

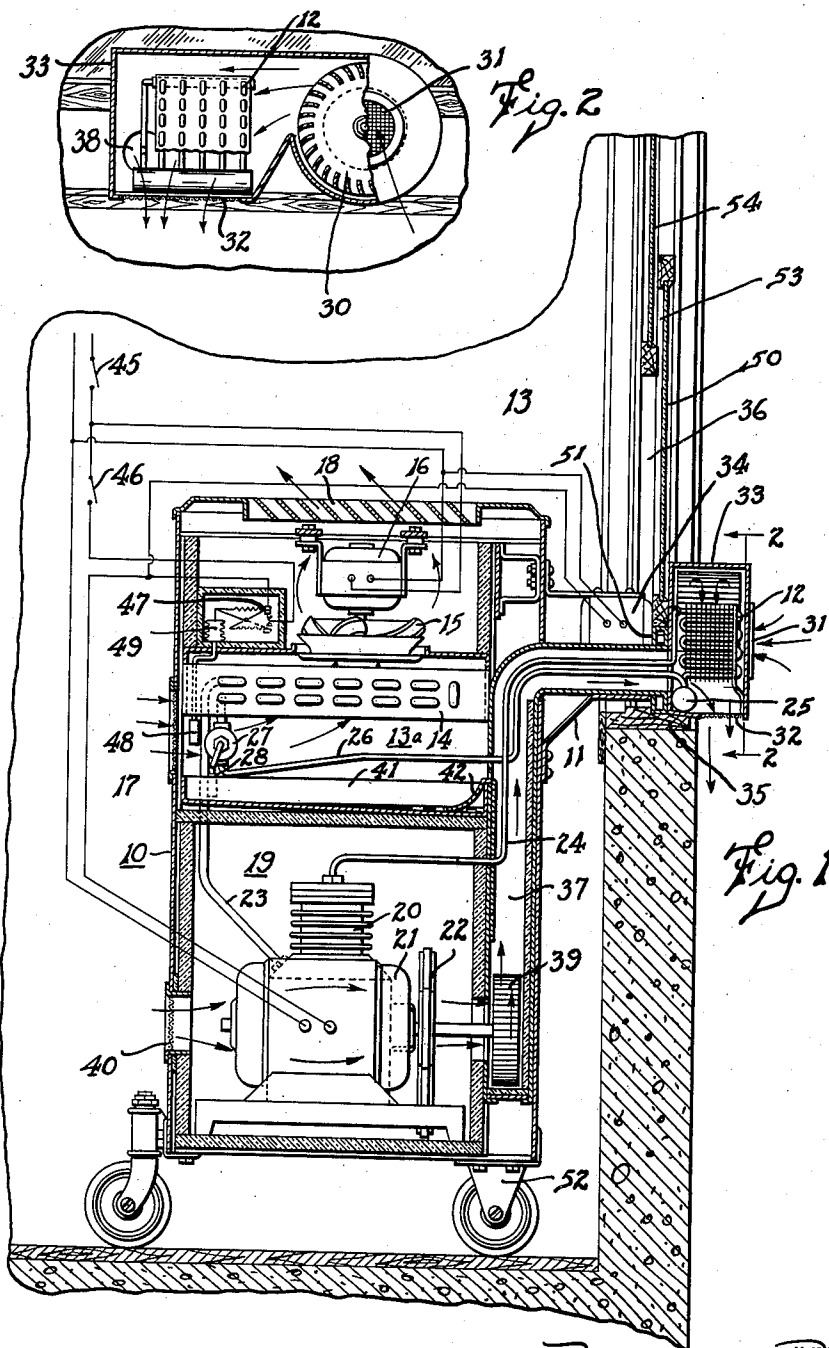
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REFRIGERATING APPARATUS

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REFRIGERATING APPARATUS

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This invention relates to refrigeration and more particularly to self-contained air conditioners.

It is among the objects of this invention to provide a room cooler or air conditioner which does not require water pipe connections and which is adapted to insure the introduction of fresh air into the room.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred form of the present invention is clearly shown.

In the drawing:

Fig. 1 is a vertical cross-sectional view, somewhat diagrammatic, of an apparatus embodying features of my invention; and

Fig. 2 is a vertical cross-sectional view taken along the line 2-2 of Fig. 1.

An apparatus embodying features of my invention includes, in general, a cabinet 10 provided with bracket means 11 which are adapted to support heat dissipating means in the form of a condenser 12 outside of a room 13 in which the conditioner is adapted to be located. The cabinet 10 is provided with an air conditioning chamber 13^a in which a heat absorber or evaporator 14 is located. Means are provided for circulating air to be conditioned in thermal exchange with the evaporator 14, and this may take the form of a blower 15 driven by a motor 16 which causes air from the room, or outside the room, to enter through the inlet 17, flow past the evaporator 14 and be discharged in a cooled or dehumidified condition through the outlet 18.

The cabinet 10 may also be provided with a compressor chamber 19 in which a refrigerant translator or compressor 20 is located. In addition, this compartment may also contain a motor 21 which drives the compressor through the medium of a belt 22. The compressor 20 withdraws refrigerant from the evaporator 14 through the suction line 23 and discharges the compressed refrigerant to the condenser 12 through the line 24. The condensed refrigerant gathers in the receiver 25 and flows from thence through the line 26 to the expansion valve 27. This expansion valve may be of the type which automatically introduces refrigerant into the evaporator whenever the pressure therein drops below a predetermined limit, which limit preferably corresponds to a vapor pressure above 32° F. The expansion valve may be provided with a thermostatic bulb 28 placed in the suction line 23 near the outlet of the evaporator which tends to

throttle the valve 27 whenever the refrigerating effect reaches the bulb, and thus prevents the introduction of liquid refrigerant into the compressor 20.

Means are provided for circulating air from outside the room 13 over the condenser 12. This may take the form of a blower 30 having an air intake at 31 and which discharges air over the condenser and from thence through the outlet 32 in the bottom of casing 33. The blower 30 may be driven from a motor 34 which, in this case, is conveniently mounted on the sill 35 of the window 36.

Means are provided for discharging air from the room 13 to the outside. This may take the form of a conduit 37 which is supported on the bracket means 11 and discharges through the outlet 38 into the casing 33 and from thence through the outlet 32. A blower 39 is provided for causing flow of air, and this blower conveniently may be driven from the motor 21 and causes air to enter at the inlet 40 from the room 13, flow through the chamber 19 over the compressor 20 and motor 21, thus cooling them, and thereafter be discharged through the window 36 through the outlet 32.

Means are provided for discharging moisture condensed on the evaporator 14 outside of the room. Thus a drain pan 41 is placed to receive the moisture condensed on the evaporator from the air to be conditioned, and a wick 42 extends from the interior of the pan 41 into the conduit 37. The moisture in the pan 41 is thus transferred, by capillary action, to the air passing through the conduit 37 and is discharged in vapor form through the outlet 32 outside the room.

Means may be provided for controlling various parts of the apparatus. Thus a master switch 45, which may be manually controlled, governs all of the motors in the apparatus. When this switch is closed the motor 16 operates and drives the fan 15. The fan 15 may thus be operated at any time, and if other switches hereafter to be described are not closed, the fan 15 may operate independently of the refrigerating system. If refrigeration is desired, a second manually operated switch 46 may be closed and the closing of this switch places the control of the operation of the motors 21 and 34 under the control of switch 47. The switch 47 may be made responsive to atmospheric conditions, preferably of the atmosphere in the room 13. Thus a thermostatic bulb 48, which may be a dry bulb, wet bulb, or combination of both, operates a bellows 49 and opens and closes the switch 47. The bulb 55

48 conveniently can be placed near the inlet 17 where the air flowing thereover is a representative of the air in the room 13. When the temperature of the bulb 48 rises to a predetermined limit the switch 47 is closed and the motors 21 and 34 together with the devices driven thereby are caused to operate in conjunction until such time as the temperature of the bulb 48 drops to a lower predetermined limit when the switch 47 is opened.

The bracket means 11 may be caused to cooperate with the sill 35 so that the same may be in substantially sealed relationship with the sash 50. A false sill 51 may be incorporated in the bracket means and this may be made adjustable to the width of the window or may be made of the exact size necessary for the window. The bracket means 11 may be made adjustable on the cabinet 10, or the cabinet 10 may be vertically adjustable on the supports 52 in a well-known manner.

When air is forced out of the room through the conduit 37, air infiltrates into the room through various openings in the room. For example, air may enter through the passageway 53 left open by the partially lowered sash 50. However, the sash 50 may be made shorter to accommodate the new height of sill, so that the same is in substantially sealing relationship with the upper sash 54. In such case, the air will enter the room through various openings, and is thus diffused throughout the room without causing any discomfort to the occupants.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. In an air conditioner for a room or the like, an evaporator and compressor in said room, a condenser outside said room, a blower to circulate air outside said room over said condenser,

a condenser blower motor connected to said blower, a second blower to circulate air to be conditioned over said evaporator, conduit means to circulate air from said room out of said room, a third blower for said conduit means, a compressor motor connected to said compressor and to said third blower, switch means responsive to conditions in said room for controlling the operation of said motors.

2. In an air conditioner for a room or the like, an evaporator and compressor in said room, a condenser outside said room, a blower to circulate air outside said room over said condenser, a condenser blower motor connected to said blower, a second blower to circulate air to be conditioned over said evaporator, conduit means to circulate air from said room out of said room, a third blower for said conduit means, a compressor motor connected to said compressor and to said third blower.

3. In combination, a cabinet, bracket means on said cabinet adapted to extend outside a window in which said cabinet is to be placed, an air conditioning chamber in said cabinet, an evaporator in said chamber, a blower for circulating air past said evaporator, a compressor chamber in said cabinet, a compressor in said compressor chamber, a condenser supported on said bracket means, a blower circulating air from outside said room past said condenser, a blower for circulating air from said room out said window, and a common control controlling the operation of at least two of said blowers.

4. In an air conditioner for a room or the like, an evaporator and compressor located in said room, a condenser located outside said room, means to circulate air outside said room over said condenser, means including a wick to discharge condensation, and means to circulate air from said room over said compressor and thereafter over said wick and out of said room.

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