



# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FAN.

**SPECIFICATION** forming part of Letters Patent No. 421,014, dated February 11, 1890.

Application filed August 24, 1888. Serial No. 283,681. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. POLK, JR., a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Automatic Fan; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of fans which have spirally-set wings or vanes, which by revolving circulate the air in the immediate vicinity and in a direction parallel with the axis around which they revolve.

The object of this invention is to produce an automatic fan which constantly changes the direction of its axis in regard to its base or support. Upon a standard secured to a suitable base is pivoted a horizontal arm. To this arm is secured at one side of the pivot a suitable motor carrying a fan which revolves in a vertical plane parallel to said arm. By this means the revolving fan, pressing against the air, causes the arm carrying the motor and fan to revolve in a horizontal plane about the support. The air is thereby given a circulation in all directions. The best form of construction is shown in the accompanying drawings, and will be hereinafter fully described, and the parts thought to be new pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of the device, showing the spiral vanes of the fans, an electrical motor, and the arm to which it is attached and the base of the stand to which it is pivoted. Fig. 2 is an elevation of the device, showing most of the operative parts. Fig. 3 is an enlarged side view of one of the binding-posts shown in Fig. 2. Fig. 4 is a section through the upright portion of the stand, showing the manner of pivoting the spindle that carries the operative parts of the device. Fig. 5 is a bottom view of the arm that carries the fan.

In the several views, like reference-marks indicating corresponding parts, A is the base, and B a post that forms the stand or stationary part of the device. Pivoted in the post

of the stand is the spindle C, and to the spindle is attached the arm D. On the arm D is journaled the fan proper, consisting of the spiral vanes E. The vanes E are carried on the shafts of an electrical motor F, that is attached to the arm D by the screw *f*, that passes through one of the holes *f'*. The vanes are shown as attached to the shaft of an electrical motor, as that is the preferred form of motive power; but they may be driven by any other motive power and produce the same result. I will therefore describe the action of the fan and the result and afterward describe the novel features connected with the motive power. The fan being revolved in the direction that will force the air outwardly or in the direction indicated by the arrow, Fig. 1, a reaction will cause the fan and arm and the other parts that are attached to the arm to revolve in a horizontal plane in the direction indicated by the arrow *e*, the result being a circulation of the air in every horizontal direction, the effect being intermittent at any given point. To increase the velocity of the fan around its vertical axis, it is attached to the arm D by means of the screw *f'* at a greater distance from the vertical axis, and at a less distance to decrease its speed of revolution around the axis.

When an electrical motor is used, as shown, non-conducting material A' should be interposed between the base A, if of metal, and the metal flange *b* and post B. The binding-post P is attached to the metal flange *b*, and a connection to the motor of conducting material is established through the post B, the brush J, the angle-piece *j*, the binding-post K, and wire *k*, those parts being electric conductors. The non-conducting piece L is attached to the arm D and carries the angle-piece *j* and the binding-post K and attaches it to the angle-piece. The spindle C runs in a step *c*, that is screwed or otherwise fastened into the non-conducting sleeve *c'* in the post B, and the plate *g* is attached to the non-conducting collar G on the top of the post, thus completely insulating the spindle C from the post B. The spindle C forms a part of the circuit by having attached to it at its top the binding-post M, from which the wire *m* connects with the motor, and is from its bottom connected through the step *c*, the screw *n*, and strap *n'* with the

screw N, which in passing through the flange b is protected by the non-conducting thimble n''. The screw N is connected with the binding-post P by the switch R, which may  
5 be turned around to come in contact with it.

The binding-post P and the switch R should be insulated by the non-conducting piece S, which is interposed between them and the flange b.

10 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an automatic fan, the base A and standard B, the arm D, pivoted upon said standard  
15 so as to be capable of revolving horizontally thereon, the motor adjustably attached to said arm at one side of the pivot, and the horizon-

tal motor-shaft, whereby when the fan is in motion the arm, motor, and fan are revolved about the standard as a pivot. 20

2. In an automatic fan, the base A and standard B, the arm D, pivoted upon said standard so as to be capable of revolving horizontally thereon, and the fan carried by said arm at one side of the pivot and mounted upon a  
25 horizontal shaft, whereby when the fan is in motion the arms, motor, and fan are revolved upon the standard as a pivot.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

W. R. POLK, JR.

Witnesses:

A. P. WOOD,  
ALBERT A. WOOD.