

Nov. 10, 1936.

J. M. TAUBER

2,060,699

ELECTRIC FAN

Filed July 1, 1935

2 Sheets-Sheet 1

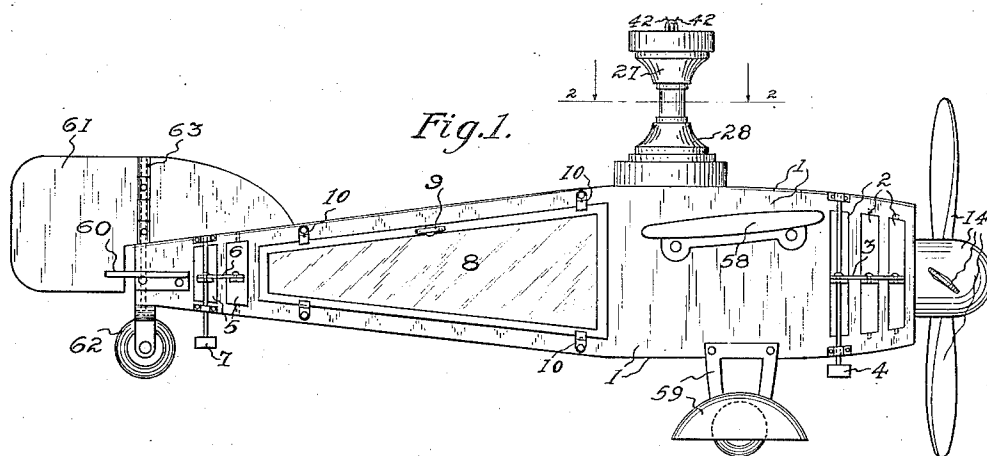
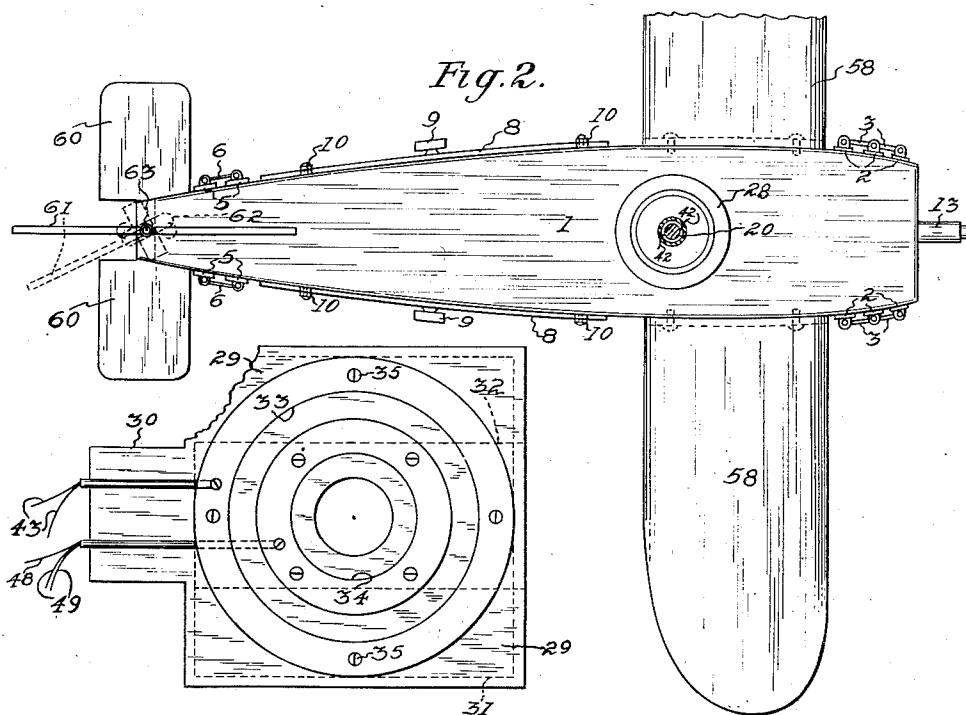


Fig. 6.

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Fig. 3.

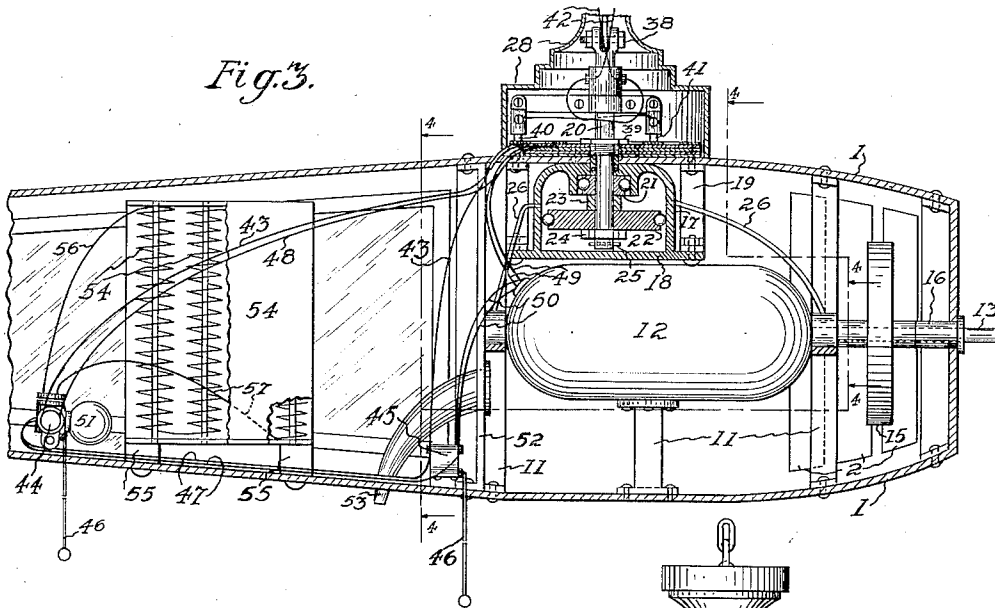


Fig. 4.

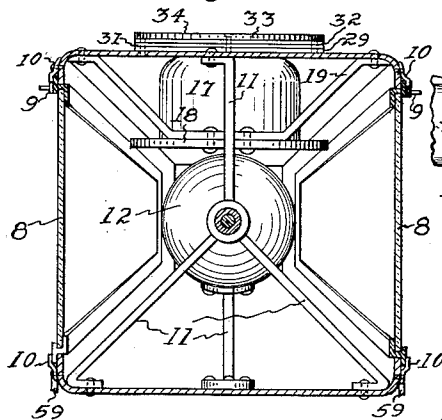
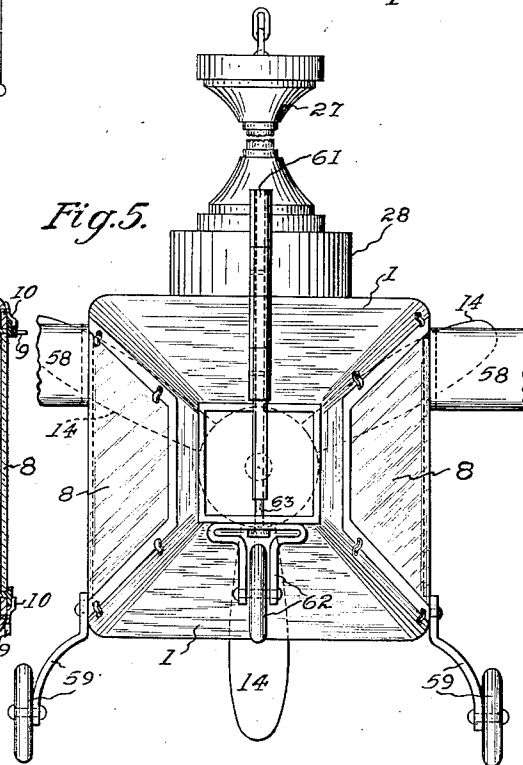


Fig. 5.



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UNITED STATES PATENT OFFICE

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ELECTRIC FAN

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1 Claim. (Cl. 219—39)

This invention relates to improvements in electric fans and has for one object to provide a fan having the general appearance of a miniature aeroplane and means for suspending the same from an overhead support, as from the ceiling of a room, shop, store, factory or the like. A further object is to provide a fan adapted to circulate air horizontally and downwardly all about the space served.

A further object is to provide a fan having means for circulating cool or warm air, as desired, so that it is adapted for use in summer or winter, or at all seasons. A still further object is to provide an electric fan having novel advertising display means. A further object is to provide a fan of this type that is positive and efficient in operation, simple in construction, durable in use, and inexpensive to manufacture.

With the foregoing and other objects in view the invention consists in the combination and arrangement of parts to be hereinafter fully described, pointed out in the claim and illustrated in the accompanying drawings which form a part of this application for patent and in which—

Fig. 1 is a view of the fan in elevation.

Fig. 2 is a top plan view of the same, on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary longitudinal sectional view, partly in elevation, enlarged.

Fig. 4 is a cross sectional view taken on the lines 4—4 of Fig. 3, with the partition removed.

Fig. 5 is a view in rear end elevation with the wings partly broken away.

Fig. 6 is a fragmentary plan view, enlarged, of a plate and ring assembly employed.

Like reference characters denote corresponding parts throughout the several views.

In workshops, dwellings, apartments, stores, factories and the like the proper air circulation is a very important matter.

This circulation should be positive, the old air replaced by fresh air, the formation of air pockets in the room or shop avoided and cool air should be provided by proper air circulation in warm weather, and warm air circulation provided in cold weather.

The reference numeral 1 denotes a miniature aeroplane fuselage formed with the forward louvers 2 connected by a link 3 and operated by the hand lever 4, and with the rear louvers 5 connected by the link 6 and operated by the hand lever 7; forward and rear louvers being provided upon each side of the fuselage. Each side of the fuselage is formed with an elongated opening normally closed by a removable window 8 provided

with a handle 9 and normally retained in place by the clips 10. This window may carry an advertisement.

Within the fuselage and arranged upon supports 11 in the electric motor 12 from which the fan shaft and propeller shaft 13 extends forwardly through the fuselage and carries the propeller 14 and the fan 15, said shaft extending through the sleeve 16. The propeller 14 is formed preferably with three blades. Within the fuselage and preferably above the motor is the housing 17 having the base 18 supported by the braces 19, said housing receiving the vertical shaft 20 that extends through the fuselage, through the ball bearing 21 within the housing and through the ball-thrust bearing 22 separated from the ball bearing by the collar 23 about said shaft, said bearings centering said shaft with respect to the housing and greatly facilitating operation of the structure. A nut 24 and pin 25 secured about and through the lower end of the shaft below the ball-thrust bearing secure said members in assembly. The housing is filled with a heavy lubricant and connected by oil conduits 26 to the motor bearings to provide ample lubrication therefor.

Arranged upon the fuselage directly above the housing 17 is an ornamental housing 27 having a somewhat enlarged base 28 within which and disposed directly upon the fuselage is a plate assembly comprising a bottom plate 29 formed with a tongue 30, a square second plate 31 and a third plate 32 of oblong shape, said plate assembly of fabric forming insulation for the concentric copper rings 33, 34 secured thereto by fastening means 35 against the fuselage.

The several plates are perforated to permit passage of the shaft 20 which also extends through the packing gland 39, through the perforated floating collar 36 and terminates at its upper end in a forked portion connected by the chain 37 and pin 38 to a ceiling support (not shown) such as a hook or the like.

A split bracket 40 secured to the shaft 20 carries the contact brushes that ride upon the copper rings 33, 34. Leading into the housing 27 from a ceiling electrical outlet (not shown) are the wires 42 from which current is directed to the brushes and rings and from ring 33 through the wires 43 to the switches 44, 45, each provided with a pull chain 46, said switches being connected together by the wires 47. The wires 42 pass into the collar 36 between the same and shaft 20 and out through perforations in collar 36 to the brushes. Leading from the ring 34 is a wire 48 that runs to the switch 44 and wires 49

that lead to the motor 12; wires 50 extending from the motor to the switch 45. The current thus runs from the ring 33 through wires 43 to the two switches 44, 45, which are connected by wires 47, through wires 49 to the motor and through wires 50 from the motor to switch 45. The motor is turned on through switch 45 by the chain 46 and a light 51 is energized through switch 44. This light serves to illuminate the window 8 with its advertisement. This light may be of the continuous or of the flasher type. The motor is in a compartment formed by the partition 52 in which the exhaust 53 is disposed that extends downwardly through the fuselage and the fan 15 in operation cools the motor and blows out all dust and hot air through the exhaust so that this compartment and the motor are kept cool and clean through this assembly.

When warm air is desired the windows 8 are removed and an electric coil heater 54, comprising a plurality of vertical heating coils, is supported within the fuselage by supports 55, this heater being energized or fed by wires 56, 57 leading to the switch 44. The fuselage is provided with the wings 58 which are so shaped and positioned with respect to the propeller as to direct the air downwardly slightly as received therefrom.

The propeller will direct the air toward the rear of the fuselage and forcibly against the wings. The fuselage is provided with the conventional landing gear 59 and with the tail fins 60. Arranged at the rear of the fuselage is the rudder 61 adjustable through the medium of the hand wheel 62 connected to the rotary pintle 63.

To this member the movable rudder portion is secured and frictionally retained at any angle desired. In operation, the motor is started through switch 45 thus rotating the propeller. When the rudder is in the full line position shown in Fig. 2 the fuselage will not rotate about the shaft 20 but the air from the propeller will be forced rearwardly and downwardly. With an adjustment of the rudder to the right or left the aeroplane fan will be caused to rotate to the left or right. With the heater in position the air will be heated. The air enters the fuselage through the openings not then covered or closed by the windows. The louvers 2 and 5 also serve as air passages. I do not, of course, desire to be limited to the specific details of construction herein shown, as these may be changed to any extent within the limit of the appended claim without departing from the spirit of the invention.

What is claimed is:—

In electric fans, a suspension chain, a body member carried by said chain, said member being formed with elongated lateral air perforations, a motor within said body portion, a propeller mounted to said body member and operatively connected to said motor, an air heater in said body member in the air path of said propeller, wings carried by said body member in the air path of said propeller and inclined rearwardly and downwardly with respect thereto, and an adjustable rudder at one end of said body member in the air path of said propeller whereby said body member is caused to travel in concentric circles.

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