

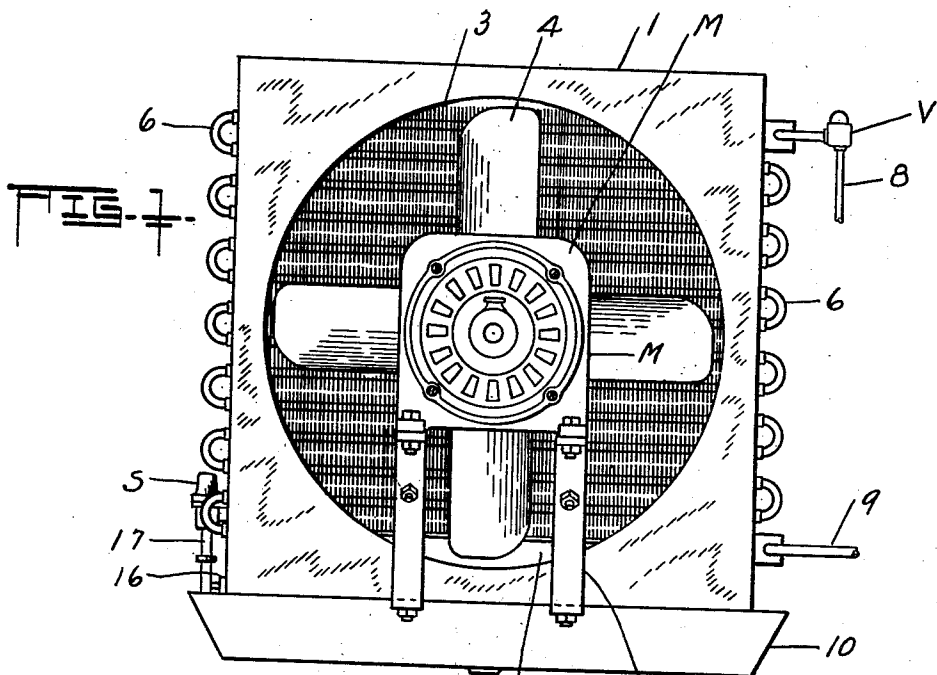
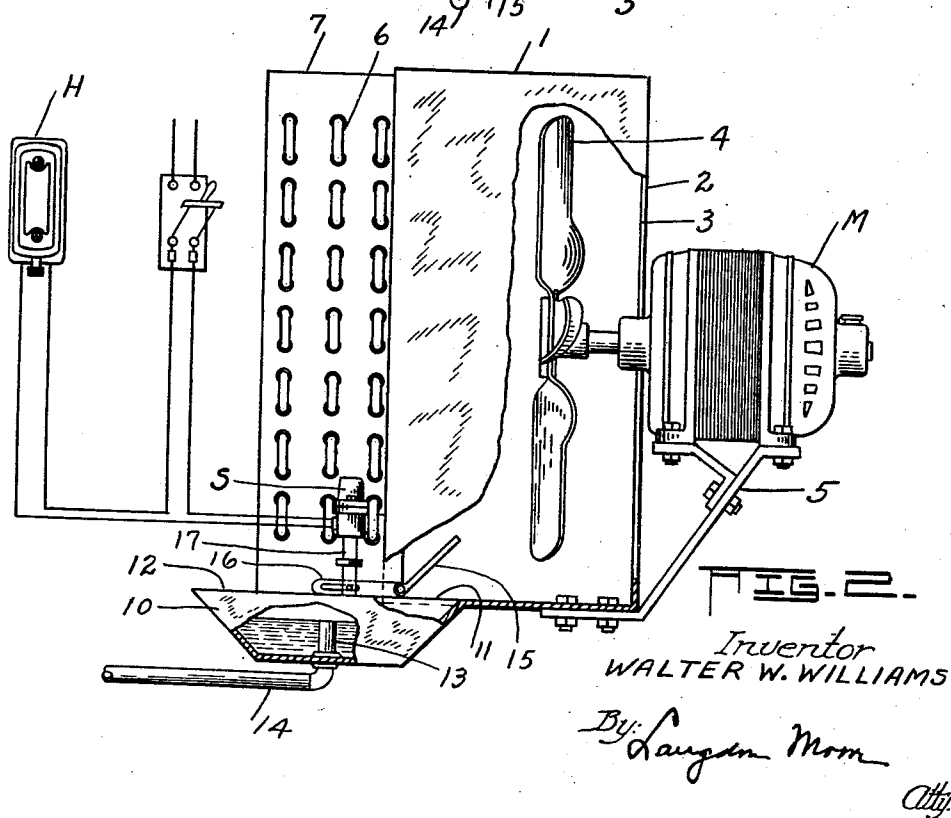
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W. W. WILLIAMS

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UNIT COOLER

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UNIT COOLER

Walter W. Williams, Bloomington, Ill.

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4 Claims. (Cl. 62—129)

This invention relates to improvements in unit coolers.

It is an object of this invention to provide a device of this character which is compact in form and simple in operation and is adapted for installation in the room in which it is desired to cool and humidify or dehydrate the air therein, as the case may be.

With these and other objects in view, reference is made to the accompanying sheet of drawing which illustrates a preferred form of this invention, with the understanding that minor detail changes may be made therein without departing from the scope thereof.

In the drawing:

Figure 1 is a view in rear elevation of a preferred form of this device.

Figure 2 is a view in side elevation with parts broken away and partly in section and diagrammatically illustrating its wiring to a humidifier control.

In carrying out this invention, a rectangular frame 1 is provided with a rear closure 2 having a circular opening 3 therein. A motor operated fan 4 of the propeller type is mounted within the casing 1 preferably with the motor M mounted on a bracket 5 exteriorly of the closure 2. An evaporator of a refrigerating system preferably in the form of a plurality of parallel cooling pipes 6 connected to each other, as shown in Figure 1, having radiating fins thereon, mounted in a frame 7, is secured to the open or front side of the casing 1. The refrigerant enters through pipe 8 from the high side of the refrigerating unit, not shown, and passes through the expansion valve V, into the upper pipe 6, travels through said series of pipes and leaves the evaporator by pipe 9 to the low side of the refrigerating unit.

A pan 10 open at the top is secured under the evaporator and a portion of the rectangular casing 1 and that portion of the casing 1 thereover is cut away, as shown in Figure 2.

Upon operating the motor, the fan draws warm air through the opening 3 and forces it over the pipes of the evaporator or cooling unit into the room thereby reducing the temperature of the air and at the same time condensing a certain amount of moisture from it which drops down from the pipes 6 of the cooling unit and is caught in the pan 10. At the same time a certain amount of air from the fan passes downward through the opening 11 in the casing 1 and is caused to pass over the water of condensation collected in the pan 10 taking up a certain amount

of moisture in its passage and the air so humidified is discharged through the opening 12 of the pan 10 in front of the cooling unit in the casing 7 and is diffused with the air having passed through the evaporator coil 6 and is carried therewith.

An over-flow pipe 13 is provided in the pan 10 which passes through the bottom thereof and is connected to a pipe 14 leading to the sewer.

In order to vary the humidifying action of the air current passing over the water of condensation in the pan 10, a valve or door 15 adapted to close the entire opening 11 is pivoted at one side thereof and is provided with an operating lever 16 having a lost motion connection with a core 17 of a solenoid S mounted at one side of the casing 7 as shown in Figure 2. In this device, as shown upon Figure 2, retraction of the core 17 within the solenoid S will swing the door 15 about its pivot to vary the amount of air from the fan deflector by the door through opening 11 and over the water of condensate in the pan 10. It is preferable to connect the solenoid S in series with a humidistat H to a source of electricity. Commercial humidistats are responsive to humidity changes in the surrounding atmosphere and are employed in practice to open and close or vary a current of electricity to control the humidifying apparatus so that in this case the humidistat, when the surrounding air reaches a predetermined degree of moisture, saturation or humidity will either close or partially close the door 15 through the solenoid S, as may be desired and when the humidity drops below the predetermined degree, the humidistat will operate the solenoid to open or increase the opening of the door 15.

From the above description it is obvious that if it is desirable to dehydrate the air in the room, the moisture in the air circulated by the fan 4 to pass through the cooler 6 will be condensed upon the coils thereof and drop with the pan 10 so that if the door 15 remains in its position closing the opening 11 to the pan, no air current will pass over the liquid in the pan, its level will rise, and the excess water will pass out through the overflow pipe 13. The condensed moisture is not replaced in the cooled air but is withdrawn from the pan by the overflow pipe.

What I claim is:

1. A unit air cooler and humidifier including a casing, a fan blower therein, an air intake in the casing wall behind the fan, a cooling unit having spaced apart members circulating a refrigerant secured to the casing in front of the cas-

- ing, an opening provided in the bottom of the casing adjacent the cooling unit, a pivoted closure for said opening for deflecting a portion of the air from the fan through said opening, an open pan secured to the underside of the casing communicating through said opening with the interior of the casing and extending beyond the front of the cooling unit, whereby warm air is drawn into the casing by the fan and forced therefrom through the cooling unit and over the condensation caught in the pan and means to rotate said closure to control the deflected air from the fan.
2. A unit air cooler and humidifier including a casing, a fan blower therein, an air intake in the casing wall behind the fan, a cooling unit having spaced apart members circulating a refrigerant secured to the casing in front of the casing, an opening provided in the bottom of the casing adjacent the cooling unit, a pivoted closure for said opening for deflecting a portion of the air from the fan through said opening, an open pan secured to the underside of the casing communicating through said opening with the interior of the casing and extending beyond the front of the cooling unit, whereby warm air is drawn into the casing by the fan and forced therefrom through the cooling unit and over the condensation caught in the pan, and electrically actuated means for operating said closure.
3. A unit air cooler and humidifier including a casing, a fan blower therein, an air intake in the casing wall behind the fan, a cooling unit having spaced apart members circulating a refrigerant secured to the casing in front of the casing, an opening provided in the bottom of the casing adjacent the cooling unit, a pivoted closure for said opening for deflecting a portion of the air from the fan through said opening, an open pan secured to the underside of the casing communicating through said opening with the interior of the casing and extending beyond the front of the cooling unit, whereby warm air is drawn into the casing by the fan and forced therefrom through the cooling unit and over the condensation caught in the pan, electrically actuated means for operating said closure, and an overflow pipe in the pan to remove excess condensation upon continued dehydration by maintaining the casing opening to the pan closed.
4. A unit air cooler and humidifier including a casing, a fan blower therein, an air intake in the casing wall behind the fan, a cooling unit having spaced apart members, circulating a refrigerant secured to the casing in front of the casing, an opening provided in the bottom of the casing adjacent the cooling unit, a pivoted closure for said opening for deflecting a portion of the air from the fan through said opening, an open pan secured to the underside of the casing communicating through said opening with the interior of the casing and extending beyond the front of the cooling unit, whereby warm air is drawn into the casing by the fan and forced therefrom through the cooling unit and over the condensation caught in the pan, electrically actuated means for operating said closure, and an overflow pipe in the pan to remove excess condensation upon continued dehydration by maintaining the casing opening to the pan closed.

WALTER W. WILLIAMS.

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