Jan. 15, 1963 M. B. WILLIAMS 3,073,039

DRYING CABINET

Filed July 21, 1960

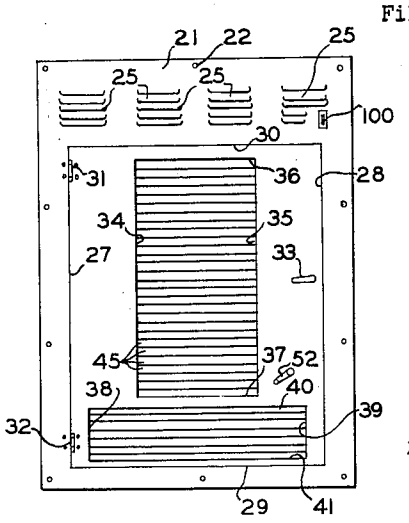


Fig. 1

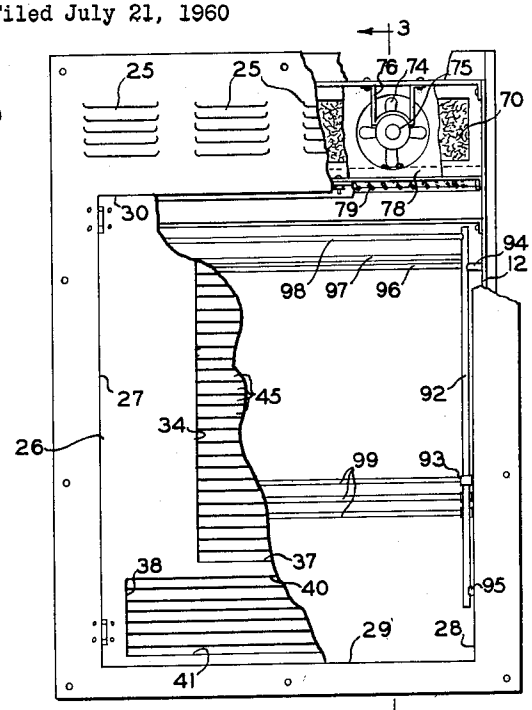


Fig. 2

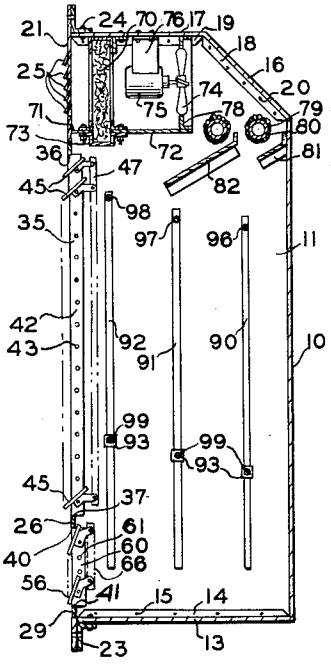


Fig. 3

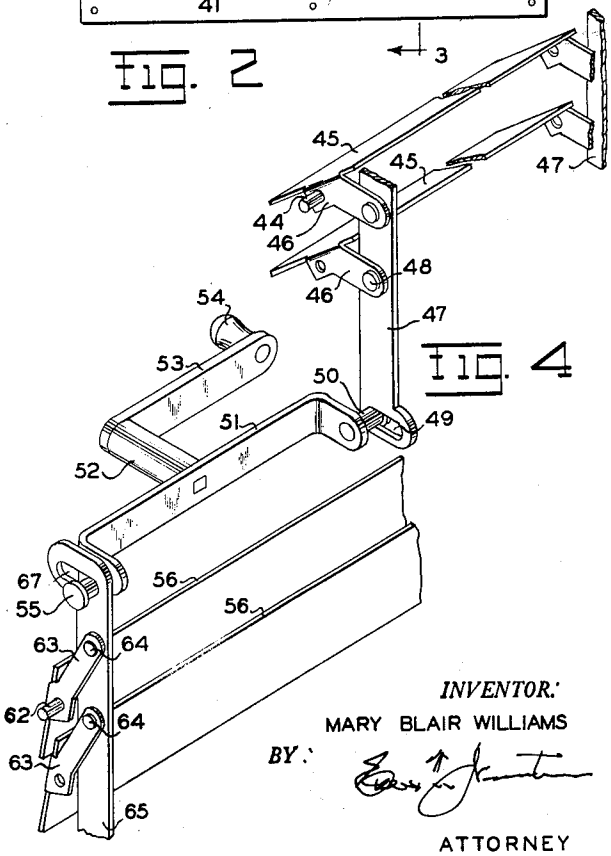


Fig. 4

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DRYING CABINET

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This invention relates to a drying cabinet and is more particularly concerned with a drying cabinet for selectively drying objects located internally or externally of the cabinet.

In the past, drying devices have been employed extensively for drying various objects of apparel. These drying devices usually toss and turn the articles as heated air is circulated through the apparel. Soiled articles, however, are usually not placed in such dryers since in such drying operation dirt from the articles will soil the interior of the dryer and hence, subsequent batches of articles to be dried may become soiled from the dirt and extraneous material deposited therein.

It is well known that, when towels are employed for drying a person, the towels become wet and moisture laden, and if deposited in a warm humid place they accumulate mold or become sour. Hence, it is more desirable to place damp wet towels in a relatively open place for a sufficient length of time for the towels to become dry before they are deposited in a clothes hopper or the like. This often times is inconvenient to the housewife since it gives an untidy appearance to the room in which the towels are hanging. The operators of barber shops and swimming pools have similar problems. The problem becomes more acute during inclement weather and especially during the winter months since it is almost imperative that the towels be stored indoors during the drying period.

With these problems in mind I have devised a drying cabinet which is relatively inexpensive and yet efficient, durable and particularly suited for domestic or semi-commercial use, the purpose being to provide a compact and efficient mechanism for drying the soiled towels in a relatively short period of time. The apparatus itself includes a closure having an air passageway through which the air is forced by a fan or blower, there being provided heating elements which heat the air as the same is circulated in the closure. A plurality of space racks are provided within the main chamber of the closure so as to support a plurality of towels or other articles of clothing to be dried in a position to be contacted by the heated air stream. Within the closure is a baffle arrangement by which the air may be selectively directed externally of the cabinet or directed over the towels disposed within the cabinet. Thus, an object located externally of the cabinet may be dried if so desired. The present invention may include a filter for removing trash and other particles from the air before the air is heated or directed on the objects to be dried.

Accordingly, it is an object of the present invention to provide a drying cabinet which is inexpensive to manufacture, durable in structure and efficient in operation.

Another object of the present invention is to provide a drying cabinet which is selectively operable to dry articles disposed within the drying cabinet or disposed exteriorly thereof.

Another object of the present invention is to provide a drying cabinet which is particularly adapted to dry a plurailty of towels or other small articles disposed on the interior thereof.

Another object of the present invention is to provide a drying cabinet which is compact in construction and yet will dry a relatively large number of towels and occupies little floor space.

Another object of the present invention is to provide

a drying cabinet which will utilize conventional sources of energy such as electricity for its drying operation.

Another object of the present invention is to provide a drying cabinet which will uniformly dry a plurality of articles or objects.

Another object of the present invention is to provide a drying cabinet which may be installed in the wall of a building or supported on the floor thereof.

Other and further objects, features and advantages of the present invention will become apparent from the following description when taken in conjunction with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views and wherein:

FIG. 1 is a front elevational view of a drying cabinet constructed in accordance with the present invention.

FIG. 2 is an enlarged, partially broken away, front elevational view of the drying cabinet illustrated in FIG. 1.

FIG. 3 is a vertical sectional view taken along line 3—3 of FIG. 2.

FIG. 4 is a fragmentary perspective view of a detail showing the louvers and control mechanism therefor of the drying cabinet shown in FIG. 1.

Referring now in detail to the embodiment chosen for the purpose of illustrating the present invention, it being understood that the present invention in its broader aspects is not limited to the exact details depicted in the drawings, numeral **10** denotes the flat rectangular back wall of a sheet metal casing or closure which forms the body of my drying cabinet. Extending forwardly in parallel relationship from opposite edges of the back wall **10** are the side walls **11** and **12**. The bottom wall **13** also extends forwardly from the back wall **10** being disposed between the lower edges of the side walls **11** and **12**, the bottom wall **13** being provided on opposite edges with upwardly turned flanges, such as flange **14**, which overlaps the lower edge portions of the side walls **11** and **12** as shown in FIG. 3. The flanges **14** are joined by bolts or rivets **15** to the side walls **11** and **12** so that the bottom wall **13** is supported by the side walls **11** and **12**. In the upper portion of the closure, the side walls **11** and **12** stand above the back wall **10**, the upper end of the back wall **10** being bent forwardly to provide a forwardly inclined air stream deflector plate **16** for directing the air downwardly within the cabinet or closure. A top wall **17** extends forwardly from the deflector plate and terminates between the upper corners of the side walls **11** and **12**. Downwardly turned flanges **18** and **19** project from the opposite edges of the deflector plate **16** and top wall **17** so as to overlap the side walls **11** and **12**, being secured thereto by rivets **20**.

It is therefore seen that I have provided, thus far, a closure which is open at the front and closed elsewhere to define a drying chamber for receiving appropriate articles, such as towels.

A rectangular sheet metal plate denoted generally by numeral **21** forms the front of the cabinet, being secured over the opening thereof and against the outer edges of the side walls **11**, **12**, bottom wall **13** and top wall **17** by rivets **22** which extend through angle irons **23** which form a perimeter around the edges of the walls **11**, **12**, **13** and **17**. The angle irons **23**, in turn, are riveted to walls **11**, **12**, **13** and **17** by rivets **24**.

As best seen in FIG. 3, the front plate **21** is provided in its upper portion, with a plurality of air intake openings which are aligned vertically and horizontally and are provided with louvers **25**, the louvers **25** being struck from the plate **21** so as to project outwardly and downwardly. Below the louvers **25** and in the central and lower portions of plate **21** is a relatively large access opening adapted to be closed by an access door **26**. It will be understood that the access opening is less wide

than the distance between the side walls 11 and 13, so that the vertical edges 27 and 28 of the perimeter formed around the access opening by portions of plate 21 are inwardly spaced with respect to the inner surfaces of the side walls 11 and 12. On the other hand, horizontal edge 29 defining the lower extremity of the access opening is preferably aligned with the inner surface of bottom wall 13 while the edge 30 defining the upper extremity of the access opening is located in the upper central portion of the plate 21.

Door 26 is of flat sheet metal and is hung along one of the vertical edges, say edge 27, by a pair of hinges 31 and 32, so that it may pivot about a vertical axis from an open position to a closed position, the door 26 being illustrated in the closed condition in FIGS. 1, 2 and 3. A suitable latch 33 forming a handle is provided in the central portion of the access door 26 adjacent the vertical edge 28 whereby the door, once closed, will remain closed until the latch is rotated and pulled forward.

The door 26 is provided with a pair of openings, one above the other, the central or upper opening being elongated vertically and the lower opening being elongated horizontally. In more detail, the upper opening is defined by vertical edges 34 and 35, and horizontal edges 36 and 27. It will be observed in FIG. 1 that the vertical edges 34 and 35 are substantially longer than the horizontal edges 36 and 37 whereby the upper opening includes a major portion of the door 26, with the upper edge 36 thereof terminating slightly below the upper edge 30, when door 26 is closed, and the bottom edge 37 terminating in the lower central portion of the door 26.

The lower opening in door 26 is also defined by vertical and horizontal edges; however, its vertical edges 38 and 39 are outwardly of the edges 34 and 35 and its horizontal edges 40 and 41 are longer than the edges 36 and 37. The lower opening of door 26 is also much smaller than the upper opening thereof.

Referring now to the upper opening in door 26, louver supporting flanges, such as flange 42, are provided along the edges 34 and 35, the flanges 42 being struck inwardly from the metal initially forming door 26. Thus, it is seen that the flanges 42 are integrally formed with door 26. As illustrated in FIG. 3, the flanges, such as flange 42, are provided with a plurality of evenly spaced horizontally aligned holes 43 within which are journalled respectively the pivot pins, such as pin 44, which support the horizontally disposed, pivotable louvers 45 of a louver assembly.

Each louver 45 is a rectangular member formed of flat sheet metal. At the ends of each lover 45 are the louver supporting levers 46 which extend parallel to each other inwardly at an acute angle with respect to their lovers 45. The pivot pins, such as pin 44, are secured to these levers 46 adjacent the inner surface of the lover 45 and about midway between the upper and lower sides of the louver 45.

It will be understood that the louvers 45 extend across the upper opening of door 26 and are so arranged that when the louvers 45 lie in a common vertical plane, they fill the upper opening of door 26 and are essentially in the same plane with door 26. In such a condition, the levers 46 extend upwardly and inwardly of the cabinet. When, however, the inner ends of levers 46 are urged downwardly, the louvers 45 pivot in a clockwise direction as viewed in FIG. 3, so as to open the upper opening of door 26.

For pivoting all louvers 45 simultaneously, there are provided draw bars 47 which join respectively all levers 46 on one side of the louvers 45 and all levers 46 on the other side of louvers 45, each lever 46 being joined to its draw bar by a pivot pin 48. At the lower end of one draw bar 47 is a relatively wide area within which is a horizontally elongated slot 49. A control pin 50 secured to one end of a rocker arm 51 is loosely retained in slot 49 and is adapted to move the draw bar 47 upwardly and downwardly upon rotation of the rocker arm 51 in one direction or the other. The rocker arm 51 is supported by its central portion on the inner end of a stub shaft 52 which projects through the door 26 and is provided on its outer end with a crank arm 53 having a handle 54 thereon.

The other end of rocker arm 51 is provided with an outwardly projecting control pin 55 similar to control pin 50, the function of which is to control the actuation of the louvers 56 of a louver assembly in the lower opening in door 26. The louver assembly for this lower opening is very similar to the louver assembly of the upper opening, except, of course, the lower louvers 56 are longer than the upper louvers 45. Therefore, a detailed description of the louver assembly is not deemed necessary. Briefly, therefore, the lower opening includes the inwardly turned flanges 60 with holes 61 journalling the pivot pins 62 on levers 63, the levers 63 supporting in horizontal parallel relationship the louvers 56. The outer ends of the levers 63 are pivotally secured by pivot pins 64 to draw bars 65 and 66. The upper end of draw bar 65 is provided with a slot 67 receiving the control pin 56.

It will now be seen that upon rotation in a clockwise direction in FIG. 4 of rocker arm 51, the upper louvers 45 will open, pivoting clockwise as the lower louvers 56 are closed, pivoting counterclockwise, and vice versa.

Referring now to the interior of the closure or cabinet, immediately behind the air intake opening of louvers 25 is an air filter 70 formed of foraminous material and disposed in an air intake passageway defined by top wall 17, a portion of side walls 11 and 12 and a pair of spaced horizontally aligned plates 71 and 72. The plates 71 and 72 are supported between the side walls 11 and 12 and are provided between their opposed edges with a channel member type, removable cradle 73 within which the lower edge of the air filter 70 rests. By dropping the cradle 73, the air filter 70 may be removed and replaced.

Inwardly of the air filter 70 and within the passageway are a pair of fans or blowers having propellers, such as propeller 74, driven by motors, such as motor 75. The motor 75 is conveniently supported from top wall 17 by a bracket 76.

A cowl plate 78, aligned with propellers 74 and having apertures therefor, closes the air intake passageway so that air drawn in the passageway by the propellers, such as propeller 74, passes only through these apertures, being directed against the deflector plate 16 and thence downwardly across electrical heating coils 79 which are wound around insulator rods 80 supported by side walls 11 and 12.

It will be observed in FIG. 3 that the deflector plate 16 is at about a 45° angle with respect to the air intake passageway and that the heating coils 79 are in spaced parallel arrangement, being in about the horizontal plane of plate 72 and the upper end of back wall 10. Thus, the air is directed downwardly across the heating coils 79.

Below the heating coils 79 and supported by the side walls 11 and 12 are flat baffles 81 and 82, the rear baffle 81 being less wide than the front baffle 82 and being secured along its rear edge to backwall 10. The baffles direct the heated air forwardly and downwardly within the chamber.

Within the central part of the chamber are the article supporting racks which include spaced, opposed, vertically disposed pairs of support rods 90, 91 and 92 retained adjacent the side walls 11 and 12 by spacer bars, such as bars 94 and 95. Joining the upper ends of each pair of support rods 90, 91 and 92 are the horizontal article retaining rods 96, 97 and 98. It will be observed that the forward retaining rod 98 is in a position of alignment

with the air directed by baffle **82** while rod **97** is in a position of alignment with the air directed by baffle **81**. Thus, with articles such as towels over the three rods **96**, **97** and **98**, the articles will direct the air generally downwardly. Other rods such as rods **99** may be supported by the support rods **90**, **91** and **92**, the rods **99** being provided at their ends with slide blocks **93** which are frictionally held by the support bars **90**, **91** and **92**. Thus, the rods **99** may be moved upwardly or downwardly as desired.

Preferably, my cabinet is recessed in an appropriate opening in a wall (not shown); however, if desired, the cabinet may be placed on a floor. An electrical switch such as switch **100** in FIG. 1 may be provided for supplying electrical current to the blowers and to the coils **79**. Since there are many well known combinations of blowers and heating coils, with or without thermostats, it was not deemed necessary to provide a wiring diagram herewith.

In operation, door **26** is opened and the wet articles are placed on rods **96**, **97**, **98** and **99**, and the door is closed. When switch **100** is turned on, air is drawn by propellers such as propeller **74** through the air intake passageway and directed across the electrically heated coils **79** and thence across the articles on the retaining rods **96**, **97** and **98** for internal drying of articles. Under such conditions, the handle **54** should be manipulated so as to close the louvers **45** and open the louvers **56**. If, however, a person desires to be dried by the cabinet, the articles should be removed and the handle **54** manipulated to open louvers **45** and close louvers **56** so as to direct the air outwardly through the upper openings in door **26**.

It will be obvious to those skilled in the art that many variations may be made in the embodiment chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

I claim:

1. A drying cabinet comprising a back wall, side walls extending from said back wall, a bottom wall between said side walls and extending from said back wall, a top wall between said side walls, a deflector plate angling between said top wall and said back wall, means cooperating with said top wall for defining a horizontal inwardly extending air intake passageway directed toward and spaced from said deflector plate, means for directing air through said passageway against said deflector plate, heating coils below said deflector plate, baffles for directing the air deflected by said deflector plate and across said coils in a downwardly and forwardly direction into the chamber defined by said walls, a front plate secured to said side walls and bottom wall and top wall, a door within said front plate, there being provided an opening in said front plate communicating with said passageway, there being provided a second opening in said front plate through which air from said chamber is discharged and means for varying the size of said first opening, said air being directed by said baffles toward said last mentioned means, said last mentioned means when closing said first opening directing said air toward said second opening in a downward path in said chamber.

2. A drying cabinet comprising a back wall, side walls extending from said back wall, a bottom wall between said side walls and extending from said back wall, a top wall between said side walls, a deflector plate angling between said top wall and said back wall, means cooperating with said top wall for defining an air intake passageway spaced from said deflector plate, means for directing air through said passageway against said deflector plate, heating coils below said deflector plate, baffles for directing the air deflected by said deflector plate and across said coils in a downwardly and forwardly direction into the chamber defined by said walls, a front plate secured to said side walls and bottom wall and top wall, a door within said front plate, there being provided an opening in said front plate communicating with said passageway, there being provided a second opening in said front plate through which air from said chamber is discharged, and means for diverting the discharge of air from said chamber.

3. A drying cabinet comprising a back wall, side walls extending from said back wall, a bottom wall between said side walls and extending from said back wall, a top wall between said side walls, a deflector plate angling between said top wall and said back wall, means cooperating with said top wall for defining an air intake passageway spaced from said deflector plate, means for directing air through said passageway against said deflector plate, heating coils below said deflector plate, baffles for directing the air deflected by said deflector plate and across said coils in a downwardly and forwardly direction into the chamber defined by said walls, a front plate secured to said side walls and bottom wall and top wall, a door within said front plate, there being provided an opening in said front plate communicating with said passageway, there being provided a second opening in said front plate through which air from said chamber is discharged, there being provided a third opening in said front plate through which air from said chamber is discharged, and means for selectively closing said second and said third opening.

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