B. A. STOWE.

OSCILLATING FAN.

APPLICATION FILED MAR. 24, 1909.

1,012,110.

Patented Dec. 19, 1911.

2 SHEETS—SHEET 1.

Fig. 1

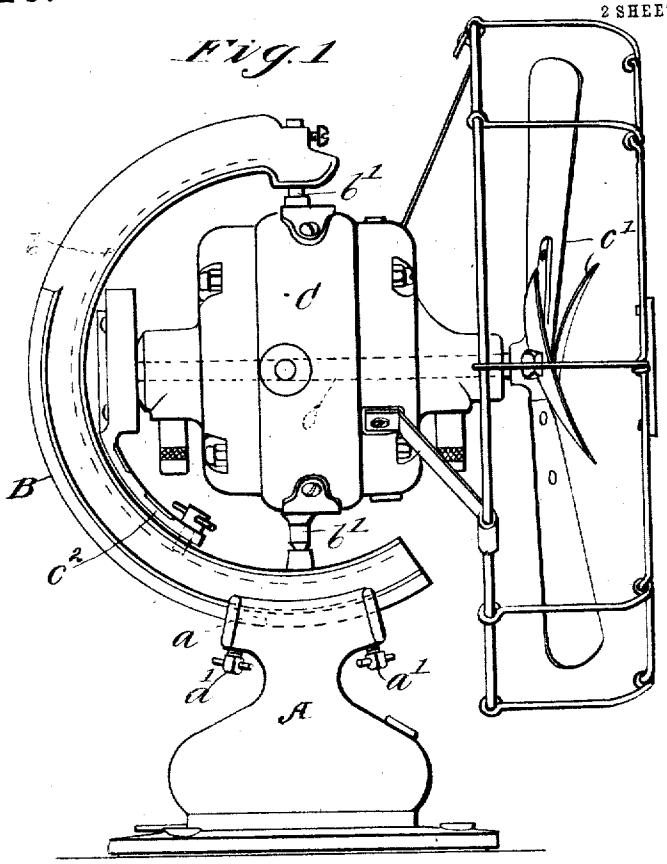


Fig. 2

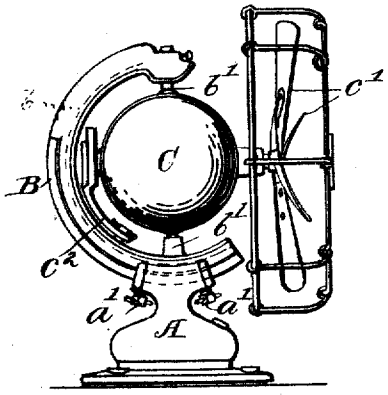
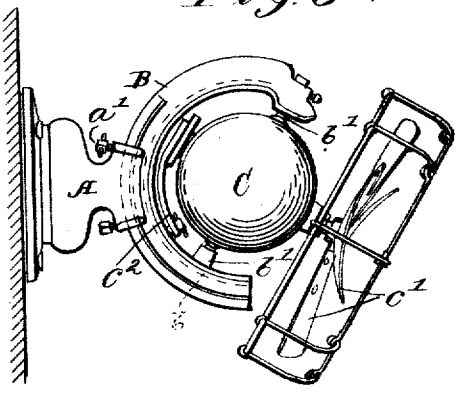


Fig. 3



Witnesses:

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Jno. F. Oberlin

Inventor:

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2 SHEETS-SHEET 2.

Fig. 4

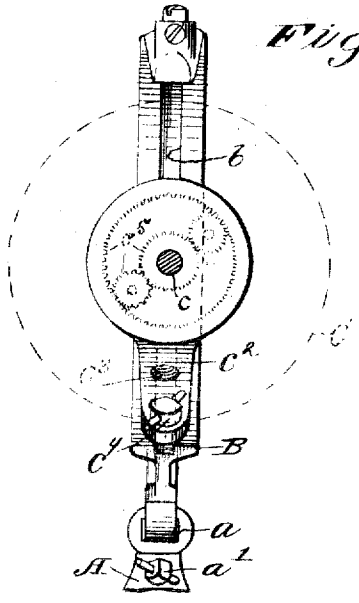


Fig. 5

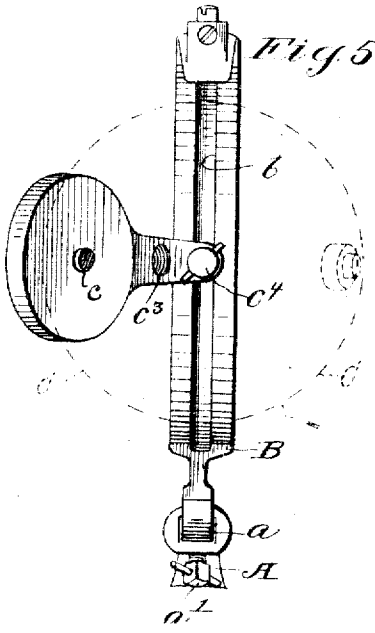


Fig. 6

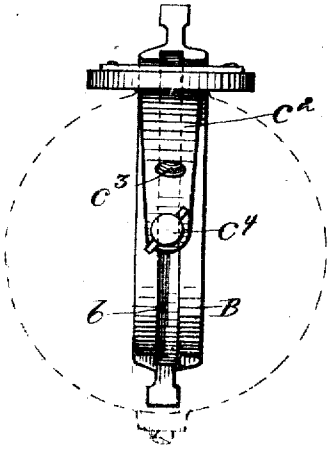
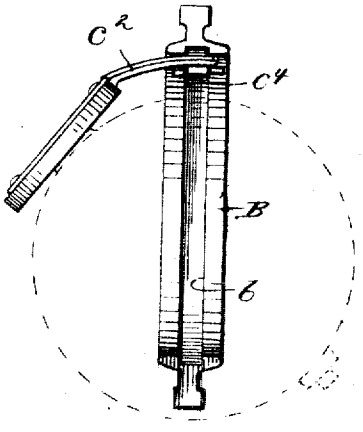


Fig. 7



Witnesses:

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UNITED STATES PATENT OFFICE.

BERNARD A. STOWE, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ADAMS-BAGNALL ELECTRIC COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

OSCILLATING FAN.

1,012,110. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed March 24, 1909. Serial No. 485,465.

To all whom it may concern:

Be it known that I, BERNARD A. STOWE, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Oscillating Fans, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The superiority of an oscillating, over a simple stationary, fan for the purpose of cooling and effecting a circulation of the air in offices and other rooms, is well recognized. Considerable difficulty has been encountered, however, in providing positive means for securing such oscillation while still permitting adjustment of the fan, so as to enable the current of air excited thereby to be directed in any desired direction, or rather plane.

The object of the present invention, is the provision of a fan, that, while positively oscillated, is nevertheless susceptible of such adjustment, and in addition is adapted for use either resting on a table, desk or like horizontal support, or secured to a vertical support, as a wall.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described, and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one, of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a side elevation of an improved construction of electrically driven fan embodying my several improvements; Figs. 2 and 3 respectively illustrate on a smaller scale, the manner of mounting said fan on a horizontal and on a vertical support; Figs. 4 and 5 are front elevational views of the frame constituting a feature of the construction of my improved fan in different operative positions respectively; while Figs. 6 and 7 are similarly horizontal sectional views of said support, showing certain parts in different operative positions respectively.

The base A of the fan, to which the leads for conducting current to the fan motor are attached, and wherein is included a suitable switch device, may take on any form, ornamental or otherwise that the fancy of the designer may direct. Said base is adapted, however, as shown in Figs. 2 and 3, either to rest upon a horizontal support or to be secured by screws or the like to a wall or other vertical support. Said base is further provided with an undercut slot a forming a seat and adapted to receive a curved support B wherein the fan C proper is mounted. The support B is substantially semi-circular in form, and is formed on its outer face with a rib slidably fitting such seat a and on its inturned face with a groove or way b constituting a guide for a purpose that will be presently described. In conjunction with the seat a in the base, set-screws a' or like clamping means are provided, whereby said semicircular support may be secured at any desired point about its periphery, effecting a corresponding change in its angular inclination and in the position of the fan C carried thereby.

The casing of the fan motor, in the present instance an electric motor, (shown as an alternating current motor in Fig. 1, and as a direct current motor in the remaining figures of the drawings), is pivotally held in support B by pins b' alined with a diameter of the circle to which the support, and the way b formed therein, conform. The axis of the motor shaft c upon the forward end of which is mounted the fan c' proper likewise coincides with a diameter of said circle at right angles to such first diameter. Upon the end of the casing opposite the fan, which end freely moves across the support B is rotatably mounted an arm c^2 that is curved to lie close to the way or inturned face of the support when alined therewith. Said arm is connected to be rotated by the same motor shaft c, upon the forward end of which is mounted the fan, and, since the latter will ordinarily require to be driven at a higher rate of speed than is desirable for the rotation of this arm (having in view its function, which will now be explained) suitable reduction gearing c^5, is interposed between the shaft and the arm. This gearing may obviously take on any form adapted for the

purpose, and that indicated in dotted outline in Fig. 4 is intended to be merely illustrative, but the preferable gearing is that disclosed in the U. S. patent of B. A. Stowe, assignor, No. 988,043, March 28, 1911. Arm c^2 has a plurality of apertures c^3, shown as two, located at different radial distances from its axis of rotation, and by means of a pin c^4 that may be optionally secured in either of said apertures, said arm may be eccentrically connected with the way b on the inturned face of support B. As a result of such eccentric connection, rotation of the arm, will be obviously effective to impart an oscillatory movement to the motor casing about its own pivotal axis. Figs. 4 to 7, inclusive, will it is thought, clearly indicate the character of the movement thus secured. In Figs. 4 and 6, the arm is vertically disposed, that is alined with support B just as in Fig. 1, while in Figs. 5 and 7 such arm appears horizontally extended to one side of the support. In a complete rotation, of course it assumes, in addition to these positions, an upwardly extending vertical position and a horizontal position in which it extends oppositely to that shown in the last named figures. As said arm assumes such respective horizontal positions the rear end of the motor casing is of course laterally displaced, or rather oscillated, as will be readily understood. Not only is the oscillatory movement of the fan casing a positive one, but a quiet and easy one as well, while the amplitude of the arc through which such oscillation takes place may be readily varied by adjustment of the pin c^4, wherewith engagement between the arm and the way b is secured. It will be equally clear that this oscillation will not be interfered with by any variation in the angular disposition of the support B in the seat provided therefor in base A, nor by the location of the latter, whether on a vertical or horizontal support.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. An oscillating fan, comprising a support formed with a guide, a casing oscillatorily mounted on said support, and a rotatable member carried by said casing and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said casing.

2. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, and a member mounted on said casing so as to be rotatable about an axis at an angle to such diameter and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said casing.

3. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a driving shaft mounted in said casing and bearing a fan at one end, and an arm rotatably mounted upon the other end of said casing about the same axis as said shaft and connected to be rotated thereby, said arm having eccentric engagement with said guide, whereby rotation of said shaft serves to oscillate said casing.

4. An oscillating fan, comprising a support formed with a guide, an electric motor oscillatorily mounted on said support, a member rotatable about the shaft of said motor and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said motor, and reduction gearing connecting such shaft with said member, whereby the former serves to rotate the latter but at a lower rate of speed.

5. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, an electric motor mounted on said support so as to be oscillatory about a diameter of such circle as an axis, the shaft of said motor being disposed at an angle to such diameter, a member rotatable about such shaft and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said motor, and reduction gearing connecting such shaft with said member, whereby the former serves to rotate the latter but at a lower rate of speed.

6. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, an electric motor mounted in said support so as to be oscillatory about a diameter of such circle as an axis, the shaft of said motor being disposed at right angles to such diameter, an arm rotatable about one end of such shaft and having eccentric engagement with said guide, whereby rotation of said arm serves to oscillate said motor, and reduction gearing connecting such shaft with said member, whereby the former serves to rotate the latter but at a lower rate of speed.

7. An oscillating fan, comprising a support formed with a guide, a casing oscillatorily mounted in said support, a rotatable member carried by said casing, and means adapted to eccentrically connect said member with said guide at different radial distances from said member's axis, whereby ro-

tation of said member is adapted to oscillate said casing through arcs of various amplitudes.

8. An oscillating fan, comprising a support formed with a guide, an electric motor oscillatorily mounted on said support, a member rotatable about the shaft of said motor, and means adapted to eccentrically connect said member with said guide at different radial distances from said member's axis, whereby rotation of said member serves to oscillate said motor through arcs of various amplitudes.

9. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a member mounted in said casing so as to be rotatable about an axis at right angles to such diameter, and means adapted to eccentrically connect said member with said guide at different radial distances from said member's axis, whereby rotation of said member is adapted to oscillate said casing through arcs of various amplitudes.

10. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a driving shaft mounted in said casing and bearing a fan at one end, an arm rotatably mounted upon the other end of said casing about the same axis as said shaft and connected to be rotated thereby, and means adapted to eccentrically connect said arm with said guide at different radial distances from said arm's axis, whereby rotation of said arm is adapted to oscillate said casing through arcs of various amplitudes.

11. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a driving shaft mounted in said casing and bearing a shaft at one end, an arm rotatably mounted upon the other end of said casing about the same axis as said shaft, said arm being curved to lie close to said guide when alined therewith and having a plurality of apertures at different radial distances from said shaft; and a pin adapted to be optionally secured in any one of said apertures to eccentrically connect said arm with said guide, whereby rotation of said arm is adapted to oscillate said casing through arcs of various amplitudes.

12. An oscillating fan, comprising a support formed with a guide, an electric motor oscillatorily mounted on said support, a member rotatable about the shaft of said motor, reduction gearing connecting said shaft with said member, whereby the former serves to rotate the latter but at a lower rate of speed, and means adapted to eccentrically connect said member with said guide but at different radial distances from said shaft, whereby rotation of said member is adapted to oscillate said casing through arcs of various amplitudes.

13. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a driving shaft mounted in said casing and bearing a fan at one end, an arm rotatably mounted upon the other end of said casing about the same axis as said shaft, and reduction gearing connecting said shaft with said arm, said arm having eccentric engagement with said guide, whereby rotation of said shaft serves to oscillate said casing.

14. An oscillating fan, comprising a support formed with a curved guide conforming to the arc of a circle, a casing mounted in said support so as to be oscillatory about a diameter of such circle as an axis, a driving shaft mounted in said casing and bearing a fan at one end, an arm rotatably mounted upon the other end of said casing about the same axis as said shaft, said arm being curved to lie close to said guide when alined therewith and having a plurality of apertures at different radial distances from said arm's axis; reduction gearing connecting said shaft with said arm, and a pin adapted to be optionally secured in any one of said apertures to eccentrically connect said arm with said guide, whereby rotation of said arm is adapted to oscillate said casing through arcs of various amplitudes.

15. In a device of the character described, the combination of a base provided with a seat, a curved support slidably held in said seat so as to incline at different angles; means for securing said support in desired position in such seat; an electric fan oscillatorily mounted in said support and an operative connection between said support and fan for positively oscillating the latter.

16. In a device of the character described, the combination of a base provided with an undercut slot forming a seat; a support formed with a rib slidably fitting such seat so as to incline at different angles; means for securing said support in desired position in such seat; an electric fan oscillatorily mounted in said support and an operative connection between said support and fan for positively oscillating the latter.

17. In a device of the character described, the combination of a base provided with an undercut slot forming a seat; a curved support formed with a rib slidably fitting such seat so as to incline at different angles; means for securing said support in desired position in such seat; an electric fan oscil-

latorily mounted in said support, the axis of oscillation of said fan lying in the plane of said support; and an operative connection between said support and fan for positively oscillating the latter.

18. In a device of the character described, the combination of a base provided with an undercut slot forming a seat; a curved support formed with a rib slidably fitting such seat so as to incline at different angles; means for securing said support in desired position in such seat; an electric fan oscillatorily mounted in said support, the axis of oscillation of said fan lying in the plane of said support; and an operative connection between said fan and support for positively oscillating the latter.

19. A fan comprising a base provided with a seat, a curved support mounted on said seat and formed with a guide on its inturned face, means for securing said support at any desired point about its periphery to said seat, a motor casing pivotally mounted in said support, and a rotatable member carried by said casing and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said casing.

20. The combination of a curved guide, a member oscillatory about an axis fixed with respect to said guide, and a second rotatable member borne by said first member and having eccentric engagement with said guide, whereby rotation of said second member serves to oscillate said first member.

21. A fan comprising a base provided with a seat, a curved support mounted on said seat and formed with a guide on its inturned face, means for securing said support at any desired point about its periphery to said seat, a motor casing pivotally mounted in said support, and a member mounted on said casing so as to be rotatable about an axis at right angles to that of said casing and having eccentric engagement with said guide, whereby rotation of said member serves to oscillate said casing.

22. The combination of a curved guide conforming to the arc of a circle, a member oscillatory about a diameter of such circle as an axis, and a second member rotatable about an axis at an angle to such diameter and having eccentric engagement with said guide whereby rotation of said second member serves to oscillate said first member.

Signed by me, this 20th day of March, 1909.

BERNARD A. STOWE.

Attested by—
ANNA L. GILL,
JNO. F. OBERLIN.