April 21, 1925. 1,534,571

J. CONNING

ELECTRIC HEATER

Filed Oct. 1, 1924

Fig. 1.

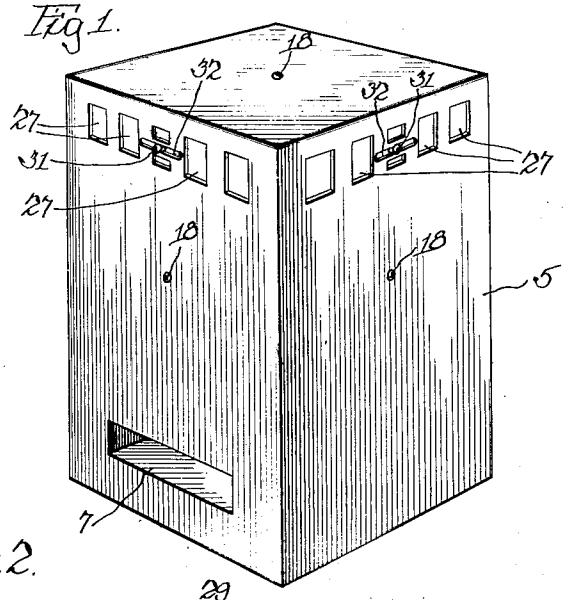


Fig. 2.

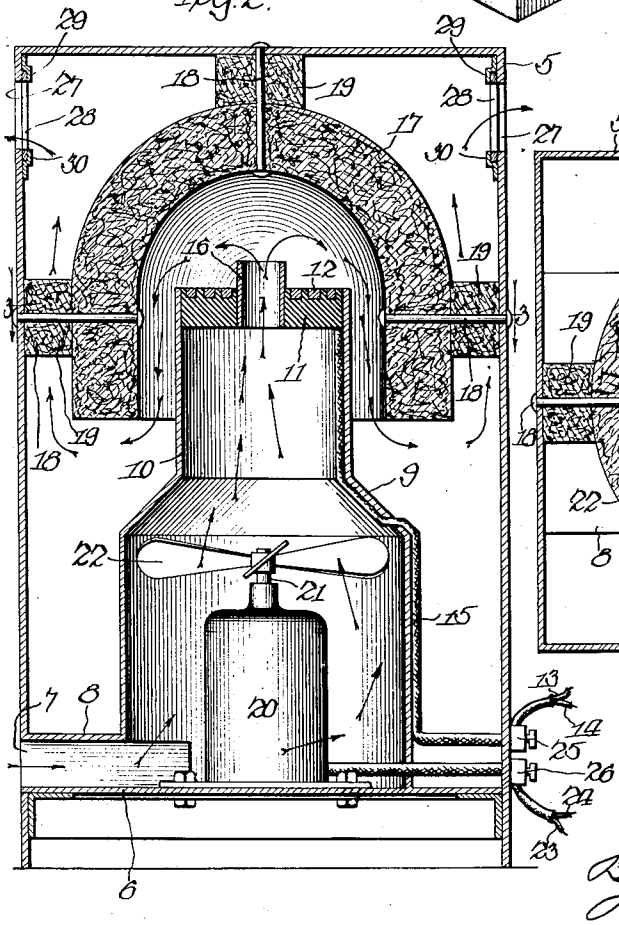
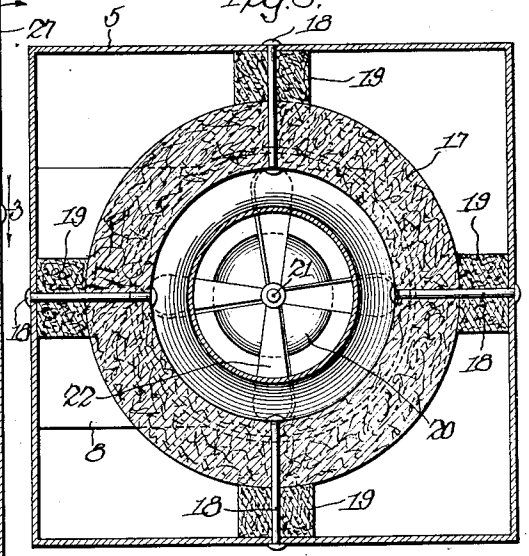


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES CONNING, OF CHICAGO, ILLINOIS.

ELECTRIC HEATER.

Application filed October 1, 1924. Serial No. 740,965.

To all whom it may concern:

Be it known that I, JAMES CONNING, a subject of the King of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

This invention relates, generally, to heaters, but has particular relation to such devices in which electricity is employed to create heat, and if desired, to cause its circulation and distribution.

One of the objects of the invention is to provide a heater of the above named character which shall be simple and inexpensive in construction, portable in form, attractive in appearance, strong, durable and efficient in operation.

Another object of the invention is the provision of a heater of such characteristics as to furnish at the required time the desired amount of heat absolutely free from odor, dust, or other impurities, with practically no effort or labor, and which can be located or positioned at any desired place within a room without danger of injury to furniture or of igniting clothing, draperies and the like.

Furthermore, the invention has for an object thereof the provision of an improved construction in heaters, whereby diffusion of the heat generated thereby may be entirely automatic and without forced drafts, or if desired, by such drafts.

Other objects and advantages of the invention will be disclosed in the following description and explanation.

The invention consists in certain peculiarities of the construction, novel arrangement and combination of the parts thereof, as will be hereinafter more fully set forth and specifically claimed.

In the accompanying drawings,—

Fig. 1 is a front perspective view of a heater embodying the invention.

Fig. 2 is a central vertical sectional view thereof, and

Fig. 3 is a plan sectional view taken on line 3—3 of Fig. 2 as indicated by the arrows.

Corresponding numerals of reference refer to like parts throughout the different views of the drawing.

The reference numeral 5 designates the casing of the heater, which casing is herein shown as being rectangular in shape, but it is obvious that other forms thereof may be employed without a departure from the spirit of the invention.

The casing 5 may be made of any suitable material, but by preference of sheet metal and has located in its lower portion near its lower edge, which edge is adapted to rest on the floor, a horizontally disposed bottom 6 or floor which closes the lower portion of the casing. Just above this floor 6 the face of the casing is provided with an air inlet opening 7 from which leads inwardly a conduit or air passage 8 as is clearly shown in Figs. 2 and 3 of the drawing. This conduit or air passage 8 communicates at its inner end with the lower portion of a vertically disposed auxiliary casing or air container 9 which is mounted on the floor 6 in spaced relation to the walls of the casing 5 and extends upwardly in the latter to a suitable point below the top of said casing.

As shown, the auxiliary casing or air container 9 is upwardly contracted about midway its length and has in its upper or neck portion 10 a block or piece of insulating material 11 on the upper surface of which is located or imbedded convolutions of an electric coil 12 or heat generating member of a well known kind. The resistance or electric coil 12 is connected by means of conductors 13 and 14 to a supply of electricity not shown, and said conductors are by preference formed into a single cable or cord 15 in the ordinary manner which is extended through an opening in the lower portion of the casing 5 and then upwardly along the outer surface of the casing or member 9 to about its contracted portion and then through said portion and alongside the inner surface of the neck 10 of the casing 9 and connected at its upper end to the coil 12 in the usual or any well known way. The insulation piece or block 12 is provided with a central opening in which is located a tubular member 16 which extends centrally through and somewhat above the coil 12

from which it is insulated as shown in Fig. 2 of the drawing.

Mounted within the upper portion of the casing 5 is a dome-shaped hood 17 which may be made of any suitable non-inflammable or non-combustible material such as fire clay or firebrick and concentrically surrounds the neck 10 of the container 9 or air chamber. This hood is securely mounted within and connected to the walls and top of the casing by means of bolts 18 and spacing blocks 19 of asbestos or the like, located between the outer surface of the hood and the walls and top of the casing 5 so as to hold the hood 17 in spaced relation thereto as clearly shown in Figs. 2 and 3 of the drawing.

Mounted on the floor 6 within the auxiliary casing 9 is a small electric motor 20 on the shaft 21 of which is mounted for rotation therewith a fan 22 of a well known type. Connected to the motor 20 and extended through an opening in the lower portion of the casing 5 are conductors 23 and 24 which lead from a supply of electricity not shown. The conductors 13 and 14 are provided with a switch designated as a whole by the numeral 25 and of any well known construction, which switch is herein shown as being mounted on the lower portion of the casing 5 but may be otherwise disposed and is employed for turning on and off the current to the heating coil 12. Likewise the conductors 23 and 24 are provided with a switch 26 similarly located to the switch 25 and employed for the purpose of controlling the electric current to the motor.

The upper portion of each of the walls of the casing 5 is provided with a series of openings 27 arranged in a horizontally disposed row for the outlet or discharge of heated air and each of these rows of openings is provided with a slidable damper plate 28 preferably located on the inner surfaces of the walls of the casing 5 and supported by means of a pair of brackets 29 and 30 located at the top and bottom of the rows of openings 27 and secured to the inner surface of the casing 5 in loose engagement with the plates 28 so as to permit said plates to be slid back and forth in order to regulate the quantity of hot air discharged through said openings or to shut off the same if desired. Each of the damper plates 28 is provided on its outer surface at about its middle with a knob 31 located in a slot 32 in each of the walls of the casing 5 by which arrangement it is obvious the knobs 31 can be reached when it is desired to move the plates in either direction.

From the foregoing and by reference to the drawing it will be readily understood and clearly seen that by turning on the current through the conductors 13 and 14 and switch 25, the electric or resistance coil 12 will be caused to become highly heated and that the air contained in the cavity of the dome hood 17 will thereby be heated and caused to pass from the hood and out of the casing in the direction indicated by the arrows in Fig. 2 of the drawings. In this operation it is manifest that a fresh supply of cold air will be caused to flow through the entrance opening 7, air passage 8, the auxiliary casing 9, and the reduced tubular portion 16 into the cavity of the dome hood by reason of the expansion and discharge from said hood of the air previously contained therein and that thus a continuous but gentle circulation of air through the heater will be caused. If it is desired to more vigorously distribute the heated air, it is manifest that by opening the switch 26 in the circuit of the conductors 23 and 24, the motor 20 and fan 22 will be set in operation, thus causing drafts of air to pass through the air passage 8, auxiliary casing 9, tube 16, into the dome and from thence downwardly and outwardly thereof, and then upwardly around the dome and out through the discharge openings 27 in the upper portion of the casing 5 of the heater.

It is evident that the operation of the heater may be automatically controlled by the employment of a thermostat connected to the switches 25 and 26, said thermostat being adapted, when a certain degree of temperature is reached, to automatically close said switches and when a certain degree of reduction in the temperature is reached, to open the same. It is further manifest that a thermostat may be arranged and so associated with the damper plates as to automatically open and close the same.

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

1. In a heater of the class described, the combination with a casing having means for the discharge of air in its upper portion and an inlet for air in its lower portion, a dome-shaped hood mounted within the upper portion of the casing and spaced therefrom, an auxiliary casing mounted in the lower portion of the first named casing and having communication at its lower part with said air inlet and extended at its upper portion into the cavity of said dome, an electric or resistance coil mounted on the upper portion of the auxiliary casing but insulated therefrom, electric conductors connected to said coil and leading to a supply of electricity, and a switch in the circuit provided by said conductors.

2. In a heater of the class described, the combination with a casing having means for the discharge of air in its upper portion and an inlet for air in its lower portion, a dome-shaped hood mounted within the upper por-

tion of the casing and spaced therefrom, an auxiliary casing mounted in the lower portion of the first named casing and having communication at its lower part with said air inlet and extended at its upper portion into the cavity of said dome, an electric or resistance coil mounted on the upper portion of the auxiliary casing but insulated therefrom, a motor mounted in the lower portion of the auxiliary, a fan in said casing driven by said motor, electric conductors connecting said coil to a supply of electricity, electric conductors connecting the motor to a supply of electricity, and a switch in each of the circuits provided by said conductors.

JAMES CONNING.