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(54) **Flame simulating assembly**

(57) A flame simulating assembly adapted for storing objects and for affecting a temperature of the objects. The flame simulating assembly includes a flame image subassembly for providing one or more images of flames. The flame image subassembly includes one or more light sources and a screen positioned in a path of light from the light source. The screen is adapted for transmission of the image of flames therethrough. The flame simulating assembly also includes a body with a chamber therein accessible via one or more apertures in the body, the objects being receivable in the chamber. Also, the flame simulating assembly includes one or more temperature-affecting elements for affecting the temperature of the objects positioned in the chamber, and a cover portion positionable on the body to cover the aperture.

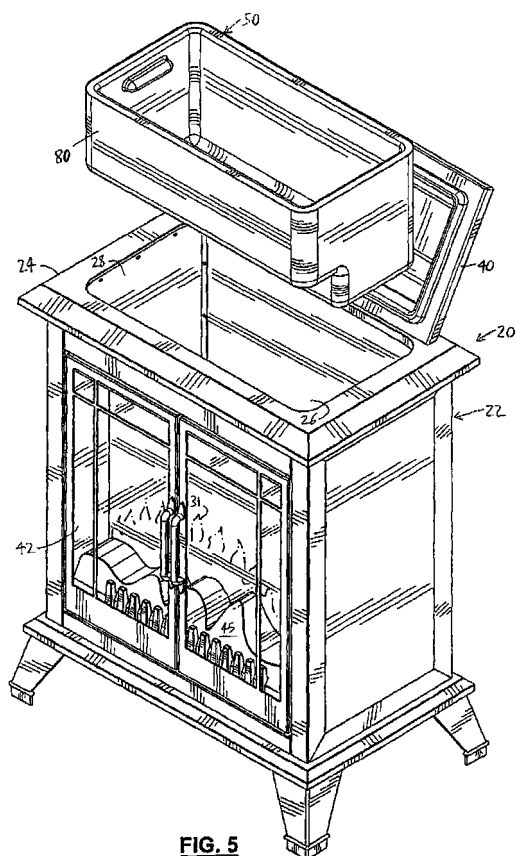


FIG. 5

Description

[0001] This application claims the benefit of U.S. Provisional Application No. 60/779,966, filed March 8, 2006.

FIELD OF THE INVENTION

[0002] The present invention relates to a flame simulating assembly adapted for storing objects and for affecting the temperature thereof.

BACKGROUND OF THE INVENTION

[0003] In connection with recreational facilities such as pools or hot tubs (whether indoor or outdoor), there is a need to heat towels or other such articles for the convenience and comfort of those coming out of the recreational facility. The heated articles are made available conveniently proximal to the pool or hot tub, if possible.

[0004] However, especially in summer, there is also a need for cooling beverages or other food items until they are consumed in or near the recreational facility. Preferably, the items are cooled in a location convenient to a swimming pool, hot tub, or other recreational facility, which may be indoor or outdoor.

[0005] In the prior art, various devices are known, thermally insulated and otherwise, which are intended for use proximal to a recreational facility and adapted for maintaining an object's temperature within a desired temperature range (e.g., keeping a towel warm, or cooling a beverage). However, the known devices typically are not adapted for both heating and cooling, but rather are intended to either heat objects or to cool them. Also, such prior art devices are generally not aesthetically pleasing.

[0006] There is therefore a need for a device which mitigates or overcomes one or more of the defects of the prior art.

SUMMARY OF THE INVENTION

[0007] In its broad aspect, the invention provides a flame simulating assembly adapted for storing objects and for affecting the temperature of the objects. The flame simulating assembly includes a housing having a body portion with one or more chambers therein accessible via one or more apertures in the body portion, the objects being receivable in the chamber. Also, the flame simulating assembly includes a flame image subassembly for providing one or more images of flames and disposed at least partially in the housing. The flame image subassembly includes one or more light sources and a screen positioned in a path of light from the light source, the screen being adapted for transmission of the image of flames therethrough. In addition, the flame simulating assembly has one or more temperature-affecting elements for affecting the temperature of the objects positioned in the chamber. The housing additionally includes a cover portion for cooperating with the body portion to

cover at least part of the chamber. Also, the cover portion is movable between an open position, in which the chamber is at least partially exposed, and a closed position, in which the chamber is at least partially covered.

[0008] In one of its aspects, the temperature-affecting element includes one or more heat sources adapted for heating the chamber.

[0009] In another aspect, the housing includes one or more openings through which the image of flames is viewable.

[0010] In yet another aspect, the flame simulating assembly additionally includes a mesh screen, the image of flames being at least partially viewable through the mesh screen.

[0011] In another aspect, the cover portion cooperates with the body portion to substantially close the aperture when the cover portion is in the closed position.

[0012] In another of its aspects, the invention provides a flame simulating assembly adapted for storing objects and for affecting the temperature thereof. The flame simulating assembly includes a flame image subassembly for providing an image of flames, and a body with a chamber therein accessible via one or more apertures in the body. The objects are receivable in the chamber. The flame simulating assembly also includes one or more temperature-affecting elements for affecting the temperature of the objects positioned in the chamber, and a cover portion positionable on the body to cover the aperture.

[0013] In another aspect, the temperature-affecting element includes one or more heating elements adapted for heating the chamber.

[0014] In another of its aspects, the flame simulating assembly additionally includes one or more containers defining a cavity therein, the container being at least partially receivable in the chamber.

[0015] In yet another aspect, the temperature-affecting element includes a cooling element for cooling the cavity.

[0016] In another aspect, the temperature-affecting element includes a Peltier device for heating and cooling the chamber.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention will be better understood with reference to the drawings, in which:

[0018] Fig. 1 is an isometric view of an embodiment of a flame simulating assembly of the invention;

[0019] Fig. 2 is a partial cross-section showing the flame simulating assembly of Fig. 1 and a chamber therein;

[0020] Fig. 3 is a partial cross-section of the flame simulating assembly of Fig. 1, showing a container positioned in the chamber;

[0021] Fig. 4 is an isometric view of an alternative embodiment of the flame simulating assembly of the invention with a cover portion of the flame simulating assembly in an open position;

[0022] Fig. 5 is an exploded isometric view of the flame simulating assembly of Fig. 4 showing the container and the chamber;

[0023] Fig. 6A is a schematic diagram of electric circuits included in the flame simulating assembly of Fig. 1;

[0024] Fig. 6B is a front view of an alternative device for heating and cooling objects stored in the flame simulating assembly, drawn at a larger scale;

[0025] Fig. 6C is a side view of the device of Fig. 6B;

[0026] Fig. 7 is an isometric view of an alternative embodiment of the flame simulating assembly of the invention, drawn at a smaller scale;

[0027] Fig. 8 is a partial cross-section of another alternative embodiment of the flame simulating assembly of the invention showing a chamber therein;

[0028] Fig. 9 is a partial cross-section of the flame simulating assembly of Fig. 8 showing a container positioned in the chamber,

[0029] Fig. 10 is a partial cross-section of another alternative embodiment of the flame simulating assembly of the invention showing a chamber therein; and

[0030] Fig. 11 is a partial cross-section of the flame simulating assembly of Fig. 10 showing a container positioned in the chamber.

DETAILED DESCRIPTION

[0031] Reference is first made to Figs. 1 - 6A to describe an embodiment of a flame simulating assembly in accordance with the invention indicated generally by the numeral 20. The flame simulating assembly 20 is adapted for storing objects 21, 23 (Figs. 2, 3) and for affecting a temperature of the objects, as will be described. The flame simulating assembly 20 preferably includes a housing 22 with a body portion 24 having one or more chambers 26 therein accessible via one or more apertures 28 in the body portion 24 (Fig. 5). Also, the flame simulating assembly 20 preferably includes a flame image subassembly 30 (Figs. 2, 3) for providing one or more images of flames 31 (Figs. 1, 4, 5) and disposed at least partially in the housing 22. It is preferred that, as can be seen in Figs. 2 and 3, the flame image subassembly 30 includes one or more light sources 32 and a screen 34 positioned in a path of light 35 (schematically represented by arrows A, B, and C in Fig. 2) from the light source 32. The screen 34 is adapted for transmission of the image of flames 31 through the screen 34. In addition, the flame simulating assembly 20 preferably includes a temperature-affecting element 37 for affecting temperature of the objects positioned in the chamber 26, as will also be described. Preferably, the housing 22 also includes a cover portion 40 positionable on the body portion 24 to cover at least part of the chamber 26 (Fig. 3). The cover portion 40 is movable between an open position (Figs. 4, 5), in which the chamber 26 is at least partially exposed, and a closed position (Figs. 1 - 3), in which the chamber 26 is at least partially covered.

[0032] Preferably, when the cover portion 40 is in the

closed position, the cover portion 40 cooperates with the body portion 24 to substantially close the aperture 28, as will be described. It will be understood that the cover portion 40 may be mounted on the body portion 24 in any suitable manner. For example, the cover portion 40 may be attached to the body portion 24 by a hinge, about which the cover portion 40 is pivotable. Alternatively, the cover portion 40 may be detachable or removable from the body portion 24, i.e., when the cover portion 40 is in the open position.

[0033] The temperature-affecting element 37 may be any device for changing or maintaining the temperature of the object 21, 23 positioned in the chamber 26. (The object 23 (Fig. 3), which is positioned in a cavity 52 of a container 50 received in the chamber 26 (as will be described), is considered, for the purposes hereof, to be positioned in the chamber 26.) Accordingly, the temperature-affecting element 37 is any one or all of a heat-producing device, a cooling device, or a device for both heating and cooling. The temperature-affecting element 37 may, for example, heat towels 21 up to a desired temperature, and/or maintain preheated towels at a desired temperature. Similarly, the temperature-affecting element 37 may cool cans or bottles of beverages 23 to a desired temperature, and/or maintain cooled cans or bottles at a desired temperature.

[0034] As can be seen in Fig. 2, in one embodiment, the temperature-affecting element 37 preferably includes a heat source 48 for heating the chamber 26. The heat source 48 is any suitable heat source, e.g., a resistive heating element. For example, a resistive element printed on a base made of mica is suitable. Other suitable heat sources will occur to those skilled in the art. Also, the heat source 48 (i.e., the heating element) may be mounted in the flame simulating assembly 20 in any suitable manner.

[0035] As shown in Fig. 2, the heat source 48 preferably is mounted on an underside of floor 76 of the chamber 26. The objects 21 to be heated are placed in the chamber 26 (i.e., positioned on the floor 76 of the chamber 26) in any suitable arrangement, and the heat source 48 is activated. The cover portion 40 is also positioned to close the aperture 28. As shown in Fig. 2, the objects 21 preferably are heated by conduction of heat from the floor 76. However, once the air in the chamber 26 is at a temperature greater than the ambient temperature, the objects 21 (or portions thereof, as the case may be) may also be heated by convection within the chamber 26.

[0036] Any suitable means may be used to prevent overheating of the objects 21. For instance, a self-regulating heating element (e.g., including material having a positive thermal coefficient of resistance) may be used. However, it is preferred for simplicity that this is achieved by limiting the amount of power provided to the heat source 48. For example, in practice, if the power provided to the heat source 48 is limited to about 75 watts, the heat source 48 provides adequate heat.

[0037] The wall 74 has an inner wall 75, and the floor

76 has an inner wall 77. The inner walls 75, 77 are positioned for direct contact with the objects 21 which are to be warmed. It is preferred that the inner walls 75, 77 are made of steel or any other suitable metal with good heat-conducting characteristics, and which is fairly durable. It is desirable that the inner walls 75, 77 conduct heat reasonably well from the heat source 48, to warm the chamber 26 (and the objects 21 therein) as efficiently as is practicable,

[0038] As can be seen in Figs. 1, 4 and 5, the housing 22 preferably is configured so that it generally has the appearance of a heating appliance, e.g., a wood-burning (or alternatively, coal-burning) stove. The flame simulation effect is enhanced by the overall appearance of the housing, i.e., the housing's resemblance to a stove.

[0039] The flame simulating subassembly 30 is for providing simulated flames for aesthetic effects, for example, like the flame simulating assembly disclosed in U.S. Patent No. 5,642,580 (Hess et al.), the entire specification of which is hereby incorporated herein by reference. As can be seen in Figs. 1, 4, and 5, the housing 22 preferably includes one or more openings 42 through which the image of flames 31 is viewable. It is also preferred that the housing 22 includes doors 43 in which the openings 42 are located. The doors 43 are openable to allow a user (not shown) access, so that, for example, cleaning of the flame image subassembly 30 is relatively easy. Also, because the doors 43 are openable, access is provided thereby to replace light bulbs included in the light source 32 in the flame image subassembly 20, as may be required from time to time.

[0040] In one embodiment, the flame simulating assembly 20 additionally includes a front panel 44 positioned at the opening 42 (or in the opening 42, as the case may be) and in front of the screen 34, so that the image of flames 31 is at least partially viewable through the front panel 44. The front panel 44 is made of any suitable transparent or translucent material.

[0041] However, it is preferred that the flame simulating assembly 20 be provided without the front panel 44, because the lack of glass in the openings 42 appears to enhance the simulation of a real fire in the flame simulating assembly 20 (Fig. 1). In particular, when the flame simulating assembly 20 is located outdoors, the front panel 44 tends to get dusty (or dirty), and detracts from the realistic simulation of flames.

[0042] The screen 34 includes a front surface 36 on which, or through which, the image of flames 31 is viewable. As shown in Figs. 1 - 5, the flame image subassembly 30 preferably includes a simulated fuel bed 45 positioned in front of, and proximal to, the front surface 36 of the screen 34. As described, for example, in the Hess et al. patent, the simulated fuel bed 45 preferably simulates fuel for an open fire (e.g., wood or coal), and is positioned so that the image of flames 31 appears to arise from the simulated fuel bed 45, to simulate a real fire. In one embodiment, the front surface 36 is at least partially reflective, to reflect part of the simulated fuel bed 45, thereby

providing the illusion that the simulated fuel bed extends behind the screen. The simulation effect is enhanced by a partially reflective front surface accordingly.

[0043] In an embodiment shown in Fig. 7, the flame simulating assembly 20 includes a net-like mesh screen 46 positioned in front of the simulated fuel bed 45 through which mesh screen 46 the image of flames 31 is at least partially viewable. Preferably, the mesh screen 46 resembles a metal mesh screen of the type which is sometimes positioned at the front of a real fireplace, i.e., to catch sparks from the fire. The mesh screen 46 enhances the simulation of flames provided by the flame image subassembly 30, thereby improving the aesthetic appeal of the flame simulating assembly 20. It is preferred that the mesh screen 46 is attached to inside surfaces of the doors 43 so that the screen 46 is viewable through the openings 42. In practice, it has been found that the most realistic simulation is achieved with only the mesh screen 46 (i.e., in the absence of a front panel 44) positioned in or near the openings 42 (Fig. 7).

[0044] In the preferred embodiment, the housing 22 is made of sheet metal, metal parts, and/or suitable plastic components, shaped and fastened together by any suitable methods. As can be seen in Figs. 3 and 5, the chamber 26 is defined by walls 74 and one or more floors 76, which are preferably made of sheet metal. If preferred, heating elements may be mounted on the walls 74 and/or floor(s) 76, or built into the walls 74 and/or floor(s) 76. It will also be understood that the walls 74 and the floor 76 may be insulated as appropriate, to retard heat transfer out of the chamber 26. The chamber 26 does not need to be air-tight, or even substantially air-tight. Although it is preferred that the space (i.e., the chamber 26) defined by the walls 74, the floor 76, and the cover portion 40 is substantially enclosed, it has been found to be satisfactory if the construction of the walls and floor is only to a typical manufacturing tolerance, so that there may be gaps between these elements.

[0045] The cover portion 40 preferably cooperates with the body portion 24 to close the aperture 28 when the cover portion 40 is in the closed position. However, in normal use, it is not necessary that the aperture 28 be completely closed, e.g., an air-tight seal is not required. A more complete closure is desirable, to the extent that it would tend to limit heat transfer out of the chamber 26 via the aperture 28. But, in order to minimize manufacturing costs and for the convenience of the user, the fit of the cover portion 40 in or over the aperture 28 (as the case may be) preferably is not particularly tight.

[0046] As can be seen in Figs. 3, 4 and 5, the flame simulating assembly 20 preferably also includes the container 50 defining the cavity 52 therein. The container 50 is at least partially receivable in the chamber 26, as shown in Figs. 2, 3 and 5. The container 50 preferably is formed of walls 80 and at least one floor 82. Preferably, the walls 80 and the floor 82 are formed of a lightweight but relatively rigid plastic (e.g., a suitable polyethylene) with a suitable insulating material 84 (e.g., polyurethane

foam) positioned therein. Also, the container 50 preferably includes handles 86 by which a user (not shown) can grasp the container 50, and move the container 50 into and out of the chamber 26, as shown in Fig. 5. The container 50 preferably is held in the chamber 26 by gravity,

[0047] The container 50 may be made of any suitable materials. It is preferred that walls 80 be made of a suitable plastic because such plastic walls are relatively easy to manufacture (i.e., to form into a desired shape), relatively durable, relatively easy to clean after use, and relatively inexpensive. Those skilled in the art would be aware of the materials and techniques which are suitable.

[0048] When the container 50 is at least partially received in the chamber 26, the cover portion 40 is movable between an open position (Figs. 4, 5), in which the cavity 52 is at least partially uncovered, and a closed position (Figs. 1, 3), in which the cover portion 40 covers the cavity 52 and cooperates with the body portion 24 to substantially close the aperture 28. As can be seen in Fig. 3, when the container 50 is received in the chamber 26 and the objects 23 are positioned in the cavity 52, the objects 23 are also positioned in the chamber 26.

[0049] Preferably, the cavity 52 (and the objects 23 therein) are cooled by any suitable temperature-affecting element 37. In one embodiment, the temperature-affecting element 37 includes a cooling element 58 which may be positioned as required to cool objects positioned inside the container, i.e., in the cavity. For instance, in one embodiment, the container 50 is adapted to receive one or more cooling elements 58 for cooling the cavity 52. The cooling elements 58 preferably are portable cooling packs, as is known in the art. However, it will be appreciated by those skilled in the art that the cooling elements 58 can be provided in many forms.

[0050] It is also preferred that the flame simulating assembly 20 includes one or more switches 60 for controlling an electric circuit 62 which includes the heat source 48 (Fig. 6A). Electricity from a source thereof (not shown) is provided to the heat source 48 via the circuit 62 when the circuit is complete. The heat source 48 preferably includes a suitable resistive element which generates heat when electric current is passed therethrough.

[0051] Preferably, the flame simulating assembly 20 includes a magnetic switch assembly 64 (Fig. 6A) which includes first and second magnets 66, 68. The magnetic switch assembly 64 is configured to open the circuit 62 when the container 50 is at least partially received in the chamber 26 (Fig. 3). The second magnet 68 is disposed in a preselected location in the chamber 26 (Fig. 3). The first magnet 66 is positioned on the container 50 so that, when the container 50 is received in the chamber 26, the first magnet 66 contacts the second magnet 68 (Fig. 3). As is known in the art, upon contact of the first and second magnets 66, 68 with each other, the circuit 62 is open (i.e., broken), so that the electric circuit 62 does not provide electricity to the heat source 48. Accordingly, the magnetic switch assembly 64 provides a means for en-

suring that the heat source 48 is not activatable when the container 50 is received in the chamber 26.

[0052] Preferably, the switch 60 includes a manual switch device 61 mounted for convenience on an exterior surface 63 of the housing 22 (Fig. 2). The switch 60 is not operable to complete the circuit 62 if the circuit is broken due to engagement of the first and second magnets 66, 68. However, if the switch 61 is in the "on" position when the container 50 is removed from the chamber 26, then the circuit 62 is completed, and the heat source 48 is activated.

[0053] As can be seen in Fig. 6A, for safety and as is known in the art, the flame simulating assembly 20 preferably also includes a master switch 65 adapted for controlling all the electric circuits in the flame simulating assembly 20.

[0054] As shown in Figs. 2 and 3, the light source 32 preferably is positioned in the housing 22 so that the light source 32 can provide light in the flame simulating subassembly 30. It will be understood that the light source 32 also provides heat which contributes, to a limited extent, to the warming of the chamber 26 (i.e., when the chamber 26 is intended to be warmed). In circumstances where the container 50 is positioned in the chamber 26 and it is intended to cool the objects, then the heat produced by the light source 32 still tends to warm the chamber 26 if the flame image subassembly 30 is simultaneously activated.

[0055] Preferably, the flame image subassembly 30 also includes a flicker element 38 for causing light from the light source to flicker or fluctuate, so that the image of flames 31 flickers, to simulate flames in a real fire. The flicker element 38 preferably includes a rod with reflective strips attached thereto and rotated by a motor, as described in the Hess et al. patent.

[0056] It is also preferred that the flame image subassembly 30 additionally includes a flame effect element 73 positioned in the path of light 35 from the light source 32 between the flicker element 38 and the screen 34 (Fig. 2), for configuring light from the light source 32 to form the image of flames 31. Preferably, the flame effect element 73 has a reflective surface and a flame-like profile, like the flame effect element having reference numeral 58" disclosed in PCT application no. PCT/CA97/00299 (published as WO 97/41393), the entire specification of which is hereby incorporated herein by reference. (The flame effect element 58" is disclosed in Figs. 15 - 17 in WO 97/41393, and on page 19, at lines 15 - 31 thereof.)

[0057] The front panel 44 may be made of glass, if preferred. If the front panel 44 is included in the flame simulating assembly 20, then the front panel 44 preferably is tinted to improve the flame simulating effect. In practice, however, and as noted above, it is preferred that the flame simulating assembly 20 not include the front panel 44.

[0058] It will be appreciated by those skilled in the art that various devices could be used in the flame simulating assembly 20 as the temperature-affecting element 37 for

heating and/or cooling objects. For example, in one embodiment, the temperature-affecting element 37 includes one or more Peltier devices 90 (Figs. 6B, 6C). As is known, in a Peltier device, the Peltier effect is created by passing current through two dissimilar metals (or semiconductors) that are connected to each other at junctions. In a Peltier cooler/heater, heat is transferred from one side of the device to the other, and this characteristic is used to heat or cool as required, as is known in the art.

[0059] As is known, the Peltier device 90 is operated using direct current, and the direction of the heat transfer effected by the Peltier device 90 is changed by changing polarity. For example, if heat is transferred from a first side 91 to a second side 92 when the current is flowing in a first direction, then heat is transferred from the second side 92 to the first side 91 when polarity is reversed. As is known in the art, this is preferably achieved via operation of a manual switch (not shown). It is also known in the art that suitably sized fans (not shown) preferably are provided to distribute heat, in order for the Peltier device to function properly. For instance, if the Peltier device 90 is installed in a wall of the chamber (not shown), a means is required for distributing heat (or the lack thereof, as the case may be) generated by the device inside the chamber 26, and another means is required to dissipate heat (or the lack thereof) to the ambient environment. Such means may be any suitable means, for example, a heat sink, or a fan, as is known in the art. Also, where the temperature-affecting element 37 includes the Peltier device 90, the walls of the chamber 26 preferably are insulated. Peltier devices are well known in the art. The details of how the Peltier device 90 is used in the flame simulating assembly 20 would be readily determinable by one skilled in the art, and therefore it is not necessary to provide further details regarding the use of the Peltier device 90 in the flame simulating assembly 20.

[0060] In use, the flame simulating assembly 20 is activated via the main switch 65, resulting in activation of the flame image subassembly 30. The image of flames 31 appears to rise from the simulated fuel bed 45 (Figs. 1, 4, 5). The image of flames 31 and the exterior of the housing 22 provide an aesthetic effect, so that the flame simulating assembly 20 simultaneously heats or cools an object and provides a pleasing aesthetic effect. The flame simulating assembly 20 may be positioned, for example, beside a swimming pool, i.e., whether the pool is located indoors or outdoors.

[0061] If it is intended to cool objects, then the container 50 is placed in the chamber 26, and objects 23 to be cooled are positioned therein, with cooling elements 58. The cover portion 40 is normally closed, to minimize heat transfer into the cavity 52.

[0062] If it is intended to heat objects, then the container 50 is removed from the chamber 26 (Fig. 5), and the objects 21 to be heated are placed in the chamber 26. The heat source 48 is activated, to heat the objects 21 positioned in the chamber 26. Once again, the cover portion 40 is normally closed, in this situation, to minimize

heat transfer from the chamber 26.

[0063] As can be seen in Figs. 1 - 5, the cover portion 40 may be provided in the form of a lid which is removable. In this embodiment, the container 50 is moved substantially vertically in and out of the chamber 26. However, other arrangements may be used.

[0064] Alternative embodiments of the flame simulating assembly of the invention are disclosed in Figs. 8-11. Elements are numbered in Figs. 8-11 so as to correspond to like elements shown in Figs. 1-7.

[0065] An alternative embodiment of a flame simulating assembly 120 of the invention is disclosed in Figs. 8 and 9. As shown in Fig. 8, the flame simulating assembly 120 preferably includes a housing 122 with a body portion 124 having a chamber 126 therein accessible via an aperture 128, the aperture 128 being positioned at a rear side 129 of the housing 122. The housing 122 includes a cover portion 140 which is pivotable about a hinge 141 between a closed position, in which the cover portion 140 closes the aperture 128, and an open position, in which the aperture 128 is open. It will be understood that the cover portion 140 is not necessarily attached to the body portion 124, i.e., whether by the hinge 141, or by other means. For example, the cover portion 140 may be removable from the body portion 124, when the cover portion 140 is in the open position.

[0066] In addition, the flame simulating assembly 120 preferably includes a temperature-affecting element 137 which includes a heat source 148, as shown in Fig. 8. The heat source 148 is for heating the chamber 126.

[0067] The flame simulating assembly 120 preferably also includes a container 150 which is receivable in the chamber 126 (Fig. 9). The container 150 at least partially defines a cavity 152 therein. It is preferred that the container 150 is moved into the chamber 126 when the container 150 is pushed by the user (not shown) in the direction indicated by arrow "D" in Fig. 9. Preferably, a contact 168 is positioned in the chamber 126 so that it is contacted by a first magnet 166 mounted on the container 150 (Fig. 9). As the container 150 is fully inserted into the chamber 126, the first magnet 166 contacts the second magnet 168, thereby breaking (or opening) the electric circuit of the heat source 148. Preferably, the temperature-affecting element 137 includes cooling elements 158 to cool the cavity 152. However, various means for heating the chamber 126 and cooling the cavity 152 are known to those skilled in the art.

[0068] It will be understood that the cover portion 140 is shown in the open position in Figs. 8 and 9, and the cover portion 140 is shown in the closed position in ghost outline in each of Figs. 8 and 9, to simplify illustration thereof.

[0069] After the container 150 is positioned in the chamber 126, the cover portion 140 is pivoted upwardly to close the aperture 128. The cover portion 140 preferably is latched to, or otherwise suitably releasably attached to, the body portion 140 at a top end 125 thereof. Similarly, when the container 150 is not received in the

chamber 126, the cover portion 140 preferably is latched to the body portion at the top end 125, to close the aperture so that objects (not shown) in the chamber 126 may be heated, if desired.

[0070] Another alternative embodiment of the flame simulating assembly 220 of the invention is disclosed in Figs. 10 and 11. As shown in Fig. 10, the flame simulating assembly 220 preferably includes a housing 222 with a body portion 224 having a chamber 226 therein accessible via an aperture 228 positioned at a front side 231 of the housing 222. The housing 222 includes a cover portion 240 which is pivotable between a closed position, in which the cover portion 240 closes the aperture 228, and an open position, in which the aperture 228 is open. The flame simulating assembly 220 preferably also includes a temperature-affecting element 237 which includes a heat source 248 for heating the chamber 226, as shown in Fig. 10.

[0071] Although the cover portion 240 is shown as being attached to the body portion 224 by a hinge 241, it will be understood that the cover portion 240 is not necessarily attached to the body portion 224, when the cover portion 240 is in the open position.

[0072] In addition, the flame simulating assembly 220 preferably includes a container 250 which is receivable in the chamber 226. The container 250 at least partly defines a cavity 252 therein. It is preferred that the container 250 is moved into the chamber 226 when the container 250 is pushed in the direction indicated by arrow "E" in Fig. 11. Preferably, a contact 268 is positioned in the chamber 226 so that it is contacted by a first magnet 266 mounted on the container 250 (Fig. 11). As the container 250 is fully inserted into the chamber 226, the first magnet 266 contacts the second magnet 268, thereby breaking (or opening) the electric circuit of the heat source 248. Preferably, the temperature-affecting element 237 includes cooling elements (not shown) to cool the cavity 252. However, various means for heating the chamber 126 and cooling the cavity 152 are known to those skilled in the art.

[0073] It will be understood that the cover portion 240 is shown in the open position in Figs. 10 and 11, and the cover portion 240 is shown in the closed position in ghost outline in each of Figs. 10 and 11, to simplify illustration thereof.

[0074] After the container 250 is positioned in the chamber 226, the cover portion 240 is pivoted upwardly to close the aperture 228. The cover portion 240 preferably is latched to, or otherwise suitably releasably attached to, the body portion 240 at a top end 227 thereof. Similarly, when the container 250 is not received in the chamber 226, the cover portion 240 preferably is latched to the body portion at the top end 227, to close the aperture so that objects (not shown) in the chamber 226 may be heated, if desired.

[0075] Any element in a claim that does not explicitly state "means for" performing a specified function, or "step for" performing a specific function, is not to be interpreted

as a "means" or "step" clause as specified in 35 U.S.C. §112, paragraph 6.

[0076] It will be appreciated by those skilled in the art that the invention can take many forms, and that such forms are within the scope of the invention as claimed. For instance, in the drawings herein, the aperture providing access to the chamber has been shown as being located at the top, the front, and the back of the housing. Although not disclosed in the enclosed drawings, it would be evident to those skilled in the art that the aperture could be located on either side (or both sides) of the housing. Therefore, the spirit and scope of the appended claims should not be limited to the descriptions of the preferred versions contained herein.

Claims

1. A flame simulating assembly adapted for storing objects and affecting a temperature thereof, the flame simulating assembly comprising:

a housing comprising a body portion with at least one chamber therein accessible via at least one aperture in the body portion, said objects being receivable in said at least one chamber;
a flame image subassembly for providing at least one image of flames and disposed at least partially in the housing, the flame image subassembly comprising:

at least one light source;
a screen positioned in a path of light from said at least one light source, the screen being adapted for transmission of said at least one image of flames through the screen;

at least one temperature-affecting element for affecting the temperature of said objects positioned in said at least one chamber;
the housing additionally comprising a cover portion positionable on the body portion to cover at least part of said at least one chamber.

2. A flame simulating assembly according to claim 1 wherein the cover portion is movable between an open position, in which said at least one chamber is at least partially exposed, and a closed position, in which said at least one chamber is at least partially covered.
3. A flame simulating assembly according to claim 1 or 2 in which said at least one temperature-affecting element comprises at least one heat source adapted for heating said at least one chamber.
4. A flame simulating assembly according to any of

claims 1 to 3 in which the housing comprises at least one opening through which said at least one image of flames is viewable.

5. A flame simulating assembly according to claim 4 additionally comprising a mesh screen, said at least one image of flames being at least partially viewable through the mesh screen.
6. A flame simulating assembly according to claim 4 or 5 in which the housing comprises at least one door and said at least one door comprises said at least one opening.
7. A flame simulating assembly according to claim 5 in which the housing comprises at least one door, said door comprising said at least one opening and wherein the mesh screen is attached to said at least one door.
8. A flame simulating assembly according to claim 1 in which when in a closed position the cover portion cooperates with the body portion to substantially close said at least one aperture,
9. A flame simulating assembly according to claim 2 or any of claims 3 to 7 when dependent on claim 2 in which the cover portion co-operates with the body portion to substantially close said at least one aperture when the cover portion is in the closed position.
10. A flame simulating assembly according to claim 8 or 9 additionally comprising at least one container defining a cavity therein, said at least one container being at least partially receivable in said at least one chamber.
11. A flame simulating assembly according to claim 10 in which, when said at least one container is at least partially received in said at least one chamber via said at least one aperture:

the cover portion is movable to the closed position; and

the cover portion cooperates with the body portion to substantially close said at least one aperture.
12. A flame simulating assembly according to claim 10 or 11 in which said at least one container is at least partially thermally insulated.
13. A flame simulating assembly according to any of claim 10, 11 or 12 in which said at least one temperature-affecting element comprises at least one cooling element for cooling the cavity.
14. A flame simulating assembly according to any of

claims 10 to 13 in which at least one cooling element for cooling the cavity is receivable in said at least one container.

15. A flame simulating assembly according to any preceding claim in which said at least one temperature-affecting element comprises a Peltier device for selectively heating and cooling said at least one chamber.
16. A flame simulating assembly according to claim 3 additionally comprising at least one switch for opening and closing an electric circuit comprising said at least one heat source, to control activation of said at least one heat source.
17. A flame simulating assembly according to any of claims 10 to 15 wherein when the at least one temperature affecting element includes at least one heat source, the flame simulating assembly further comprises at least one switch for opening and closing an electric circuit comprising said at least one heat source, to control activation of said at least one heat source said at least one switch being configured to open the circuit when said at least one container is at least partially received in said at least one chamber.
18. A flame simulating assembly according to claim 17 in which said at least one switch is configured to close the circuit upon removal of said at least one container from said at least one chamber.
19. A flame simulating assembly according to claim 18 additionally comprising an exterior switch for controlling the circuit when said at least one container is absent from said at least one chamber.
20. A flame simulating assembly according to any preceding claim additionally comprising a flicker element for causing said light from the light source to flicker, such that said at least one image of flames flickers.
21. A flame simulating assembly according to claim 20 in which the flame image subassembly additionally comprises a flame effect element positioned in a path of light from said at least one light source between the flicker element and the screen, for configuring light from said at least one light source to form said at least one image of flames.
22. A flame simulating assembly according to any preceding claim in which the flame image subassembly comprises a simulated fuel bed positioned in front of the screen such that said at least one image of flames appears to be rising from the simulated fuel bed.

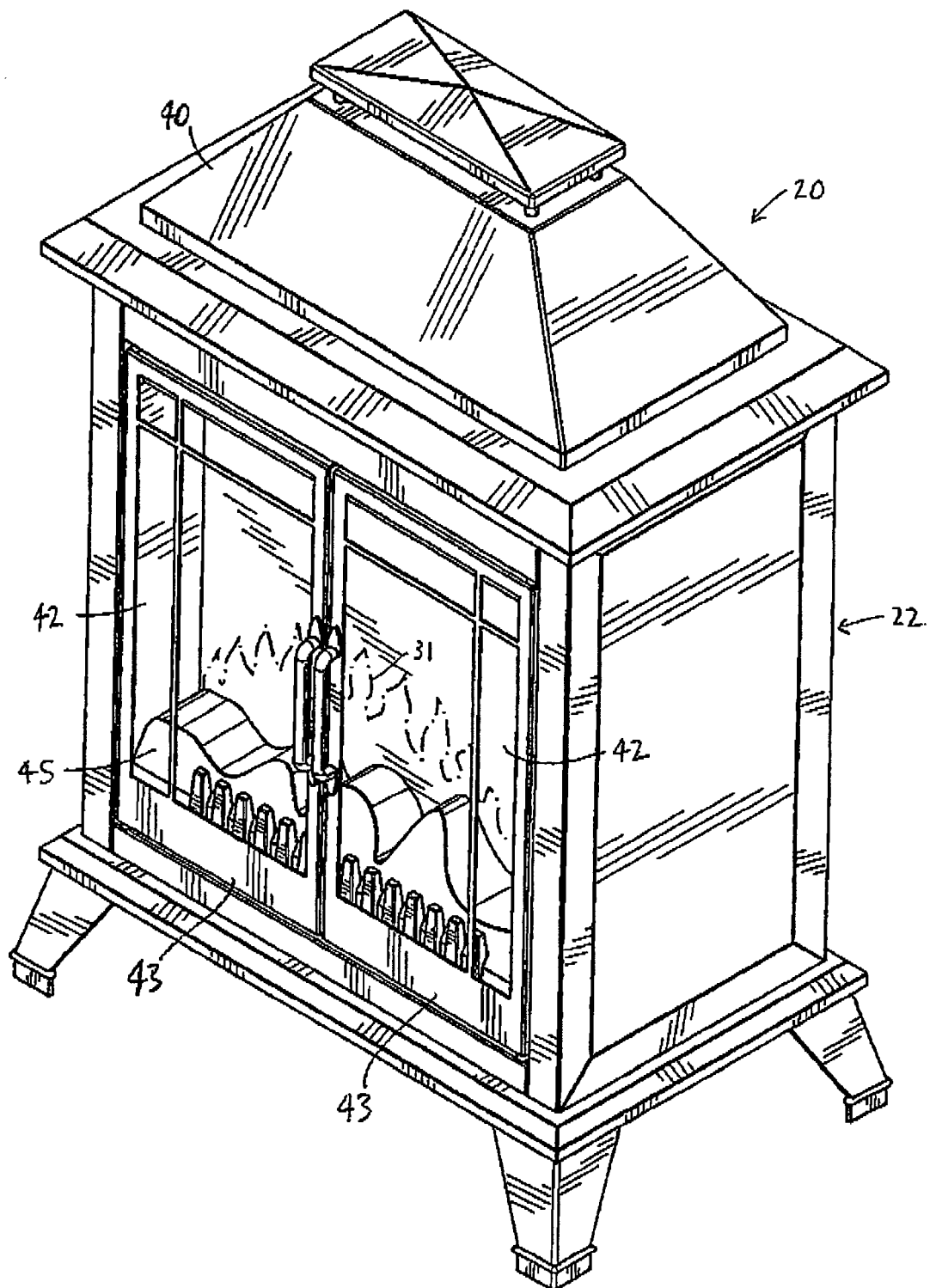


FIG. 1

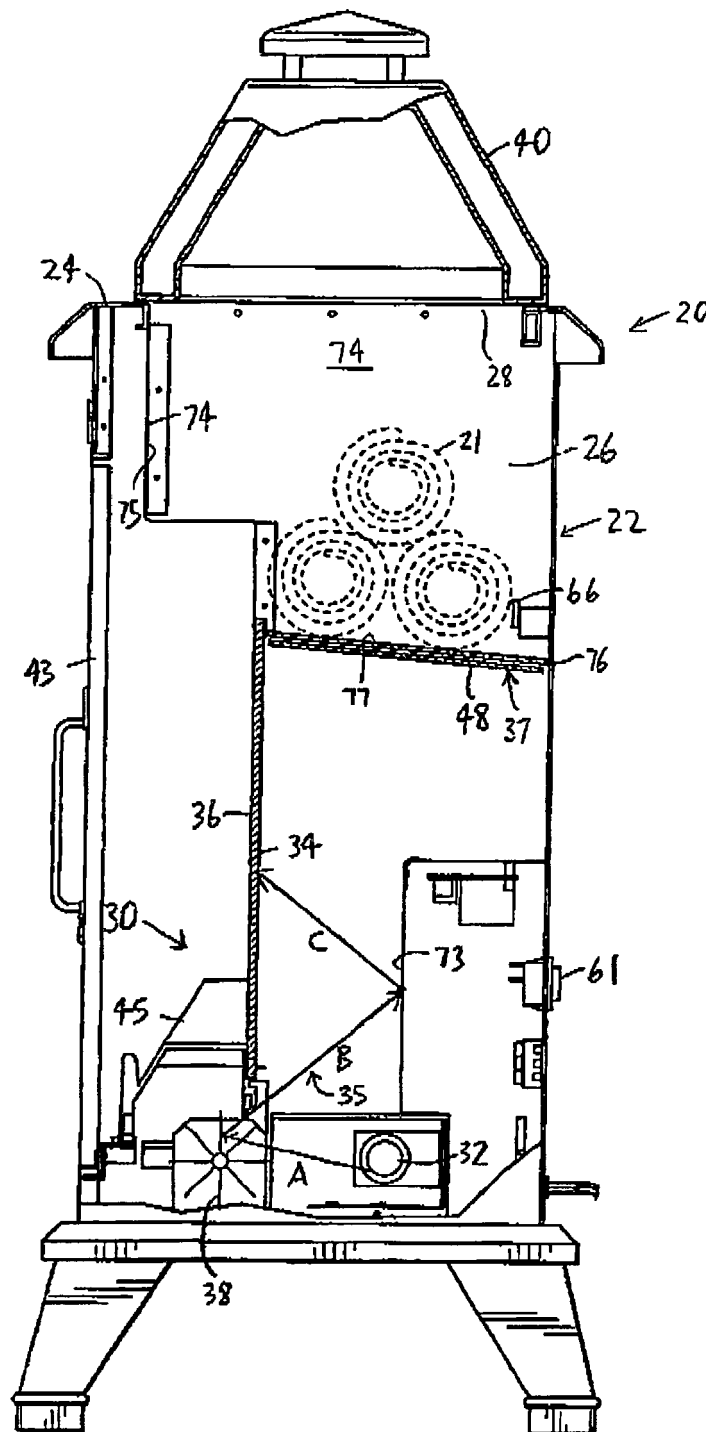


FIG. 2

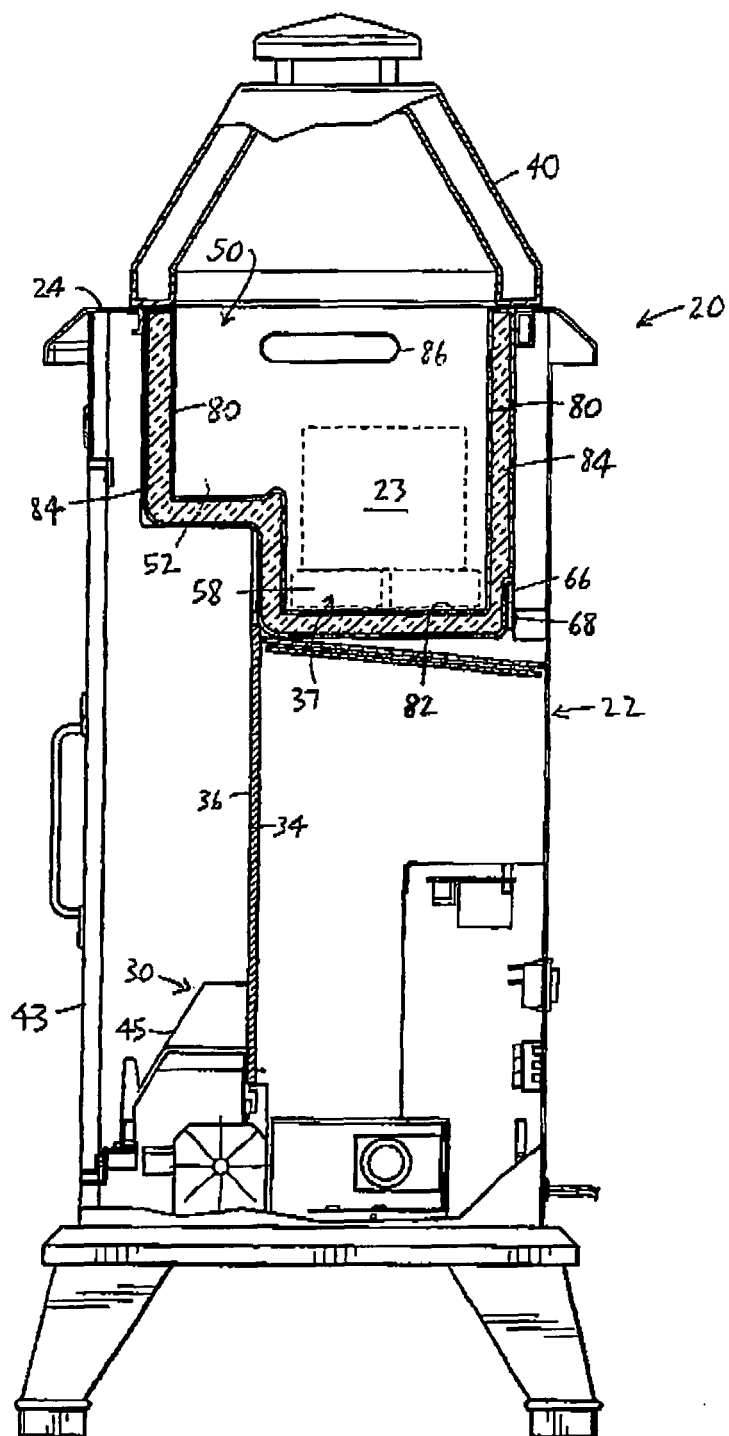


FIG. 3

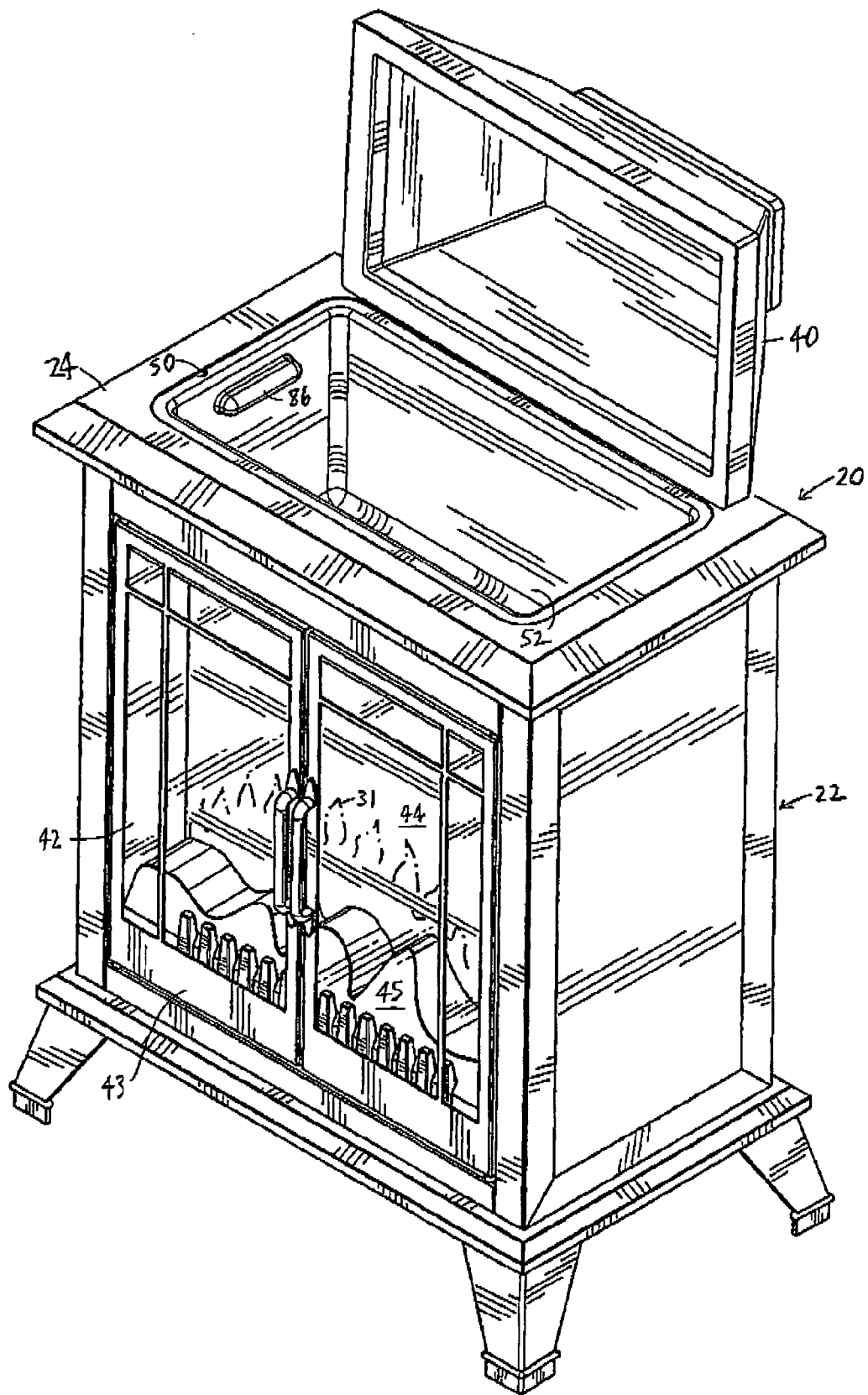


FIG. 4

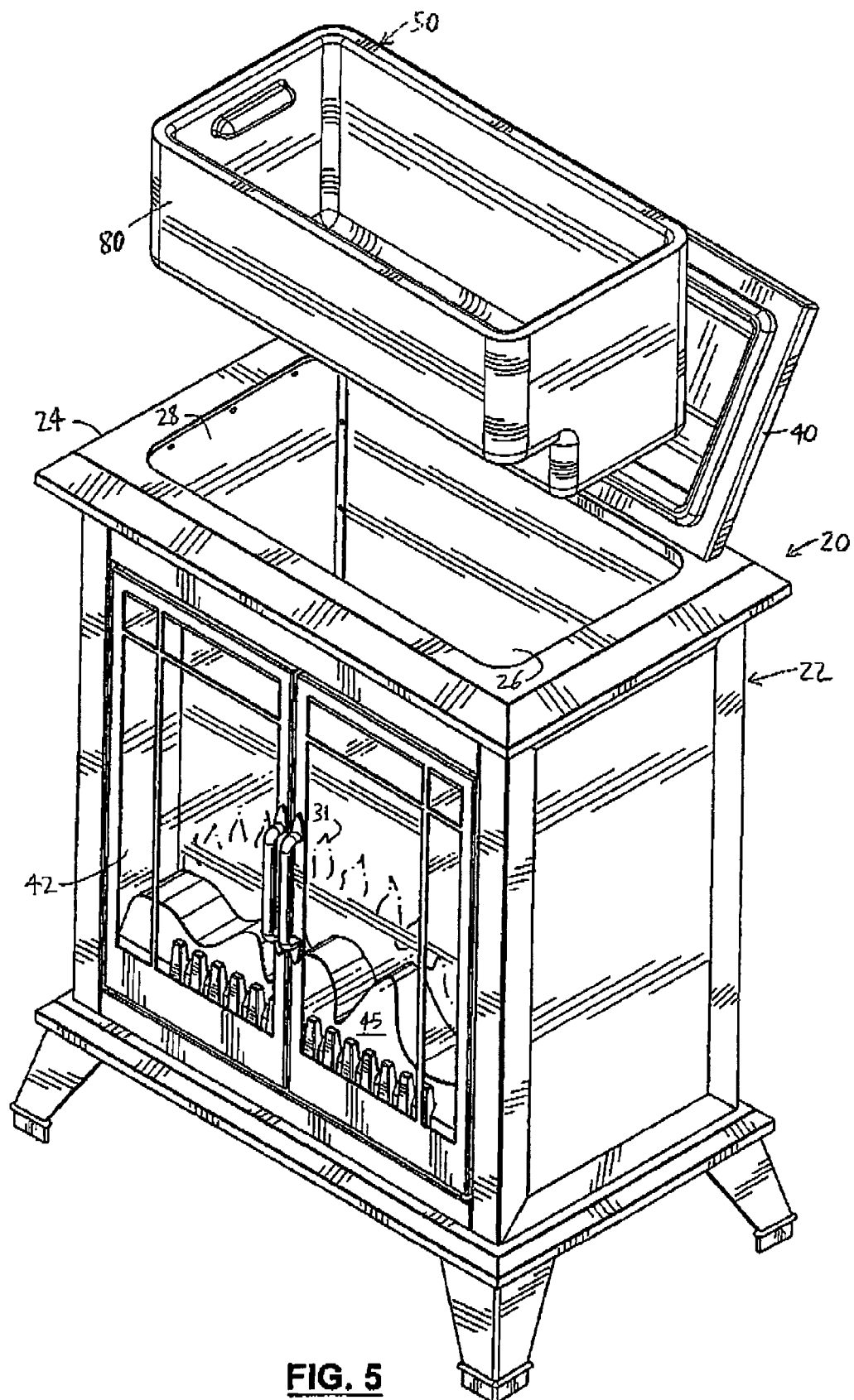


FIG. 5

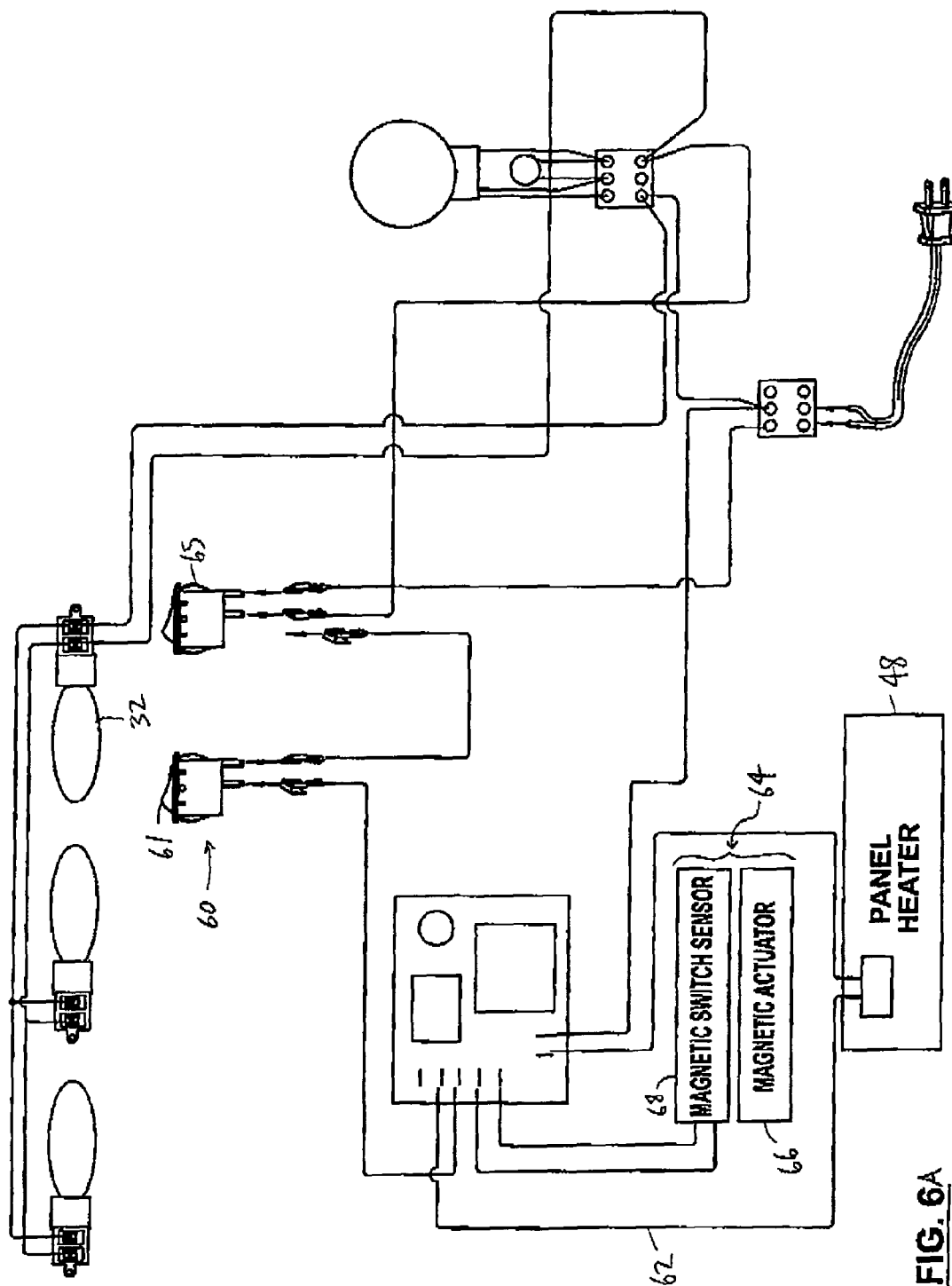


FIG. 6A

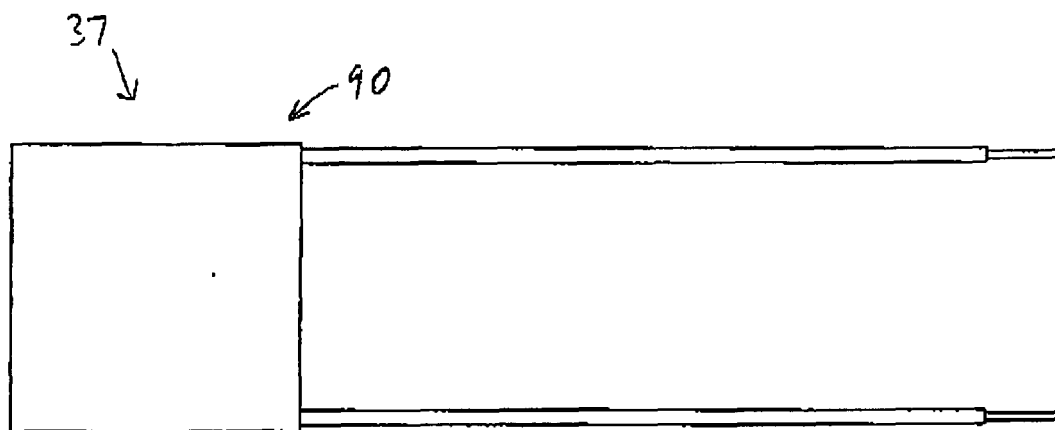


Fig. 6B

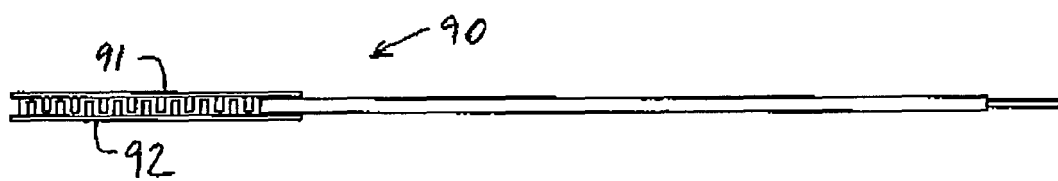


Fig 6C

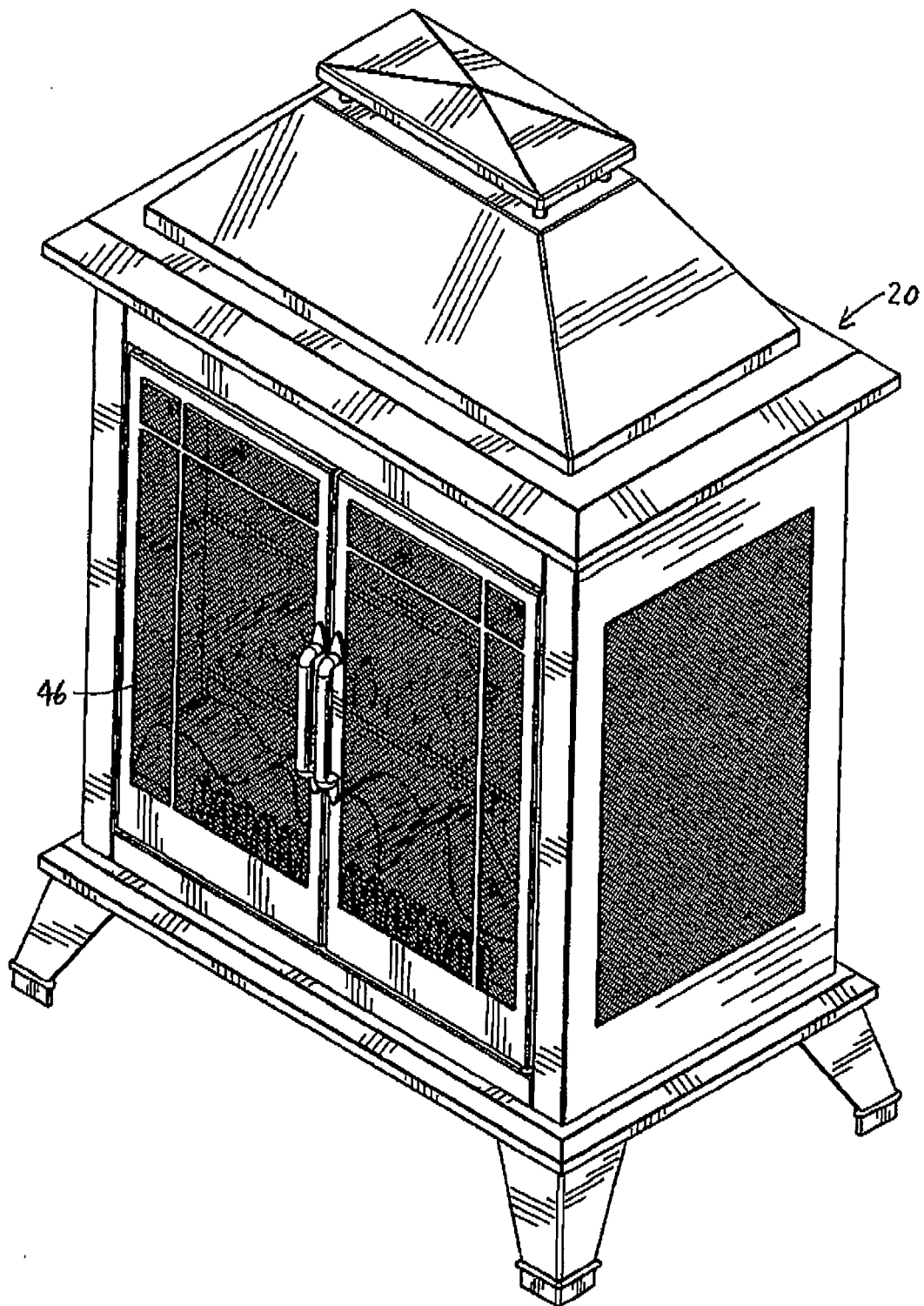


FIG. 7

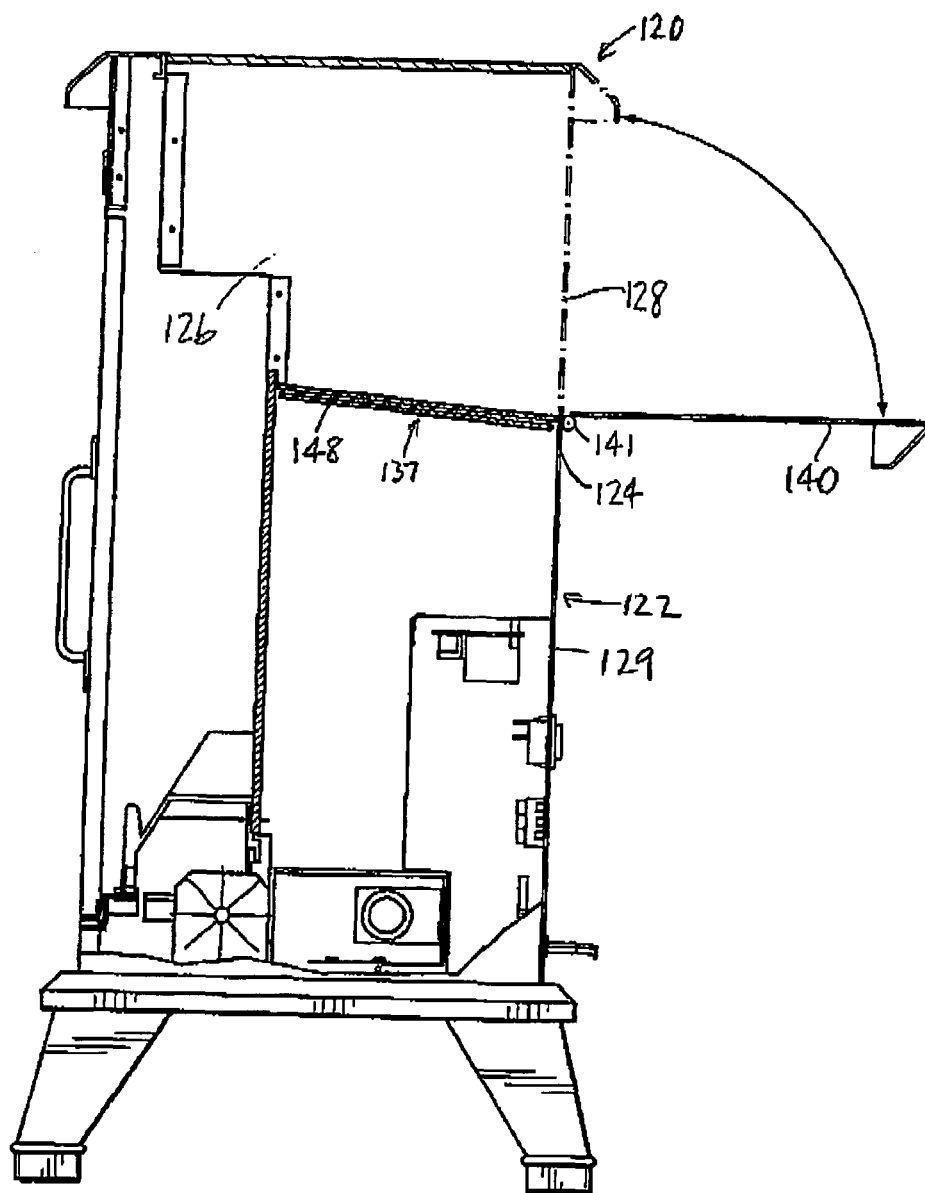


FIG. 8

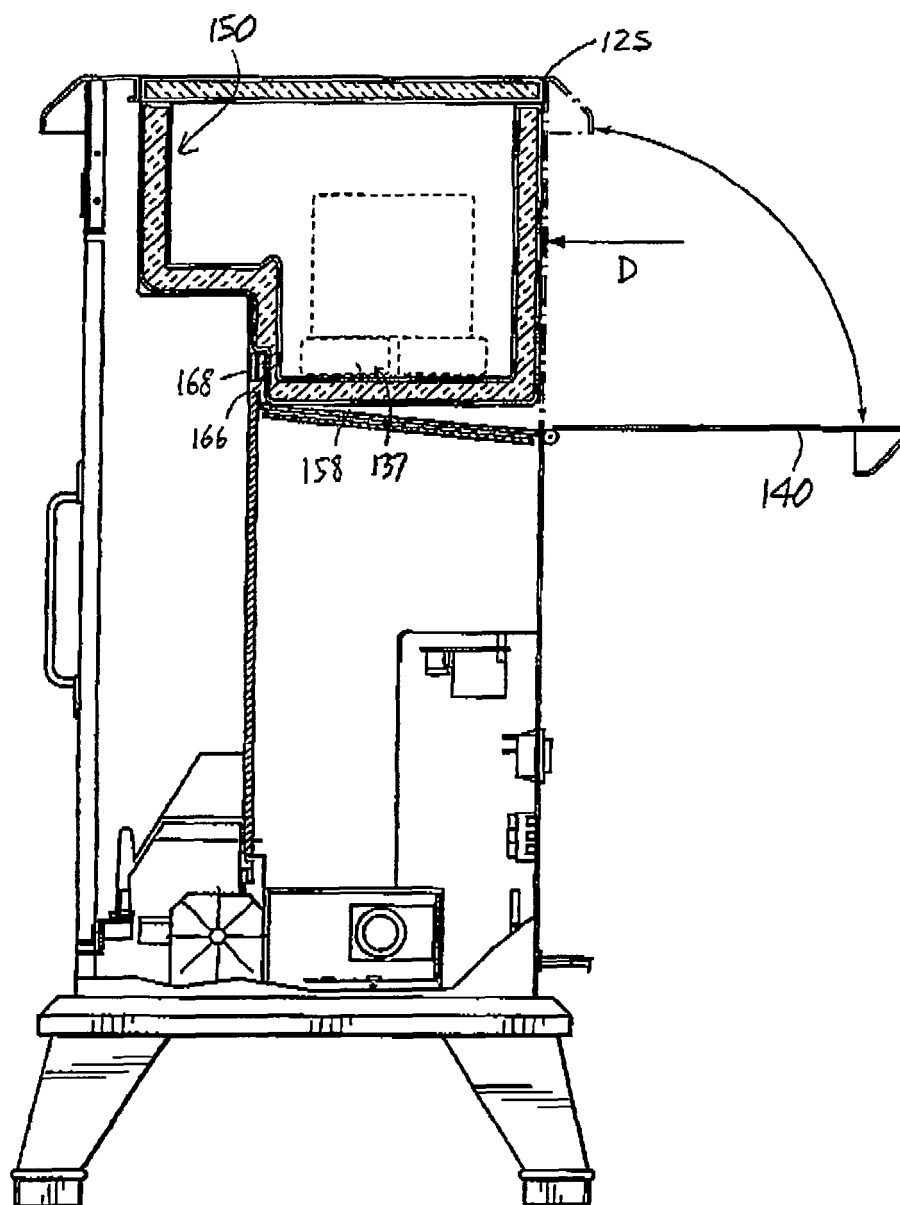


FIG. 9

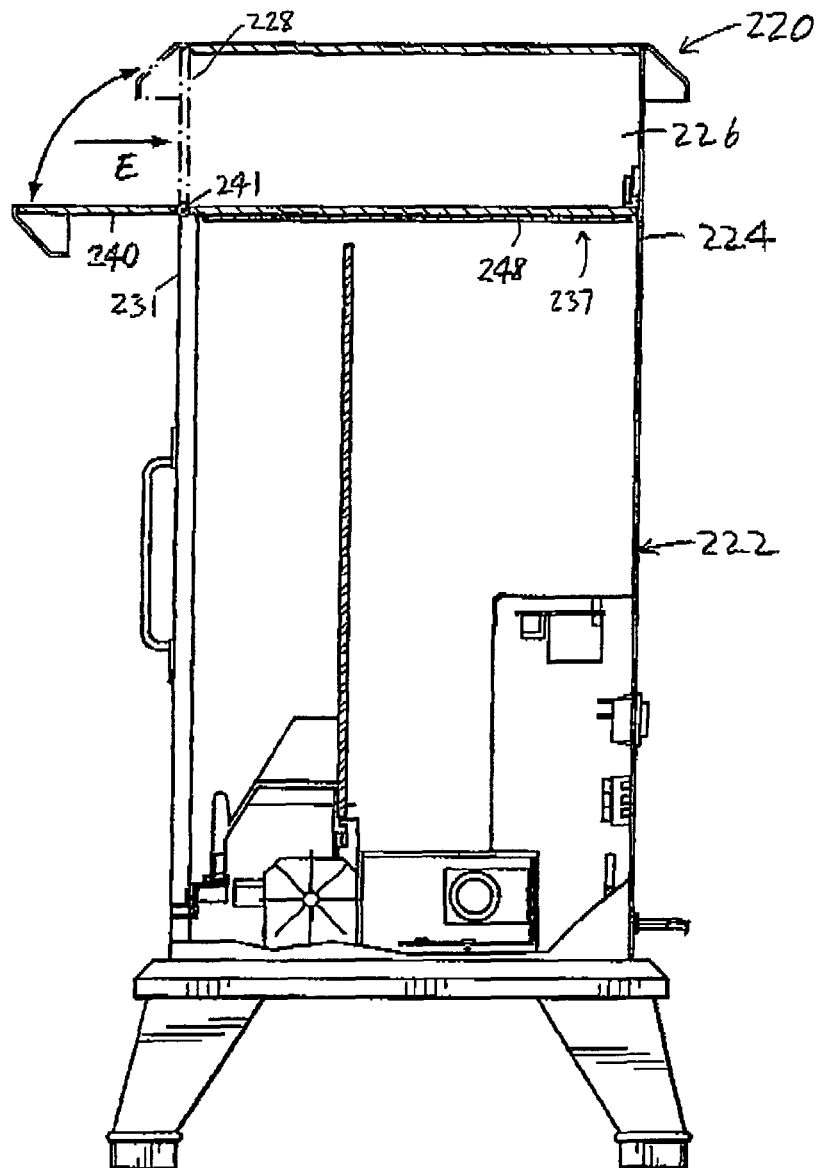


FIG. 10

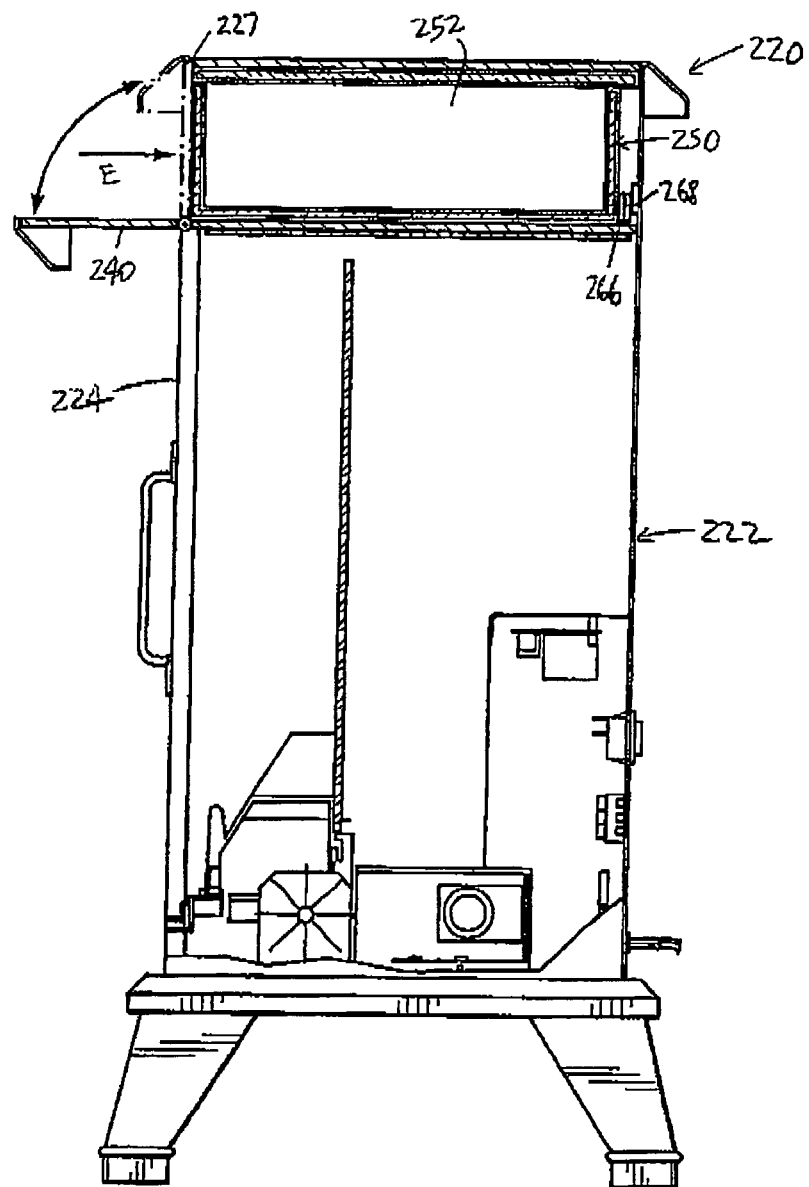


FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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