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2,710,717

FAN MEANS

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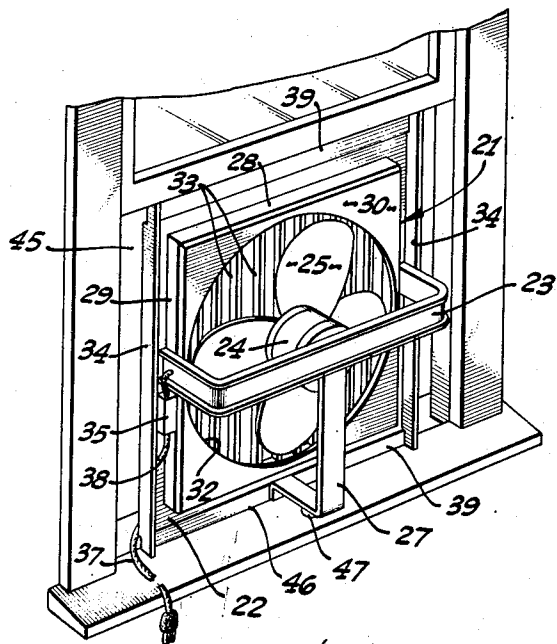
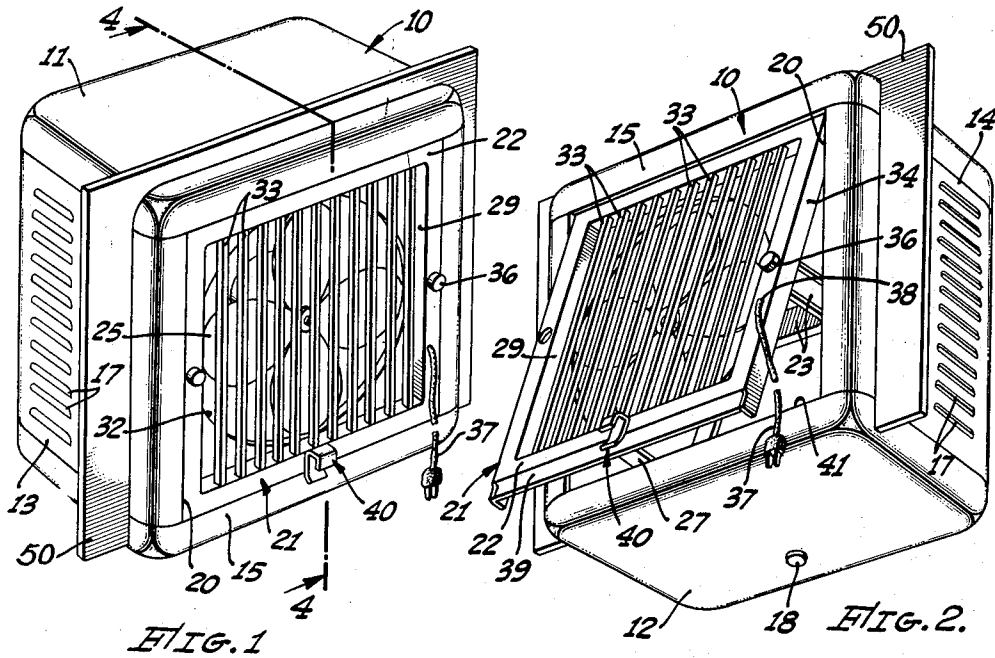


FIG. 3.

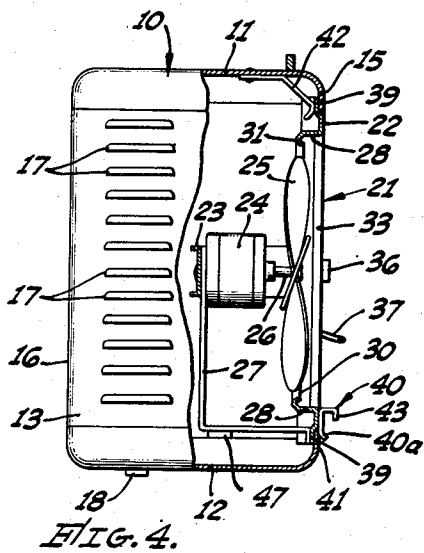


FIG. 4.

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This invention relates to air conditioning apparatus and is particularly directed to improvements in evaporative coolers.

One of the principal objects of my invention is to provide an evaporative cooler having a readily detachable fan section which may be removed from the evaporative cooler casing and moved from room to room as an air circulating fan.

A further object of my invention is to provide an evaporative cooler having a demountable panel which embodies a fan unit so that the fan unit may be employed as a component of the evaporative cooler or as a separate unit, the fan unit being adapted to be detached from the cooler casing and mounted in a window as an exhaust fan, or to be placed on the floor or other surface for use as an air circulation fan.

Another object of my invention is to provide an evaporative cooler having a demountable fan section which is secured to the cooler housing solely by means of releasable clip members permitting the fan section to be quickly and easily attached to or removed from the cooler casing without the use of tools.

Yet another object of my invention is to provide an evaporative cooler with a demountable fan section, the fan section being provided with a supporting leg which also functions as a reinforcing member for the motor and fan mounting.

Another object of my invention is to provide an evaporative cooler with a readily demountable fan section which is provided with a supporting foot adapted to extend into the cooler casing without interference with the component parts of the casing.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawing.

In the drawings:

Figure 1 is a perspective elevation of an evaporative cooler embodying a preferred form of my invention.

Figure 2 is a perspective elevation of the cooler shown in Figure 1, illustrating the fan section in partly demounted position.

Figure 3 is a perspective view of the fan section removed from the cooler proper and mounted in a window as an exhaust fan.

Figure 4 is a sectional elevation taken substantially on the line 4—4 of Figure 1.

Referring now to the drawings, the casing generally indicated 10 includes a top 11, a bottom 12, side walls 13 and 14, and front and rear walls 15 and 16, respectively. A plurality of conventional evaporator pads (not shown) are positioned along the side walls 13 and 14 and back wall 16 of the casing 10. Means are provided for distributing water or other evaporative fluid to the evaporative pads, and these means may include a conventional drip tube (not shown) which may extend around the casing near the top 11 and above the evaporator pads. A plurality of louvers 17 are provided on the side walls

13 and 14 and rear wall 16, through which air to be cooled is delivered to the evaporative pads. A drain plug 18 is provided in the bottom 12 to drain any excess fluid which falls from the evaporator pads.

The front wall 15 of the casing is provided with a non-circular opening 20 in which is removably mounted the fan unit or section 21 which includes a panel member 22. Secured to the panel member is a substantially horizontal U-shaped channel member 23 on which is mounted an electric motor 24 and fan 25, the fan being secured to the motor shaft 26. An L-shaped foot member 27 is secured at one end to the mid portion of the channel 23 and at the other end to the lower portion of the panel 22, providing a reinforcement for the motor mount as well as a foot for supporting the fan section when it is removed from the casing 10, as will be pointed out in more detail below.

The panel 22 is provided with horizontal and vertical reentrant portions 28 and 29 which define a noncircular recess, and integral with the reentrant portions is a shroud 30. The shroud has a curved lip 31 defining a central circular orifice 32, the fan 25 being mounted to rotate within the orifice and concentrically therewith. Secured to the horizontal reentrant portions 28 are a plurality of vertical bars 33 which act as louvers to direct a stream of air outwardly from the fan and also provide a guard means for the rotating fan. The vertical edges 34 of the panel member may be bent rearwardly as shown to provide rigidity to and approve the appearance of the panel. Mounted on the panel member is a switch box 35 having a control knob 36 for the operation of the electric motor 24. The power supply cord 37 is led from the switch box through an aperture 38 in the panel member.

Means are provided for releasably mounting the fan unit 21 in the casing 10, and as shown in the drawings these means may include the upper and lower rearwardly offset portions 39 of the panel member, and the clip element 40 secured to the panel member adjacent the lower offset portion thereof. The clip element has a downwardly and forwardly directed leg 40a which co-operates with the lower offset portion 39 to form a channel adapted to rest on the lower edge 41 of the noncircular opening. It will be noted that the vertical dimension of the panel member 22 is slightly greater than the vertical dimension of the noncircular opening. A pair of spring retainer members 42 are secured to the underside of the top 11 and contact the upper offset portion 39 to prevent rearward movement of the upper portion of the panel member. It will thus be understood that the fan section 21 is held firmly in place by the clip element 40 and lower offset portion 39, and by the spring retainer members 42. The clip element 40 is provided with a handle portion 43, and the entire fan unit may be quickly and easily removed by lifting upwardly on the handle to move the unit vertically a sufficient distance to permit the lower offset portion 39 to clear the lower edge 41. The fan unit 21 may then be swung outwardly (see Figure 2) and removed bodily from the casing 10. In replacing the fan unit within the casing, this order of operations is simply reversed.

The casing 10 is mounted in the conventional manner by a suitable support (not shown) to the outside of a building, with the front wall directed at a window. The evaporative cooler, with the fan unit 22 in assembled relation, is operated in the conventional manner, that is, water is distributed to the evaporative pads and the fan turned on to force cooled and humidified air into the building. The casing may be provided with a flange 50 as shown to provide an effective barrier in windows of different widths.

When it is desired to use the fan unit 22 alone it is

easily removed from the casing as pointed out above. With the fan unit removed, the window containing the casing may then be closed if desired.

The fan unit may be used as an exhaust fan as shown in Figure 3 with the unit in a position so that the fan blows air outwardly through a window opening 43. The fan unit rests firmly on the lower edge 46 of the panel member 22 and upon the foot member 27, which is preferably provided with a resilient pad 47. The fan section is relatively light in weight and easily portable so that it may be moved from room to room and placed on the floor or other surface and used as an air circulation fan, as well as an exhaust fan.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of the construction set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. In an evaporative cooler, the combination of a casing including a front wall having a non-circular opening; and a fan unit including a panel having a central opening and a horizontal lower edge, the panel being releasably secured to said casing in a position to cover the non-circular opening in said front wall, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the lower edge of said panel to support the fan unit in an upright position when it is removed from the casing.

2. In an evaporative cooler, the combination of a casing including a front wall having upper and lower edges defining a non-circular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening, clip means releasably securing the panel member on the lower edge of said front wall with the panel member covering the non-circular opening, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the panel to support the fan unit in an upright position when it is removed from the casing.

3. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, a clip element mounted on said panel adjacent the lower offset portion, said clip element having a downwardly-directed leg which cooperates with the offset portion in restricting horizontal movement of the lower portion of the panel member, and a spring retainer member secured to the casing and adapted to contact the upper portion of the panel member to restrict horizontal movement thereof.

4. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, the lower offset portion resting on said lower edge of the front wall, and means for securing the panel member against horizontal

movement with respect to the casing, the vertical dimension of the panel member being only slightly greater than the vertical dimension of the rectangular opening so that the fan unit may be removed from the casing by sliding the panel section upwardly and withdrawing the same in a forward and downward direction with respect to the casing.

5. In an evaporative cooler, the combination of a casing including a front wall having upper and lower edges defining a non-circular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening and a horizontal lower edge, clip means releasably securing the panel member on the lower edge of said front wall with the panel member covering the non-circular opening, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the lower edge of said panel to support the fan unit in an upright position when it is removed from the casing.

6. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, the lower offset portion resting on said lower edge of the front wall, means for securing the panel member against horizontal movement with respect to the casing, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the panel to support the fan unit in an upright position when it is removed from the casing.

7. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening and a horizontal lower edge, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, the lower offset portion resting on said lower edge of the front wall, means for securing said panel member against horizontal movement with respect to the casing, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the lower edge of said panel to support the fan unit in an upright position when it is removed from the casing.

8. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, a clip element mounted on said panel adjacent the lower offset portion, said clip element having a downwardly-directed leg which cooperates with the offset portion in restricting horizontal movement of the lower portion of the panel member, a spring retainer member secured to the casing and adapted to contact the upper portion of the panel

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member to restrict horizontal movement thereof, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the panel to support the fan unit in an upright position when it is removed from the casing.

9. In an evaporative cooler, the combination of a casing including a front wall having upper and lower horizontal edges and vertical edges defining a rectangular opening; and a fan unit detachably connected to said casing, said fan unit including a panel member having a central opening and a horizontal lower edge, horizontal rearwardly extending upper and lower offset portions on the panel member permitting the same to be mounted in the rectangular opening with the panel flush with the front wall, a clip element mounted on said panel adjacent the lower offset portion, said clip element having a downwardly-directed leg which cooperates with the offset

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portion in restricting horizontal movement of the lower portion of the panel member, a spring retainer member secured to the casing and adapted to contact the upper portion of the panel member to restrict horizontal movement thereof, a motor, a fan carried on the motor, and means for mounting the fan and motor on said panel with the fan in a position to blow air through said central opening and with the fan and motor wholly contained within the casing, said means including a foot member cooperating with the lower edge of said panel to support the fan unit in an upright position when it is removed from the casing.

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