Nov. 13, 1923. 1,473,896

J. A. WOLFE

HEATING AND VENTILATING EQUIPMENT

Filed June 14, 1922 3 Sheets-Sheet 1

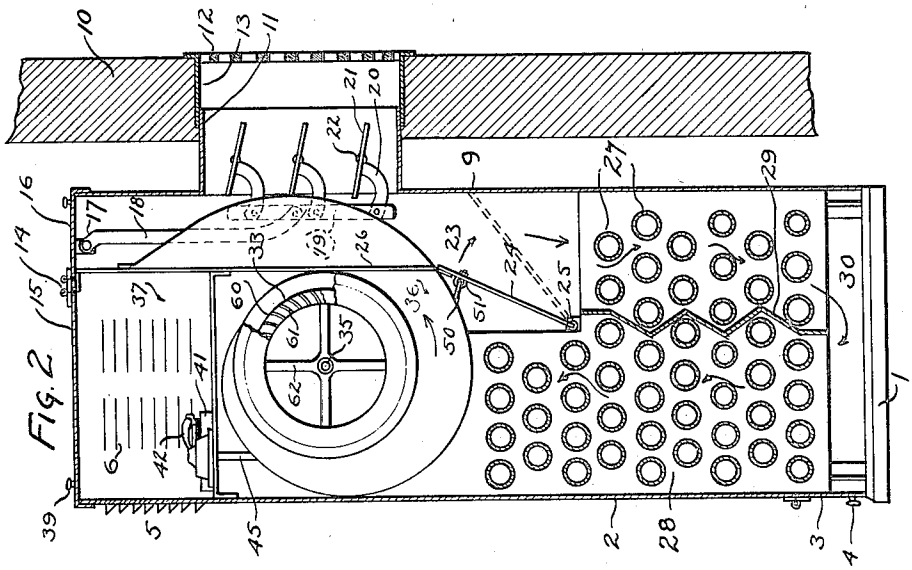

Fig. 2

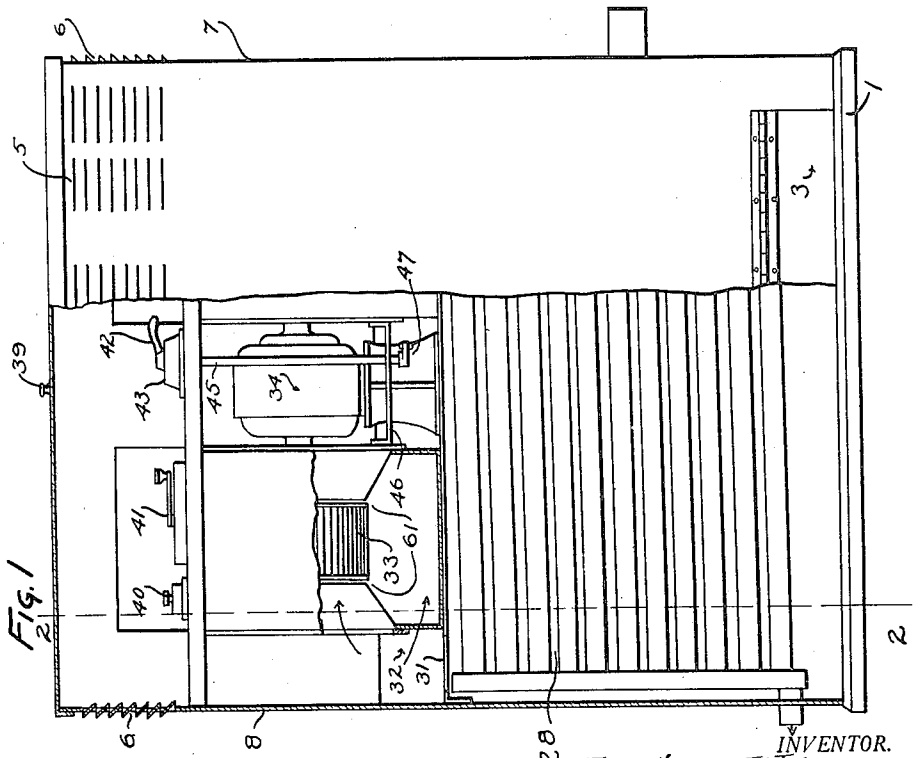

Fig. 1

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Fig. 4

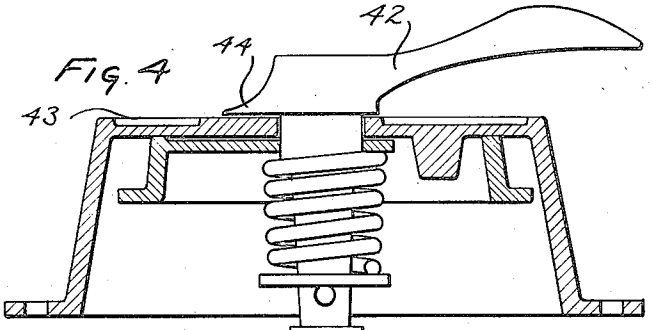
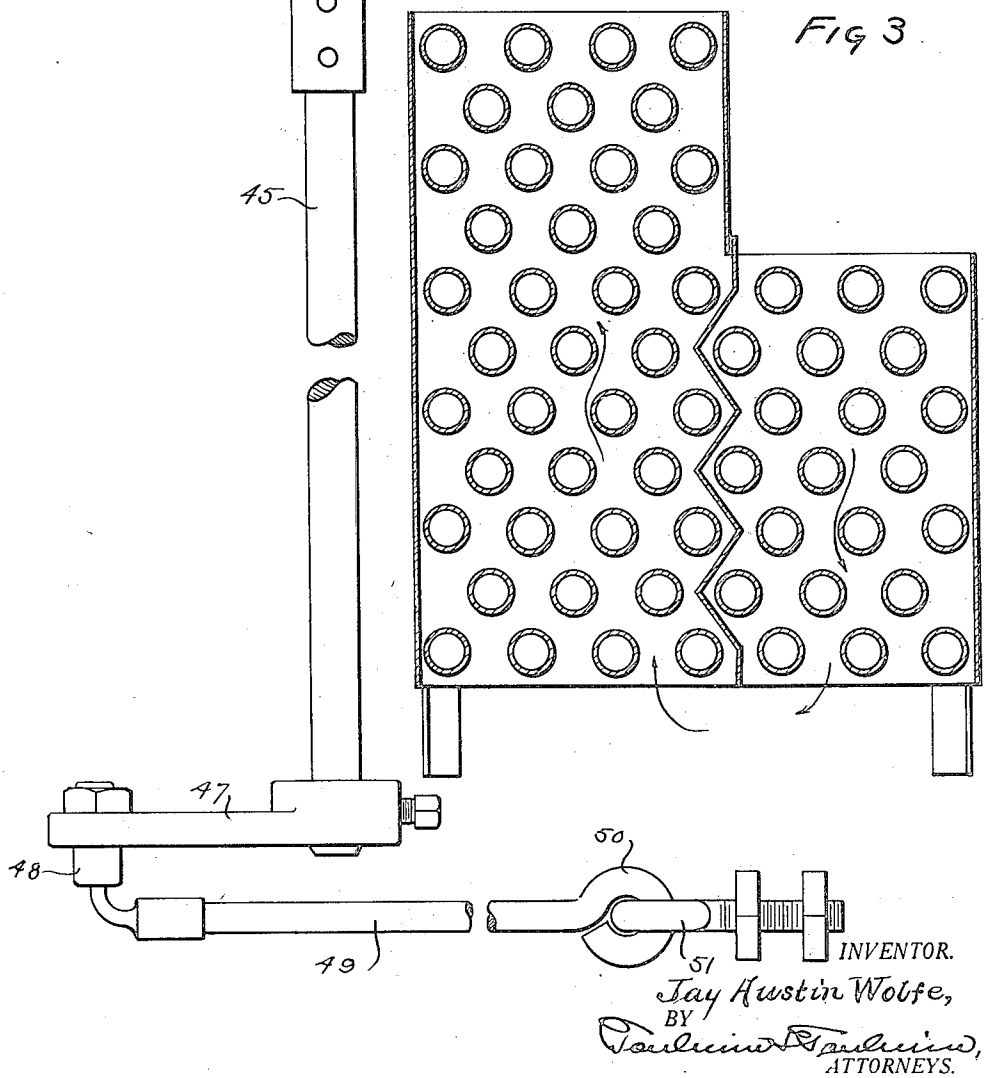


Fig 3



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HEATING AND VENTILATING EQUIPMENT

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FIG. 5.

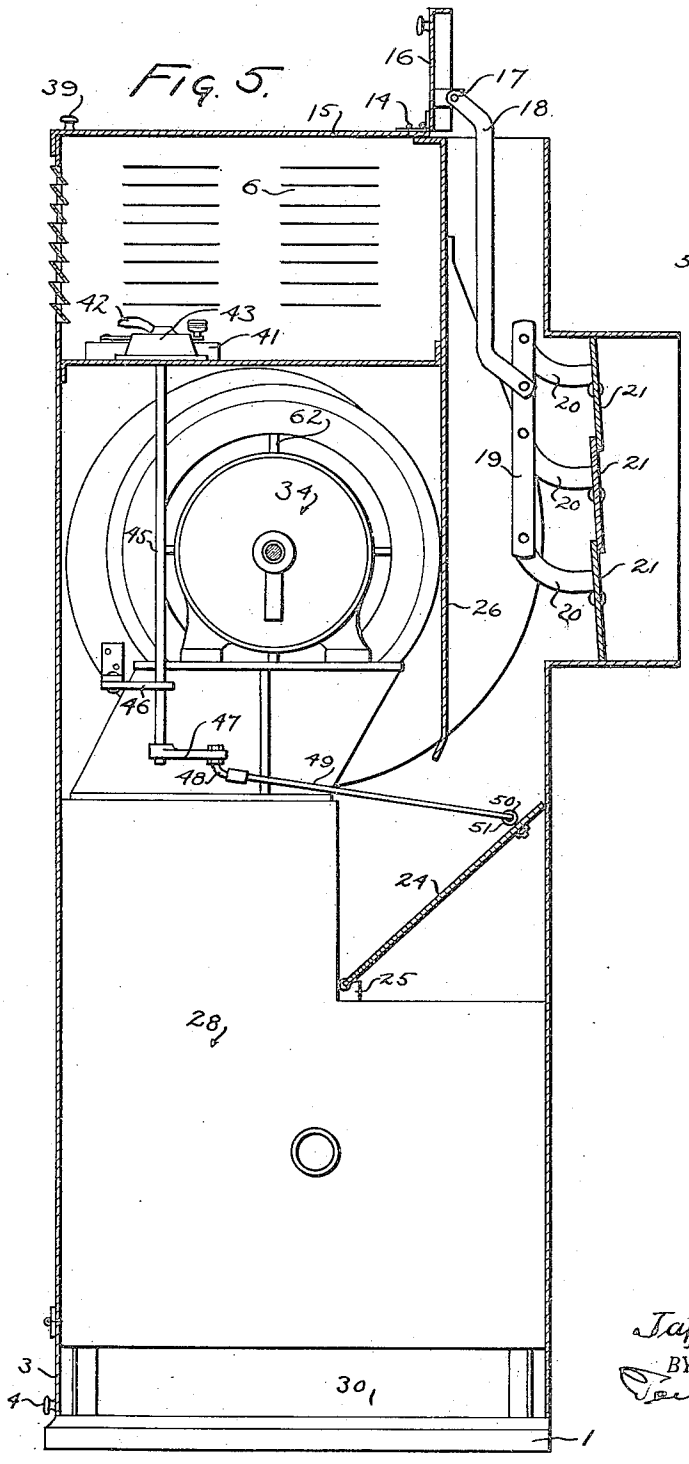
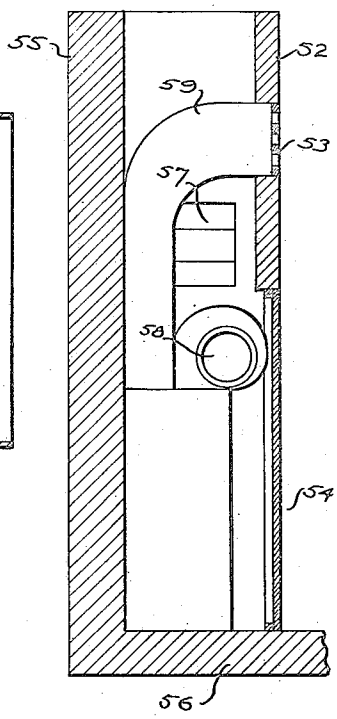


FIG. 6



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Patented Nov. 13, 1923. 1,473,896

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 EQUIPMENT.

Application filed June 14, 1922. Serial No. 568,357.

To all whom it may concern:

Be it known that I, JAY AUSTIN WOLFE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Heating and Ventilating Equipments, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to heating and ventilating equipment and in particular to a combined ventilator and heater.

It is an object of my invention to provide a ventilator and heater in which the amount of ventilation and the tempered air being used for ventilation can be regulated.

It is a further object of my invention to provide a portable independent heating and ventilating unit which will eliminate the necessity for ducts and passageways to be installed in a building and the like for the conveying of tempered and conditioned air from a central or remote source, or both.

It is a further object to provide means of controlling the portion of the heating apparatus over which the air will pass when it is being tempered.

It is a further object to so arrange the apparatus that the tempered air will be delivered at that portion of the room where it is desired.

It is an additional object to provide in this heating and ventilating unit means of shutting off the entrance of fresh, cold air and of permitting the circulation of the air in the room through the heating and ventilating unit.

It is a further object to provide means of readily adjusting and cleaning the unit and removing any foreign material that has been deposited.

It is an additional object to provide a unit of the character described which shall not subject the occupants of the building to drafts and the like.

It is also my object to provide this unit within a casing provided in the side of a room or the walls of a room with only the exit grating exposed.

Referring to the drawings:

Fig. 1 is a front elevation of the complete equipment and unit with the front wall broken away partially;

Fig. 2 is a vertical section, taken on the line 2—2 of Fig. 1;

Fig. 3 is a detail view in vertical section of the heating element;

Fig. 4 is a detail of the control for the damper;

Fig. 5 is a vertical section showing the damper in its closed position and the fresh air duct closed; and

Fig. 6 is a vertical sectional view illustrating the apparatus in a closet within the walls of a room, with only the air grating open to the room and visible to the occupants.

The drawings in detail show that 1 is a base upon which is mounted a suitable casing having ends, sides and a top designated as follows. The front wall 2 has a lower trap door 3 operated by a button or handle 4. At the top of 2 are a series of openings or louvers designated 5. Similar louvers 6 are located on either end of the cabinet. 7 and 8 designate the ends thereof, while 9 designates the rear wall of the cabinet adjacent the wall 10 of the building. Through the wall 10 of the building projects the fresh air passageways formed by the casing 11. If desired a grating 12 may be provided and this grating may be mounted upon an extension 13 projecting within the wall. The top is divided into two sections pivoted at 14. One portion of the top is designated 15 and the other portion is designated 16. The portion designated 16 has connected on the under side, pivotally at 17, a depending link 18 which in turn is connected to a member 19 which is pivoted to a series of arms 20 that are in turn connected to shutters 21 pivoted at 22 in the walls 11. These shutters control the entrance of fresh air.

It will be apparent that when 16 is elevated the shutters 21 will be closed and the entrance of fresh air will be shut off. The fresh air passes in through 12, 13, 11, past the shutters 21 into the regulating compartment 23.

If the damper 24 pivoted at 25 is in the position shown in Fig. 2, the air will be drawn inwardly and downwardly by reason of the fact that the wall 26 cooperates with 24 to form a passageway.

The air will proceed in the direction of the arrows down over the heating pipes 27 in the heating compartment 28. The dividing wall 29 in this heating compartment 28 insures that the air will pass downwardly beneath the heating unit into the area 30

and thence up as the arrows indicate over the heating pipes into the entrance to the blower compartment at 31. This blower compartment is designated 32 and the air is actuated by the fan 33.

This blower may be of any desired character, but it is preferred to use a slow-speed multi-blade fan of which a pair are mounted on either side of the motor 34 upon the armature shaft 35. This fan 33 drives the air through the duct 36 upwardly in the direction of the arrow into the compartment 37 at the top of the cabinet and out through the louvers 5 and 6 into the room.

The top 15 may be lifted by the handle 39 when it is desired to have access to the starting switch 40, the speed regulator 41 or the damper regulator 42.

The damper regulator 42 consists of the handle which is provided with a dial at 43 and a pointer on the handle designated 44 to indicate visually the position of the damper 24 which it regulates. A connection between the handle and 24 is effected by a vertical rod 45 journaled in a support 46 and having on its lower end a crank 47 on one end of which is mounted a ball and socket joint 48 that is connected to a control rod 49 which in turn through the eye 50 is connected by another eye 51 to the damper 24.

It will be observed that when the handle is turned so that the damper 24 is moved in the direction of the arrow to the dotted line position, the air will pass over the top series of heating units thence into 32, 36, 37 and out 5 and 6.

Referring to Fig. 5, the parts will be seen arranged with the damper 24 in a position to deflect the air over the top coils to temper it before it is delivered into the room. It will also be observed that the door 16 has been elevated to allow the air in the room to be drawn into the top of the cabinet and downwardly, thence over the top heating pipes to the blower or fan, and that at the same time the shutters 21 have been closed and fresh, cold air thereby excluded.

In the arrangement shown in Fig. 6 it will be observed that 52 is an inside wall in which is located the inlet grating 53 through which the tempered air is delivered into the room. A removable wooden inspection panel may be provided as at 54, while the rest of the wall 52 may be of tile. 55 represents the main wall of the room 56 the floor. 57 is the fresh air intake. The fresh air is drawn into the opening 58 of the blower and blown into the unit in the manner described and thence is delivered through the duct 59 through 53 into the room.

It will be understood that multiples of this arrangement may be located to suit the convenience of the owner.

Referring to the mounting of the fans 33 on the armature shaft 35 it will be observed that the fan has a plurality of curved blades 60 mounted between side walls 61. These side walls are supported by a spider 62.

The door 3 is used for the purpose of furnishing access to the bottom of the heating compartment to remove any foreign material which may accumulate there.

Thus it will be understood that my invention affords a cheaply constructed heating and ventilating apparatus comprising, as it does, a portable cabinet adapted to be installed directly in a room or within a closet or small compartment opening into the room, complete in itself in the sense that within the cabinet there are shutters operable by means also within the cabinet for admitting or excluding the outer cold air, also a damper operable by means within the cabinet for directing the air wholly to the whole of the heater or wholly to but a portion of the heater, also a blower adapted to draw the air through either of said courses, according to the adjustment of the damper, and louvers through which the blower discharges the heated or tempered air into the room.

While I have shown and described certain features as constituting my invention, it will be understood that parts have been shown for purposes of illustration only, and that I do not desire to be limited to such details, as obvious modifications will occur to a person skilled in the art.

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 a bottom, top and side walls, a partition extending between two opposite sides of the casing and located between the two remaining sides of the casing, said partition extending vertically in spaced relation to the bottom of the casing and terminating at its upper edge a considerable distance below the top of the casing, a damper having its lower edge pivoted within the casing at the top of the partition, said casing having an air inlet at one side of the partition and an air outlet at the other side of said partition, a heater in said casing lying wholly below the top of the partition on the side adjacent the air inlet, a second heater on the other side of the partition and projecting above the top thereof, a second partition depending from the top of the casing and having its lower edge engageable by the free edge of the damper, said damper being also engageable at its free edge with the wall of the casing below the inlet opening, and means to adjust the position of the damper.

2. In combination a casing having a bottom, top and side walls, a partition extending between two opposite sides of the casing and located between the two remaining sides of the casing, said partition extending verti-

cally in spaced relation to the bottom of the casing and terminating at its upper edge a considerable distance below the top of the casing, a damper having its lower edge pivoted within the casing at the top of the partition, said casing having an air inlet at one side of the partition and an air outlet at the other side of said partition, a heater in said casing lying wholly below the top of the partition on the side adjacent the air inlet, a second heater on the other side of the partition and projecting above the top thereof, a second partition depending from the top of the casing and having its lower edge engageable by the free edge of the damper, said damper being also engageable at its free edge with the wall of the casing below the inlet opening, means to adjust the position of the damper, and valve means for controlling the flow of air through the inlet opening.

3. In combination a casing having a bottom, top and side walls, a partition extending between two opposite sides of the casing and located between the two remaining sides of the casing, said partition extending vertically in spaced relation to the bottom of the casing and terminating at its upper edge a considerable distance below the top of the casing, a damper having its lower edge pivoted within the casing at the top of the partition, said casing having an air inlet at one side of the partition and an air outlet at the other side of said partition, a heater in said casing lying wholly below the top of the partition on the side adjacent the air inlet, a second heater on the other side of the partition and projecting above the top thereof, a second partition depending from the top of the casing and having its lower edge engageable by the free edge of the damper, said damper being also engageable at its free edge with the wall of the casing below the inlet opening, means to adjust the position of the damper, valve means for controlling the flow of air through the inlet opening, and mechanical means to induce a flow of air through the casing from the inlet to the outlet openings.

In testimony whereof I affix my signature.

JAY AUSTIN WOLFE