

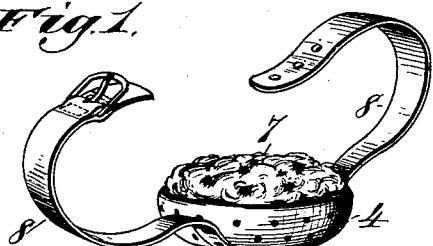
(No Model.)

H. SANCHE.  
THERAPEUTIC APPARATUS.

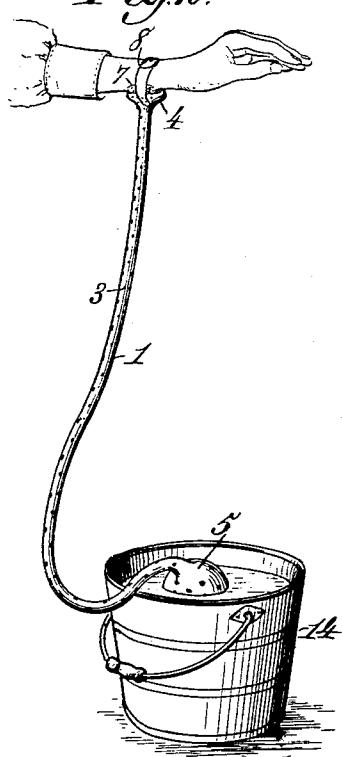
No. 588,091.

Patented Aug. 10, 1897.

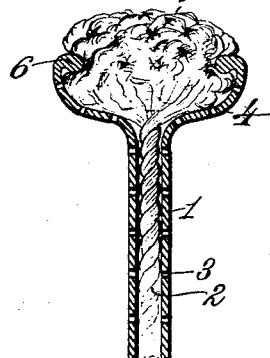
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

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## THERAPEUTIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 588,091, dated August 10, 1897.

Application filed July 7, 1892. Serial No. 439,269. (No model.)

*To all whom it may concern:*

Be it known that I, HERCULES SANCHE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Therapeutic Apparatus, of which the following is a specification.

My invention relates to instrumentalities or apparatus for therapeutic and other purposes, my object being to provide means whereby invigorating and remedial treatment may be given through a connecting medium consisting of a more or less completely-formed hydrostatic column with a bibulous or porous body with which the hydrostatic column is mechanically combined.

It is my object, in other words, to provide an apparatus for therapeutic uses consisting of a contact-terminal suitable for application to the body of a patient and a separate terminal suitable for exposure to the influence of different temperatures, the two being connected by a hydrostatic or fluid column inclosed within a flexible sheath with a bibulous or porous filling, with which the fluid column combines mechanically by capillary action.

It is my purpose also to provide an apparatus of the type mentioned in which the connection between the patient or organism under treatment and a source of thermal influences or energy shall be made by a porous or bibulous filament or body charged with fluid by which its capillary cells are filled, thereby forming practically a fluid column between the terminals.

My invention also includes the provision of novel means for inclosing the bibulous or porous filament, for making suitable communication between the extremities of the bibulous or porous filament and terminals attached thereto, and for such construction of said terminals that they shall easily retain a porous, bibulous, or absorbent material packed therein in such manner that it shall partake of the fluid in the connecting filament.

The invention consists in the novel features of construction and new combinations of parts hereinafter fully described, and then more particularly pointed out in the claims annexed to this specification.

To enable others to understand and to make, construct, and use said invention, I will now describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, partly in longitudinal section, showing my invention. Fig. 2 is a perspective view, upon a reduced scale, showing one method of using the device illustrated in Fig. 1. Fig. 3 is a detail section of one of the terminals, showing one manner in which the porous or absorbent filament is arranged to communicate with the bibulous or absorbent material packed in the terminals. 65

In said drawings the reference-numeral 1 denotes a flexible tube, of rubber or any other material suitable for the purpose. Within this tube, which is of any suitable length, is placed a filament 2, which may consist of a 70 cord of cotton or other fiber capable of absorbing and retaining a body of fluid. Ordinary candle-wicking or cotton cord of proper diameter will answer all the purposes in view, but I may substitute a packing or filling of 75 material which is not twisted into a cord, the essential requirement being that it shall possess suitable porosity and be brought into sufficiently intimate contact to render the 80 fluid taken up by its capillary cells practically homogeneous throughout the length of the tube. To facilitate the absorption, I provide the tube with small openings or perforations 3 at intervals, though I do not regard this feature as essential to the operative character of the device. 85

At the ends of the tube 1 are formed or attached cup-shaped enlargements 4 and 5, preferably formed of the same material as and constituting integral portions of the tube. 90 One of these enlargements 4 is usually of less depth and diameter than the other and is provided with an opening nearly coextensive with the maximum diameter, its edge being turned over inward to form a rib or bead 6. 95 The interior is packed or filled with sponge 7 or other suitable absorbent material with which the end of the filament 2 has contact, the fibers being preferably diffused to give a greater contact-surface. The edge, rib, or bead 6 serves not only to stiffen the margin of the enlargement or cup 4, but it also serves 100

to retain the filling or packing 7 in place. The surface of the latter preferably projects somewhat beyond the open mouth of the cup, as in Figs. 1 and 3, and a strap 8 is secured 5 to the latter in such manner as to permit the ready attachment to the body of the patient or to one of the limbs, as shown in Fig. 2, in such manner as to draw the exposed convex surface of the filling 7 against the flesh. The 10 other enlargement or cup 5 is preferably of greater capacity than the cup 4, and as contact of the exposed surface of its filling is not so essential the opening or mouth of the cup may be more contracted, its edge being supported and stiffened by a rib or bead 9. The 15 extremity of the filament 2 is carried into this cup 5 and retained therein in any suitable manner—as, for example, by tying a knot 10 therein of a size to prevent the end being drawn into the tube. This cup is filled, like 20 the other, with a packing 12 of sponge, fiber, or any absorbent material, which lies in intimate contact with the end of the connecting filament 2. I prefer to form small openings 25 or perforations 13 in the wall of this cup, and similar openings may be formed in the cup 4 also, though I may omit the same in either one or both.

The two absorbent packings 7 and 12 form 30 the contact-terminals of the connecting filament 2, and when properly charged with water or other suitable fluid a liquid column will be formed practically and will be coextensive with the filament and its terminals.

35 In use the terminal 5 is exposed to a temperature higher or lower than the temperature of the organism or body to which the terminal 4 is attached. A convenient method of accomplishing this is to deposit the cup 5 in a vessel 14 of water, which may be cooled 40 by ice, by exposure to an outside temperature in winter, or by any other means. In like manner the water in the vessel 14 may be heated in any manner should a high temperature be required, as compared with the 45 temperature of the body to which the terminal 4 is attached. In both cases the water or fluid in said vessel serves to maintain the substantial integrity of the fluid column in the 50 filament and its terminals, the capillarity of these parts being sufficient to replace the loss by evaporation and by absorption from the filling or terminal 4.

I have ascertained by experiment that when 55 the apparatus is used in the manner first mentioned—that is to say, when the terminal 5 is subjected to a low temperature—the body to which it is applied is rendered capable of absorbing atmospheric oxygen and of repelling 60 and expelling hydrogen and other gases of

the group to which hydrogen belongs. The effects may be modified largely by varying the degree of temperature employed, and opposite effects, or substantially such, may be obtained by the substitution of a high temperature. By the employment of low temperature a stimulating and invigorating effect may be produced; and a depressing result will follow the use of high temperatures. 65

What I claim is—

1. A therapeutic apparatus consisting of a connecting filament of porous, or bibulous material, a flexible inclosing tube having cups at its ends, and packings, of bibulous, or absorbent material, placed in said cups and forming terminals to the filament, substantially as described. 70

2. A therapeutic apparatus consisting of a connecting filament of porous, or bibulous material, an inclosing tube of flexible material having perforations and provided at its ends with enlargements, or cups, absorbent packings in said cups forming terminals for the filament, and means for attaching one terminal to the body under treatment, substantially as described. 75

3. A therapeutic apparatus consisting of a filament of bibulous material, a flexible tube inclosing the same, having enlargements, or cups, at its ends, formed of the material of the tube and having ribs, or marginal beads, absorbent packings, or fillings, placed in said cups and forming contact-terminals to the filament, and a strap, or straps, applied to one cup to enable it to be attached to the body under treatment, substantially as described. 85

4. The combination with absorbent terminals of capillary means for sustaining a fluid-column forming a connection between said terminals, substantially as described. 90

5. The combination with suitable contact-terminals of a bibulous or absorbent filament connecting said contact-terminals and capable of being charged with moisture, or fluid, substantially as described. 105

6. The combination with two contact-terminals of a bibulous, or absorbent filament connecting the same and capable of being charged with a body of fluid and means for attaching of said terminals to a body under treatment, substantially as described. 110

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

HERCULES SANCHE. [L. S.]

Witnesses:

ADOLPH BARTHEL,  
A. CHAPOTON, Jr.