United States Patent [19]

Mastin

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[54] **ELECTRIC, FORCED AIR TOWEL WARMING CABINET**

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[51] **Int. Cl.** **H05b 1/00,** A21b 1/00, F24c 15/32

[58] **Field of Search**..... 219/364, 508, 366–370, 219/400, 413; 126/21 R, 21 A; 34/218, 219, 222, 223, 224, 225

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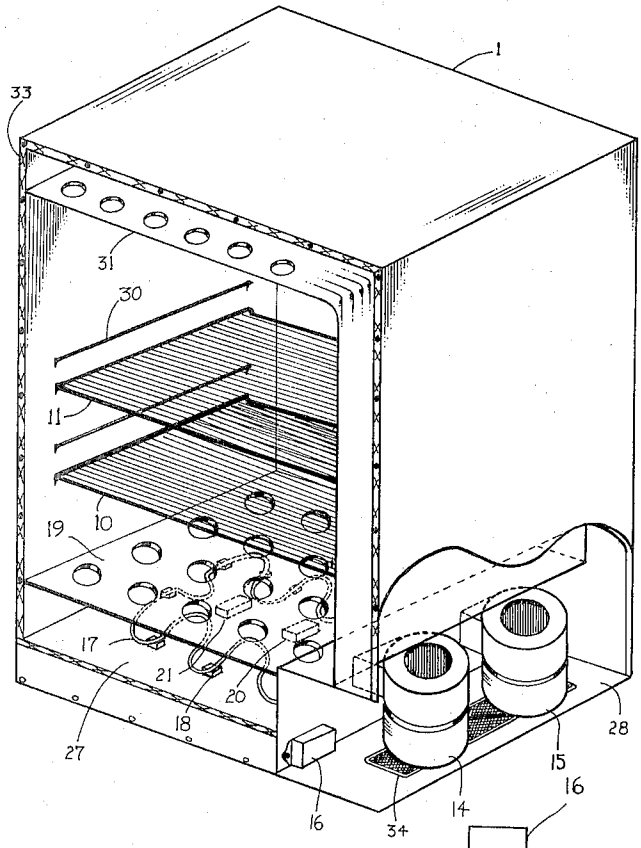
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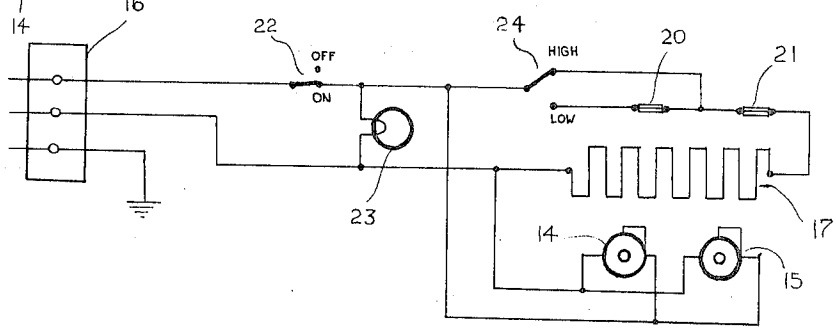
Primary Examiner—A. Bartis
Attorney, Agent, or Firm—James J. Brown

[57] **ABSTRACT**

An electric forced-air towel warming cabinet is provided. The device consists of an insulated chamber having a main chamber with horizontal towel support racks which permit the unobstructed upward flow of heated air therethrough and a second chamber which surrounds the main chamber on the top, bottom and one side. Located in the lower portion of the second chamber are a pair of blowers which direct air past electric heating elements below the bottom of the main chamber and upward through a perforated plate into the main chamber. The heated air continues upward through the towel support racks and out through a second perforated plate at the top of the main chamber into the second chamber from whence it flows downward to the blowers to complete a closed loop. Thermostatic control means are provided on the lower perforated plate. The thermostatic control means comprises a high temperature thermostat and a low temperature thermostat arranged to selectively control the temperature in the cabinet by means of a selector switch.

2 Claims, 3 Drawing Figures





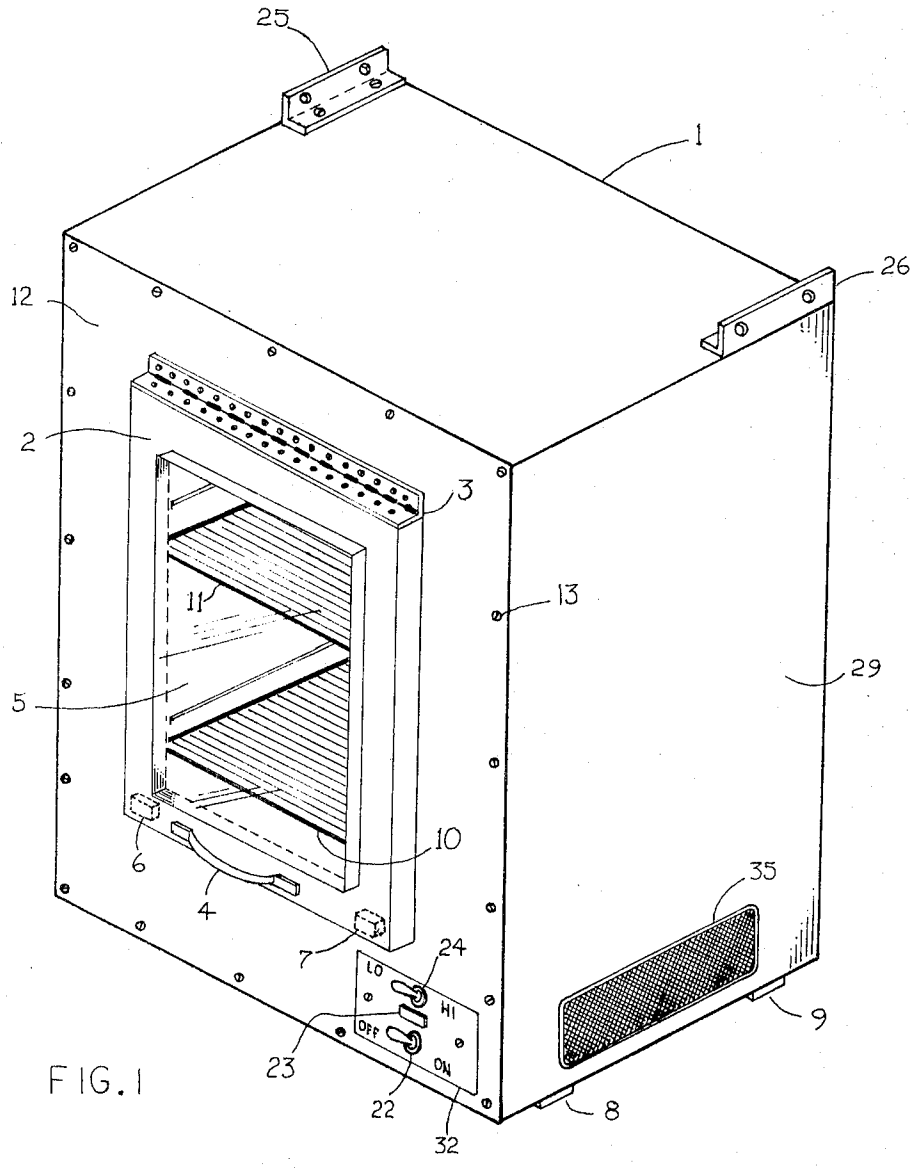

25
1
26
12
2
3
11
13
29
5
10
6
4
35
7
24
LO
HI
OFF
ON
23
22
32
9
8

FIG. 1

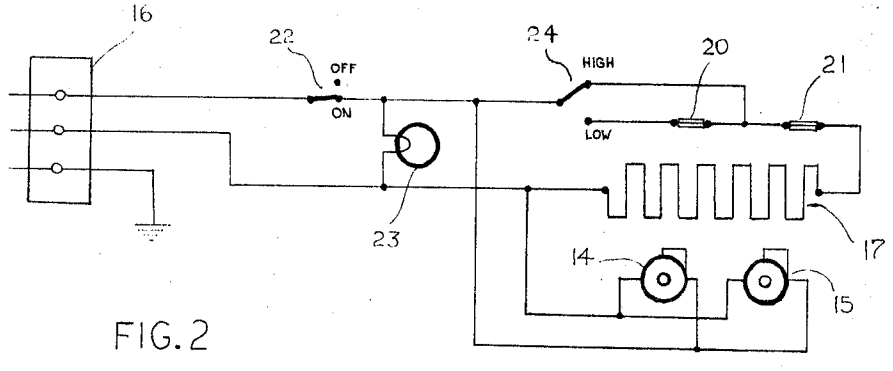

16
22
OFF
ON
24
HIGH
LOW
20
21
23
14
15
17

FIG. 2

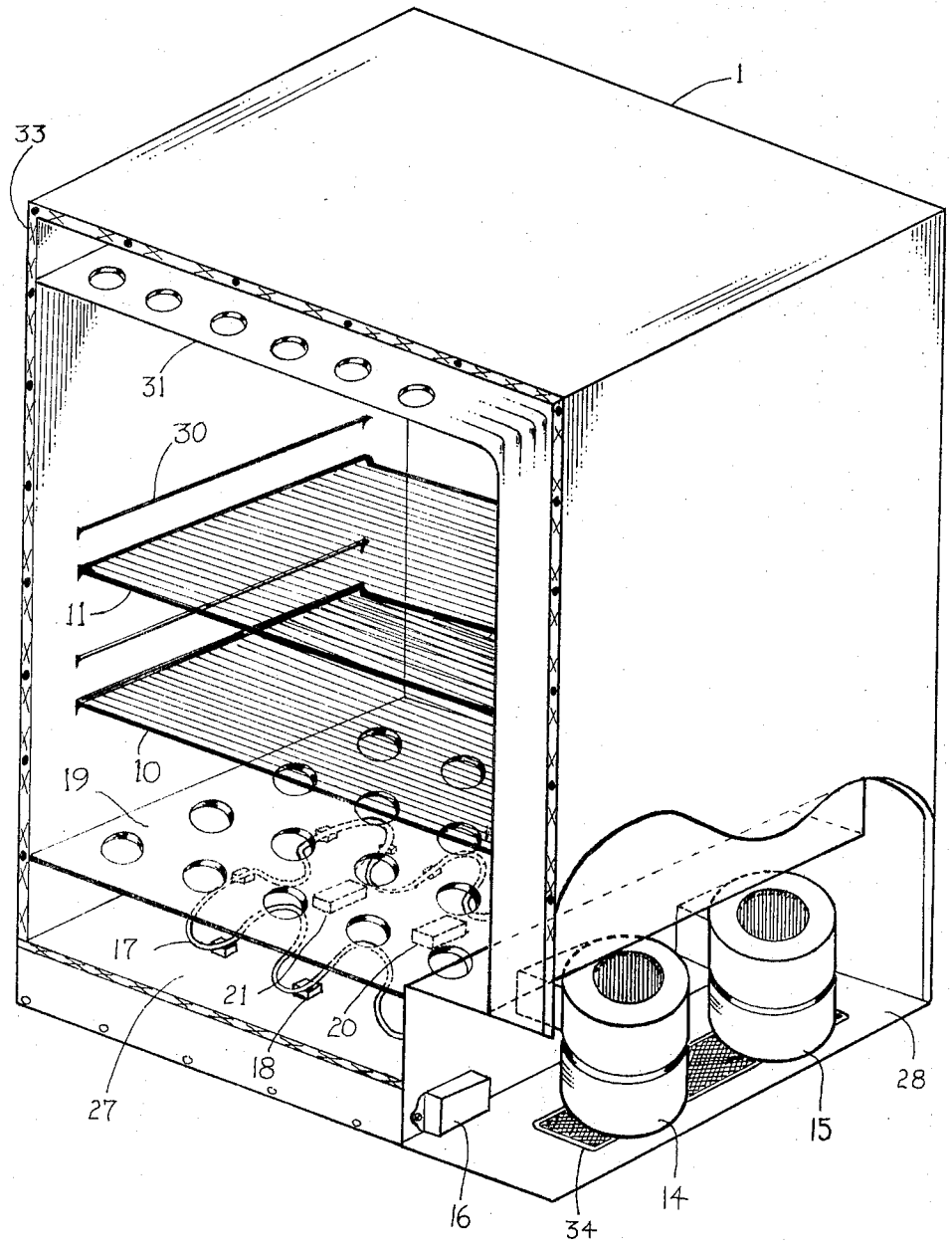


FIG. 3

ELECTRIC, FORCED AIR TOWEL WARMING CABINET

SUMMARY OF THE INVENTION

This invention relates to electric warming apparatus and more particularly to an electric warmer of dry towels. It is common practice in hotels, motels, apartments, houses, any public or private bathroom and dressing room to have towels on racks, or folded on shelves, exposed to whatever the bathroom or dressing room temperature and humidity conditions may be. It is the principle object of this invention to provide a means for warming dry towels to a temperature above that of a bathroom or dressing room to increase the comfort of a person drying following a bath or shower.

A further object of this invention is to provide an enclosed towel warmer that minimizes exposure of a towel to the increased humidity of bathroom air, particularly while a person is showering, there-by maintaining the dryness of a towel.

It is a further object of this invention to provide an insulated, enclosed towel warmer to substantially reduce heat losses, there-by reducing the power demand factor and power consumption of the apparatus while at the same time minimally affecting, and being affected by, the temperature of the immediate environment, e.g., the bathroom.

These and other objects are accomplished according to the present invention whereby an insulated enclosure is provided having a main chamber with plural towel support racks which allow substantial unobstructed heated air to pass therethrough. Adjacent to the main chamber and also within the insulated enclosure is a second chamber which surrounds the main chamber on its top, bottom and one side. Housed within the lower portion of the second chamber are heating elements and tangential blowers which direct air past the heating elements and upward through a perforated plate into the main chamber. In the main chamber, the heated air flows upward through the towel support racks and out through a second perforated plate at the top of the main chamber back into the second chamber where it returns downward in a closed loop to the blowers. Thermostatic control means are also provided.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a preferred embodiment of the invention.

FIG. 2 is an electrical schematic of the ciruit to be used with the preferred embodiment of the invention.

FIG. 3 is a perspective, partly cut-away view of the preferred embodiment of the invention with the front panel removed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 is shown a perspective view of the invention. The enclosure 1 is fabricated from sheet metal in a dual wall construction with fiberglass insulation 33 placed in the space formed between the two walls; the enclosure is finished with a heat-resistant enamel. A front panel 12 is secured to the enclosure 1 base with a plurality of screws 13 disposed about its periphery. A door 2 is mounted on the front panel 12 with a continuous hinge 3. The door is fitted with a handle 4 and two magnetic latches 6 and 7 which insure positive closure of the door. The door 2 frames a glass window 5 resistant to heat exposure. The window 5 permits a view of the towel or towels that may be in the towel warmer. Two towel supporting racks 10 and 11 may be viewed through the window 5. The racks are made of a thick gage wire with nickle plating.

The lower right hand section of front panel 12 is an individually detachable plate 32 which, when detached, provides access to the towel warmer controls and control wiring. These controls are a power on-off toggle switch 22, a pilot light 23 to indicate a power on condition, and a two-position, low temperature-high temperature selector toggle switch 24.

Still with reference to FIG. 1, two rubber strips 8 and 9 are secured with adhesive the full length of the bottom of the towel warmer when the apparatus is to be placed on the top of a toilet water tank. Two steel angle brackets 25 and 26 are attached with sheet metal screws to the top of enclosure 1 and two similar brackets, not shown, are correspondingly attached to the bottom of the enclosure 1 only when the towel warmer is to be built into a wall; the brackets, in conjunction with nails or screws, provide the means for securing the apparatus within the wall. When the towel warmer is to be mounted on a wall, it is secured there-to with a plurality of wood-screws through the rear side of case 1, through the wall surfacing and into the wall vertical studs. The rubber strips 8 and 9 are not used on the bottom of enclosure 1 when the towel warmer is either mounted on a wall or built into a wall.

Now with reference to FIG. 3 the towel warmer is shown in a partial cut-away view and with the front panel 12 removed. Removal of the front panel 12 provides access to the apparatus for maintenance purposes. Two blowers 14 and 15 are shown as units which include electric motor drives; two are used to provide adequate air circulation within the enclosure 1 while at the same time conform to a compact utilization of space. The enclosure 1 bottom plate 28 has a screened-over opening 34 below the blowers 14 and 15. A similar screened opening 35 is provided near the bottom of side panel 29. The openings allow ventilation for the blower 14 and 15 motors. Further protection for the motors is accomplished by disposing the motors outside the path of the enclosure 1 circulating air. A terminal box 16 serves to receive the wires from an electric power source and then to distribute power to the apparatus. The air impelled by the blowers 14 and 15 discharges into a chamber 27 where-in is mounted the coiled Nichrome wire heating element 17 which is supported by a plurality of ceramic blocks 18. The top of chamber 27 is a baffled plate 19 with a plurality of holes through which the heated air passes into the rack 10 and 11 area of enclosure 1.

Two thermostats 20 and 21, mounted on baffle plate 19, provide the dual temperature control means for the towel warmer. Mounted as they are on baffle plate 19, which in turn is immediately above heating element 17, the thermostats also serve to safe-guard against dangerous over-temperatures in the event of failure of blowers 14 and 15 while power to the heating element 17 continues.

Within the main chamber of enclosure 1 are disposed the two towel racks 10 and 11; provisions are made for height adjustment of the racks with a plurality of nar-

row angle pieces **30** spot welded to the internal sides of enclosure **1.** A continuous duct is formed by plate **31** along the internal top of enclosure **1** and then along the side so that the duct communicates with the intake openings of blowers **14** and **15.** That section of plate **31** disposed at the top of enclosure **1** is perforated with a plurality of holes. Thus an air flow circuit has been completed with the blowers **14** and **15** causing air to be drawn into the duct formed by plate **31** then through the blowers and discharged into chamber **27** where the air is heated then passed through the holes in baffle plate **19** to the main chamber of enclosure **1** and once more to the intake of the duct formed by plate **31.** The holes in the chamber bottom baffle plate **19** and in the top plate **31** serve to distribute the air-flow through the width and depth of the enclosure **1** chamber.

Referring to FIG. **2** there is shown an electrical schematic of the operating circuit for the apparatus of the towel warmer. It is shown operating in a high temperature condition. A separate grounding terminal has been provided in terminal box **16** as a means for positive grounding of the case to substantially reduce electric shock hazards.

While a preferred embodiment of the present invention has been shown and described, it will be understood that many changes and modifications may be made thereto without departing from the scope of the appended claims.

I claim:

1. An apparatus for warming towels comprising an insulated, double-walled enclosure, means disposed therein defining a main chamber with plural towel open grid like support racks which permit the upward, unobstructed flow of heated air therethrough and a hinged door on said enclosure at the front of said main chamber for access thereto from the outside; means defining an air circulation duct within said insulated enclosure, said duct being coextensive with and surrounding the top, bottom and one side of said main chamber, the top and bottom of the main chamber being in air flow communication with said air circulation duct by upper and lower perforated plates which permit substantially uniform distribution of air through the main chamber, said air circulation duct further having operably disposed therein below the main chamber controlled means for supplying heated air upward through said lower perforated plate to the main chamber; said controlled means comprising an electric heating element disposed beneath said lower perforated plate and operably connected in a circuit with means for supplying electrical power thereto and thermostat means disposed on said perforated plate and operably connected in said circuit for controlling the temperature in the main chamber; said controlled means further comprising plural tangential blowers disposed below the main chamber and having their respective inlets communicating with the side portion of the air circulation duct and their respective air outlets communicating with the bottom portion of the air circulation duct for circulating air in a closed loop past said heating element upward through said lower perforated plate into the main chamber and then out through said lower perforated plate into the main chamber and then out through said upper perforated plate and back in a downward direction to said tangential blowers.

2. The apparatus of claim **1** wherein each of said towel support racks comprises a series of spaced, horizontal, elongated members.

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