

[54] **STORAGE AND DRYING CABINET**

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2,616,269	11/1952	Reynolds.....	62/264
2,741,099	4/1956	Beane.....	62/264
2,811,840	11/1957	Thompson.....	62/317
2,920,622	1/1960	Steel.....	128/191
3,100,679	8/1963	Kritzer.....	62/264

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128/191

[51] Int. Cl. **F25d 23/00**

[58] Field of Search 62/264; 34/1; 21/54, 102, 74

[56] **References Cited**

UNITED STATES PATENTS

2,248,618	7/1941	Fischer.....	62/264
2,533,732	12/1950	James.....	62/264

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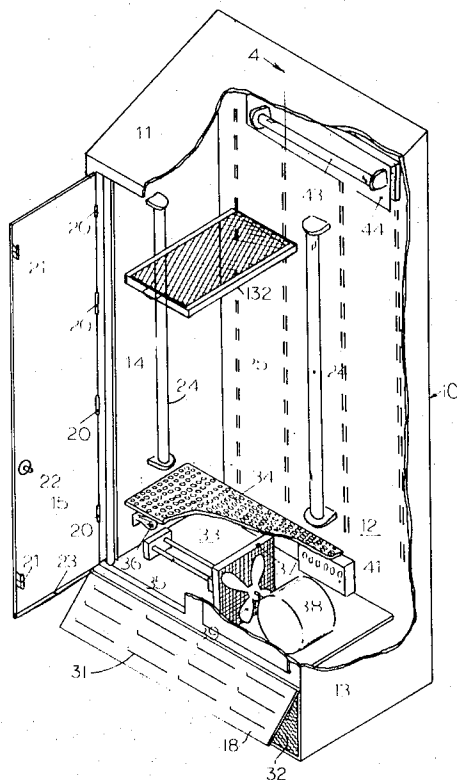
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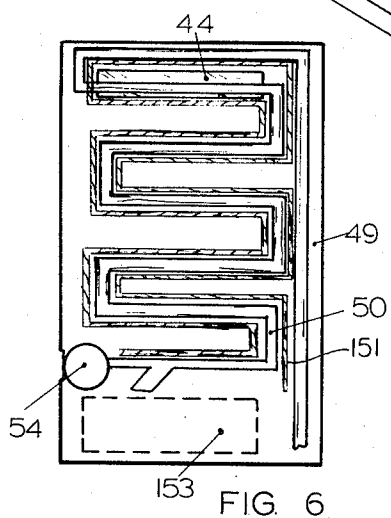
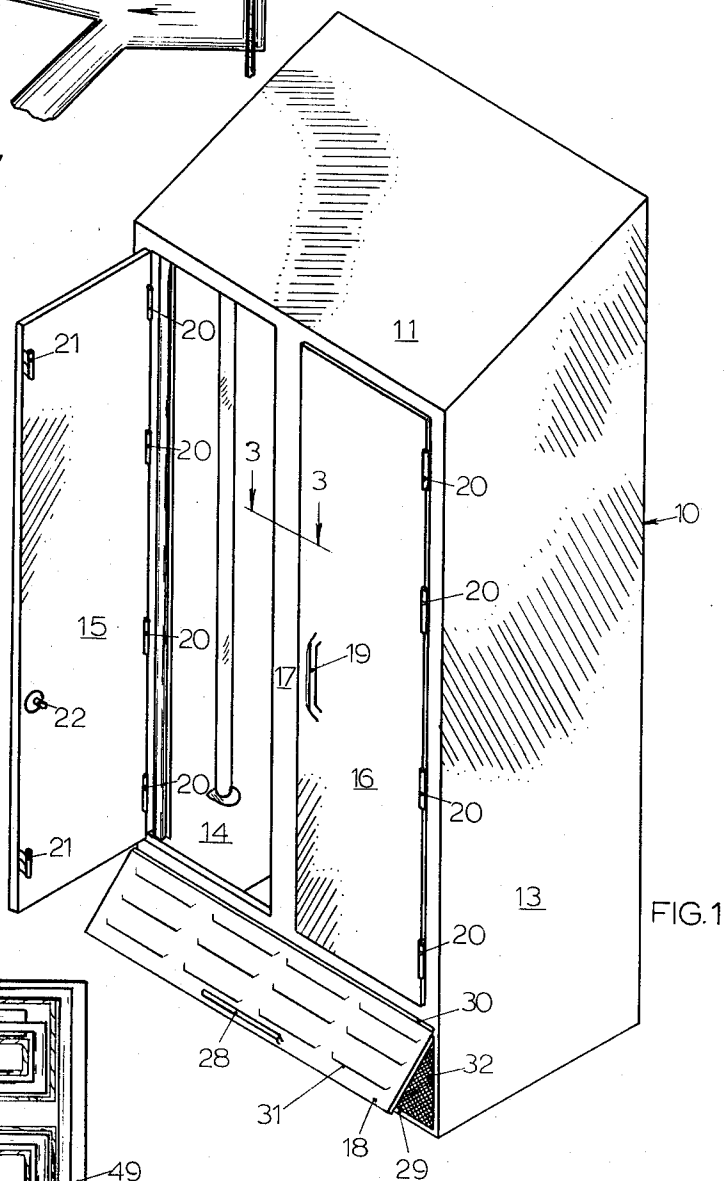
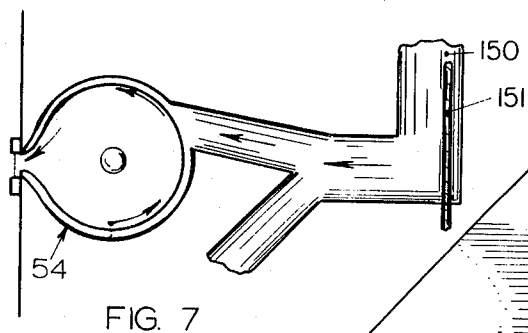
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ABSTRACT

This disclosure shows a drying and sterilizing cabinet especially suited for use in hospitals. The cabinet is sealed and has a dehumidifying chamber at its rear through which filtered air flows. Bacteria are killed by an arrangement of ultra-violet rays inside the cabinet.

6 Claims, 12 Drawing Figures





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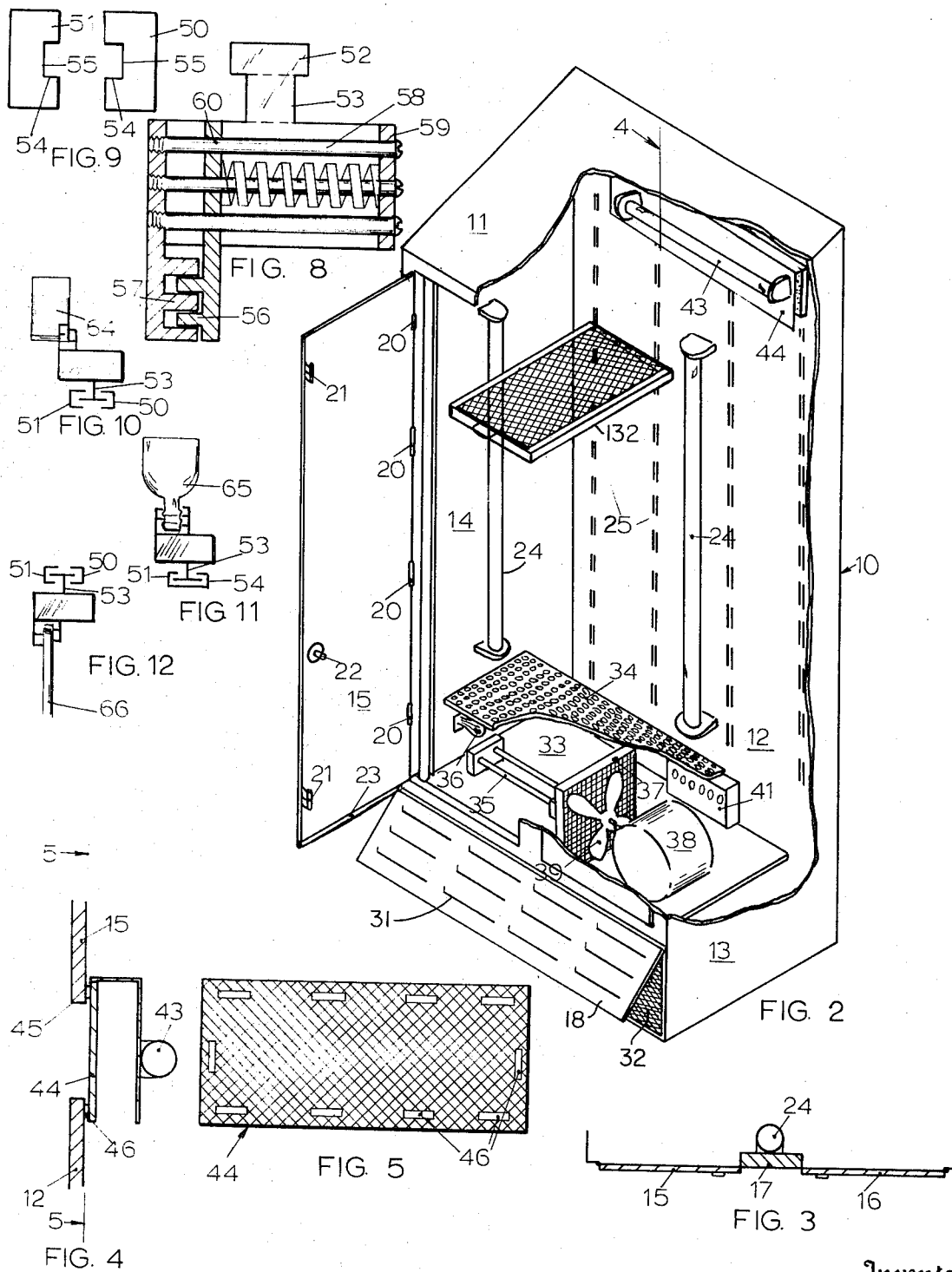
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STORAGE AND DRYING CABINET

REFERENCE TO PRIOR ART

In all hospitals, the need for sterilizing equipment for patient care is evident. Hospitals must offer sterilized equipment to patients to prevent cross-contamination by infectious bacteria. The methods of sterilization are varied, the goals, however, are the same. All attempts to provide equipment free from living bacteria bodies.

Sterilizing methods at present have two drawbacks; they have (1) no sterile field for drying equipment and (2) no sterile field for storage that is free from contamination and is continually sterilizing equipment.

Present methods utilized by hospitals mainly require equipment to be wet — left hanging or draped by towels and exposed to be ambient atmosphere. This exposure often leads to contamination of the equipment and the possibility of cross-contamination to the patient. The possibility of contamination of equipment once the equipment is sterilized, even with gas and ultrasonic sterilization, still exists, since no adequate provision is provided to maintain equipment sterility when the equipment is stored prior to patient use.

OBJECTS OF THE INVENTION

It is an object of the invention to provide an improved drying and sterilizing cabinet.

Another object of the invention is to provide a drying and sterilizing cabinet that is simple in construction, economical to manufacture, and simple and efficient to use.

Another object of the invention is to provide an improved sterilizing cabinet.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the sterilizing cabinet according to the invention.

FIG. 2 is a view similar to FIG. 1 with certain parts broken away to better show the inside of the cabinet.

FIG. 3 is a longitudinal cross sectional view taken on line 3—3 of FIG. 1.

FIG. 4 is a longitudinal cross sectional view taken on line 4—4 of FIG. 2.

FIG. 5 is a view taken at line 5—5 of FIG. 4, showing the rear side of the panel.

FIG. 6 is a view of the dehumidifying chamber taken from the inside of the back of the cabinet.

FIG. 7 is an enlarged view of the shelf.

FIG. 8 is a cross sectional view of brackets for attaching liquid bottles.

FIG. 9 is a front view of tracks for supporting clamps or brackets shown in FIG. 8.

FIG. 10 is a view of clamps of FIG. 8 and tracks of FIG. 9.

FIG. 11 shows clamps of FIG. 8 holding a bottle.

FIG. 12 shows clamp of FIG. 8 holding an object.

DETAILED DESCRIPTION OF THE DRAWINGS

Now with more particular reference to the drawings, a cabinet 10 is shown having a top 11, back 12, sides 13 and 14, and door 15 and 16 connected to the cabinet by means of hinges 20. A center post 17 runs from top to bottom of the front opening of the cabinet and provides a stop for the doors. The doors 15 and 16 have handles 19 and friction catches 21 which hold them in

closed position. A contact switch 22 is supported on each door and this switch is connected to the lights inside the cabinet. A rubber gasket 23 is fixed to the door and extends around the entire inside of the doors to seal the doors against leakage of air into the cabinet when the doors are closed. The rubber gasket is the type used in refrigerators. A handle 19 is attached to each door so that they may be easily opened. Nylon roller catches of the friction type are fixed to the doors at 21 to hold them firmly in sealed position against the gaskets. The cabinet itself may be of a convenient height for use in hospitals and it may be, for example, approximately 6 feet high, 4 feet wide and 24 inches deep. The dimensions may be varied to accommodate the individual's need. The particular size of the cabinet is not considered to be a part of the invention.

Ultra-violet tubes 24 are fixed to the rear wall 12 of the cabinet and to the side walls 13 and 14. Adjustable shelf bracket receiving slots which are used in refrigerators and for supporting book shelves, are indicated at 25. By means of such shelf rails or brackets, racks may be supported in the cabinet to accommodate the individual taste of the user.

The louvered door 18 is swingably supported to the front of the cabinet below the doors 15 and 16. This louvered door 18 provides an inspection panel which has a handle 28 at its lower front edge and a sealing gasket 29 which extends around the periphery thereof and seals to the front of the cabinet. A full width piano hinge 30 supports the door 18. The door 18 has small magnets supported at spaced positions along it to hold it in closed position.

A screen filter 32 is supported on the cabinet opening behind the door 18 and air may flow through the louvers 31 and through the filter 32. The filter may be supported by means of spaced magnets 46 on its outer periphery in a manner familiar to those skilled in the art.

A heating and dehumidifying unit is indicated at 33 below the grating 34. This heating and dehumidifying unit is made up of electric heating units 35 which are connected to a suitable source of electricity and a small ultra-violet light 36 is attached to one side of the compartment. A partition 37 is supported below the condenser and refrigeration unit 38 which has a fan 39 for driving air through the filter 40.

A control panel 41 is provided with control elements for controlling the temperature of the refrigeration unit 38. The control panel has a main control switch for all ultra-violet lights and a switch for the exhaust fan and a control for the humidifier and a control for the heating coil.

The wire mesh tray 132 shown in FIG. 2 may be supported in the cabinet with hooks attached to the rear edge of tray 132 and extending into the slots 25. The tray 132 may be made of wire mesh so that air flowing through them will be slightly filtered.

An ultra-violet light tube 43 is supported on the filter panel 44 and spaced in front of the rear wall 13. An opening 45 is formed in the wall 12 behind the panel 44 and the panel 44 allows filtered air to flow through the opening 45, through panel 44 and over the ultra-violet light 43 to sterilize the air. The panel 44 is held in place on wall 12 by magnets 46. The filter panel 44 is supported over the opening.

The dehumidifying chamber is best shown in FIG. 6. It has a panel 49 with a tube 150 formed in serpentine fashion into first, second, third, fourth, fifth and sixth tiers as shown. A refrigeration line 151 passes through the tube 150 from top to bottom and is connected to the refrigeration unit 38. A reservoir 153 is supported at the lower part of the panel to catch drainage of condensate from the tube 150. The tube condenses water from the air and drains it out into the reservoir.

It will be seen that the exhaust port behind panel 44 is disposed at the upper part of the dehumidification unit and an exhaust port 54 at the bottom. Thus air is drawn from the cabinet at the top over the refrigeration tube and is cooled, and by natural convection flows back into the cabinet at the bottom.

FIGS. 8-12 shows tracks and clamps for supporting objects in the cabinet. Spaced tracks 50 and 51 are attached to the rear wall of the cabinet and extend forwardly defining a space which receives head 52 of clamp 53. T-shaped head 52 is received between tracks 50 and 51 and the head 52 slides on shoulders 54 of slots 55 so that objects can be moved from front to back of the cabinet. The clamp has jaws 56 and 57. Jaws 56 are fixed to head 52. Jaws 57 are fixed to rods 58. Rods 58 slide in holes 59 and 60 in clamp 52. Spring 61 urges jaws 56 and 57 together. FIGS. 10, 11 and 12 show the clamp 53 holding a beaker 64, bottle 65 and object 66 respectively. Clamp 53 may be upright or suspended by tracks 50 and 51.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A storage and drying cabinet comprising
a cabinet enclosure made up of top, side and rear
walls connected together,
and a door swingably connected to the front of said
cabinet,
a grill at the bottom of said cabinet defining a space
and a refrigeration unit in said space below said
grill,
an opening adjacent the top of said rear wall,
a screen over said opening supported on said rear
wall,
and an ultra-violet light supported over said screen,
heating means is provided in said space below said

grill,
an air tube is connected to the outside of said back
wall of said cabinet,
a refrigerated tube passes through said air tube,
the upper end of said air tube being connected to
said opening in said upper part of said rear wall,
a receptacle at the bottom of said cabinet,
the lower end of said tube being connected to an ex-
haust port in the lower part of said cabinet and
blower means at the lower end of said air tube
whereby air is drawn from lower part of said
cabinet, passes over said refrigerated tube and
thereby cools below the dew point and is ex-
hausted into the top of said cabinet while the con-
densate from said air drains, through said air tube
into said receptacle.

2. The cabinet recited in claim 1 wherein two said doors are swingably connected to the front of said cabinet and a central panel is supported between said doors,

said doors making sealing engagement with said panel and said cabinet when in closed position, an ultra-violet tube connected to said panel on the inside thereof.

3. The cabinet recited in claim 2 wherein an ultra-violet light tube is fixed to said center panel, and an ultra-violet tube fixed to each side of said cabinet on the inside thereof.

4. The cabinet recited in claim 1 wherein a dehumidifying apparatus is disposed in the bottom of said cabinet and a screen partition separates said dehumidification unit from said cabinet.

5. The cabinet recited in claim 4 wherein said dehumidification unit comprises a filter member dividing a space in the bottom of said cabinet into two parts and an ultra-violet light in one said part and a refrigeration unit in the other said part,

a fan associated with said refrigeration unit for drawing air from said cabinet, over said ultra-violet light, and over said refrigeration unit.

6. The cabinet recited in claim 1 wherein spaced tracks being attached at the rear end of said rear wall and extending forwardly therefrom,

said spaced tracks having shoulders and clamp means for supporting articles,

said clamp means having T-shaped heads slidably supported on said shoulders and slidable forwardly and rearwardly thereon whereby objects supported on said clamps may be moved forwardly or rearwardly in said cabinet.

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