March 21, 1950 J. SHUMAKER 2,501,194

STEAM BATH CABINET

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FIG. 1.

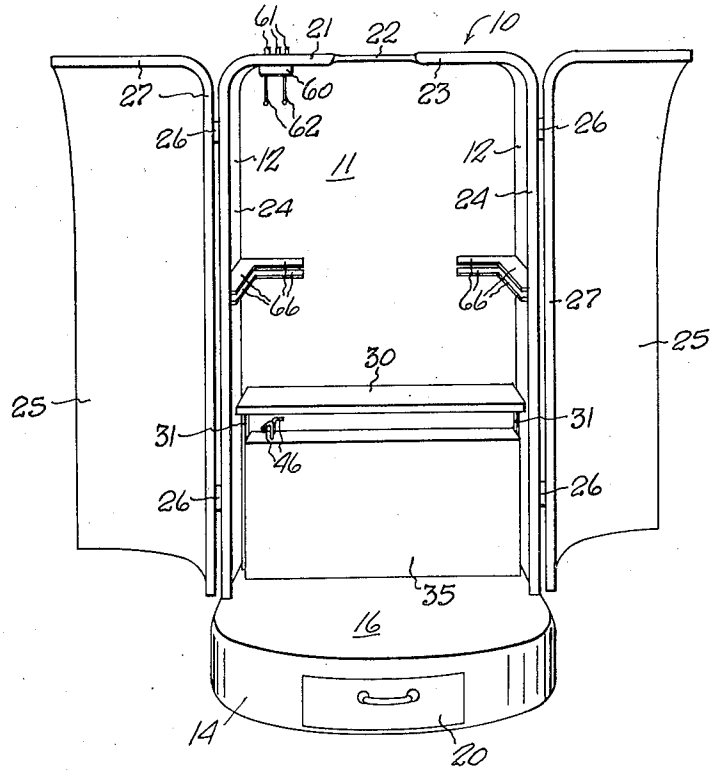



FIG. 3.

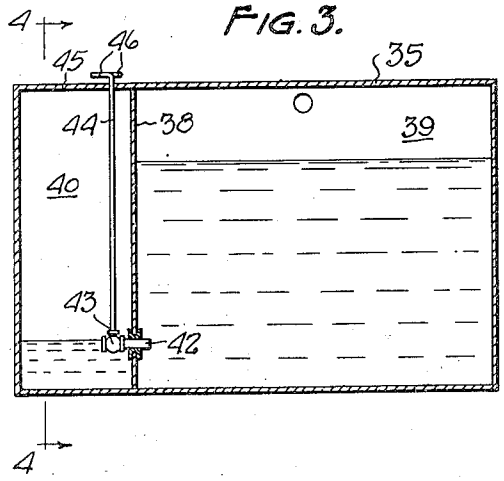
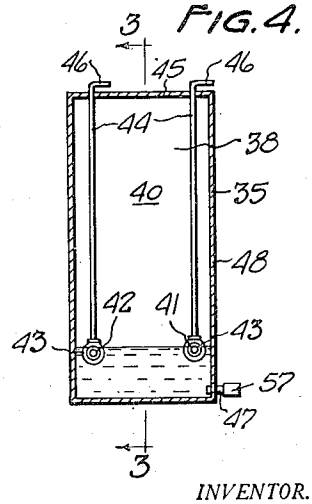



FIG. 4.




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FIG. 2.

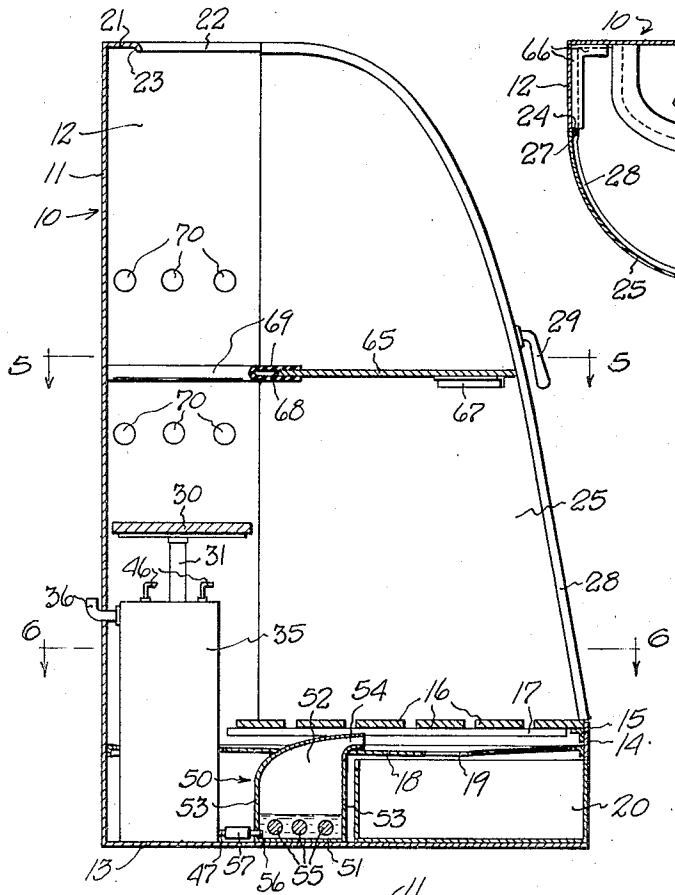
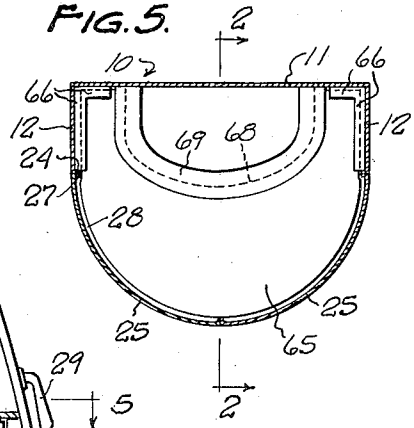



FIG. 5.



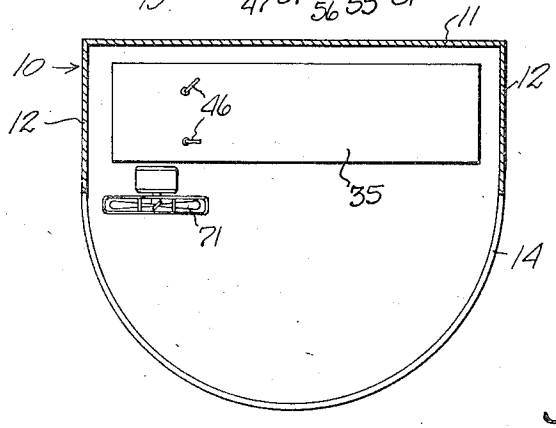




FIG. 6.

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Patented Mar. 21, 1950 2,501,194

# UNITED STATES PATENT OFFICE

2,501,194

## STEAM BATH CABINET

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Application March 12, 1945, Serial No. 582,393

3 Claims. (Cl. 4—164)

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This invention relates to improvements in steam bath cabinets. The primary object of the invention is to provide a physiotherapy device of this character having a novel cabinet construction by which heat and steam generated within the cabinet may be uniformly diffused and circulated throughout the entire cabinet or a selected part thereof.

A further object is to provide a device of this character having a cabinet with large doors swinging to open the major portion of the cabinet for convenient entry into the cabinet and full access to all parts thereof for adjustment and the like.

A further object is to provide a device of this character having a cabinet construction which has its greatest horizontal sectional area adjacent its bottom and tapers upwardly toward the top with the upper end of the cabinet merging with the top in a curve of large radius, and which is also curved on all horizontal planes at its front end portion.

A further object is to provide a device of this character having a novel liquid supply system.

A further object is to provide a device of this character having a novel steam generating unit.

A further object is to provide a device of this character having control means actuable from both the interior and the exterior of the cabinet.

A further object is to provide a device of this character having steam generating means so located in a cabinet that a user cannot touch it whereby danger to the user is avoided, and which has control means located for convenient manipulation by the user of the cabinet.

A further object is to provide a device of this character with a removable partition for localizing the treatment area within the cabinet and avoiding adverse treatment effects upon patients who are subject to certain weaknesses, such as certain heart conditions.

A further object is to provide a device of this character with a horizontal partition having a portion thereof cut away to fit around the body of a patient, the margin of said cutout being formed of a yielding material to fit snugly around patients of different physiques and sizes.

Other objects will be apparent from the description and appended claims.

In the drawings:

Fig. 1 is a perspective view of the cabinet with the cabinet doors open.

Fig. 2 is a longitudinal vertical sectional view of the cabinet taken on line 2—2 of Fig. 5.

Fig. 3 is a longitudinal vertical sectional view of the liquid supply means taken on line 3—3 of Fig. 4.

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Fig. 4 is a transverse vertical sectional view of the liquid supply means taken on line 4—4 of Fig. 3.

Fig. 5 is a horizontal sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a horizontal sectional view taken on line 6—6 of Fig. 2.

Referring to the drawings, which illustrate the preferred embodiment of the invention, the numeral 10 designates the cabinet. Cabinet 10 is provided with a substantially flat vertical rear wall 11, a pair of opposed, substantially flat vertical side walls 12 which are comparatively narrow, and a base panel 13. The base panel 13 projects forwardly from the front edges of side walls 12 and is of curved shape or outline. A shallow vertical wall 14 extends upwardly from the curved projecting portion of the cabinet. The upper portion of wall 14 mounts one or more angle irons 15 or other brackets which marginally support a floor unit made up of a plurality of spaced parallel floor boards 16 and suitable frame or interconnecting parts 17. While the floor boards are shown in Fig. 3 as extending transversely, it will be understood that they may also be arranged to extend from front to rear of the cabinet. Spaced below the floor unit is a drain pan 18 which is marginally secured to and spans the lower portion of the cabinet in spaced relation above the base panel 13. Drain panel 18 has a drain opening 19 therein, and the panel is inclined from its margin to said opening on all radii of said opening. Wall 14 has an opening therein through which a collecting container 20 is insertible into said cabinet below the drain pan to collect liquid dripping through opening 19. Container 20 is readily removable and guide means (not shown) may be provided to guide sliding thereof to and from operative position.

A top 21 is formed integrally with walls 11 and 12 and has an opening 22 formed therein, said opening 22 being of substantially U-shape, open at its front, and defined by a depending flange 23, which also extends from the front edge of the outer ends of the top. The front ends of the walls 12 are provided with inturned flanges 24 merging with the flange 23 of the top.

A pair of doors 25 are hinged at 26 to the front portions of opposite walls 12. Doors 25 are outlined and reinforced by inturned marginal flanges 27 at the top and at the hinged vertical edge thereof, and by inturned flanges 28 at the two remaining edges thereof. Flanges 27 are straight

and coplanar, and are adapted to abut the flanges 23 and 24 of the cabinet in face contacting engagement when the doors are closed. The flanges 28 are each of curved form, the bottom flanges 28 conforming to the curvature of projecting wall 14 and the vertical flanges 28 extending at an inclination to the vertical and merging with the horizontal in a gradual curve at their upper ends. Each of the doors 25 is bent in concavo-convex form with substantially each of the horizontal sections thereof generally arcuate, with the exception of the extreme upper end. The doors fit tightly together with the upwardly extending flanges 28 adapted for tight abutment, and when so abutted close the front of the cabinet in a contour best illustrated in Fig. 2. Each of the flanges 27 and 28 is preferably faced with a suitable sealing strip (not shown), whereby a tight and substantially sealed closure for the cabinet is provided at each door margin when the doors are closed. Suitable locking means, including the handles 29, serve to lock the doors 25 in closed position.

A seat panel 30 of narrow elongated form is positioned to extend transversely of the cabinet between walls 12 thereof. The seat is mounted on suitable supports 31 at its opposite ends. The seat is preferably detachable to accommodate substitution of different types of seats for different treatments, such as rectal treatments. The supporting means 31 is preferably adjustable vertically so that patients of different heights can be treated. It will be obvious in this connection that the differences in the heights of different individuals make adjustment of the vertical position of seat 30 necessary for comfort and for positioning of the neck of the patient at the level of the neck opening 22.

A liquid container 35 is mounted on base panel 13 below seat 30 and extends above panel 18 and floor unit 16—17. Container 35 is provided with an intake conduit 36 at its upper end which preferably extends through wall 11. A transverse vertical partition 38 is secured in the container adjacent one end thereof to define a main tank portion 39 and a supplemental tank portion 40. A pair of conduits 41 and 42 extend through partition 38 adjacent the lower end thereof, one of said conduits, as 41, being positioned slightly above the level of the other conduit 42. Each of said conduits is provided with a valve 43 having operating means 44 extending vertically upwardly therefrom through the upper wall 45 of the container, and terminating in handles 46. An outlet conduit 47 extends outwardly through the bottom of front wall 48 of container 35. Except for conduits 41, 42 and 47, the main tank compartment is substantially sealed.

A steam generator 50 is mounted on the base panel 13 forwardly of container 35 and between the same and collector 20. The generator comprises a liquid container having a base 51, end walls 52 and side walls 53. The side and end walls are so shaped that they provide a restricted transversely elongated or flaring forwardly projecting spout or outlet 54 at the upper end of the container which substantially spans the cabinet. The generator is of such height that the spout 54 is positioned above the drain panel 18 and below the floor unit or grill 16—17. Electrical heating means or elements 55 are positioned in the generator at a level below the level of tubes 41—42 of container 35. The generator has an inlet 56 below the level of tubes 41—42 of container 35 and is connected with the outlet 47 of container 35 by a tube 57. If desired the steam outlet 54 may be provided with a closed end provided with spaced outlet apertures substantially registering with the spaces between the floor cleats instead of a continuous elongated mouth or outlet.



The heating elements or means 55 are connected in an electrical circuit (not shown) which is controlled by a switch 60 positioned at the upper end of the cabinet. The heating means 55 constitutes two or more heating units in separate circuits which are individually controllable by switch 60, there being shown for this purpose multiple control members 61 extending exteriorly of the cabinet and multiple control members 62 positioned within the cabinet.

Referring to Fig. 1, it will be observed that when the steam cabinet is open with the doors 25 swung back to substantially their full open position, the entire interior of the cabinet is exposed and readily accessible. Hence a user may step into the cabinet and assume a seated position on the seat 30 in entire comfort and substantially without interference from any part of the cabinet. The seat 30 is adjusted to the proper height, so that when the patient is seated thereon his neck will pass comfortably through the opening 22. This full open position of the cabinet doors also permits ready access to the interior of the cabinet for adjustment and repair. When the user has assumed a comfortable seated position within the cabinet, the doors 25 can be swung to closed position, either by the user, who can easily grasp and swing them shut and lock them by manipulation of the locking means while seated, or by an attendant. When the doors are closed they are substantially sealed at the edges thereof which abut the cabinet and each other, thus leaving only the neck opening 22 through which steam may escape. It will be understood, of course, that by the use of towels placed around the neck of the user and overlying the top 21 of the cabinet around opening 22, substantially all steam may be retained within the cabinet.

The valves 43 controlling the supply of liquid from the tank compartment 39 to the tank compartment 40 are normally maintained in open position. The positioning of one conduit 41 slightly above the other conduit 42 serves to constitute means for automatically controlling and maintaining the level of liquid in the supplemental tank compartment 40 and in steam generators 50. Thus it will be seen that when water rises to a level completely closing the uppermost tube 41, a liquid seal is formed which shuts off the supply of air to the otherwise sealed storage compartment 39 and hence prevents the flow of water from one to the other of said tank compartments 39, 40. When the water level in compartment 40 is lowered to a point which permits passage of air through the upper conduit 41, a flow of water through the lower conduit 42 is again permitted until such time as the liquid level rises to again entirely seal the conduit 41. The valves 43 may be adjusted to determine the rate of flow from the compartment 39 to compartment 40, thereby giving a further control of the rate of generation of the steam if desired. It will be understood, of course, that the valves may also be entirely closed, as during such times as the cabinet may be moved from place to place. The conduits 47, 56 and 57 are always open to the steam generator 50, so that the water level within the generator is always the same as the water level in compartment 40. The extension of the valve control members 44 exteriorly of the tank

35 and the provision of the exterior portions thereof with handles 46, permits ready adjustment by the user of the amount of steam generated, said handles being positioned below the seat 39 and preferably adjacent the front of said seat to be readily reached and manipulated by the user.

The spout 54 of the steam generator is preferably transversely elongated, and hence serves to distribute the steam exhausted from generator outlet 56 substantially evenly throughout the full width of the cabinet. The steam is discharged into the cabinet adjacent and below the feet of the user, and in a substantially horizontal forward direction. When discharged, the steam passes forwardly and upwardly through the floor unit and follows the vertical contour of the doors 25. Also, it follows a circuitous path in the cabinet; and of particular importance, the steam reaches substantially all points of the interior of the cabinet. In this connection, the experiences of users of prior cabinets of this character have been that the steam in prior cabinets circulates at and heats only the upper portion of such cabinets, and that the lower portion of such cabinets, and particularly the feet of the user, may often be cold while the remainder of the cabinet contains the full amount of steam which the user may desire. Hence the features of cabinet shape and steam discharge, which permit substantially uniform dispersion of the steam throughout the cabinet, are submitted to be of particular importance in this construction.

In some instances it is desirable to localize the treatment area. One example is in the treatment of patients suffering from arthritis at the legs or hips and also suffering from certain types of heart conditions which render it inadvisable to subject the upper portion of the body to steam. Treatment of such patients can be accommodated by the use of the horizontal partition 65 located at a level intermediate the height of the cabinet. The vertical walls 11 and 12 of the cabinet are provided with guides 66 at the desired level, as illustrated in Figs. 1 and 5. The partition 65 is preferably a metal panel of a size and shape to span the device at the level of the guides, and is removably supported and positioned by the guides. Guides 67 on the doors may also assist in positioning the partition. The partition is of generally U-shaped outline as best illustrated in Fig. 5 to provide an opening or cut-away at 68 of a size to fit with clearance around the waist of an obese patient with slight clearance. The edge of the partition opening or cut-away is bounded by a wide inwardly projecting band 69, such as a U-shaped rubber member as illustrated in Fig. 2. The size or width of the band 69 is preferably such that it leaves an exposed opening slightly smaller than the waist of a thin patient. If the resilient material of the band 69 is made of soft material, it will be apparent that it will yield to fit snugly around the waist of any patient.

The partition 65 is inserted in place after the patient is seated within the cabinet, the insertion being facilitated by the full opening of the doors 25. Towels or other means placed at the patient's back at the level of the partition will preclude escape of steam above the partition at the patient's back. A resilient binding (not shown) similar to band 69 may be provided at the outer periphery of the partitions to bear against



the cabinet walls and the doors to seal against escape of steam at those points. Hence the steam can be applied at a local area only if that becomes necessary.

In the great majority of illnesses and ailments which respond to treatment by heat, a moist heated condition is most beneficial. However, there are some cases where the proper therapeutic action can only be obtained by treatment with dry heat. To accommodate such cases, a plurality of heating elements, such as electric light bulbs 70, can be provided in the cabinet as illustrated in Fig. 2.

Most patients can be treated effectively in the cabinet while normal circulation of steam occurs, governed solely by the shape and configuration of the cabinet and normal convection flow of characteristics. However, it may be desirable in some cases to increase the rate of circulation. A fan 71 may be used for this purpose, positioned substantially as shown in Fig. 6, to direct flow tangentially of the rounded front. Also, it will be apparent that the fan may be tilted if desired.

The preferred embodiment of the invention has been illustrated and described herein, but it is understood that the invention may take other embodiments, and applicant contemplates all such other specific embodiments of his invention as fall within the spirit of the invention and as defined in the appended claims.

I claim:

1. In combination, a steam bath cabinet having a base panel, a drain panel above said base, and an apertured floor spaced above said panel, steam generating means mounted on said base, the front of said cabinet tapering from its lower to its upper end and having a substantially rounded contour on all horizontal sections, and steam discharge means positioned below the floor for directing steam from said generating means in a horizontal forward direction, the shape of said cabinet uniformly distributing steam throughout the cabinet incident to convection flow thereof.

2. The combination defined in claim 1, wherein said cabinet has a restricted opening in its upper end adjacent the rear thereof, and a pair of curved doors forming the forward portion of said cabinet and outlining the forward portion of said opening.

3. A steam bath cabinet comprising a chambered body having a base, a drain panel spanning said body spaced above said base, a floor grill spaced above said panel, a steam generator mounted in said base and having a horizontally discharging outlet positioned between said panel and grill.

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