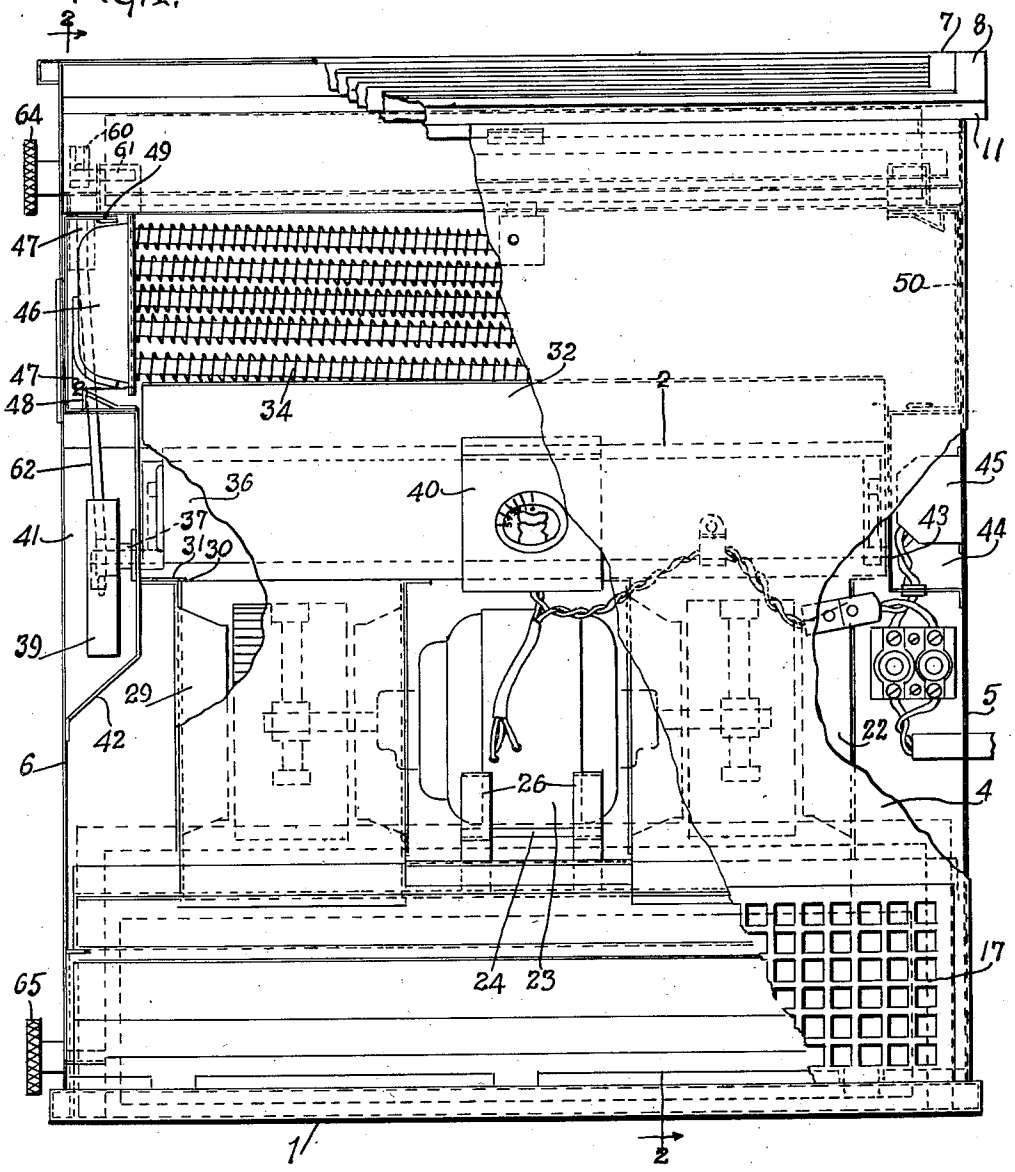
April 26, 1927. 1,626,172

J. A. WOLFE

HEATING AND VENTILATING APPARATUS

Filed Dec. 7, 1925 2 Sheets-Sheet 1

Fig. 1.



Inventor
JAY AUSTIN WOLFE,
By
Taulmin & Taulmin,
Attorneys

April 26, 1927. 1,626,172

J. A. WOLFE

HEATING AND VENTILATING APPARATUS

Filed Dec. 7, 1925 2 Sheets-Sheet 2

Fig. 2.

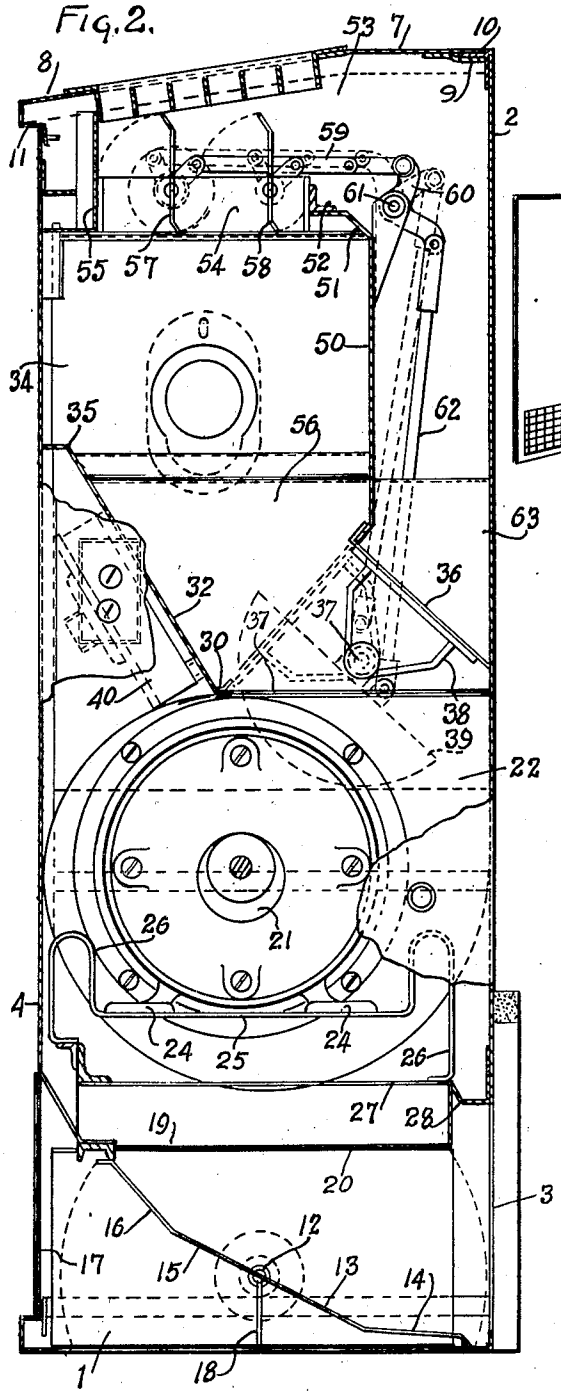


Fig. 3.

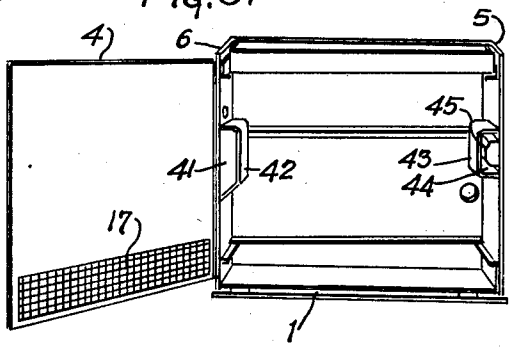
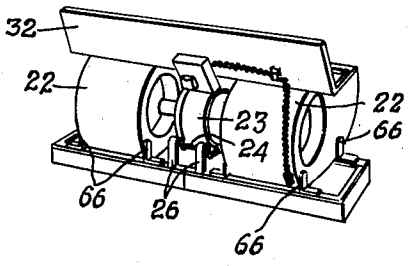


Fig. 4.



Inventor
JAY AUSTIN WOLFE,
By Paulsen & Paulsen
Attorneys

Patented Apr. 26, 1927. 1,626,172

UNITED STATES PATENT OFFICE.

JAY AUSTIN WOLFE, OF COLUMBUS, OHIO, ASSIGNOR TO THE COLUMBUS HEATING AND VENTILATING COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

HEATING AND VENTILATING APPARATUS.

Application filed December 7, 1925. Serial No. 73,946.

My invention relates to heating and ventilating units.

It is my object to provide a heating and ventilating unit of the minimum height and width, in which the air resistance will be reduced to a minimum, by the arrangement of the parts, as set forth herein.

In detail, it is my object to provide a simplified form of bottom intake and re-circulating damper, an improved form of deck between the blower housings and the radiator to eliminate eddying currents and to secure a more regular flow of air.

It is a further object to provide a radiator which is completely enclosed, both top and bottom, when the air is by-passed, thus preventing stray eddying currents from entering the radiator, circulating through the coils and eventually finding their way up the by-pass carrying with them considerable heat.

It is a further object to provide a novel form of blower mounting.

It is my object to provide a stream line apparatus affording the least resistance to the passage of air.

Referring to the drawings:

Figure 1 is a front elevation of the complete housing with the front door partially broken away and with the blower casing and deck partially broken away;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a view of the cabinet with the front door open, with the radiator unit and the blower and deck unit removed to show the detachability of the structure, its ease of assembly and ease of cleaning;

Figure 4 is a perspective of the complete unit of the blower and its deck.

Referring to the drawings in detail, 1 is the bottom of the unit casing having a rear wall 2, which abuts against the inside of the building wall. The bottom of this wall is provided with an opening 3 through which the air passes from the outside. A swinging front door 4 is provided with end walls 5 and 6 completing the casing save for the top which is composed of a flat portion 7 and a diagonally-disposed portion 8 which has a series of perforations to form a grill. This top can be lifted off of the casing as it rests on the rear and the side walls.

The portion 7 is provided with a depending, parallel strip spaced therefrom, designated 9, which is adapted to engage with the transverse, overhanging angle iron 10 along the upper inside margin of the rear wall 2. This top is provided with overhanging flanges 11, which rest on the side walls 5 and 6. Thus the top can be taken off easily for cleaning of the upper part of the structure.

In the side walls in the lower half of the structure is pivoted on the transverse support 12 a damper consisting of portions 13 and 14 which serve to close the inlet air opening, and portions 15 and 16 which serve to close the re-circulating opening 17 in the form of a grill in the lower part of the front door 4 of the front wall casing.

Beneath the pivotal support 12 is a transverse vertical plate 18 carried on the bottom 1 of the casing. It will be noted from the arrangement of the casing that the damper can control the introduction of the air from the outside or from the inside of the room, according to the setting thereof. To insure this, there is a transverse partition 19 having an air opening 20, which insures that the air will pass upwardly within the casing into the eye 21 of the blower casings 22 and 29. The blowers and the motor are resiliently supported through the motor 23 having its feet 24 resting on a transverse platform 25 which is hung on spring supports 26 that have their lower ends resting upon the transverse member 27 and the platform 28. The blower casings 22 and 29 are suspended at 30 from the transverse, horizontal deck 31 which is extended midway the depth of the casing upwardly and inwardly towards the room, as at 32, to a point where it joins the door of the casing just at the corner of the radiator 34, as at 35. On the other side and parallel with a portion of the deck 32 is a damper 36 pivoted at 37. This damper is mounted on a bracket 38 to which is attached a counter weight 39. The motor control box 40 is hung on the under side of the deck 32 where it can be easily reached by opening the door of the cabinet. This counter weight 39 is installed within a chamber 41 formed by the end walls 6 and an enclosing bracket 42, which serves as a support for the shaft 37 at one end. The other end of this shaft 37 is supported on a bracket 43 on the side wall 5, which forms a chamber 44 for housing the three-pole key

switch 45. Mounted on these bracket supports 42 and 43 are the ends 46 of the radiator 34. These ends are provided with horizontal guides 47, which rest upon the steel radiator wedges 48 that are, in turn, supported on the bracket 42 and 43. Thus, it is possible to install the radiator and wedge it in the proper position or detach it, as desired. The upper portions of the ends of the radiator are provided with similar guides 47 so that the radiator is guided into position beneath the overhanging ledges 49 carried on the end walls 5 and 6. An upper wedge is provided adjacent the wall 5 for locating the radiator. The radiator is enclosed on one side by the door and on the rear by the upwardly extending wall 50, which extends from the damper 36 upwardly to the top of the radiator then inwardly at 51 to the angle iron 52 which forms one wall of the room 53 around the mouth 54 of the opening above the radiator. The remainder of this cap plate is designated 55 near the front wall of the casing. Thus, the radiator is completely enclosed save for the lower opening through the passageway 56 and the upper opening through the passageway 54. This upper opening 54 is closed by the mixing dampers 57 and 58 which are connected to the links 59. These links are, in turn, connected to a bell crank 60 pivoted at 61 on a side wall of the casing. A connecting link 62 is connected to the bell crank at one end and to the counter weight of the damper 36 at the other.

It will be noted that this damper 36 either closes the passageway 63 or the passageway 56. It will be further noted that when the passageway 56 is closed, the dampers 57 and 58 will be closed, and that the radiator will be completely enclosed, so that no air can touch it in any way.

A knob 64 is adapted to control the mixing dampers and a knob 65 controls the inlet damper.

The frame 27 carries a plurality of uprights 66 which serve as guides to assist in maintaining in proper position the blower casings 22 and 29.

It will be understood that I desire to comprehend within my invention such modifications as may be necessary to adapt it to varying conditions and uses.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In combination, a casing having an inlet opening near the bottom thereof, a blower discharging upwardly, a radiator and by-pass passageway above said blower, stationary means to partially enclose said radiator, dampers at the top and bottom of said radiator, the bottom damper being common to the by-pass passageway, and an exit opening at the top of the casing, said dampers being interconnected so that, when the by-pass passageway is open, the radiator will be completely enclosed.

2. In combination, a casing having an inlet opening near the bottom thereof, a blower discharging upwardly, a radiator and by-pass passageway above said blower, stationary means to partially enclose said radiator, dampers at the top and bottom of said radiator, the bottom damper being common to the by-pass passageway, and an exit opening at the top of the casing, said dampers being interconnected so that, when the by-pass passageway is open, the radiator will be completely enclosed, and a counter weight attached to said dampers.

3. In combination, a main casing having means to admit air at the bottom thereof, metallic means to resiliently support a motor and fans composing a part of a blower, a deck connected to the walls of the casing, a fan housing completing the remainder of the blower supported on said deck, said deck having an opening for the exit of air therethrough, a radiator above said motor, fans and fan housing, means to by-pass the air around said radiator or pass air through it, whereby the vibration of the motor and fans will not be communicated to the fan housing, the main casing and the radiator thereby eliminating undesirable noise from the combination when the motor is in operation.

4. In combination, a main casing having means to admit air at the bottom thereof, metallic means to resiliently support a motor and fans above the bottom of the casing, a deck, a fan housing supported on said deck ccoperating with said motor and fans, said deck having an opening for the exit of air therethrough, a radiator above said motor, fans and fan housing, a casing enclosing said radiator having an opening at the top and at the bottom, means to control said openings whereby the air drawn into the main casing at the bottom may be discharged through the radiator or to one side of it.

5. In combination, a main casing having means to admit air at the bottom thereof, metallic means to resiliently support a motor and fans above the bottom of the casing, a deck, a fan housing supported on said deck cooperating with said motor and fans, said deck having an opening for the exit of air therethrough, a radiator above said motor, fans and fan housing, a casing enclosing said radiator having an opening at the top and at the bottom, means to control the openings whereby the air drawn into the main casing at the bottom may be discharged through the radiator or to one side of it, said casing being so arranged that an inlet opening is at one side of the bottom and a re-circulation opening at the other, and a damper located therebetween to control the passage of air

through either side of the casing at the bottom thereof.

6. In combination, a main casing having means to admit air at the bottom thereof, metallic means to resiliently support a motor and fans above the bottom of the casing, a deck, a fan housing supported on said deck cooperating with said motor and fans, said deck having an opening for the exit of air therethrough, a radiator above said motor, fans and fan housing, a casing enclosing said radiator having an opening at the top and at the bottom, means to control said openings whereby the air drawn into the main casing at the bottom may be discharged through the radiator or to one side of it, said main casing being so arranged that an inlet opening is at one side of the bottom and a re-circulation opening at the other, and a damper located therebetween to control the passage of air through either side of the casing at the bottom thereof, and means located below and cooperating with the damper to prevent the passage of air from one opening to the other.

7. In combination, a main casing having an inlet and re-circulating openings at the bottom thereof, a damper for controlling said openings, motor and fans, means for suspending resiliently above said openings the motor and its fans, a transverse deck having an opening therein located adjacent said main casing, blower casings for said fans connected to the deck, a radiator spaced above said deck, a radiator enclosing casing for supporting on said casing said radiator means completely enclosing said radiator save for a bottom opening and a top opening to allow the passage of air therethrough, said radiator being so arranged that there is a by-pass passageway between the main casing and the radiator enclosing casing, a damper adapted to close the by-pass passageway or the entrance to the radiator, dampers adapted to control the exit passageway from the radiator, interconnecting means interconnecting said dampers, said main casing having an exit passageway above the exit passageway of the radiator.

8. In combination, a main casing having an inlet and re-circulating openings at the bottom thereof, a damper for controlling said openings, a motor and fans, means for suspending resiliently above said openings the motor and its fans, a transverse deck having an opening therein, located adjacent said main casing, a dividing deck, blower casings for said fans connected thereto, a radiator spaced above said deck, means for supporting on said casing said radiator a blower and fans, fan casings completely enclosing said radiator save for a bottom opening and a top opening to allow the passage of air therethrough, said radiator being so arranged that there is a by-pass passageway between the main casing and the radiator enclosing casing, a damper adapted to close the by-pass passageway or the entrance to the radiator, dampers adapted to control the exit passageway from the radiator, interconnecting means interconnecting said dampers, said main casing having an exit passageway above the exit passageway of the radiator, said deck being transversely arranged in one part and diagonally arranged in another part leading from the blower casings upwardly to the radiator.

9. In combination in a main casing of a heating and ventilating unit, an air entrance compartment, a blower compartment, a blower and fans, fan casings, means to support said blower motor and fans resiliently, means to support said resilient means and to carry the fan casings and blower, a dividing deck, means to slidably support said supporting means on said casing and the bottom thereof and means to support the dividing deck in said casing on said blower casings, said deck, blower casings, motor and supports being adapted to be slidably removed as a unit, and a radiator thereabove through which air is delivered through the deck and out the top of the casing.

10. In combination for a heating and ventilating unit, a blower unit, a deck supporting said blower unit, a radiator unit, means for slidably supporting the blower unit and its deck, means for slidably supporting the radiator unit whereby said units may be detachably removed from said heating and ventilating unit without disturbing each other.

11. In combination for a heating and ventilating unit, a blower unit, a deck supporting said blower unit, a radiator unit, means for slidably supporting the blower unit and its deck, means for slidably supporting the radiator unit whereby said units may be detachably removed from said heating and ventilating unit without disturbing each other, and a swinging door on the front of said heating and ventilating unit having a grill at the bottom thereof for the entrance of air therein for recirculating purposes.

12. In combination, a main casing having means for admitting air and permitting the exit of air, a blower unit therein, a radiator, means for slidably and detachably supporting said radiator on the walls of said casing, inwardly extending supports for this purpose adapted to form chambers within the casing, a damper supported by the walls of said chambers, a counter weight in one of said chambers and electrical control apparatus in the other of said chambers for controlling the blower unit.

13. In combination, a main casing having means for admitting air and permitting the exit of air, a blower unit therein, a radiator,

means for slidably and detachably supporting said radiator on the walls of said casing, inwardly extending supports for this purpose adapted to form chambers within the casing, a damper supported by the walls of said chambers, a counter weight in one of said chambers and electrical control apparatus in the other of said chambers for controlling the blower unit, and wedge means associated with said casing for wedging said radiator in position.

In testimony whereof, I affix my signature.

JAY AUSTIN WOLFE.