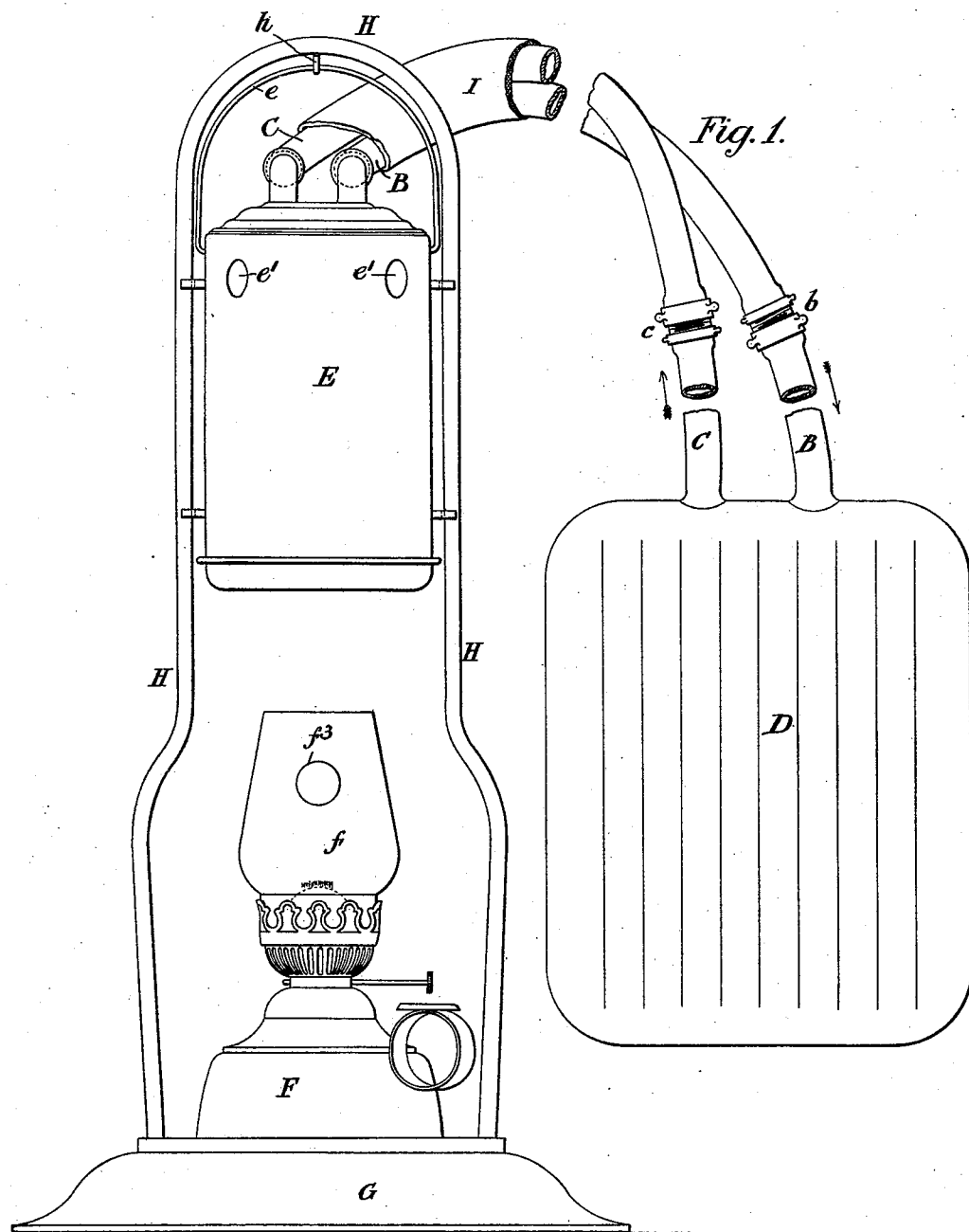


(No Model.)

2 Sheets—Sheet 1.

E. WILSON.
APPLIANCE FOR UTILIZING HEAT AND REGULATING TEMPERATURE.
No. 540,566. Patented June 4, 1895.



Witnesses:—

R. E. Somes.

S. M. Dorsett,

Inventor:

Edward Wilson,

By F. C. Somes,
Attorney.

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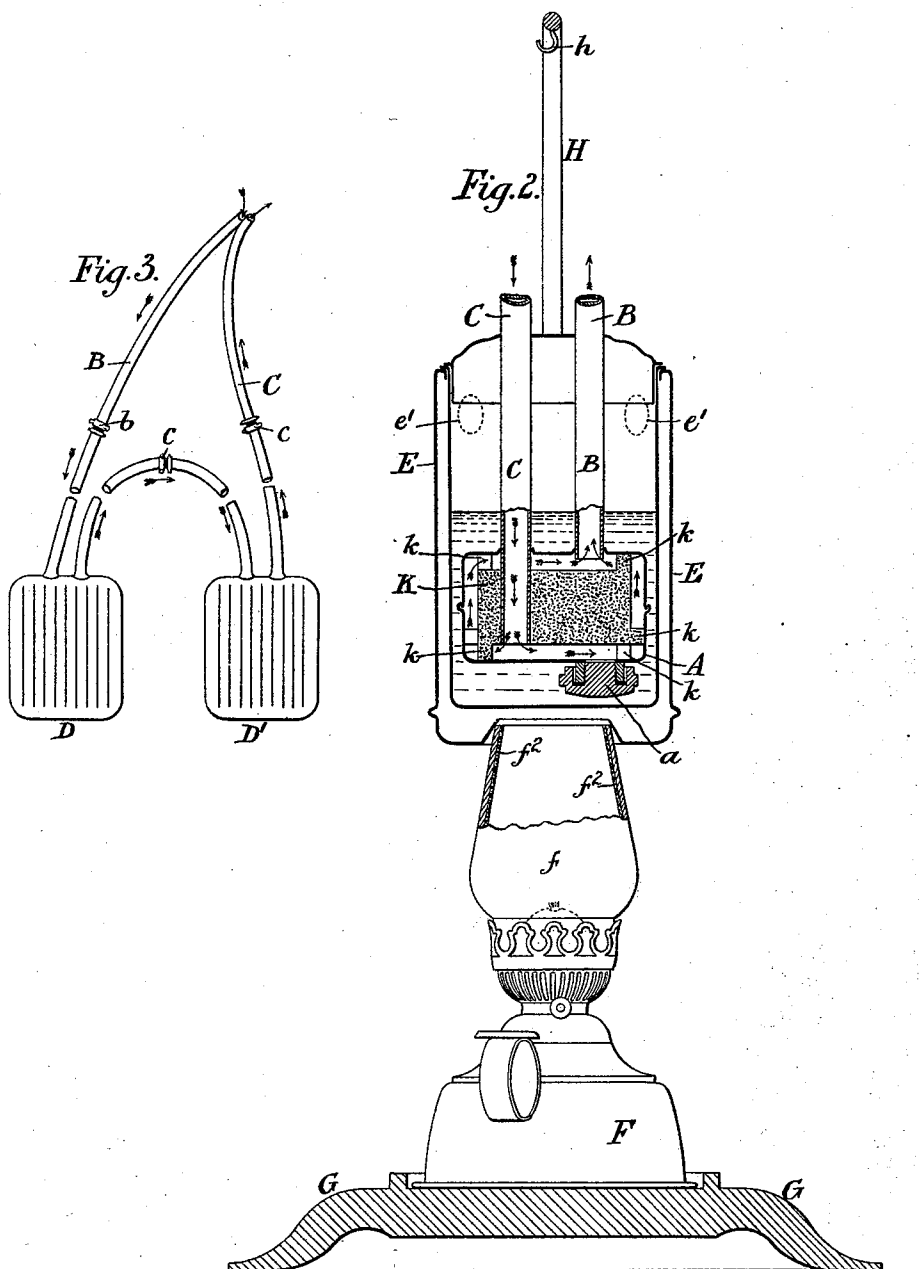
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Attorney.

UNITED STATES PATENT OFFICE.

EDWARD WILSON, OF EXETER, ENGLAND.

APPLIANCE FOR UTILIZING HEAT AND REGULATING TEMPERATURE.

SPECIFICATION forming part of Letters Patent No. 540,566, dated June 4, 1895.

Application filed March 16, 1894. Serial No. 503,875. (No model.) Patented in England September 27, 1893, No. 18,130.

To all whom it may concern:

Be it known that I, EDWARD WILSON, a subject of the Queen of Great Britain, residing at Commercial Road, Exeter, in the county of Devon, England, have invented a new and useful Improved Appliance for Utilizing Heat and Maintaining Any Desired Temperature at a Point Removed from that where the Heat is Generated, (for which I have obtained a patent in Great Britain, No. 18,130, bearing date September 27, 1893,) of which the following is a specification.

The present invention relates to an appliance principally intended for the medical treatment of patients when it is desired to maintain the body or any part thereof at a given temperature, or to apply heat to any part of the body, or in other words it will form a substitute for the method at present employed for poulticing or applying hot water bottles, and while effecting the same object much more efficiently it will entirely avoid the inconveniences and disadvantages attending such method.

The appliance consists essentially of a closed heater which is connected by two tubes with a water bag of india rubber or other suitable material, one of such tubes entering the heater at top, while the other enters or projects down to near the bottom of such heater. The water bag, tubes and heater are filled with water or other suitable liquid, and the whole is hermetically closed. The heater is inserted in an outer vessel or reservoir containing water, and upon such vessel being heated by a lamp, fire, or other source of heat, it will cause a continuous circulation to be established between the heater and the water bag through the tubes connecting same, so that such water bag can be applied to any part of the patient to be treated and maintained at any desired temperature for any required period. As the heater is not exposed directly to the source of heat, but is only heated through the water in the outer reservoir in which it is inserted, all chance of steam being generated in the heater, tubes and water bag, is avoided, and all risk of the latter bursting is thus removed.

In the accompanying drawings, illustrating an appliance embodying my invention, Figure 1 is a side elevation of the complete appli-

ance, shown as being heated by an oil-lamp; Fig. 2, a vertical section through the heater and outer reservoir; and Fig. 3 shows the method of connecting two water-bags, to be applied to different parts of the body together and to a single heater, so that a continuous circulation will be maintained through both water-bags.

Referring particularly to Figs. 1 and 2, A is the heater which consists of a closed vessel with a screw plug *a* at its lower end for the purpose of filling and emptying such heater and also the water bag and connecting tubes with water or other suitable liquid. From the top of heater A a pipe or tube B proceeds and is of any desired length, the opposite end of such tube being connected to the water bag D to be applied to the body, and communicates with the space inside such water bag. A second pipe or tube C proceeds from near the bottom of heater A and is also connected to water bag D. The space within water bag D may be of serpentine form, and if desired coiled wire or other suitable material may be inserted within the passage to prevent the water bag collapsing (or its sides being forced together) if weight is brought to bear upon it, such as when a patient lies on same.

The heater and water bag are charged by holding the heater above the level of the water bag with the screw plug *a* upward. The plug is removed and water poured through the opening and passing down the tubes B and C fills the water bag D, driving the air out before it until the water overflows from the opening in the heater, when the screw plug *a* is replaced. After being charged the heater A is introduced into an outer vessel or reservoir E filled with water to a suitable height, and which reservoir is then heated by any suitable means, such as the lamp F, situated at a point lower than that at which the water bag D is to be applied, whereby a circulation of the liquid in the heater A and water bag D is established, the temperature of which can be regulated at will by adjusting the lamp F.

In the drawings the lamp F is placed on a suitable base or plate G with an upright or frame H serving to shift the lamp and heater from place to place, also to maintain and hold

the reservoir E containing the heater A in position. When not in use the reservoir and heater can be raised and supported above the lamp F, as shown in Fig. 1, the handle *e* of reservoir E being engaged with the hook *h* at the top of support H, thus enabling the chimney *f* of the lamp to be removed for trimming and lighting the lamp, and the lamp to be refilled when necessary. When in use the reservoir E with heater A is lowered to the position shown in Fig. 2, the base of the former resting on the top of chimney *f*. The reservoir E is made with double walls, the top of chimney *f* fitting into an opening in the bottom of the outer wall, so that the space between the two walls forms a continuation of the chimney, the products of combustion from the lamp escaping through openings *e'* formed near the top of the outer wall of reservoir E.

In order to insure the circulation of the liquid being right round the heater A, a block of cement or other suitable material K may be placed therein, and supported by projections *k* formed thereon at suitable points, so as to leave a clearance all around between the outer surface of such block and the walls of the heater, thus constituting a narrow channel which the liquid is bound to follow in its circulation on its passage from the tube C to tube B, so that the raising of such liquid to the required temperature is expedited.

The arrows in the drawings indicate the flow and return of the liquid between heater A and water bag D. In order to prevent loss of heat the pipes B and C and also water bag D may be inclosed in a casing, as indicated at I, Fig. 1, of any suitable material.

For the purpose of enabling two or more water bags to be applied to different parts of the body, to be used with a single heater, I form the tubes B and C with screw unions *b* and *c* at suitable points in their length.

Fig. 3 shows the method of connecting two water bags D, D', together, from which it will be seen that one of the unions, *c*, is disconnected and the short length of tube fixed to water bag D is then connected to one of the tubes of the water bag D', while the other tube of the latter is connected with the tube C from the heater A. The circulation when the apparatus is in use will thus be continuous from the heater A through the two water bags, D, D'.

The chimney or glass *f* of lamp F may be lined or coated with asbestos or other suitable material *f*² so as to obscure the light in case the same should be annoying to the person being treated with the appliance. A small opening

*f*³ may be left in such lining or coating for the purpose of enabling the height of the flame to be seen and adjusted as required.

Instead of the heater A being of the form shown, the same might consist of a coil pipe to the opposite ends of which the tubes B and C are connected respectively. It will be readily understood that the appliance may also be used as a portable heating apparatus for other purposes than that indicated, such for example as a substitute for warming pans or hot water bottles for heating beds.

The tubes B and C are preferably made of india rubber or other flexible material to facilitate the shifting of the water bag D from one position to another when necessary.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a closed heater, a closed flexible appliance, tubes connecting said appliance and heater and forming a closed circuit therethrough for the circulation of a heating liquid, a water reservoir in which said heater may be immersed or partially immersed and from which it is freely removable, and means for heating said water reservoir.

2. A heating appliance consisting of a closed receptacle, tubes connected at one end thereto, a flexible appliance attached to the opposite ends of said tubes, and a block of suitable material disposed in said receptacle and adapted to facilitate the circulation of liquid therein.

3. The combination of a closed receptacle, a water bag, flexible pipes connecting said receptacle and waterbag, a block disposed in the center of said receptacle and means for supporting said block in said receptacle.

4. In a portable heating appliance, the combination of a base plate, an upright frame secured thereto, a lamp adapted to fit on said base plate, a reservoir fitted to slide in said upright frame, a closed vessel disposed in said reservoir, tubes connecting said vessel with a waterbag, and means adapted to support said reservoir in raised position.

5. A portable heating appliance consisting of a base plate, an upright frame secured thereto, a lamp adapted to fit on said base plate, a reservoir fitted to slide in said upright frame, a closed vessel disposed in said reservoir, a waterbag connected to said closed vessel by flexible tubes, a handle on said reservoir, and a hook on said upright frame adapted to engage said reservoir handle and hold it in raised position.

EDRD. WILSON.

Witnesses:

ALBERT ZELLEY,

H. H. WIMBLECOMBE.