried by the same, a worm-wheel engaging with said worm, a gear stationary with the base, a gear moving with the fan-motor engaging with the first-mentioned gear, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the gear moving with the motor and adjustably secured to the said friction-disk, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

4. The combination with a base, of a fan-motor mounted to turn upon the said base, an armature-shaft carried by the motor, and means for oscillating the said motor with relation to the base comprising in part: a worm carried by the armature-shaft, a shaft located at right angles to the armature-shaft, a friction-disk having a bushing on said shaft, a worm-wheel and two insulation-disks between which latter it is interposed on said bushing, the worm-wheel engaging with the worm aforesaid, and springs on said bushing for keeping the worm-wheel and composition disks in contact with the friction-disk whereby the said friction-disk moves with the worm-wheel.

5. The combination with a base and fan-motor having an armature-shaft and mounted to turn with relation to the base, of means for oscillating the said fan-motor from the armature-shaft of same comprising: a gear fixed with relation to the base, a segment engaging with the same mounted on the fan-motor, an arm and a pin on the segment, a rod having a slot with an aperture for the reception of the pin of the segment, and gearing connecting said rod with the armature-shaft of the motor.

Signed at Belleville this 17th day of March, 1903.

CHARLES A. ECK.

Witnesses:

JOHN C. LA FAUCHERIE,
AXEL V. BEEKEN.