

(No Model.)

T. H. REES, E. D. T. SHEFFIELD & L. A. TALLERMAN.
MEDICAL DRY BATH.

No. 544,442.

Patented Aug. 13, 1895.

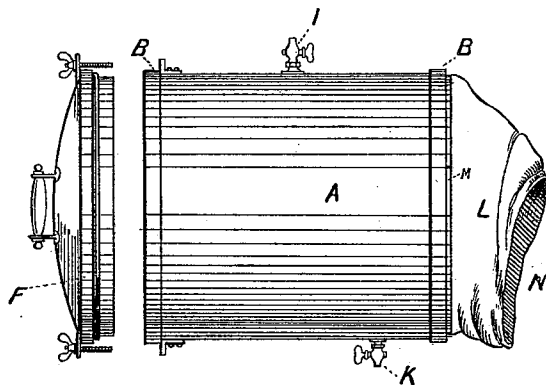


Fig. 1.

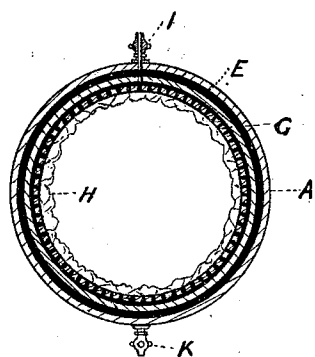


FIG. 2.

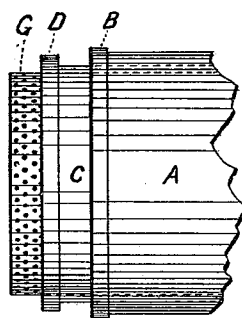


FIG. 3.

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THOMAS HENRY REES, EVELYN DIANA TURNOUR SHEFFIELD, AND LEWIS ABRAHAM TALLERMAN, OF LONDON, ENGLAND; SAID REES ASSIGNOR TO SAID SHEFFIELD AND TALLERMAN.

MEDICAL DRY BATH.

SPECIFICATION forming part of Letters Patent No. 544,442, dated August 13, 1895.

Application filed April 18, 1894. Serial No. 507,975. (No model.)

To all whom it may concern:

Be it known that we, THOMAS HENRY REES, patentee, residing at 8 Sandland Street, Bedford Row; EVELYN DIANA TURNOUR SHEFFIELD, residing at Langham Hotel, and LEWIS ABRAHAM TALLERMAN, residing at 1 and 2 Chiswell Street, Finsbury, London, England, have invented a certain new and useful medical dry bath for applying superheated steam or gases and medicines in vapor to the human body, of which the following is a specification.

The objects of this our invention are to apply superheated steam or gases and vapors at high temperature or medicines in a state of gas or vapor locally to the human body—that is, to any limbs or portion of the human body—for the relief of pain or the cure of disease in the part afflicted without having to inclose in the bath the whole or even a large portion of the body, which often causes constitutional disturbances of a serious nature, and also in some cases prevents the use of high temperatures necessary to effect a cure.

A further object is to remove the pressure of the atmosphere from the part afflicted and then apply gases or vapors or medicines in a state of vapor.

We carry our objects into effect as follows: We construct baths or receptacles of suitable shapes and sizes to inclose the limbs or parts of the human body upon which it is intended to operate. For ordinary use a bath or receptacle to inclose the arm, another to inclose the leg, another to inclose the hips, another to cover the spinal column, and three small baths of about two, four, and eight inches diameter for application to small portions of the skin surface will be found sufficient. These baths or receptacles may be made of any suitable materials, but they must be fire, air, and steam proof. Metal is most suitable, and we prefer brass or copper. They may be made round, oval, octagon, or any other shape without affecting the principles upon which their efficacy depends, but we prefer round. All the baths or receptacles here described may be made open at one end only for the reception of the limb or part of the body to be operated upon, the other end being closed; or they may be made open at both ends for the

limb to slide through, so that the knee may be inclosed while the foot and thigh are not, or the elbow be inclosed while the hand and shoulder are left out; or they may be made open at both ends, but with a metal or other suitable steam-tight cover to fix onto one end, so that they may be used either way, and this method of construction we prefer as being most convenient. The arm-baths may be made of such form and dimensions that while one will form an arm-bath two may be joined together, so as to form a leg-bath, and in this way the two baths, joined together with india-rubber or other flexible material or flexible joint, may be bent to any angle to accommodate contracted joints and deformed limbs.

We will now particularly describe the construction and arrangement of the baths as we prefer them to be made, it being understood that we do not confine ourselves to any exact form, dimensions, or materials.

Referring to the accompanying drawings, Figure 1 represents the bath and the covers ready to be attached to one end, and suitable for an arm or a leg bath. Fig. 2 is a vertical sectional view of the same, and Fig. 3 shows the arrangement of the inner cylinders.

The arm-bath.—For this bath we construct a cylinder A of preferably brass or copper, the joint being preferably brazed or riveted. Round each end of the cylinder we put a band of metal B, outside about one inch wide, to strengthen and finish the edges. If the body of the cylinder be copper these bands should be of brass, or if the body of the cylinder be brass the bands should be of copper. The size of these cylinders should be fourteen inches long, with a diameter of fourteen inches, but if intended for joining together to convert into a leg-bath the diameter should be sixteen inches, the length remaining fourteen inches. This cylinder forms the outside case or body of the bath, but this outer cylinder may be dispensed with without affecting our invention, and in cases where the temperature required to be produced is very high the dispensing with the outer case and applying the heat to the inner case will be advantageous. Another cylinder C, of copper or brass, is made sixteen inches long and of such

diameter that it will just slide in and out of the outer cylinder, already described. The ends of this inner cylinder should also be finished with metal bands or hoops D, which will
 5 besides adding strength secure a slight air-space E between it and the outer cylinder. The inner cylinder should project slightly beyond the outer cylinder. A lid or cover of metal F is made, which can be fitted steam-
 10 tight over one end of this inner case or cylinder, so as to close it up. A sheet of perforated zinc or of brass wire-gauze, we prefer the latter, is rolled round into a cylinder G of such a size that it fits easily inside the inner cylinder
 15 of the bath. The gauze-cylinder must be slightly longer than the inner cylinder. A piece of wool felt H is sewed on one side of the perforated zinc or wire-gauze, the felt being turned over the edges all round and sewed
 20 down and round to avoid the risk of contact with the cylinders when heated. There must be one or more taps or stop-cocks on the top of the bath I, communicating through both cylinders, for letting out heat or vapor and connect-
 25 ing the bath with an air-pump or for admitting steam, gases, or medicines in vapor. There should also be a tap or stop-cock K in the bottom of the bath, communicating through both cylinders, for letting out heavy gases or condensed vapor or for admitting light gases and
 30 vapors.

On the end of the inner case of the bath, not closed in with the steam-tight cover, is attached a case of india-rubber, or india-rubber
 35 cloth, or india-rubber tissue, or leather cloth, or other suitable air and steam proof material I, the one edge of this material being secured round the projecting edge M of the inner metal cylinder of the bath and the
 40 other N left to be bandaged round the limb of the patient. If it is required to slide the limb through, so as to put the elbow in and leave the hand out, then a case of india-rubber or india-rubber cloth, similar to that al-
 45 ready described, is attached to the other end, the metal cover being removed, and the part operated on is bandaged both above and below. In this way the arm-bath may be used to operate upon the knee.

50 *The leg-bath.*—The leg-bath is made in the same way, the dimensions only being changed. The length of the leg-bath is thirty inches and the diameter sixteen inches. As there is no object in extending the leg-bath, the india-
 55 rubber-cloth attachment is on one end only and the lid or cover on the other end.

The hip-bath is made twenty inches wide, twenty inches long, and twenty inches high, inside measure, in order to inclose both the
 60 hips and both the thighs. We have found it more convenient to make this bath in two parts, the top half being separated from the bottom half and fitting over it like a cover, so that the patient can be more easily placed
 65 in the bath for operation. In the hip-bath we attach india-rubber cloth at both ends, so that the bath can be adjusted to operate on

both legs together, or on the hips, or the stomach, or the chest and back.

The spine-bath.—We use the spine-bath in 70 connection with the hip-bath, to which it can be attached and applied with it or it can be operated with separately. We construct this bath by making a half-cylinder of metal closed at both ends and a half-cylinder of 75 perforated zinc or wire-gauze lined with felt, as before described, and along the edges round this half-cylinder, the dimensions of which are about eighteen inches long by six inches diameter, we put a washer of india-rubber 80 or india-rubber tubing, so that when the patient lies upon this bath the rubber tubing closes in the region of the spinal column. These medical dry baths may be made in any 85 other shapes and sizes upon the same principle and after the foregoing directions. Having placed the bath in a position convenient for the patient, we take out the zinc or wire-gauze cylinder, which is covered with the felt, and lay it upon a table, the felt side down, 90 and then sprinkle water upon the perforated zinc or wire-gauze, so that it runs through and is absorbed by the felt. The quantity of water sprinkled should not exceed for the arm-bath four ounces measure, for the leg-bath 95 six ounces, for the hip-bath twelve ounces, and for the spine-bath four ounces. The felt being dampened, as described, is replaced inside the bath with the opening where the two edges of zinc or gauze join at the top and the 100 felt side of the same uppermost, so that the inside of the bath is lined with felt. We then spread a clean cloth over the damp felt at the bottom of the bath, and the patient's arm or limb rests upon this, and the india-rubber 105 cloth is then bound tightly round the arm of the patient as high up as convenient, the other end being closed by the metal cover. A gas-stove or lamp underneath is then lighted and the taps shut off. In about ten minutes 110 a thermometer inside will register about 140° Fahrenheit and the bath will begin to fill with steam. This will continue until 200° or 210° Fahrenheit is shown by the thermometer. The stop-cock is then opened for a few minutes 115 to permit the surplus steam to escape. Then the tap is closed and the thin steam or vapor inside becomes superheated, rarefied, and dry, and the temperature rises rapidly to 240° or 268°. The gas is then shut off or the 120 lamp is removed and the air-pump may be attached and a partial vacuum produced inside the bath, which causes a powerful suction of the skin to take place. Gases or medicated vapors may now be introduced into the bath 125 and further heat applied, if desired. By this method not only can very great heat be applied to diseased parts of the human body, but heat much greater than by any steam or vapor process at present known, and gases, 130 ethers, and medicines may be applied to the surface of the skin when the pores are all opened and prepared for absorption and when atmospheric influences have been removed.

The methods above described of applying the heat direct to the outer or inner cylinders or cases may be varied, and superheated steam or other vapors or gases may be generated in a separate boiler and introduced into the bath by means of the taps or cocks before indicated.

Having now described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The method of treating parts of the human body which consists of first inclosing them in a suitable air-tight casing, applying heat to the casing on the exterior, until a desired temperature is attained, ventilating the casing to remove moisture and heating again, thus subjecting the limb to the action of dry air heated to a high temperature, substantially as described.

2. In a medicated bath the combination of a steam tight jacket or tub suitable for application to a member or part of the human body, said tub or jacket consisting of an exterior solid case and an inner perforated cas-

ing, said inner casing being lined with felt or other similar absorbent material, and means for admitting fluid or gas to the jacket and withdrawing the same therefrom, substantially as described.

3. In a medicated bath the combination of a steam tight jacket provided with a steam tight cover at one end and a sleeve of flexible material impervious to steam secured by a steam tight joint to the other end, and a perforated cylinder within the jacket lined with felt or other similar absorbent material on its interior, the exterior of the jacket being provided with stop cocks for the admission or emission of gas or fluid, substantially as described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

THOMAS HENRY REES.

EVELYN DIANA TURNOUR SHEFFIELD.

LEWIS ABRAHAM TALLERMAN.

Witnesses:

A. FORDHAM,

F. H. HARVEY-SAMUEL.