

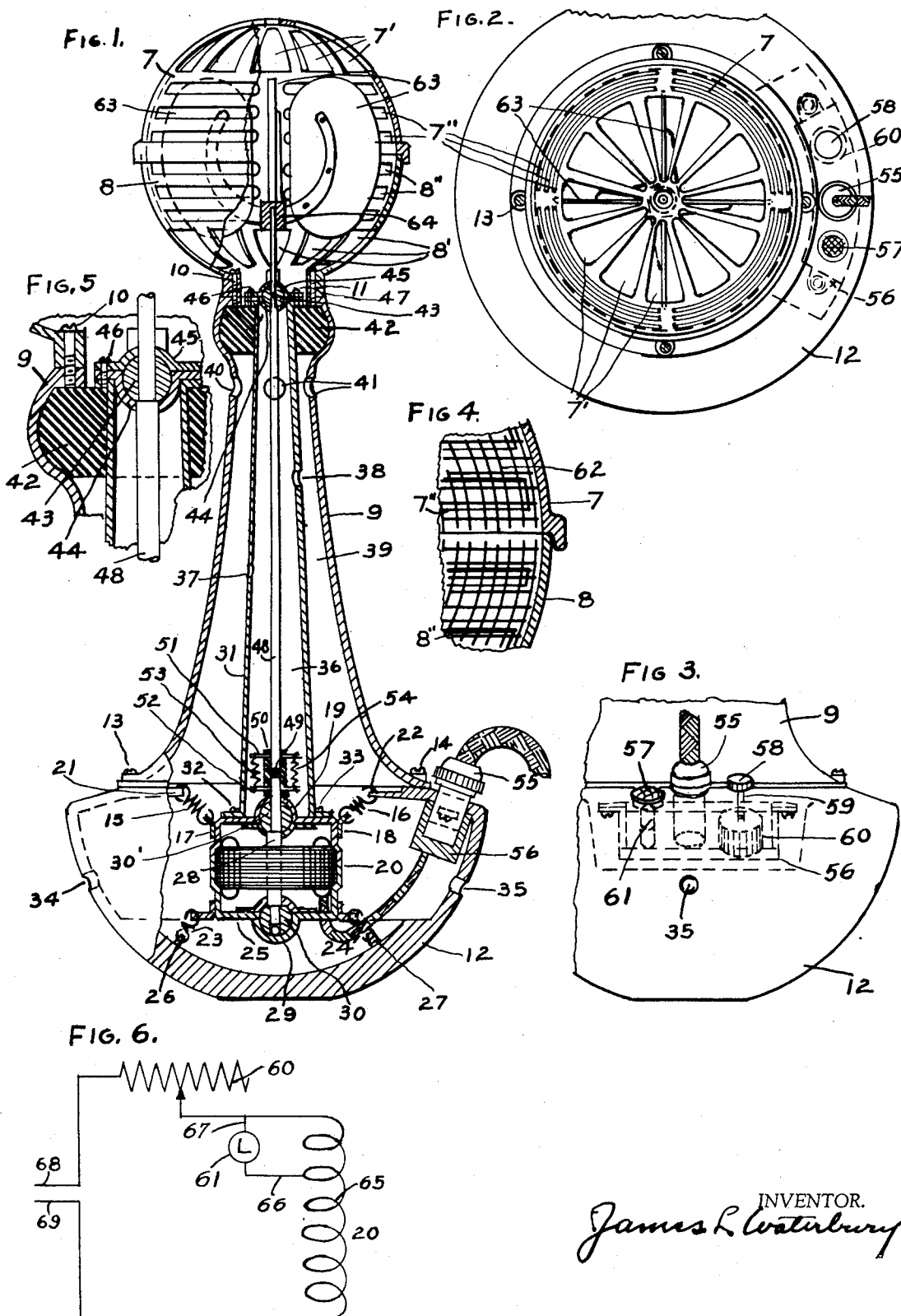
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ELECTRIC FAN

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ELECTRIC FAN

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The present invention relates to improvements in electric fans and has for an objective to provide a novel protection and economical unit capable of righting itself when normally tipped from its resting position.

A further object of the invention is to provide a fan unit affording protection for both persons coming in contact with the unit and for the fan itself.

Another object of the invention is to provide a more stable fan unit with control devices and pilot light which makes the fan unit most desirable for use in the home.

A still further object of this invention is to provide a quiet fan motor unit.

With the foregoing and other objects in view, which will readily suggest themselves to those skilled in the art, the invention consists in the constructions, combinations and arrangements of parts hereinafter described.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is an elevation partly in section, showing an improved electric fan constructed in accordance with the present invention.

Figure 2 is a top plan view.

Figure 3 is a partial elevation of a portion of the base.

Figure 4 is an enlarged fragmentary sectional view of a modification of the fan housing shown in Figure 1.

Figure 5 is an enlarged view in vertical section of a portion of the mechanism shown in Figure 1, showing in detail a preferred form of the mechanism.

Figure 6 is a wiring diagram.

Referring more particularly to the drawing, in Figure 1, 7 is a spherical fan guard having lower section 8 secured to tubular and supporting section 9 by means of screws such as 10 and 11. A plurality of openings 7', 7'' in the upper section 7, and 8', 8'' in the lower section 8, are provided to permit egress and ingress of air while the fan is in operation. 12 is a bowl-shaped base supporting and secured to section 9 as by screws such as 13 and 14. 15 and 16 are two of four springs attached to the ears such as 17 and 18, secured to upper bearing plate 19 of motor 20 and base 12 at 21 and 22. 23 and 24 are similar springs connecting lower bearing plate 25 to base 12 at 26 and 27. 28 is a motor shaft resting on ball bearing 29 within self-aligning bearing 30. 30' is the upper self-aligning bearing of motor 20. 31 is a tubular member secured to motor bearing plate 19 by screws such as 32 and 33.

Openings such as 34 and 35 allow motor ventilation through openings (not shown) in plates 19 and 25 into chamber 36 and out through openings 37 and 38 into chamber 39 and then

on through openings such as 40 and 41 in section 9. 42 is a resilient means which together with such resilient means as 15, 16, 23 and 24 supports motor and fan assembly resiliently apart from their supporting structure. 43 is a self-aligning bearing supported in retaining walls 44 and 45 secured together and to member 9 by screws such as 46 and 47. 48 is a shaft resting on ball bearing 49.

Shafts 28 and 48 are held in close alignment with motor shaft by self-aligning bearings 30, 30', 43, and a flexible housing 50 secured to shaft 48 by coupling pin 51 and to shaft 28 by coupling pin 52. Both coupling pins 51 and 52 pierce flexible housing 50 and shafts 48 and 28 respectively. Springs 53 and 54 hold shafts 48 and 28 against ball bearing 49. 55 is a conventional electric cord connector. 56 is the lower section of outlet box of which base 12 is the outlet box cover with appropriate openings for receiving pilot light jewel 57 as in Figure 3 and controlling knob 58 and shaft 59 of variable resistor 60. Pilot light bulb 61 is shown in Figure 3.

Referring to Figure 4, 62 is a screen mesh that may be used within 7 and 8 as a further protective means against injury to children arising from getting their fingers in contact with fan blades such as 63 in Figure 1. 64 is a shouldered fan blade hub which holds fan blades 63 in defining position within housing 7 and 8.

In Figure 6 a wiring diagram is shown in which it will be seen that the variable resistor 60 is in series with the motor field winding 65, which in the present instance is used as an auto transformer coil whereby, by taps 66 and 67, the lamp 61 may operate at a reduced voltage as compared to that of the line. 68 and 69 form the line.

In operation the connector 55 is plugged in, and the fan motor 20 becomes energized through current received through electric wires leading therefrom through resistance cut in by resistor 60. At the same time lamp 61 is lighted and its light is diffused through pilot jewel 57, showing when the motor is in operation.

Motor 20 together with extension 31 are resiliently held in place no matter what angle the shaft 48 bears to the supporting surface of the fan unit. When motor 20 is in operation fan blades 63 revolve by means of shaft 48, which is secured to the shouldered fan hub 64. Shaft 48 is held in flexible alignment by self-aligning bearings 30, 30' and 43 and the flexible joint made up of the flexible housing 50, coupling pins 51 and 52, ball bearing 49, resilient means 53 and 54 and the ends of shafts, 48 and 28, the latter shaft turning when the motor is in operation.

Motor extension 31 is rigidly assembled with

motor 20, while the complete motor and fan assembly is resiliently secured to the supporting frame which is made up of base 12, base extension 9, and fan housing 7. The center of gravity of this fan unit is low. Motor 20 as secured within base 12 combines to afford a novel and practical fan unit capable of righting itself when normally tipped out of upright position.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:—

1. In a portable motor fan unit, the combination of a bowl-shaped or rounded-bottom base, a fan guard, a fan within said guard, a tubular means supporting said fan guard and acting as a cover for said base, a motor, a tubular motor shaft housing means rigidly secured to said motor, said tubular means and said base forming a motor housing means for said motor, said tubular motor shaft housing means being held apart from said tubular means supporting said fan guard, and in substantial alignment with the bearings of said motor; a motor shaft bearing in said motor shaft tubular housing means, said bearing being held in substantial alignment with the bearings of said motor by said motor shaft tubular housing means, said fan secured to said motor shaft and above said motor shaft tubular means, said motor and said motor shaft tubular housing means forming an inflexible unit resiliently positioned within the combined assembly of said base and the said tubular means supporting said fan guard, said motor housing means forming a self-righting section for said portable motor fan unit, said motor being disposed within said motor housing means so as to position the center of gravity so low that the fan unit will automatically rock on said rounded base to an upright position when tilted therefrom.

2. In a portable motor fan unit, the combination of a base, a fan guard, a fan within said guard, a tubular means supporting said fan guard and acting as a cover for said base, a motor, a tubular motor shaft housing means rigidly secured to said motor, said tubular means and said base forming a motor housing means for said motor, said tubular motor shaft housing means being held apart from said tubular means supporting said fan guard, and in substantial alignment with the bearings of said motor; a motor shaft bearing in said motor shaft tubular housing means, said bearing being held in substantial alignment with the bearings of said motor shaft and above said motor shaft tubular means, said motor and said motor shaft tubular housing means forming an inflexible unit resiliently positioned within the combined assembly of said base and the said tubular means supporting said fan guard.

3. In a portable motor fan unit, the combination of a bowl-shaped or rounded-bottom base, a fan guard, a fan within said guard, a tubular means supporting said fan guard and acting as a cover for said base, a motor, a tubular motor shaft housing means rigidly secured to a motor, said tubular means and said base forming a motor housing means for said motor, said tubular

motor shaft housing means being held apart from said tubular means supporting said fan guard, and in substantial alignment with the bearings of said motor; a motor shaft bearing in said motor shaft tubular housing means, said bearing being held in substantial alignment with the bearings of said motor by said motor shaft tubular housing means, said fan secured to said motor shaft and above said motor shaft tubular means, said motor and said motor shaft tubular housing means forming an inflexible unit resiliently positioned within said motor housing means forming a self-righting section for said portable motor fan unit, said motor being disposed within said motor housing means so as to position the center of gravity so low that the fan unit will automatically rock on said rounded base to an upright position when tilted therefrom.

4. In a portable motor fan unit, the combination of a base, a fan guard, a fan within said guard, a tubular means supporting said fan guard and acting as a cover for said base, a motor, said tubular means and said base forming a motor housing means for said motor, a second tubular housing means rigidly secured to said motor and in substantial alignment with the bearings of said motor and held apart from the tubular housing means supporting said fan guard, a fan shaft for said fan, said fan shaft and the shaft of said motor being held in substantial alignment with the bearings of said motor by said second tubular housing means and having a flexible joint assembly, said joint assembly having a ball bearing located between the ends of said motor shaft and said fan shaft, a flexible coupling means housing said shafts and said ball bearing, springs resiliently holding both shaft ends against said ball bearing.

5. In a motor fan unit, a hollow base, a hollow column extending up from said base, a motor in said base, elastic tension elements connected to the motor and extending in diverse directions therefrom and connected to the base walls, a hollow connection fixed to said motor, extending up inside said hollow column, an elastic cushion connection between the upper parts of said hollow column and said hollow connection, an articulated shaft turning with the rotor of said motor and extending up through said hollow connection, swiveling bearings for said shaft at the motor and at the top of the hollow column, respectively, a fan member carried on said shaft above said hollow column, and a casing mounted on top of said hollow column around said fan member.

6. A motor fan unit as specified in claim 5, in which the base has a rounded bowl-shaped bottom, and in which the materials of the base and the upper parts supported thereby, together with the motor, are so disposed that the unit is self-righting to an upright position when tilted therefrom, by rocking on its rounded base.

7. A motor fan unit comprising a hollow base, a hollow column upstanding from the base, and a fan unit mounted on top of said column and operatively connected to said motor through said column, in which the base has a rounded bowl-shaped bottom, and in which the materials of the base and the upper parts supported thereby, together with the motor, are so disposed that the unit is self-righting to an upright position when tilted therefrom, by rocking on its rounded base.

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