

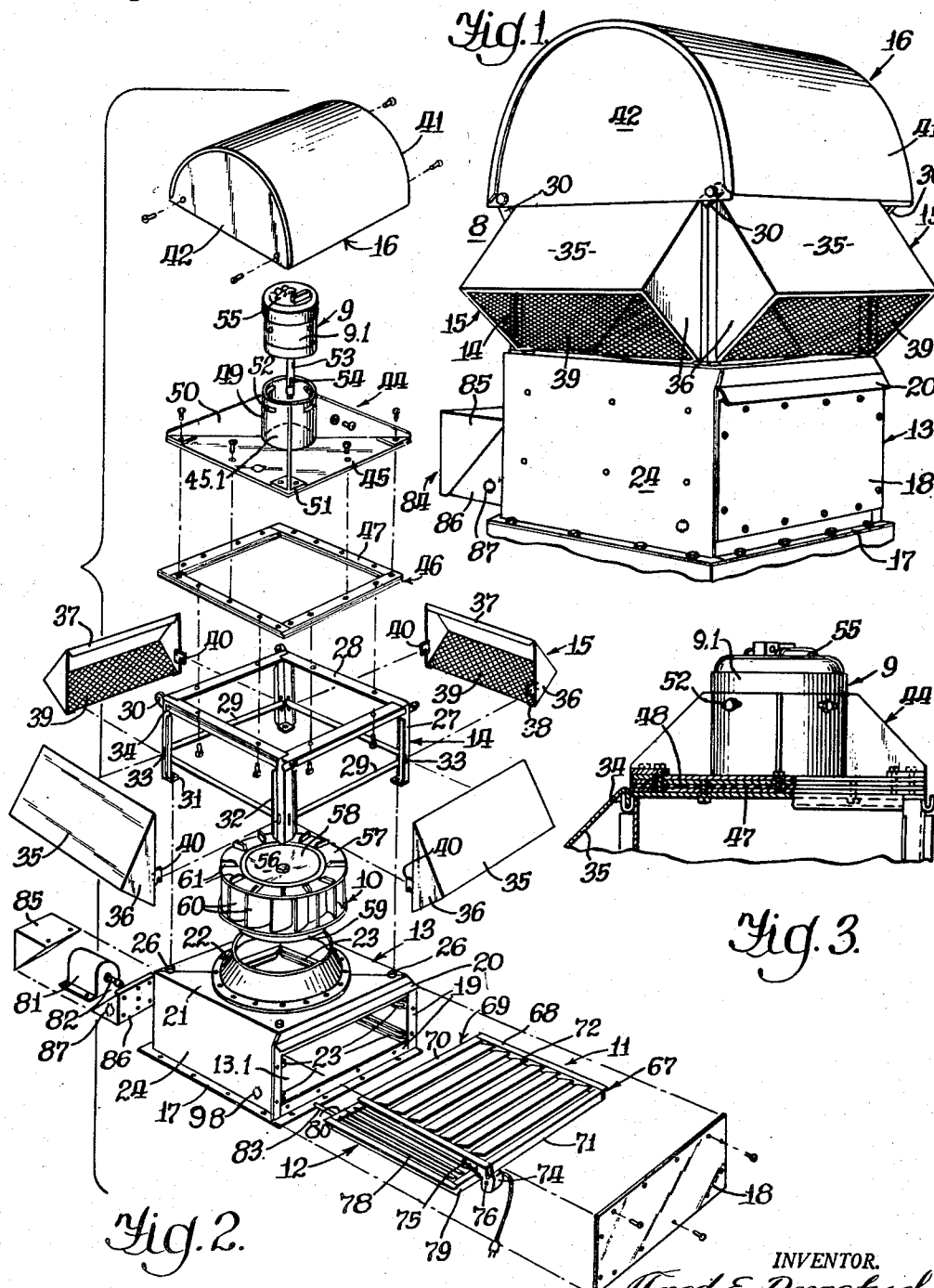
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F. E. DRECHSEL
POWER ROOF VENTILATOR

2,711,682

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2 Sheets-Sheet 1



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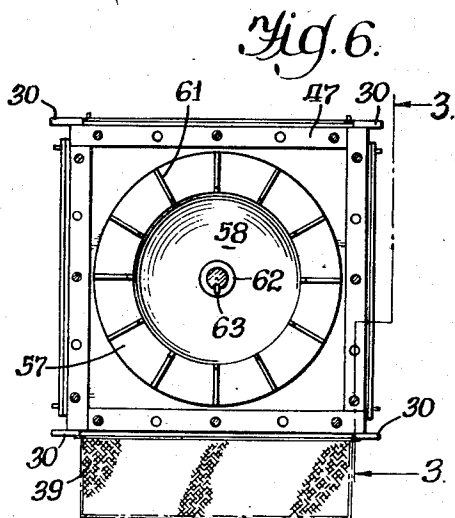
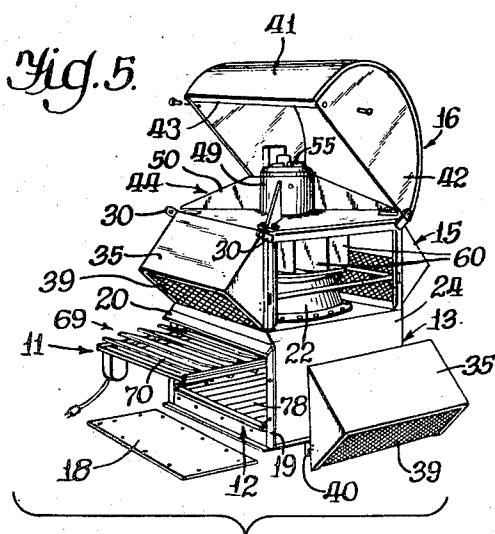
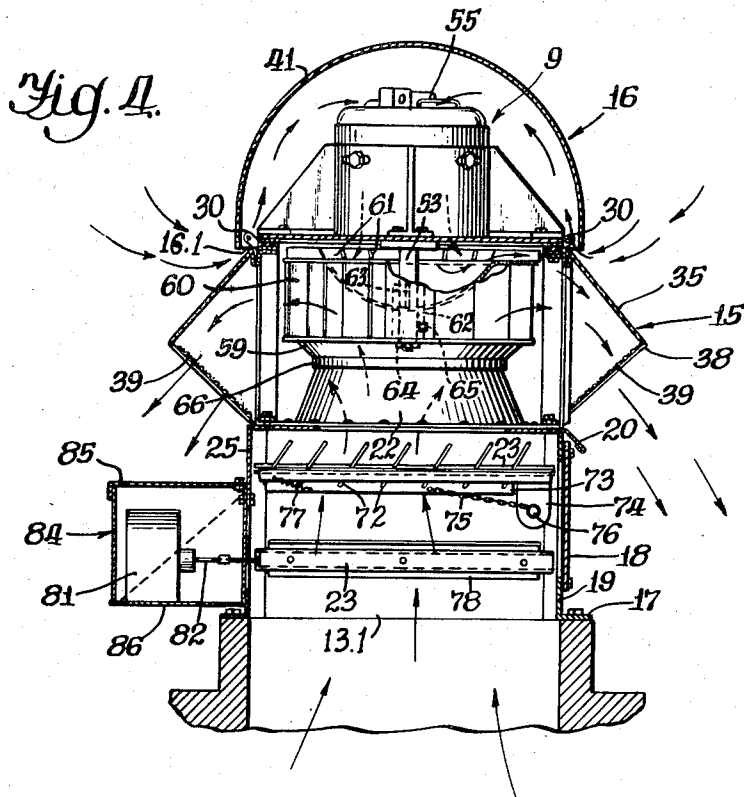
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2 Sheets-Sheet 2



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POWER ROOF VENTILATOR

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Application August 4, 1951, Serial No. 240,356

9 Claims. (Cl. 98—43)

This invention relates generally to ventilators and, more particularly, to a ventilating apparatus employing a centrifugal fan for drawing air out of a room or building.

A centrifugal or blower-type fan is particularly adapted for use in a ventilator which is connected to a duct system since it is capable of building up sufficient pressure to overcome the friction to the air flow within the ducts without overloading its driving motor. Since ventilators of this type are generally positioned externally of a building, such as on a roof, it becomes necessary to provide the ventilator with a housing which will protect the motor, fan, and other internal mechanisms from rain, snow, etc. The housing should also be designed so that it can be easily dismantled for servicing or cleaning of the operating mechanisms. The motor and fan should be mounted so as to minimize vibration and noise, and means should be provided for controlling the amount of air which may be drawn through the unit. In addition, it is desirable to provide a means for cooling the motor which is separate from the main air stream of the blower so that the motor will not be subjected to the heat, dust, grease, etc. of the main air stream. None of the previously existing centrifugal-type ventilators combines these desirable features.

The main objects of this invention are to provide a motor-driven ventilator unit which may be mounted on a roof, which is easily accessible for servicing and cleaning, and which is economical to manufacture; to provide a motor-driven ventilator in which the motor and motor compartment are cooled by a positive draft of cool, clean, outside air and which is not subjected to the main air stream of the blower; to provide improved means for controlling the amount of air which may be drawn through the ventilator; to provide a motor-driven ventilator which is capable of developing sufficient static pressure to overcome the resistance to air flow encountered in ducts or duct systems; to provide improved means for cooling the bearing surface of the motor; and to provide a motor-driven ventilator of this kind which is capable of operating quietly and smoothly over long periods of time and under all weather conditions.

An illustrative embodiment of this invention is shown in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a power roof ventilator which is constructed in accordance with the present invention.

Fig. 2 is an exploded, perspective view of the power roof ventilator illustrated in Fig. 1.

Fig. 3 is a partial, sectional view of the motor and baffle assembly taken along line 3—3 of Fig. 6.

Fig. 4 is a vertical, sectional view of the power roof ventilator during operation with the direction of movement of the air streams indicated by arrows.

Fig. 5 is a partial, exploded view of the power roof ventilator with certain of its parts disassembled so as to leave the motor, fan, and air control means in an accessible condition.

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Fig. 6 is a partial, horizontal, sectional view of the power roof ventilator showing the back plate of the centrifugal fan and the manner in which the fan is keyed to the shaft of the motor.

A power roof ventilator embodying certain of the novel features of the present invention is illustrated in the drawings. The illustrated ventilator includes a composite housing 8, a motor 9, a centrifugal fan or blower 10, a shutter assembly 11, and an air control assembly 12. The composite housing 8 comprises a base assembly 13, a frame or chassis assembly 14 which is mounted on and extends upwardly from the base assembly 13, removable baffle assemblies 15 which are adapted to be connected to the chassis assembly 14, and a roof assembly 16 which is connected to and covers the chassis assembly 14.

The base assembly 13 of the housing 8, which is particularly illustrated in Figs. 1 and 2, is fabricated out of galvanized iron, aluminum, or the like and includes a horizontally extending, bottom flange 17 for anchoring the base assembly to a horizontal structure such as a roof. The base assembly 13 has the form of an open-bottomed box and includes a removable front panel 18 which is adapted to be connected to flanges 19 on the forward end of the base assembly 13 by suitable means such as screws. The open bottom of the base assembly 13 provides an air inlet 13.1 for the housing 8.

A downwardly and outwardly inclined louver 20 is positioned at the upper and forward edge of the base assembly 13 so as to extend over the removable panel 18, thereby preventing rain, snow, etc. from entering the housing through the points formed between the removable panel 18 and the flanges 19. The base assembly 13 includes a horizontal upper plate 21 which is integrally joined in a weather-tight manner with an upwardly extending, curved hub member 22 having an open mouth which is adapted to direct air into the region of the centrifugal fan 10. Bosses 26 extend upwardly from the upper plate 21 of the base assembly 13 adjacent its corners for positioning the chassis assembly 14 above the base assembly 13. Horizontally-positioned, channel-shaped tracks 23 are attached along the side and rear walls 24 and 25 in the interior of the base assembly 13 for guiding and supporting the shutter assembly 11 and the air control assembly 12.

The chassis assembly 14, which is illustrated in Fig. 2, is fabricated out of welded steel or the like and is adapted to seat on the upper plate 21 on the base assembly 13.

The chassis assembly 14 includes leg members 27, upper frame members 28 which extend across the top of and between the leg members 27, horizontal supporting members 29 which extend between the leg members 27 adjacent the lower end of the chassis assembly 14, and outwardly extending tab members 30 which are located at the upper corners of the chassis assembly 14. The chassis assembly 14 is proportioned so as to seat on the upper plate 21 of the base assembly 13 with the leg members 27 of the chassis assembly 14 superimposed over the corners of the base assembly 13.

Each of the leg members 27 includes a horizontal flange 31 adjacent its lower end which is apertured for positioning the leg member 27 over one of the upwardly extending bosses 26 of the base assembly 13. The chassis assembly 14 is adapted to be rigidly attached to the base assembly 13 by means such as screw and washer assemblies. Each of the leg members 27 also includes an outwardly extending flange 32 adjacent each of its outer edges and a vertically extending slot 33 for purposes which will be apparent in the following discussion. Each of the upper frame members 28 includes an outwardly and vertically extending U-shaped section 34 which is adapted to interfir with a portion of the baffle assemblies 15.

Four identical baffle assemblies 15 are constructed as shown in Fig. 2 and are adapted to be attached to the sides of the chassis assembly 14. Each of the baffle assemblies 14 includes a downwardly and outwardly sloping forward wall 35, triangular-shaped side walls 36 which are integrally connected along the forward edges to the sides of the forward wall 35, and a short, vertical, downwardly extending, rear wall 37 which is integrally connected at its upper edge with the forward wall 35. The forward and side walls 35 and 36 of each baffle assembly 15 include inwardly extending flanges 38 for supporting an open work barrier such as a rectangular grill or steel mesh 39 therebetween. The side walls 36 of each baffle assembly 15 also have hook-shaped brackets 40 attached thereto which are proportioned so as to fit into suitable slots 33 in the legs 27 of the chassis assembly 14. The baffle assemblies 15 are proportioned so that when the brackets 40 fit into the slots 33 in the chassis assembly 14, the downwardly extending back plates 37 fit into the grooves of the U-shaped sections 34 of the upper frame members 28 and the side walls 36 overlap the outwardly extending flanges 32 of the chassis assembly 14, thereby insuring a weather-tight assembly which prevents snow, rain, etc. from entering into the interior of the housing 8. When the baffle assemblies 15 are positioned on the chassis assembly 14, the grills 39 are located below the forward walls 35 and permit air to escape from the housing 8 while preventing birds and animals from entering the housing 8. The openings in the grills thus constitute air outlets for the housing 8.

A roof assembly 16 comprising a semicircular, curved top section 41 and vertical side walls 42 is adapted to be positioned over the chassis assembly 14 and to be connected thereto by means such as screws. The roof assembly is slightly larger than the chassis assembly 14 and is adapted to seat over the upper edges of the baffle assemblies 15 so as to provide air inlet openings 16.1 in the upper portion of the housing 8 and so as to prevent rain, snow, etc. from entering the upper portion of the housing 8. As may be seen from Figs. 1, 2, and 5, the roof assembly is connected adjacent the bottom of its side walls 42 to the outwardly extending tab members 30 of the chassis assembly 14. The roof assembly includes horizontal cross members 43 which extend between the side walls 42 adjacent the longitudinally extending edges of the top section 16 which prevent the baffle assemblies 15 from being disassembled from the chassis assembly 14 when the roof assembly 16 is secured to the chassis assembly 14. By removing the appropriate screws on the roof assembly 16, the roof assembly 16 may be hinged on two sides for access to the motor 9.

The motor 9 and the centrifugal fan 10 are resiliently mounted within the housing 8 so that all vibrations due to the operation of the motor 9 and the fan 10 are absorbed and dampened by the mounting means instead of being transmitted to the housing 8. The mounting means is particularly shown in Figs. 2 and 3 and includes a motor support assembly 44, an air shield 45, and resilient mounting strips 46.

The mounting strips 46 are constructed of two metallic strips 47 which are separated by a layer of resilient material 48, such as soft, live neoprene. The mounting strips 46 are positioned horizontally on the upper frame members 28 of the chassis assembly 14.

The air shield 45 comprises a flat, metallic plate having the same dimensions as the upper surface of the chassis assembly 14 and is positioned horizontally over the chassis assembly 14 and the mounting strips 46. The air shield 45 has a central bore or opening 45.1 therein which provides the only means by which air can move from the space above the air shield 45 to the space within the chassis assembly 14.

The motor support assembly 44 is positioned on the upper surface of the air shield 45. The motor support assembly includes a central, vertically extending, tubular

section 49 which is adapted to be positioned above the opening in the air shield, triangular-shaped, vertical arm sections 50 which extend outwardly from the tubular section 49 so as to overlie the diagonals of the air shield 45, and horizontal flanges 51 which are connected at the outer extremities of the arm sections 50 for attachment of the motor support assembly 44 to the air shield 45.

The chassis assembly 14, the mounting strips 46, the air shield 45, and the flange sections 51 of the motor support assembly 44 are apertured so that the members may be rigidly interconnected by means such as screws. In order to minimize the vibration between the chassis assembly 14 and the motor support assembly 44, some screws extend upwardly from the chassis assembly 14 into the mounting strips 46 and terminate short of the upper end of the mounting strips 46, and other screws extend downwardly through the motor support assembly 44, the air shield 45, and into the mounting strips 46 and terminate short of the lower end of the mounting strips 46, as illustrated in Fig. 3.

The motor 9 has a generally drum shaped casing 9.1 which fits within and is connected to the tubular section 49 of the motor support assembly 44 by means such as washer and screw assemblies. Horizontal slots 52 within the tubular section 49 allow an adjustment of the motor 9 so as to facilitate its assembly within the motor support assembly 44. When assembled, the lower end of the motor casing 9.1 terminates just above the surface of the air shield 45. The motor 9 includes a shaft 53 containing a key 54 thereon which descends downwardly of the support assembly 44 into the interior of the chassis assembly 14. Each end of the motor casing 9.1 is provided with suitable air openings or ducts 55 so as to permit air to circulate through the motor 9 for cooling purposes, there being sufficient space between the internal portions of the motor 9 to permit air to pass therethrough. The motor 9 may be connected in the usual manner to a suitable source of electric power by means of a cable which extends through an appropriate cut-out in the housing 8 (not shown).

The centrifugal fan or rotor 10 comprises a back plate 56 which includes an outer horizontal ring-shaped section 57 and an inner concave bowl-shaped section 58, a base member 59, vertical impeller blades 60 which extend between the base member 59 and the ring-shaped section 57, and short, vertical fins 61 which are connected to and extend above the surface of the ring-shaped section 57. The impeller blades 60 are transversely curved so as to be effective in throwing or tangentially discharging the air from within the rotor 10 outwardly of the periphery of the rotor 10. The vertical fins 61 extend radially of the back plate 56 and are operable to cool the lower bearing of the motor 9, as will be hereinafter described. The bowl-shaped section 58 is integrally connected with a vertically extending hub member 62 which includes a vertically extending hole and keyway 63 which are adapted to interfit with the shaft 53 and the key 54 associated with the motor 9. The centrifugal fan 10 is adapted to be fixedly positioned and freely suspended on the shaft 53 by a nut 64 and a set screw 65. The base member 59 extends inwardly and downwardly, as shown in Fig. 4, and includes a vertical flange portion 66 which extends over and outwardly of the upper portion of the hub member of the base assembly 13.

A shutter assembly 11 which is adapted to ride on either the upper or lower tracks 23 within the base assembly 13 is particularly shown in Figs. 2 and 4. The shutter assembly 11 includes angle-shaped side members 67 having horizontally extending portions 68 which ride on the tracks 23 which extend along the side walls 24 of the base assembly 13, an angle-shaped rear member 69 having a horizontally extending portion 70 which interfits into the tracks 23 which extend along the rear wall 24 of the base assembly 13, an angle-shaped, forward member 71 and a series of flat, rotatable louvers 72 which are positioned

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parallel to each other between the side members 67 so as to be able to overlap each other when they are in a horizontal position. A vertically extending plate 73 which is connected to the louvers 72 is movably mounted adjacent one side of the shutter assembly 11. An electric motor 74 which is attached adjacent the forward end of the shutter assembly 11 is connected with the movable plate 73 by a chain 75, or the like, for controlling the position of the plate 73 and the louvers 72. The motor 74 is operable to move its associated shaft 76 between two predetermined positions. The plate 73 is also resiliently biased by a spring 77 which extends between the plate 73 and one of the side members 67 so as to position the louvers 72 horizontally when the motor 74 is not actuated. The motor 74 may be connected to a source of electric power by the usual cable through a cut-out 98 in the side of the base assembly 13. The motor 74 which controls the shutter assembly 11 is interconnected with the motor 9 which controls the centrifugal fan 10 so that they operate simultaneously. When the centrifugal fan 10 is not operating, the spring 77 biases the plate 73 in a direction such that the louvers 72 lie horizontally and overlap each other, thus closing off the space below the shutter assembly 11 from the space above the shutter assembly 11. When the fan 10 is operated, the shaft 76 rotates so as to wind the chain 75 therearound, thereby moving the plate 73 in opposition to the spring 77 thus forcing the louvers 72 to their open position.

An air control assembly 12 is operable to control the quantity of air which is permitted to pass through the base assembly 13 into the region of the centrifugal fan 10 and is particularly shown in Figs. 2 and 4. The air control assembly 12 slides within the tracks 23 in the base assembly 13 in a similar manner to the shutter assembly 11 and includes a series of parallel horizontal louvers 78 which extend between the front and rear members 79 and 80 of the air control assembly 12. The louvers 78 are adapted to be positioned at various angles to the horizontal by a motor 81 which interconnects with the louvers 78 through the interfitting shafts 82 and 83. The motor 81 for the air control assembly 12 is positioned exteriorly of the base assembly 13 within a special housing 84 which is fabricated from metal or the like. The housing 84 includes the member 85 which overlaps and connects to the member 86 so as to form a weather-tight protective covering for the motor 81. A cut-out 87 in the side of the motor housing 84 provides means for extending a cable from the motor 81 to a suitable switch and source of power (not shown). The motor is operable to turn the shafts 82 and 83 and the louvers 78 to a series of positions, thereby regulating the amount of air which may be passed from the space below the air control assembly 12 to the space above the air control assembly 12.

A ventilator of the type described is readily accessible for cleaning and maintenance. The panel 13 at the forward face of the base assembly 13 may be removed for access to the shutter assembly 11 and the air control assembly 12. Screws may be removed from the roof assembly 16 so that the roof assembly 16 may be hinged either forwardly or rearwardly so as to expose the motor 9 and the motor support assembly 44. When the roof assembly 16 is in raised position, the baffle assemblies 15 may be removed from the chassis assembly 14 so as to expose the centrifugal fan 10.

When the ventilator is positioned above a duct which leads to an enclosed space, it is operable to withdraw air from that space. Since the motors 9 and 74 operate simultaneously the louvers 72 are in closed position when the centrifugal fan is not in operation, thus preventing the air within the enclosed space from escaping through the ventilator. This is extremely important during the winter when one desires to keep the warm air within the enclosed space. However, when the centrifugal fan is in operation, the motor 74 moves the louvers 72 to open position, thereby permitting air to be drawn up

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through the air inlet 13.1 at the base of the housing 8 into the region of the centrifugal fan 10. During operation, one may control the position of the air control louvers 78 by the motor 81 so as to set the louvers in any one of several different positions, thereby permitting only a given amount of air to move from the enclosed space into the region of the centrifugal fan 10.

In operation, air is drawn from the enclosed space upwards through the air inlet 13.1 into the center of the centrifugal fan 10 and is thrown tangentially outwardly of the blades 60 of the centrifugal fan 10. The air passes outwardly of the ventilator through the openings in the grills 39 of the baffle assemblies 15. The motor 9 which controls the centrifugal fan 10 is cooled by clean, outside air which is drawn into the upper portion of the housing 8 through the air inlet 16.1 in the upper portion of the housing. The air which is drawn into the upper portion of the housing 8 is drawn through the motor 9 into the bowl-shaped section 58 of the centrifugal fan 10. The fins 61 on the back plate 56 of the centrifugal fan 10 whirl the air which is within the bowl section 58, thereby cooling the bearing surface of the motor 9. The movement of the main air stream tends to suck out the air within the bowl section 58 of the centrifugal fan 10 through the space between the air shield 45 and the back plate 56. The removal of air from the bowl section 58 reduces the pressure within that region and causes more cool air to be drawn through the motor 9. This controlled movement of the main air stream and of the cool, outside air which passes through the upper portion of the housing 8 and the motor 9 is one of the improved features of the present invention and is illustrated in Fig. 4.

The ventilator described above is economical to manufacture, simple in operation, and easily accessible for cleaning or servicing. The motor 9 and the centrifugal fan 10 are resiliently mounted so as to minimize vibration and so as to be quiet in operation. The ventilator includes a means for cooling the motor 9 with cool, clean, outside air and also includes an improved means for cooling the bearing surface of the motor 9. The unit also includes means for accurately controlling the amount of air which is withdrawn by the ventilator. The unit is made weathertight so that the motor 9, centrifugal fan 10, and means for controlling air are protected from rain, snow, etc.

Variations and modifications in the details of the above structure and the parts may be resorted to within the spirit and coverage of the following claims.

I claim:

1. A power roof ventilator comprising a housing having an upper and a lower portion separated by transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member, an air outlet formed by said housing adjacent the periphery of said fan, rotatable power means mounted within said upper housing portion in covering relation to a central opening through said plate member, said rotatable means including at least one air passageway therethrough communicating with said opening in the plate member and including a part extending through said opening and supportedly engaging said fan for rotation therewith, and an air inlet disposed adjacent said transverse plate member and in the upper portion of said housing whereby air may enter the upper portion of said housing, move upwardly along the outside of said rotatable means and be drawn through said rotatable means upon operation of the latter to thereby cool said rotatable means.

2. A power roof ventilator comprising a housing having an upper and a lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member, an air control assembly between said inlet and said fan com-

prising a first set of adjustable parallel louvers set in a horizontal plane and a second set of adjustable louvers disposed in transverse parallel relation to said first set of louvers, one of said sets of louvers being operably connected with said fan to open when the fan is operated and close when the fan is not rotating, an air outlet adjacent the periphery of the fan, rotatable power means mounted within said upper housing portion in covering relation to a central opening through said plate member, said rotatable means including at least one air passageway therethrough communicating with said opening in the plate member, means extending through said plate opening for connecting said fan with said rotatable means, and an air inlet in said upper housing portion.

3. A power roof ventilator comprising a housing having an upper and a lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member, an air outlet in said housing adjacent the periphery of said fan, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, and an air inlet disposed in the upper portion of said housing adjacent said transverse plate member whereby air may enter the upper portion of said housing, move upwardly along the outside of said motor casing and be drawn through said motor upon the operation of said fan to thereby cool the motor.

4. A power roof ventilator comprising a housing having an upper and lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member, an air control assembly between said air inlet and said fan comprising a first set of adjustable parallel louvers set in a horizontal plane and a second set of adjustable parallel louvers disposed in transverse relation to said first set of louvers, one of said sets of louvers being operatively connected with said fan to open when the fan is operating and close when the fan is not operating, an air outlet in said housing adjacent the periphery of said fan, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, and an air inlet in said upper housing portion.

5. A power roof ventilator comprising a housing having an upper and a lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member for drawing air upwardly through said air inlet into said housing, air control means between said air inlet and said centrifugal fan for limiting the amount of air drawn into said air inlet, a plurality of air outlets in said housing adjacent the periphery of said fan, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member,

the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, said fan including a back plate having upwardly extending fins for cooling the lower end of said motor, an air inlet disposed in the upper portion of said housing adjacent said transverse plate member whereby air may enter the upper portion of said housing, move upwardly on the outside of said motor casing and being drawn into the motor upon operation of said fan to thereby cool the internal portions of said motor.

6. A power roof ventilator comprising a housing having an upper and a lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member for drawing air upwardly through said air inlet into said housing, air control means between said air inlet and said centrifugal fan for limiting the amount of air drawn into said air inlet, a plurality of air outlets in said housing adjacent the periphery of said fan, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which passes through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, a back plate on said fan, said back plate including an outer ring-shaped section and an inner bowl-shaped section, vertical fins extending upwardly from said ring-shaped section for cooling the lower end of said motor, an air inlet disposed in the upper portion of said housing adjacent said transverse plate member whereby air may enter the upper portion of said housing, move upwardly on the outside of said motor casing and be drawn into the motor upon operation of said fan to thereby cool the internal portions of said motor.

7. A power roof ventilator comprising a housing having an upper and lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member for drawing air upwardly through said air inlet into said housing, air control means between said air inlet and said fan for limiting the amount of air drawn into said air inlet by said fan, a series of removable and inter-changeable baffle assemblies which form part of said housing located adjacent the periphery of said fan, each of said baffle assemblies including an outlet opening which is covered by an openwork barrier for allowing air to leave said housing but which prevents birds and animals from entering said housing, each of said baffle assemblies including a wall which overlies its outlet opening for preventing rain from entering said housing, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, and an air inlet disposed in the upper portion of said housing adjacent said transverse plate member, whereby air may enter the upper portion of said housing, move upwardly along the outside of said motor casing and be drawn through said motor upon operation of said fan to thereby cool said motor.

8. A power roof ventilator comprising a housing having an upper and lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member for drawing air upwardly through said air inlet into said housing, air control means between said air inlet and said fan for limiting the amount of air drawn into said air inlet by said fan, a series of removable and inter-changeable baffle assemblies which form part of said housing located adjacent the periphery of said fan, each of said baffle assemblies including an outlet opening which is covered by an openwork barrier for allowing air to leave said housing but which prevents birds and animals from entering said housing, each of said baffle assemblies including a wall which overlies its outlet opening for preventing rain from entering said housing, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, the upper housing portion being proportioned so as to enclose said motor and having a lower end section which extends slightly over and is spaced outwardly from the edges of said plate member, the space between the lower edge of said upper housing portion and the adjacent portion of said lower housing portion providing air inlets through which air may enter the upper portion of said housing, move upwardly along the outside of said motor casing and be drawn through said motor upon the operation of said fan to thereby cool said motor.

9. A power roof ventilator comprising a housing having an upper and lower portion separated by a transverse plate member, an air inlet at the bottom of said housing, a centrifugal fan disposed in said lower housing portion between said air inlet and said plate member for drawing air upwardly through said inlet into said housing, an air control assembly between said air inlet and said fan comprising a first set of adjustable parallel louvers set in a horizontal plane and a second set of adjustable, parallel louvers disposed in transverse relation to said first set of louvers, one of said sets of louvers being operatively connected with said fan to open when the fan is

operating and close when the fan is not operating, a series of removable and inter-changeable baffle assemblies which form part of said housing located adjacent the periphery of said fan, each of said baffle assemblies including an outlet opening which is covered by an openwork barrier for allowing air to leave said housing but which prevents birds and animals from entering said housing, each of said baffle assemblies including a wall which overlies the outlet opening of said baffle assembly for preventing rain from entering said housing, a motor mounted within said upper housing portion in covering relation to a central opening through said plate member, said motor having a casing with openings in the upper and lower ends thereof, the openings in the lower end of said casing communicating with said opening in said plate member, the internal portions of said motor being arranged to permit air to pass therethrough, said motor including a motor shaft which extends through said casing and the opening in said plate member and supportingly engages said fan for rotation therewith, a back plate on said fan, said back plate including an outer ring-shaped section and an inner bowl-shaped section, vertical fins extending upwardly from said ring-shaped section for cooling the lower end of said motor, the upper housing portion being proportioned so as to enclose said motor and having a lower end section which extends slightly over and is spaced outwardly from the edges of said plate member, said upper housing portion being hingedly connected along opposite sides thereof and adjacent its lower end to tab members which extend outwardly from the upper end of said lower housing portion, the space between the lower edge of said upper housing portion and the adjacent portion of said lower housing portion providing air inlets through which air may enter the upper portion of said housing, move upwardly along the outside of said motor casing and be drawn through said motor upon the operation of said fan to thereby cool the motor.

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