Sept. 27, 1932. J. R. FERGUSON 1,879,150

ROTATING DEVICE FOR FANS

Filed July 8, 1929

FIG. 1.

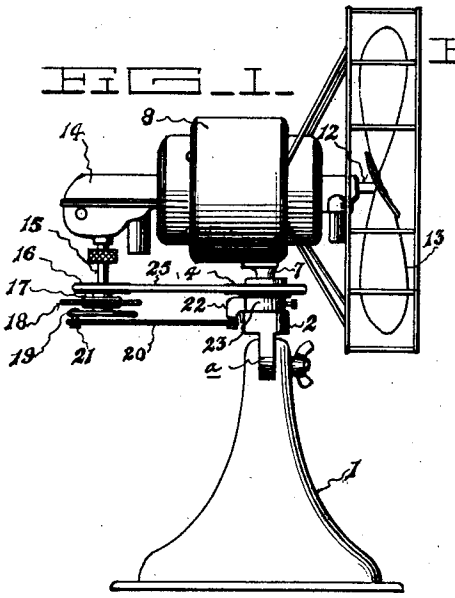


FIG. 2.

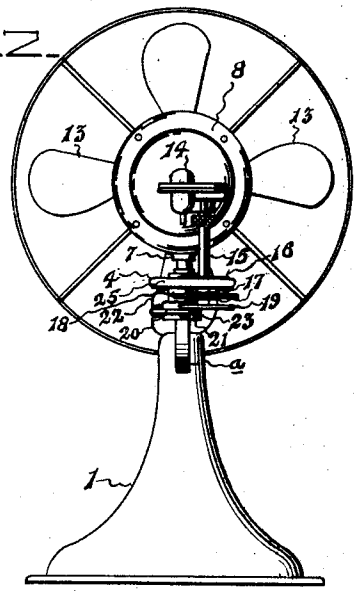


FIG. 3.

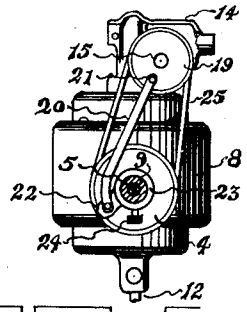


FIG. 4.

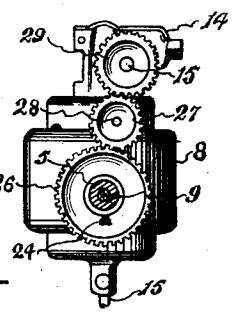


FIG. 5.

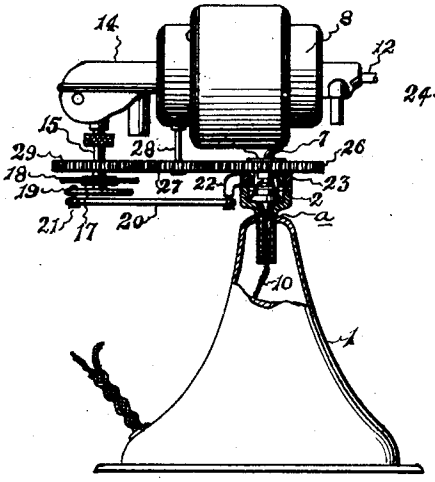
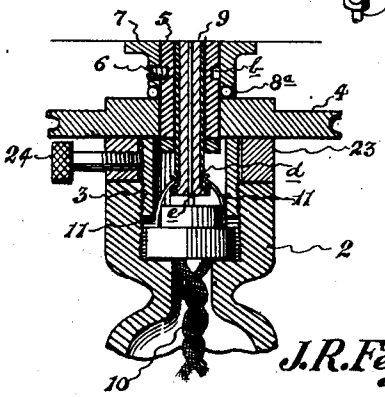


FIG. 6.



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UNITED STATES PATENT OFFICE

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ROTATING DEVICE FOR FANS

Application filed July 8, 1929. Serial No. 376,575.

This invention relates to electric fans and it has particular reference to fans for desk and table use and the principal object of the invention resides in the provision of a fan of the character wherein is provided mechanism so designed and arranged as to cause said fan to rotate on its base, to produce the maximum of air circulation.

Another object of the invention is to provide, in fan rotating mechanism as set forth, a novel control by which the fan is caused to cease rotating, without affecting the action of the fan proper as concerns its speed.

The invention further comprehends the provision of mechanism calculated to bring about the results mentioned, which may be effectively applied as an attachment to the conventional oscillating or stationary type of fans with only minor alterations in the structure thereof, which will enable said fans to make complete revolutions, to increase their effectiveness in bringing about maximum air circulation.

With these objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts, to be hereinafter explained in detail and illustrated in the accompanying drawing wherein:—

Figure 1 is a side elevational view of an electric fan embodying the invention.

Figure 2 is a rear elevational view of the invention.

Figure 3 is a bottom view of the invention.

Figure 4 is a bottom view of the invention showing a modification of the driving mechanism.

Figure 5 is an elevational view of the modification exemplified in Figure 4 having a portion of the base cut away to illustrate the preferred type of contact, and

Figure 6 is a fragmentary cross section of the rotating axis showing the preferred type of contact.

While the ordinary fan of the type mentioned may be caused to oscillate and circulate the air over a given area, no provision has heretofore been made, as an attachment for the ordinary fan, to enable it to circulate the air in all directions. It is the purpose, therefore, of this invention to provide a means whereby this may be accomplished.

Accordingly, therefore, the invention comprises a base member 1, having a slot *a* adjacent the top thereof to receive the flattened portion of a cup shaped member 2 within which is threaded a sleeve 3 the latter being integral with a flanged wheel 4 which is rigidly mounted on a hollow stub shaft 5, the latter being shown in detail in Figure 6.

The shaft 5 is circumferentially grooved at *b* to rotatably receive a set screw 6. The sleeve 7 being rigidly attached to the fan motor 8, its free rotation on the shaft 5 allows the motor 8 to rotate on the bearing 8*a* situated between the sleeve 7 and flanged wheel 4, as shown in Figure 6.

Extending vertically through the hollow shaft 5, an insulated core 9 conducts the current from the wires 10 in the base 1 into the motor 8 by means of the armature 11 which slidably engage the lower end of the core 9 in the groove *c* to make a continuous contact at *d* and *e* while the motor 8 revolves.

The motor 8 is provided with a shaft 12 on one end of which the fan 13 is mounted while on the other end a series of gears of a conventional nature are mounted, the latter being encased in the gear box 12 at the rear of the motor 8. By transverse arrangement of gears, the vertical shaft 15 is driven to rotate the flanged wheel 16 which rigidly engages the shaft 15 when the friction clutch 17 is operated upward by turning the knurled washer 18. A cam 19 is also mounted on the shaft 15 to freely rotate thereon until the friction clutch 17 is operated downward by the knurled washer 18 to engage the face of the cam 19 to cause the latter to rotate with the shaft 15. A connecting arm 20 is eccentrically pivoted to the cam 19 by means of a small bolt or pin 21. At the outer edge of the cam 19, the other end of the connection 20 being attached to a projection 22 of a ring 23 surrounding the threaded sleeve 22. A set screw 24, having a knurled head, is provided to secure the ring 23 to the threaded sleeve 3 when desirable, as shown in detail in Figure 6. A belt 25 is provided to surround

the flange wheels 4 and 16, as shown in Figures 1, 2 and 3.

Figures 4 and 5 illustrate the invention in modified form which is comprised of a gear 26 mounted integrally with the sleeve 3 and remains stationary with the base 1 when the motor 8 rotates. An intermediate gear 27 is mounted on a stub shaft 28 to engage the gear 26 and a gear 29 which is mounted on the shaft 15. This arrangement may be used in place of the flanged wheels 4 and 16 with the same results, if desired.

In operation, the current being turned on, passes through the wire 10 in the base 1, through the armatures 11 into the insulated core 9 and thence to the motor 8 to set the latter into motion.

As the shaft 12 revolves, the vertical shaft 15 is driven by the gears in the gear box 14 to actuate the flanged wheel 16 around which the belt 25 travels. The flanged wheel 4, being stationary, the belt 25 passes around the latter with the result that the flanged wheel 16 propels the fan in a circular motion.

When only an oscillating movement is desired, the knurled washer 18 is urged downward until the clutch 17 engages the cam 19 which sets the pitman 20 in motion causing the fan to move in a semi-circle from left to right.

It will be noted that before the fan will rotate in a complete circle, the set screw 24 must be loosened to allow the ring 23 to move freely around the sleeve 3, and to obtain an oscillating movement, the ring 23 must be secured to the sleeve 3 by the set screw 24.

Obviously, the construction shown is capable of considerable modification and such modification as is considered within the scope and meaning of the appended claims without departing from the spirit and intent of the invention.

What is claimed is:

1. In an electric fan, the combination with the spindle shaft thereof having a gear thereon, a shaft at right angles and having operative engagement with and to be rotated by said first shaft, a grooved pulley attached to said second shaft, a stationary base member pivotally supporting said fan, a stationary grooved pulley on said base member, a flexible belt surrounding said pulley, a frictional member also carried by said second shaft and capable of movement thereon and means for moving said frictional member against and away from said first mentioned pulley to effect the movements of said fan.

2. In an electric fan, the combination with a motor and spindle shaft of said fan, a second shaft operated by said spindle shaft in a plane at right angles to said latter shaft, a grooved pulley mounted on said second shaft, a disc also mounted on said second shaft, a stationary base for said motor having a grooved pulley affixed thereto, a belt surrounding said pulley, means connected to said base and eccentrically connected to said disc to effect oscillating movement of said motor when the latter is operated and friction means movable into alternate engagement with said first pulley and said disc to render the same alternately operative.

In testimony whereof I affix my signature.

JAMES R. FERGUSON.