No. 889,964. PATENTED JUNE 9, 1908.

T. POWELL.

THERAPEUTIC APPARATUS.

APPLICATION FILED AUG. 21, 1905.

3 SHEETS—SHEET 1.

Fig. 1

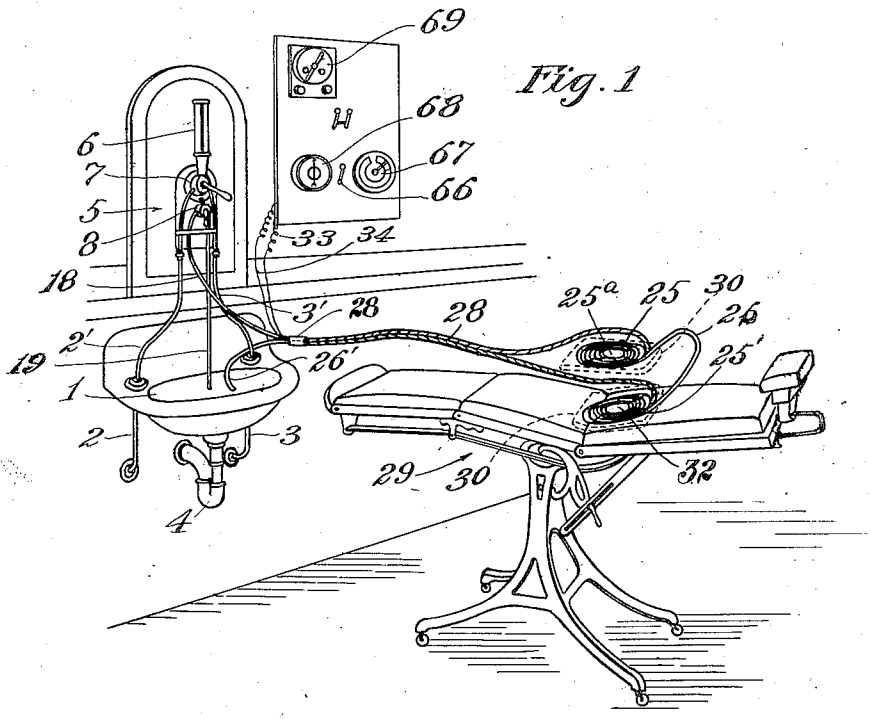


Fig. 2.

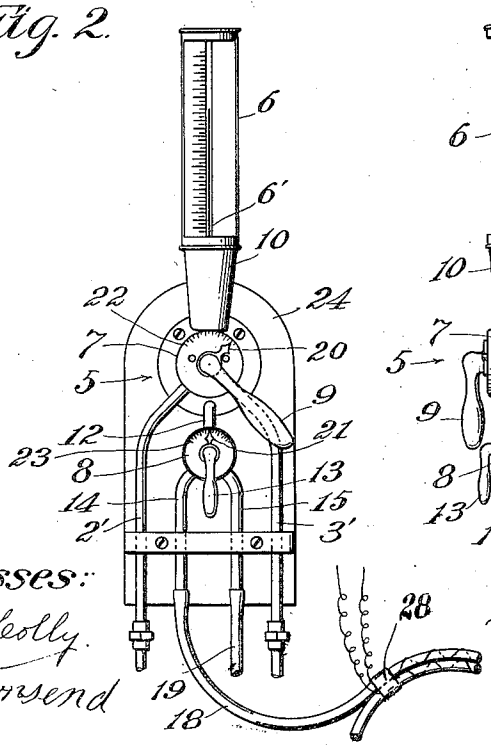
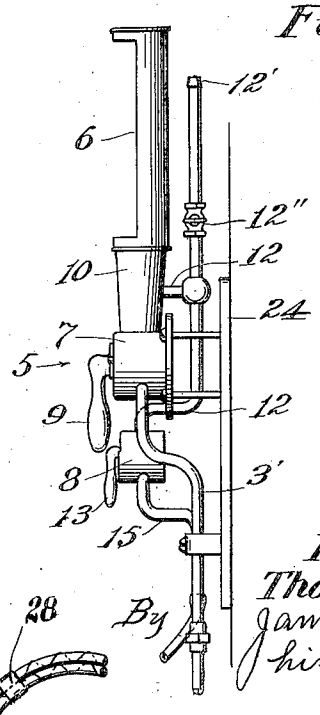


Fig. 3.



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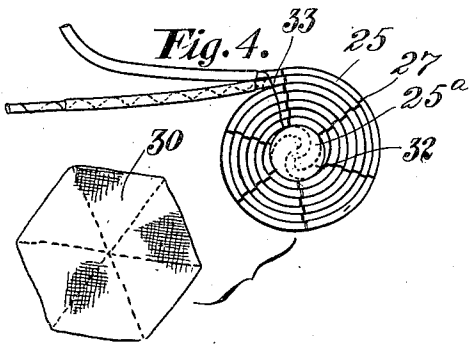
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3 SHEETS—SHEET 2.

Fig. 4.



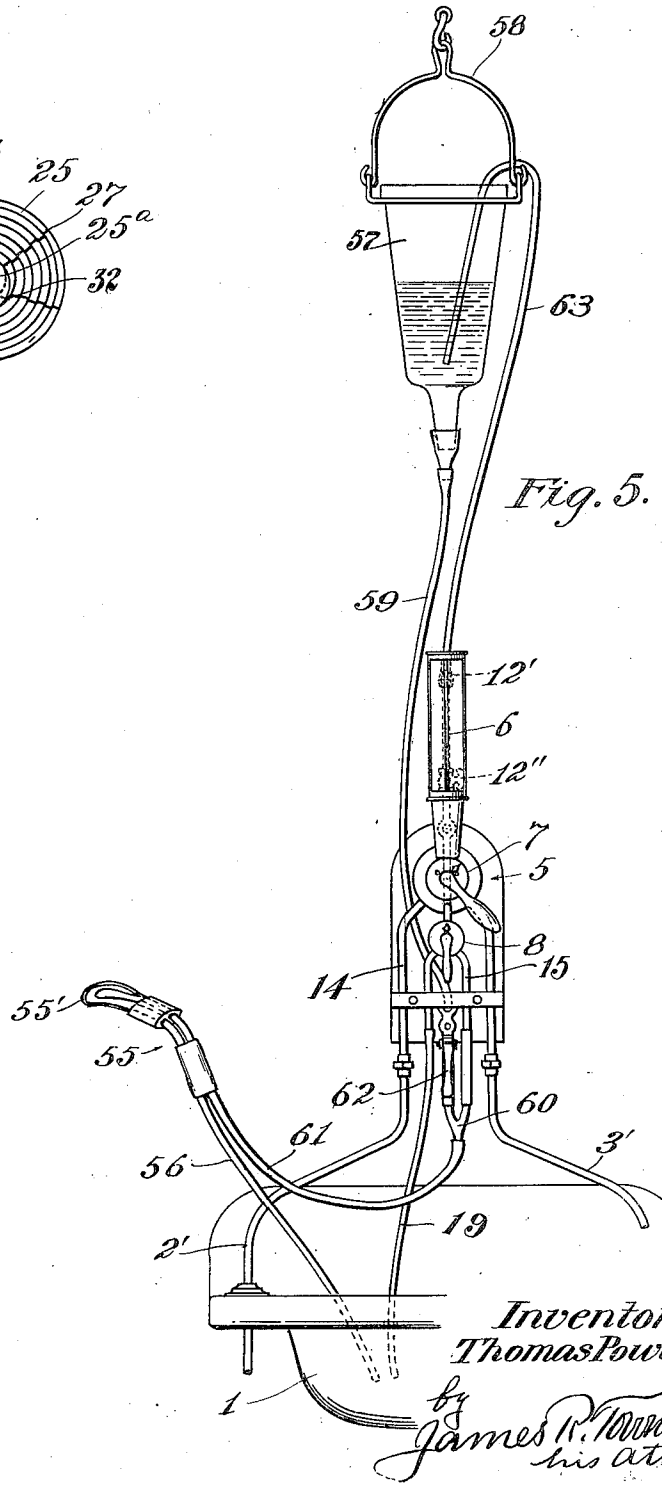


Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 6.

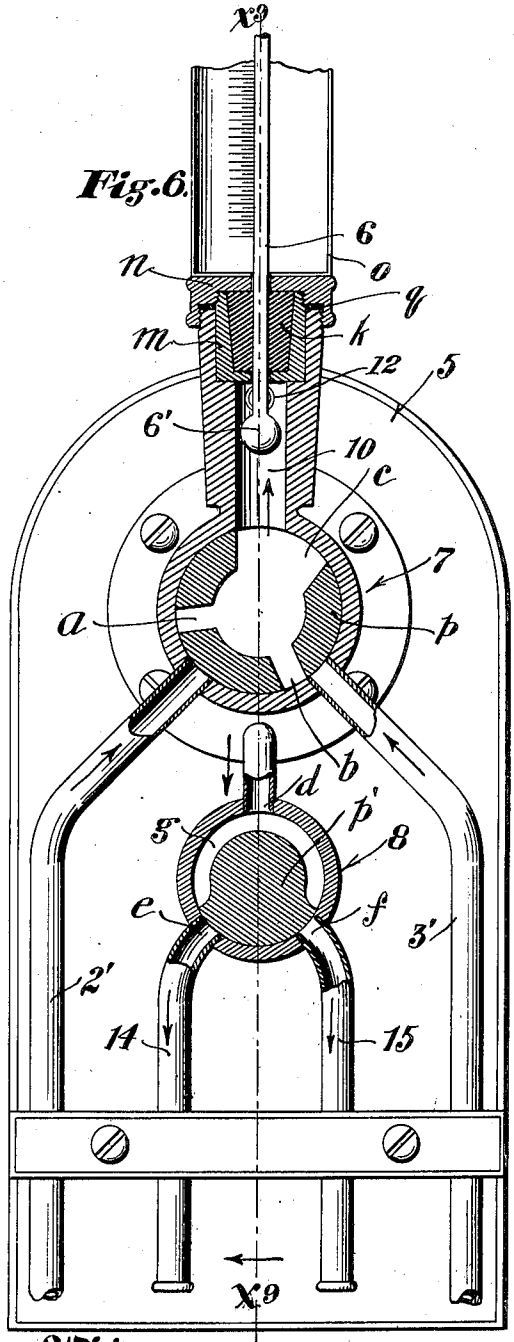
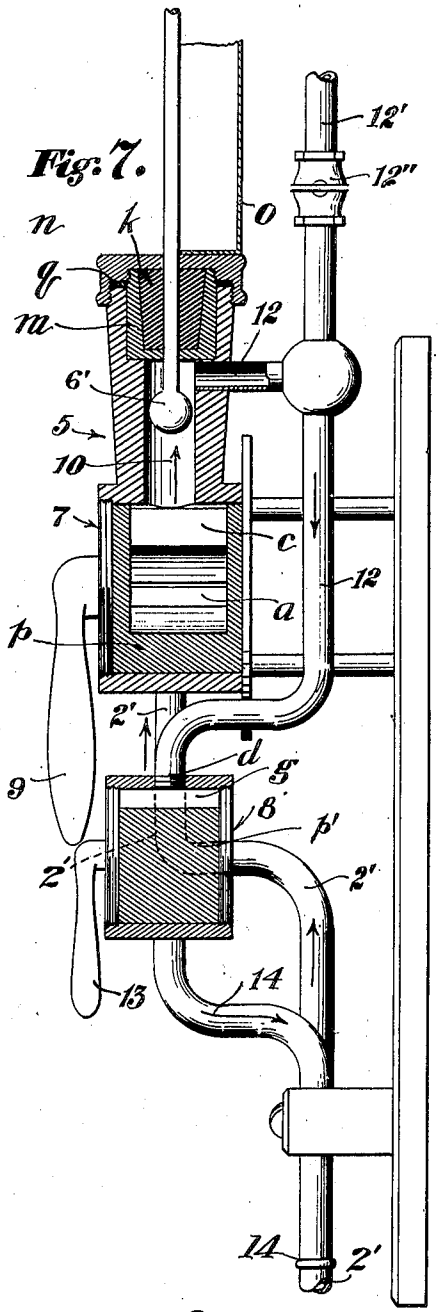


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS POWELL, OF LOS ANGELES, CALIFORNIA.

THERAPEUTIC APPARATUS.

No. 889,964. Specification of Letters Patent. Patented June 9, 1908.

Application filed August 21, 1905. Serial No. 275,193.

To all whom it may concern:

Be it known that I, THOMAS POWELL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Therapeutic Apparatus, of which the following is a specification.

An object of this invention is to provide superior means for applying thermal, hydropathic, galvanic and cataphoretical treatment to patients.

In this invention I provide a therapeutic appliance by means of which an applicator may be constantly or intermittently supplied at the will of the attendant, with a stream or current of water or other fluid of any desired definite temperature; which stream may be maintained at such temperature for as long a period as may be desired, and whereby the temperature of such stream can be, with great accuracy, gradually increased or diminished. Such appliance, herein termed hydrothermostat, is applicable with advantage in various ways; for example, in hydropathic and galvanic treatment, the fluid being applied either as a heating agent, or as a heating and cleansing or medicinal agent, and more especially as a relaxant.

A further object of the invention is to provide means for applying definite temperature, constant or variable, at the will of the operator, to the part to be treated.

An object of the invention is to provide means for superior medical treatment consisting of first cleansing the diseased surface, and then immediatel yapplying various remedial agents in connection with hydrothermal treatment; for example, electricity or medical remedies, as by cataphoresis.

A further object is to enable the operator to accurately regulate the temperature of the application, and also to vary such temperature at will with one hand while directing the application with the other hand.

By this invention means are provided whereby medicinal agents may be applied in the form of warm poultices or medicated pads, gradually raising the temperature of the poultices or pads during the application, thus doing away with the inconvenience heretofore involved of changing poultices or pads for the purpose of reaching an application of requisite temperature without shock or pain to the patient. It is obvious that the application of cooling as well as heating agent may be accomplished in the same way by means of this invention.

In carrying out the invention, I provide an applicator means, cold fluid supply-means, and means for commingling the hot and cold fluids and delivering the same to the applicator and to the waste alternatively, thus to maintain constant temperature for intermittent applications.

Various forms of applicators may be used, and I have shown in the drawings two such forms, one of which forms is adapted for the projection of a douche or wash of a regulated temperature into the mouth, as in the treatment of pharyngitis, etc. By means of suitably constructed attachments, not shown, the ear, bladder, and other cavities may also be treated.

The accompanying drawings illustrate the invention:—

Figure 1 is a perspective showing the general arrangement of the invention as applied for cataphorical treatment. Medicinal-pads or poultices are shown in dotted lines. Fig. 2 is a front view of the hydrothermostat or means for controlling the temperature of the supply of water or other liquid. Fig. 3 is a side view thereof. Fig. 4 is a plan of one of the devices for applying remedies by catephoresis, the medicinal pad or poultice being shown at one side for clearness of illustration. Fig. 5 shows the application of the hydrothermostat device in the projection of a douche or wash of a definite or regulated temperature, into the mouth, as in the treatment of pharyngitis, etc. Fig. 6 is a sectional, fragmental view of the hydrothermostat. Fig. 7 is a fragmental section of the hydrothermostat on line x^9—x^9, Fig. 6.

Referring to Fig. 1, 1 designates an ordinary bowl having hot and cold water supply connections which may lead from a main or reservoir of ample capacity, and 4 is a drainage or trap outlet for the bowl. Pipes 2′, 3′, lead upwardly from the connections 2 and 3 to the hydrothermostatic or water-tempering device indicated in the general way at 5; said device comprises a thermometer 5 and two valves 7 and 8, the former for directing the flow of a mixture of hot and cold water past the bulb of said thermometer and the latter to direct such mixture either to suitable applying means or to a waste or drainage means as desired. Valve 7 is provided with a handle 9, and its plug p has two ways a, b, for

pipes 2′, 3′, respectively, and a way *c* for delivery of liquid to a fluid mingling and temperature regulating chamber 10 which contains the bulb 6′ of a thermometer 6. An outlet duct or conduit 12 leads from the chamber 10 to the valve 8, which is a three-way valve having a handle 13 and ports *d*, *e*, *f*, respectively for the conduit 12 and outlet pipes 14, 15. The pipe 12 opens from chamber 10 at a point above the thermometer bulb 6′ as shown in Fig. 6 and the liquid delivered thereto first surrounds and passes such bulb so that the thermometer will indicate the temperature of the liquid delivered to conduit 12.

The passage means or ways *a*, *b*, *c*, of the plug of valve 7 are arranged for establishing graduated communication from one or both of the hot and cold water pipes 2′, 3′, to the thermometric chamber 10 and conduit 12. With the handle in the position shown in Fig. 2, the way *b*, is just in proximity to the cold water supply pipe 3′, and way *a* at such distance from the hot water supply pipe 2′ that when the cock is turned to bring way *b* and pipe 3′ into coincidence, way *a* is in position to begin to open pipe 2′. Further turning of the cock in the direction of the arrow in Fig. 6 will then gradually cut off the cold water from pipe 3′ and turn on the hot water from 2′ until a point is reached where the cold water is entirely shut off.

The passage means or ways of valve 8 are arranged for establishing graduated communication from the conduit 12 to either one of the pipes 14, 15. The ways *g* extends on the periphery of plug *t*′ around the opposite side from the openings of pipes 14 and 15, and is of such length that when the handle 13 is in the position shown in Fig. 2, both discharge pipes 14, 15, are cut off from pipe 12. On turning the handle either way, either discharge may be connected to pipe 12.

Pipes 14 and 15 may be alternatively connected with an applicator or with the waste. In Figs. 1 and 2, for example, pipe 14 is connected by flexible connection or rubber tube, to any suitable applicator such as hereinafter described, and pipe 15 is connected to suitable drainage or waste means as the rubber tube 19 leading to the basin bowl 1, while in Fig. 5 the applicator is shown connected to pipe 15 and the drainage tube 19 is connected to pipe 14. The conduit 12, which forms the outlet from the thermometer chamber 10, may have any means of delivering the stream, including the mouth-nozzle-piece 12′ with a valve or cock 12″ for making additional connections, as hereinafter described.

The above-described devices constitute the hydrothermostat or means for applying a current of water at definite constant or regulated temperature. Thus, by suitably turning the valve 7, cold and hot water may be allowed to flow together into chamber 10 wherein the streams mingle and flow past the thermometer bulb into the pipe 12; thence by means of the valve 8 the flow may be directed, for example, into either the applicator or the waste tube 19. When the operator wishes to temporarily discontinue the application he may turn the cock or plug *p*′ to discharge the stream from pipe 12 into the pipe connected with the waste 19 and when he wishes to again resume the application, he may simply turn the cock *p*′ back to its former position, whereupon the stream is again delivered to the applicator at the same temperature as before.

The tube of the thermometer 6 is extended out through the top of chamber 10, so as to be open to inspection and is sealed by means of a rubber stopper K compressed into a cup in the base *n* of the thermometer case *o*, which is screwed down on top of the chamber 10, and a gasket *q* thereon.

In passing the thermometer bulb the current of water will cause its temperature to be indicated on the thermometer, and the handle 16 can be moved or adjusted until sufficient hot water is admitted along with the cold water to raise its temperature to the proper degree. When this is attained the valve 8 may be moved to shift the flow to the conduit 14 leading to the applicator, and therefore the flow may be maintained at the same temperature, or if desired, may be gradually raised or lowered by moving the handle of valve 7. Valves 7 and 8 may be provided with indexes 20, 21, for coöperating with scales or marks 22, 23, on the respective valve casings for facilitating adjustment of the valves.

All of the above-described parts will be supported on a suitable base or wall plate 24, which may be attached to the wall directly over the bowl 1, aforesaid.

The applicator, or means for receiving and utilizing the current of warm, hot or temperate water may be variously constructed according to the manner in which it is desired to apply the water. For example, the current of water may be applied in such manner as to utilize only the heating effect thereof, as shown in Figs. 1, 2 and 4, or it may be applied as a wash or douche, as indicated in Fig. 5. In the former case, the applicator preferably consists of a soft rubber tube coiled in a double spiral, as shown at 25 in Fig. 4, the inner ends of the spiral being connected together by a fitting 25ª, and their outer ends being connected respectively to the inlet and outlet conduits 18, 26, which also consists of soft rubber tubes. 27 designates lacing or bindings fastening together the convolutions of the spirals to form the same into a disk-like member capable of application flatwise to the part of the body to be treated. In Fig. 1, two such applicators, indicated at 25, 25′, are shown

as connected together by an intermediate tube 26 which forms the outlet for one applicator and the inlet for the other, the latter having an outlet tube 26′ which is extended into a suitable drainage connection; for example the bowl 1. The tubes 18, 26 may be laced together for a part of their length as indicated at 28.

In Fig. 1, 29 designates a suitable support, chair or table for receiving the patient, and 30 designates pads which are placed between the applicator and patient to moderate or diffuse the application of the heat or the medicine, as in cataphoric medication; such pads being formed preferably of absorbing material to receive and transmit to the deeper tissues a suitable medicinal agent.

The apparatus above described operates as a means for applying warmth or heat locally to the body or part to be treated either for the purpose of obtaining the benefit due to the direct action of the heat, or for facilitating the introduction and action of a medicinal agent if such be used. In the latter case, the effect of the heat applied in this manner is to open the pores and generally put the surface of the body into condition to permit the ingress or absorption of the medicine. In this connection the apparatus may be advantageously used in the application of medicinal agents by cataphoresis, the applicators serving by their warmth to put the surface to be treated into the best condition to be treated, and also serving as means for application of an electric current. For this purpose the applicators 25, 25′, may be provided with flat terminal conductors or electrodes 32 secured thereon as by attachment to metallic fitting 25ª and connected by wires to a suitable source of current supply; the electrodes on said applicators being connected respectively to supply wires 33 and 34. The applicators are placed, as a rule, on opposite sides of the body or the member to be treated, and means are desirably provided for reversing the supply connection to said wires so as to pass the current in one or the other direction through the body as desired. The current is fed in from any convenient source. In the circuit is installed the cut-out switch 66 and the rheostat 67 which serve to turn on and off and to vary the current. A milliammeter 68 serves to indicate the strength of the current. Situated between the rheostat and the milliammeter is the pole changer 69.

Fig. 5 illustrates the application of the hydrothermostatic device for supplying a douche or washing device. 55 represents a douche adjusted for the mouth and throat; the nozzle 55′ thereof being connected to the outlet pipe 15 of the hydrothermostat, and the return flow pipe 56 from the douche leading back to the drainage means 1. A receiver or medicine-containing vessel 57, formed for example as a funnel, is suspended by a hanger 58 above the hydrothermostat or water-tempering device 5, and a flexible connection 59 leads from this funnel to one arm of a Y-coupling 60, the other arms of which are connected to tube 15 and to a tube 61 leading to nozzle 55′. A compressor or cut-off 62 is provided on rubber tube 59 to normally stop the flow of medical fluid. A flexible tube connection 63 is provided from the outlet 12 on device 5 to the medicine-receiver 57, so that by opening valve 12″, water can be passed into the receiver 57. By this apparatus, by means of valves 7 and 8 water can be passed to the part affected and clean the same, and also to apply heat thereto, and the heating effect can be gradually increased to a much higher and more effective temperature than could be borne in a sudden application. Then, if desired, medicated wash can be applied to the part by closing valve 8 and opening the cut-off 62.

It will be seen by the foregoing and by reference to the drawings that the operator is enabled by this invention to handle the applicator constantly with one hand, and at the same time without any interruption of the application, can accurately, quickly, and conveniently adjust the temperature as required in his judgment from time to time during the application; and in case the application is desired to be intermittent, he can maintain the temperature uninterruptedly while the application has been interrupted, this being done by simply turning the flow into the waste by operating the valve 8.

What I claim is:—

1. A therapeutic apparatus comprising hot and cold water supply means, a chamber provided with a thermometer, a valve controlling communication from the hot and cold water supply separately and conjointly to said chamber, outlet means leading from said chamber comprising two outlet tubes and a valve controlling the connection to said tubes alternatively.

2. A therapeutic apparatus comprising hot and cold water supply means, a chamber provided with a thermometer, a valve controlling communication from the hot and cold water supply separately and conjointly to said chamber, outlet means leading from said chamber comprising two outlet tubes and a valve controlling the connection to said tubes alternatively, one of said outlet tubes being provided with an applicator and with a waste connection therefrom, and the other of said tubes serving as a direct waste connection.

3. A therapeutic apparatus comprising hot and cold water supply means, a chamber provided with a thermometer, a valve controlling communication from the hot and cold water supply separately and conjointly

to said chamber, outlet means leading from said chamber comprising two outlet tubes and a valve controlling the connection to said tubes alternatively one of said outlet tubes being provided with a part presenting an extended surface for application of the heat of the water and with a waste connection therefrom, and the other of said tubes serving as a direct waste connection.

4. A therapeutic apparatus comprising hot and cold water supply means, a chamber provided with a thermometer, a valve controlling communication from the hot and cold water supply separately and conjointly to said chamber, outlet means leading from said chamber comprising two outlet tubes and a valve controlling the connection to said tubes alternatively, one of said outlet tubes being provided with a coiled part presenting an extended surface for application of the heat of the water and with a drainage connection therefrom, and the other of said tubes serving as a direct drainage connection.

5. A therapeutic apparatus comprising hot and cold water supply means, a valve having an outlet connected by the valve to the said supply means alternatively or conjointly, said valve being movable to vary the proportions of hot and cold water passing therethrough, means for indicating the temperature of the water so passing, delivery and waste conduits, and a second valve controlling connection from the first-named valve to the said conduits alternatively.

6. An applicator, waste means, hot fluid supply means, cold fluid supply means and means for commingling the hot and cold fluids and delivering the resultant fluid to the applicator or to the waste means alternatively.

7. A therapeutic apparatus comprising hot and cold water supply means, a chamber provided with a thermometer, a three-way valve controlling communication from the hot and cold water supply means separately and conjointly to said chamber, outlet means leading from said chamber and controlled by said valve, said outlet means comprising two outlet tubes and a valve controlling the connection to said tubes alternately.

In testimony whereof, I have hereunto set my hand at Los Angeles, California this 25th day of July 1905.

THOMAS POWELL.

In presence of—
JAMES R. TOWNSEND,
JULIA TOWNSEND.