

H. W. CHRISTIAN.
HEATING APPARATUS FOR WATER BOTTLES.
APPLICATION FILED SEPT. 16, 1913.

1,086,646.

Patented Feb. 10, 1914.

Fig. 1.

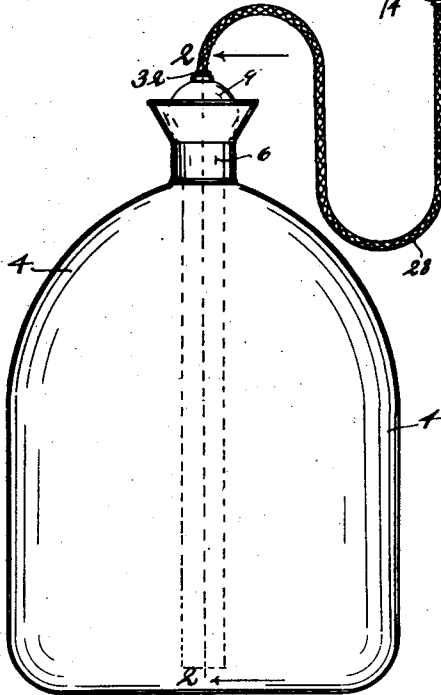


Fig. 2.

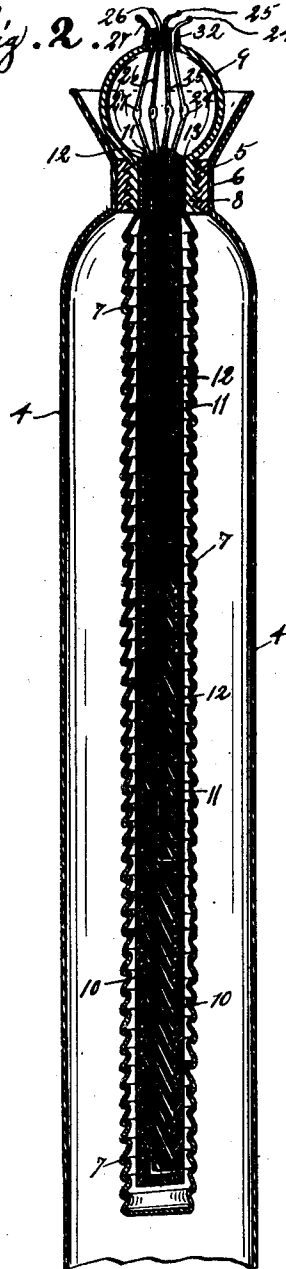
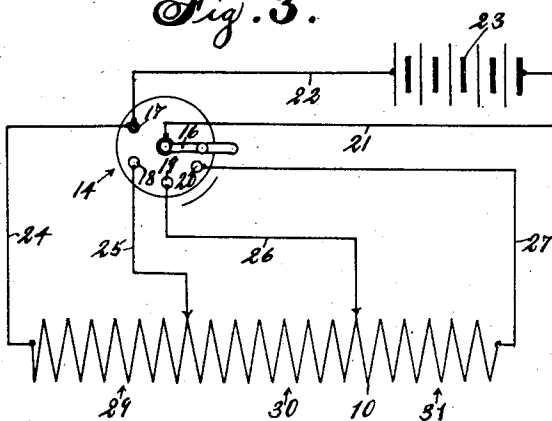


Fig. 3.



WITNESSES:

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HEATING APPARATUS FOR WATER-BOTTLES.

1,086,848.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERBERT W. CHRISTIAN, a citizen of the United States of America, residing at Longbeach, county of Los Angeles, State of California, have invented a certain new and useful Heating Apparatus for Water-Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to heating apparatus for water bottles, and it may be said to consist in the provision of the novel and advantageous features and in the novel and improved construction, arrangement, and combination of parts and devices as will be apparent from the description and claims which follow hereinafter.

One object of the invention is to provide a novel and improved flexible heating device which may be readily disposed in a flexible water bag and which when the water bag is placed on a curved part of the body is adapted to bend so as to permit of the water bag being manipulated to make and remain in complete contact with the curved part of the body of the user.

Another object of the invention is to provide a novel and improved electrical heating apparatus for a water bottle which includes a device arranged at a suitable distance from the water bag whereby the amount of the current passing through the heating element may be easily and conveniently regulated by the user or by a nurse.

Further objects of the invention are to provide a novel and improved apparatus of the class specified which is simple in construction, economical to manufacture, assemble, and maintain, durable and convenient in use, and effective in action.

Other objects and the advantages of the invention will be apparent to those skilled in the art from a consideration of the following description of the preferred form of construction embodying it, taken in connection with the accompanying drawings in which—

Figure 1 is an elevational view of a water bag and the heating apparatus applied thereto; Fig. 2 is an enlarged broken sectional view taken on the line 2—2 of Fig. 1; and Fig. 3 is a diagrammatic view of the

heating coil, controlling device, and electrical connections.

The flexible water bag 4, preferably made of rubber, may be of the usual construction and provided with the usual threaded ring 5 secured in the mouth 6 thereof. A watertight flexible casing 7 is adapted to be passed into the bag 4, through the ring 5, and it has the outer end 13 thereof secured, preferably by a frictional slip joint, to a ring 8 which latter is adapted to screw into the ring 5 and is preferably provided with a hollow globular head 9 thereon. The heating coil 10 is disposed in the casing 7 and is wound on a flexible core 11, preferably of asbestos, and it is preferably covered by a layer of asbestos 12. The core 11 has its outer end secured by pinching the outer end portion 13 of the casing 7 thereon.

The controlling device 14 is arranged at a suitable distance from the water bag 4 to be within convenient reach of the user or a nurse without the necessity of lifting any covering that may be on the water bag or user, and it consists of a suitable body 15 of insulating material having thereon a switch 16, binding screw 17, and contacts 18, 19 and 20, and having connected therewith conductors 21 and 22 respectively leading from a suitable source 23 of current to the switch 16 and binding screw 17, and conductors 24, 25, 26, and 27, which are preferably arranged in a flexible cable 28 and connected between the binding screw 17, contacts 18, 19, and 20, and sections 29, 30, and 31, of the heating coil 10. The conductors 24, 25, 26, 27, preferably pass through an insulating block 32 in the outer end of the head 9; the conductors 24 and 27 being respectively connected to the outer end and the inner end of the coil 10, and the conductors 25 and 26 being connected at intermediate points of the coil 10.

From the foregoing it will be understood that in use the amount of the current flowing through the coil 10 may be easily regulated at will by adjusting the switch 16 to have the latter engage with either the contact 20, or the contact 19, or the contact 18; the current and consequently the heating effect being progressively greater as the switch is moved to engage successively with the contacts 20, 19, and 18. When the switch 16 is moved to engage with the contact 20, current flows from the source 23, through con-

ductor 21, contact 20, conductor 27, all of the sections of the coil 10, conductor 24, binding screw 17, and conductor 22 to the source 23. When the switch 16 is moved to engage the contact 19, current flows from the source 23, through conductor 21, switch 16, contact 19, conductor 26, sections 30 and 29 of the coil 10, conductor 24, binding screw 17, and conductor 22 to the source 23. When the switch 16 is moved to engage contact 18, current flows from the source 23, through conductor 21, switch 16, contact 18, conductor 25, section 29 of the coil 10, conductor 24, binding screw 17, and conductor 22 to the source 23. The casing 7 and core 11 being made flexible permits their assuming the curvature of the bag 4 when the latter is placed on a rounded part of the body of the user.

While one form of construction embodying the invention has been particularly illustrated and described, there are many changes and modifications thereof that will readily occur to those skilled in the art—wherefore the right is reserved to all such changes and modifications as do not depart from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. The herein described heating apparatus for a flexible water bag having a threaded ring in the mouth thereof, consisting of a flexible water-tight casing adapted to be passed into the water bag through said ring, a ring affixed on the outer end of said flexi-

ble casing, said ring having a head thereon and adapted to screw into the first mentioned ring, a flexible core disposed in the flexible casing and having the outer end portion thereof held by the outer end portion of said flexible casing, a controlling device arranged at a distance from the water bag, a heating coil wound on the flexible core, and electrical connections between the controlling device and sections of the heating coil, said connections including conductors passing through said head.

2. Heating apparatus for a water bag having a threaded ring in the mouth thereof, comprising a water-tight flexible casing adapted to be passed into the water bag through said ring, a ring affixed on the outer end of said flexible casing and adapted to screw into the first mentioned ring, a flexible core disposed in the flexible casing and having the outer end portion thereof held by the outer end portion of said flexible casing, a heating coil wound on the flexible core, and means for making electrical connections with said heating coil.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses at Los Angeles, county of Los Angeles, State of California, this 8th day of September, A. D. 1913.

HERBERT W. CHRISTIAN.

Witnesses:

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W. M. GENTLE.