Nov. 3, 1942. A. LUKATS 2,300,455

THERAPEUTIC BATH CABINET

Filed Jan. 11, 1941 3 Sheets-Sheet 1

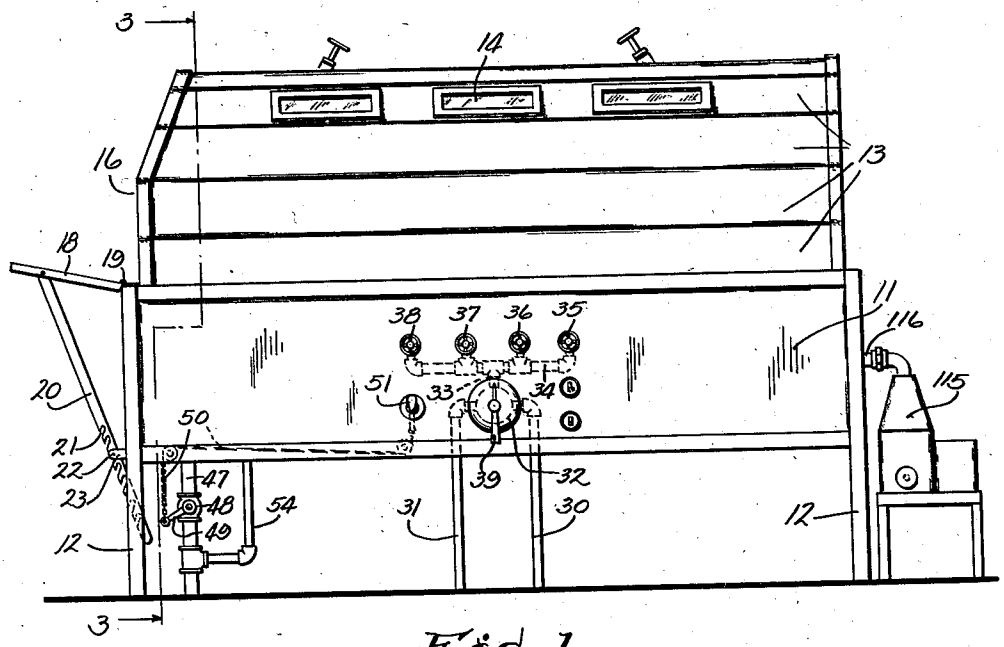

Fig. 1.

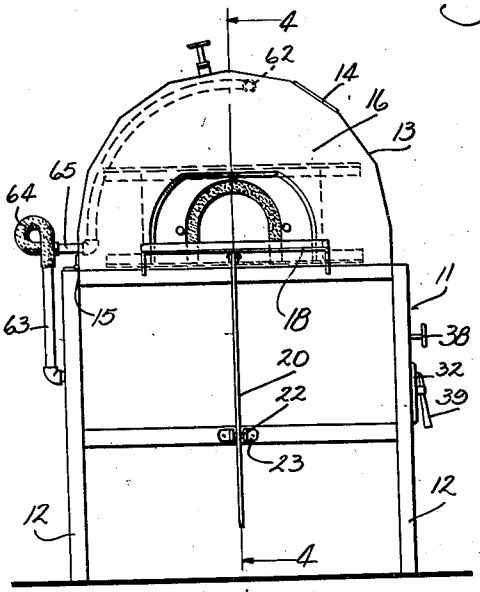

Fig. 2.

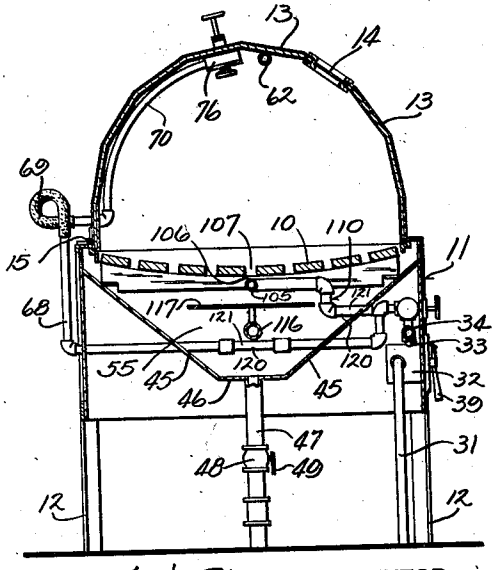

Fig. 3.

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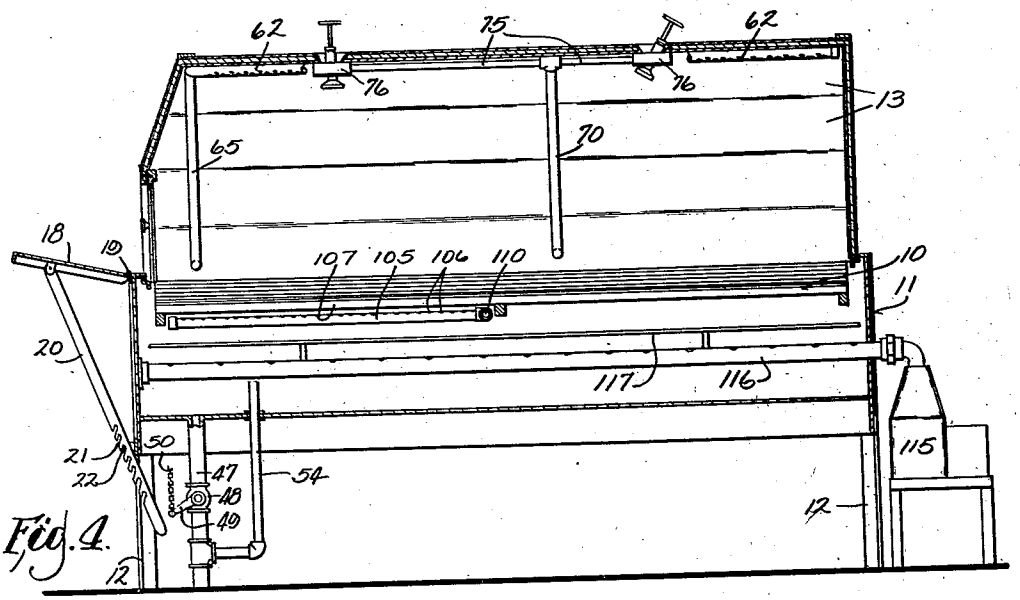

Fig. 4.

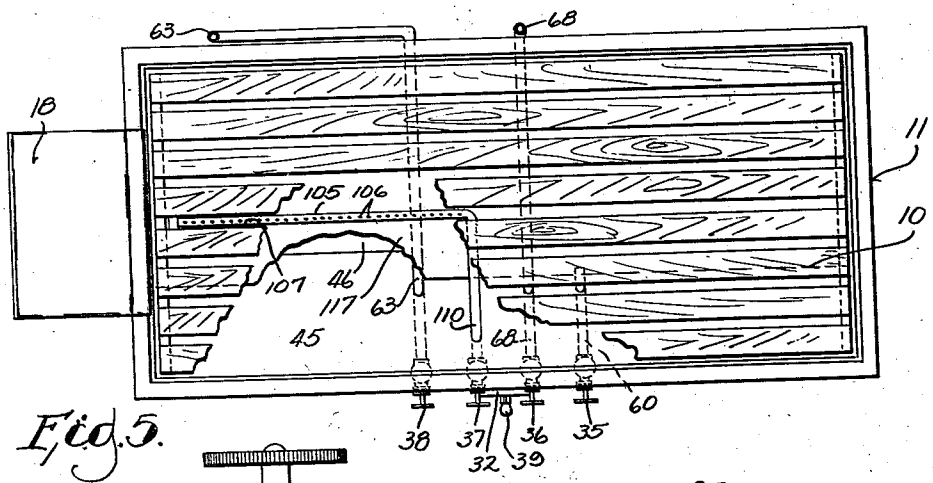

Fig. 5.

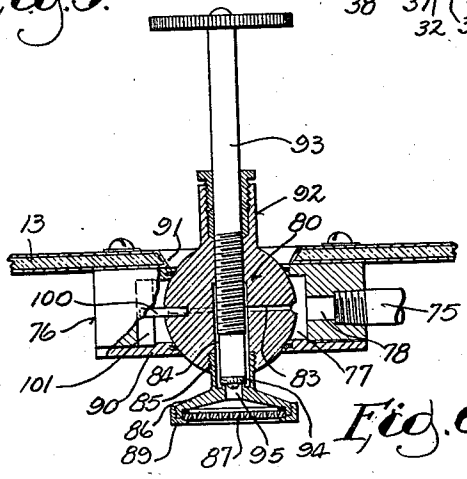

Fig. 6.

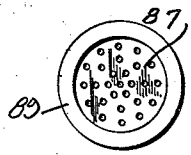

Fig. 7.

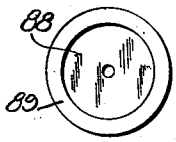

Fig. 8.

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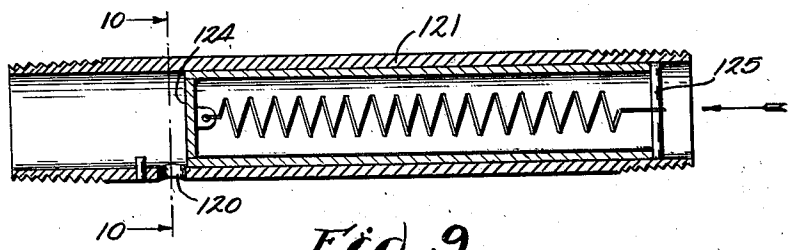

Fig. 9.

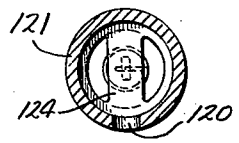

Fig. 10.

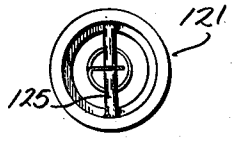

Fig. 11.

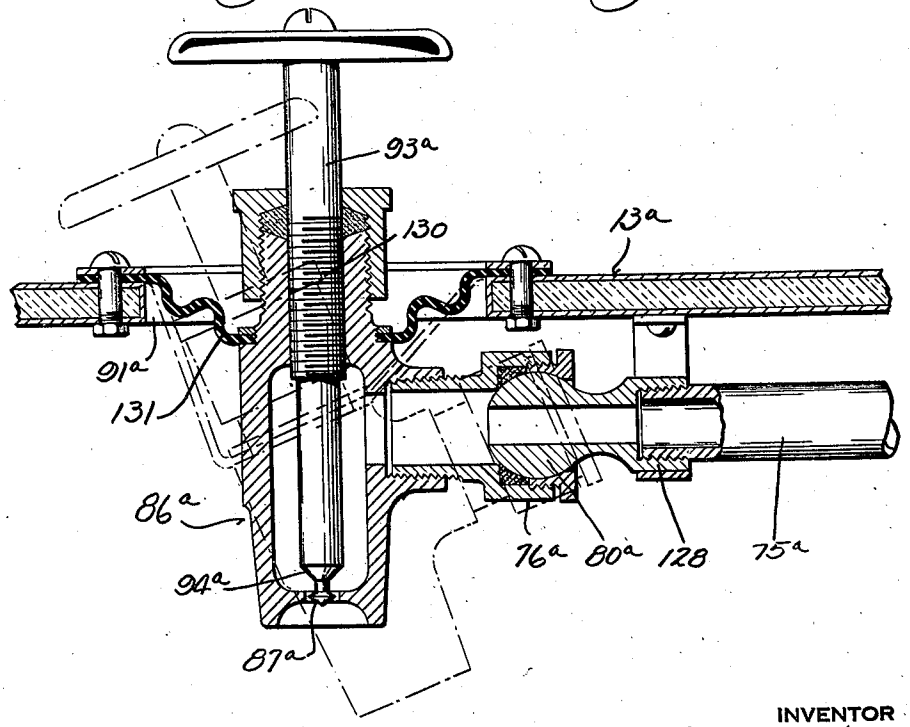

Fig. 12.

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Patented Nov. 3, 1942

2,300,455

UNITED STATES PATENT OFFICE

2,300,455

THERAPEUTIC BATH CABINET

Alexander Lukats, Milwaukee, Wis.

Application January 11, 1941, Serial No. 374,061

9 Claims. (Cl. 4—163)

My invention relates to improvements in therapeutic bath cabinets.

A primary object of my invention is to provide means whereby a patient undergoing hydrotherapy and thermal treatments may be subjected to local treatments by impacting jets, including impact and heat treatments for the purpose of eliminating congestion, improving circulation, and otherwise tending to restore the parts so treated to a normal healthy condition.

My invention also contemplates the use of localized impact jets for the purpose of excitation or relaxation of the nervous system through the spinal nerves, while the patient is reclining on his back.

Further objects of my invention are to provide means for varying the character of the impacting jets, varying the range of such jets to increase or diminish the area of the surface to which they are being applied, and for changing the direction of certain of such jets in such a manner that they may continue to be supplied with fluid from pipe connections within the cabinet walls while the jetting nozzles are being shifted from one position to another; and in general to provide improved means whereby an attendant may subject the patient to localized impact and heat treatments while administering thermal hydro treatments.

In the following description reference is had to the accompanying drawings, in which

Figure 1 is a side elevation of my improved cabinet.

Figure 2 is an end elevation of the open end of the same.

Figure 3 is a section view taken on line 3—3 of Figure 1.

Figure 4 is a section view taken on line 4—4 of Figure 2.

Figure 5 is a plan view with the hood removed.

Figure 6 is a sectional view of one of the impact nozzles and its mounting in a fragment of the wall of the hood, a portion of the nozzle disk being illustrated in full.

Figures 7 and 8 are detail views of substitute impact nozzles.

Figure 9 is a detail of the drain valve fitting shown in longitudinal section.

Figure 10 is a sectional view of the same, drawn to line 10—10 of Figure 9.

Figure 11 is a view of the right-hand end of the fitting shown in Figure 9.

Figure 12 is a sectional view of a modified form of dirigible nozzle.

Like parts are identified by the same reference characters throughout the several views.

A bed composed of wooden slats 10 forms the top of a base portion 11 of my cabinet, which is adapted to house the piping, and may be supported from the floor by legs 12. The slats 10 are covered by a sheet metal poly-sided housing lid composed of longitudinally extending panels 13, one of which is provided with windows 14 through which the patient may be viewed. This housing is hinged to the base portion at 15, whereby it may be lifted and swung backwardly to admit the patient. One end wall 16 of the lid is provided with an opening through which the head of the patient may be projected and supported upon a table 18 which is hinged to the housing at 19 and may be adjusted at various angles by means of a brace 20, suitably notched at 21 to engage a cross pin 22 carried by a bracket 23. The lid or housing constitutes a hood adapted to enclose the body and limbs of a patient undergoing water or vapor treatments.

Hot and cold water supply pipes 30 and 31 lead to a suitable mixing valve 32 mounted on the front wall of the base portion 11 and connected at 33 to deliver water to a cross pipe or header 34 within the chamber, this header having outlet valves operable by exterior handles 35, 36, 37 and 38, for purposes hereinafter explained. The mixing valve is controlled by the handle 39.

Within the base portion 11 I provide a sheet metal water container suspended from near the top of the base portion and having convergent downwardly inclined walls 45 and a bottom wall 46 connected with a drain pipe 47, drainage being controlled by a valve 48 having its handle 49 connected by a chain 50 with a valve operating member or handle 51.

The valve will preferably be spring actuated, a coil spring 52 serving to normally hold the valve in a closed position, to be opened against the tension of the spring by swinging the handle 51 to the right in Figure 1. An overflow pipe 54 leads downwardly through the bottom 46 of the water chamber from a substantial distance above said bottom, and its lower end connects with the drain pipe 47 below the valve 48, whereby the cabinet may be given a preliminary heating by delivering a supply of hot water into the chamber 55 until it overflows through pipe 54. After the cabinet has been warmed, this water may be drained away by opening the valve at 48. Hot water may be delivered into the cabinet by adjusting the mixing valve 32 to admit only hot water, and

opening the valve 35 to deliver this water directly into the chamber 55 through a short pipe 60 (Figure 5).

After the cabinet has been pre-warmed, the hood is swung backwardly and the patient placed in position on the bed slats 10. The hood is then closed, whereupon the patient will ordinarily be given a treatment for the purpose of eliminating toxins and increasing the general circulation.

For administering the horizontal spray, a perforate pipe 62 is secured to one of the upper panels 13. It extends longitudinally along the under surface of the panel and is provided with multiple apertures adapted to deliver a spray over the body of the patient. A supply pipe leads from the header 34, (and the valve associated with the handle 38), rearwardly across the cabinet, and upwardly along the rear side of the base portion to a flexible hose connection 64 which connects the pipe 63 with an extension 65 mounted on the hood.

This extension 65 preferably extends through the wall of the hood near its base and then arcuately along the inner surface of the hood to the spray pipe 62. The flexible joint provided by the short length of hose 64 allows the hood to swing upwardly and rearwardly on its hinge 15 carrying with it the extension or section 65 of the spray supply pipe.

A similar pipe 68 leads rearwardly from the header 34, with its supply controlled by the valve associated with the handle 36. This pipe 68 also extends upwardly at the rear of the cabinet and is connected by a flexible joint 69 with an extension 70 secured to the wall of the hood in the same manner as above described with reference to the extension 65.

The upper end of the pipe 70 connects with a longitudinally extending header 75 leading to chambered valve supporting blocks or socket members 76, the cavities 77 of which are supplied with water from the header pipe 75 through ports 78 (Figure 6). Spherically rounded valve supporting members or balls 80 are mounted for universal oscillation in the sockets of the members 76, with equatorial portions exposed in the cavities 77, whereby water may be delivered through a port 83 in each ball to a bore 84, into the enlarged inner end of which the shank 85 of a nozzle head 86 may be screwed. Each nozzle head is adapted to receive interchangeable nozzle plates 87, (Figures 6 and 7), or 88, (Figure 8), these nozzle plates being secured to the nozzle head by coupling collars 89.

The ball is secured in its socket by a cap plate 90 and its outer portion is exposed through an aperture 91 in the associated panel 13 and provided with an outwardly projecting tubular stud 92 through which a valve stem 93 extends.

The valve stem 93 is of less diameter than the bore 84 in the ball 80. It has an intermediate portion threaded into the ball, and its inner end is reduced in diameter and provided with a valve 94 which seats on the nozzle head 86 around its central aperture 95.

While the ball 80 is allowed to freely oscillate in its socket, it is provided with a stop pin 100 loosely engaged between flanges 101 projecting inwardly from one wall of the cavity 77, whereby the ball is prevented from rotating when the valve stem 93 is being rotated to open or close the valve 94.

Means associated with the same source of water supply are provided for subjecting the spine of a patient to multiple jets directed upwardly through the bed upon which the patient reclines. It is frequently desirable that these jets be delivered against the spine of a patient while the patient is reclining on his back in order to bring about relaxation or stimulation of the spinal nerves according to the temperature and pressure of the water. To accomplish this I have mounted a pipe 105 along the under side of that portion of the bed which supports the body of the patient, and this pipe is provided with multiple nozzle jet apertures 106 adapted for delivery of impact jets upwardly through a longitudinal slot 107 in the bed. The pipe 105 may be supplied with water from the header 34 through a valve controlled by the handle 37 and a feed pipe 110 leading inwardly to the nozzle pipe 105.

For vapor bath treatments I employ an ordinary vapor generator 115, which is preferably located outside of the cabinet and connected to a perforate pipe 116 which extends longitudinally in the base portion of the cabinet underneath a deflector plate 117, one end of which is interposed between the pipe 116 and the perforate pipe 105, through which impact jets are delivered through the bed slot 107.

In the operation of my improved cabinet the hood is closed and the cabinet heated generally, either by the electric generator indicated at 115 or by delivering hot water from any source through the pipe 60 into the pan underneath the bed. After a short period the valve 48 may be opened and this hot water drained away. Thereupon the hood may be opened to admit the patient and then closed and the ordinary spray and vapor bath treatments administered. If impact treatments are desired, the patient is placed upon his back with his spinal portion covering the slot 107 in the bed, whereupon the valve at 37 is opened to deliver the impact jets from pipe 105 through said slot 107. Concurrently the valve at 36 may be opened to deliver water from the same source of supply through the pipe 70 and the header 75 to the dirigible nozzles 86, and thereby direct impact jets for local treatment of inflamed portions of the body, these portions and the direction of the jets being observed through the windows 14. When the treatments have been completed, all the valves are closed and the hood lifted and swung backwardly to release the patient. Thereupon, with all the valves closed, water will be permitted to drain from the pipes into the pan through drain apertures 120 located at the low points in the respective pipes.

Vapor bath cabinets equipped with spray pipes and means for giving vapor bath treatments are quite common in the art, but I believe I am the first to provide such cabinets with means for giving localized treatments by means of impact jets and spinal treatments by means of similar jets administered either for therapeutic purposes or for purposes of diversion while inflamed or swollen parts are being specially treated. I believe I am also the first to provide means whereby dirigible impact nozzles may be mounted within the cabinet and connected with an interior source of water supply in such a manner that the jets may be delivered and directed against any desired portion of the body of the patient by exterior manipulation of a valve stem, which is free for adjustment, unhampered by water supply connections.

It will be noted that the drain apertures 120 are located in union fittings 121. In Figure 9, a modified form of fitting is illustrated, in which a tubular water actuated slide valve is mounted

in a position to close the aperture 120 when water is flowing through the pipe. The outlet end of the valve is crossed by a flat bar 124 and the inlet end of the fitting is crossed by a bar 125. A coiled tension spring has its respective ends secured to these bars and normally holds the slide valve retracted from the drain port 120. But when water is being delivered through the pipe its pressure upon the valve cross bar 124 pushes the valve into a position closing the drain port 120. As soon as water delivery ceases the spring retracts the valve and allows the pipe to drain.

In Figure 12 I have illustrated a modified form of dirigible nozzle 86*a*, controlled by a blunt needle valve 94*a* and provided with a water distributing head 87*a*, which, when retracted from the port, will allow water delivery in a solid stream, but when positioned in, or close to, the port will cause deliveries in spray form. In this construction, the nozzle head has its inlet port provided with a socketed fitting 76*a* in which a ported ball 80*a* is seated, this ball having a ported arm 128 coupled to the supply pipe 75*a*. The valve 94*a* has a stem 93*a* threaded in the nozzle head 130, and the latter is connected with the housing wall 13*a* by a flexible diaphragm 131 closing the aperture 91*a* in the housing.

I claim:

1. In a therapeutic bath cabinet, the combination with a suitable bed and a superposed hood, of a dirigible jet nozzle mounted in the hood and provided with a controlling valve, and an exteriorly operable valve stem adapted also to be used for adjusting the nozzle for jet deliveries in various directions, said nozzle having ported ball and socket joint connection with a source of supply mounted on the hood.

2. In a therapeutic bath cabinet having a hood hinged thereto, the combination with the hood, of a valved dirigible jet nozzle member mounted thereon and having ported ball and socket joint connection with a source of supply mounted on the hood, and a flexible connection between the nozzle and hood, said nozzle having its outlet within the hood, and manually operable exterior means for adjusting the valve and positioning the nozzle.

3. In a therapeutic bath cabinet, the combination with a suitable bed and a superposed removable hood, of a dirigible jet nozzle mounted on the hood and adapted for delivery of impact jets against various portions of the body and limbs of a patient resting on the bed, and means for simultaneously delivering jets of water upwardly through the bed along its longitudinal center line in that portion upon which the body of the patient rests, whereby the attention of the patient may be diverted from inflamed parts which are being subjected to impacts from a jet delivered through said dirigible nozzle.

4. In a therapeutic bath cabinet, the combination of a hinged cabinet hood, a flexibly jointed supply pipe section carried thereby, a nozzle connected with said hood by a flexible diaphragm and having ported ball and socket connection with said pipe section, a valve in the nozzle, and a valve operating handle exterior to the hood.

5. A therapeutic bath cabinet as set forth in claim 4, in which the hood is provided with a window adjacent the nozzle whereby its operation, and the effect upon the patient, may be viewed.

6. A bath cabinet provided with an interior bed, provided with a slot adapted for registry with the spine of a patient, a water supply pipe mounted axially of the bed and provided with lineally aligned nozzle apertures adapted to deliver jets of water upwardly through said slot along the longitudinal center line of the bed, said jets being confined to the spinal region of the patient by the marginal walls of the slot and supply pipe connections leading inwardly from one wall of the cabinet and provided with an exteriorly operable control valve.

7. In a bath cabinet of the described class provided with an interior water retaining pan and a superposed bed, of a valved drain pipe connected with the bottom of the pan, an overflow pipe leading from a point above the bottom of the pan to the drain pipe below its valve, and means for pre-heating the cabinet including a hot water supply pipe leading into said pan and provided with a manually operable control valve.

8. In a bath cabinet having an apertured wall, a dirigible nozzle flexibly mounted in the wall aperture, a valve adjustably mounted in the nozzle and provided with a projected spray head, and a ported ball and socket inlet coupling connecting the nozzle with a supply pipe.

9. A therapeutic bath cabinet as set forth in claim 3, in which a water supply duct is connected with said jet nozzles and provided with a drain aperture, a water actuated valve for closing said aperture during jet delivery, and means for automatically retracting the valve to allow the pipes to drain when water delivery ceases.

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