To all whom it may concern:

Be it known that I, Evrah C. Lipps, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Oscillating Desk-Fans; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to provide a rotary fan with simple and highly efficient means for deflecting the flow of air to one side of the revolving blades so as to unbalance the air pressure on the front of such blades and cause the fan to rotate around its vertical axis, such means being automatically shifted so that the fan support will travel first in one direction and then in the other.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation. Fig. 2 is a side view with parts shown in dotted lines. Fig. 3 is a plan view, with parts omitted.

Referring to the drawings, 1 designates a rotary fan, and 2 the armature shaft of a motor whose casing is pivotally supported by a vertical shaft 3 mounted in a tubular portion 4 located in a base 5. Said tubular portion at its bottom has a disk 6 of hardened material forming a rest for a ball 7 upon which bears the lower counterbored end of shaft 3. The motor casing carries a depending cylindrical portion which surrounds the upper reduced end of the base 5, the latter being formed with a circumferential groove to receive the end of a guiding screw 8. This depending portion of the motor casing carries two flat collector rings 9 each designed to have a sliding contact with electric terminal 10 mounted in the top of the base. These terminals are in the form of carbon brushes and are normally projected by coil springs 12. In this way a sliding contact is had between the base and the pivoted motor casing, friction being reduced to a minimum, and all wear compensated for by the lifting action of the springs.

13 designates a guard-frame, of known construction, secured to and carried by the motor casing. In the front of this frame, in line with the vertical axis of the fan, is a rod 14 55 upon which is secured a vane 15, such vane being of concavo-convex formation in cross section, and secured to said rod along its longitudinal center. The rod 14 has its bearings in the guard frame, and at a point beneath the vane carries a rearwardly projecting arm 16 which extends into a loop 18 carried by a rock shaft 19 mounted on the underside of the guard frame and projecting beyond the rear thereof a sufficient distance to accommodate a collar 20 having two arms 21, 22, and carrying a weight 23, the purpose of which is to hold the vane in either of its two positions. The weight does not in any way obstruct the air drawn in by the revolving fan blades, being below the plane of rotation of the latter.

24, 25 are two posts extending from the bottom of base 5 in line, respectively, with the arms 21 and 22 on the rock shaft 19, and act as tappets therefor.

One of the positions of the vane relative to the fan is indicated in Figs. 1 and 3, one side of the vane extending away from the plane of the vertical axis of the fan-support a greater distance than the other side of the vane, with the result that a portion of the air current discharged by the rotating fan will be deflected to one side of the latter and cause the fan and its support to rotate on their vertical axis. As the motor rotates, by the unbalancing of the air-pressure, the direction of its movement is changed by the reversal of the position of the vane, such reversal being effected by the alternate engagement of arms 21 and 22 with their respective posts 24 and 25. As these arms strike their respective posts, the shaft 21 is turned axially, causing the partial axial turning of the vane-supporting rod, together with the vane, the latter being held in either of its positions by the weight on the rock shaft.

It will be noted that the pivot rod of the vane intersects the axis of the fan, with the result that the vane interferes but little with the currents of air. The difference in the extent to which the vane, in either position, projects away from the plane of its axis (which is the same as the vertical axis of the fan-support) serves to sufficiently unbalance the air-pressure, deflecting the flow of air to one side thereof, and causing the continuous oscillation of the motor on its vertical axis.
I claim as my invention:

1. The combination with a fan, and a movable-support therefor, of a vane carried by said support in the path of the current of air from the fan, and means for automatically changing the position of said vane for alternately presenting the opposite edges of the same side thereof to the current of air, thereby deflecting a portion of the current and causing the fan and its support to alternately move in opposite directions.

2. The combination with a fan, and a movable-support therefor, of a vane curved transversely throughout its length and pivoted to said support along the line of its longitudinal center, said vane being located in the path of the current of air, and means for automatically turning said vane on its axis for alternately presenting the opposite edges of the same side thereof to the current of air.

3. The combination with a fan, a movable-support therefor, and a guard for the fan carried by said support, of a vane, a rod pivoted in said frame and to which said vane is secured, a rock shaft engaging said rod, arms carried by said rock shaft, stops or posts with which said arms are designed to engage for rocking said shaft, and a weight on the latter for holding the vane in its different positions.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

EVRAH C. LIPPS.

Witnesses:

L. C. TENNEY,
D. A. GILLMER.