

F. E. CRAWFORD.
HOT WATER BAG.

(Application filed Nov. 15, 1900.)

(No Model.)

2 Sheets—Sheet 1.

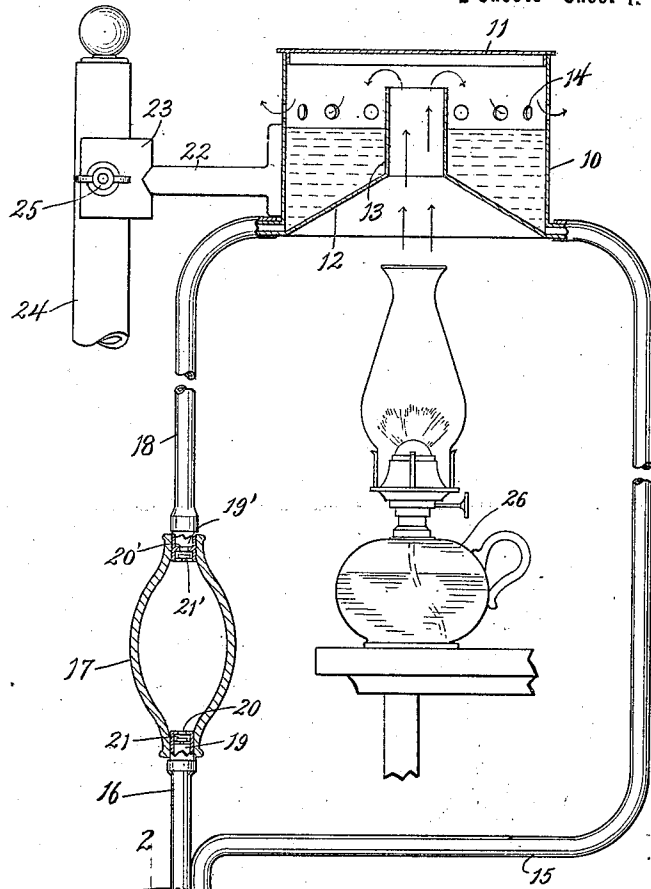


Fig. 1.

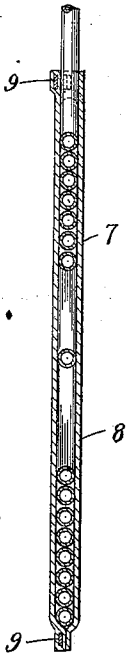


Fig. 2.

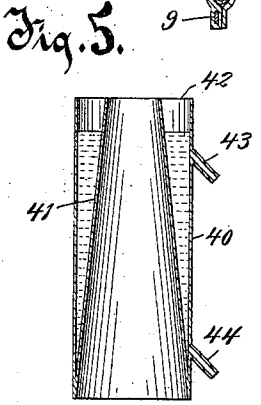
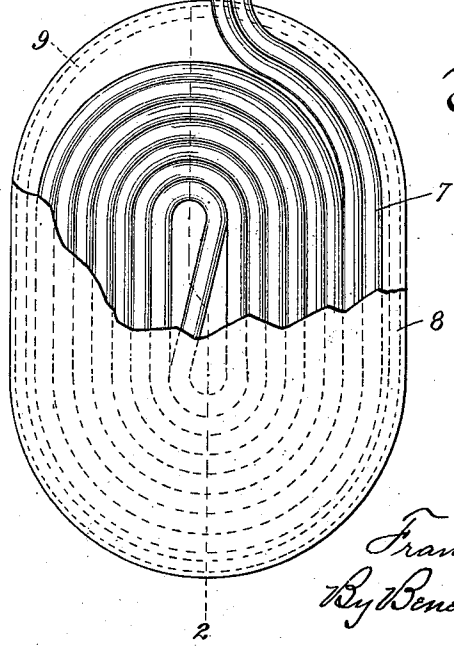


Fig. 5.



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2 Sheets—Sheet 2.

Fig. 3.

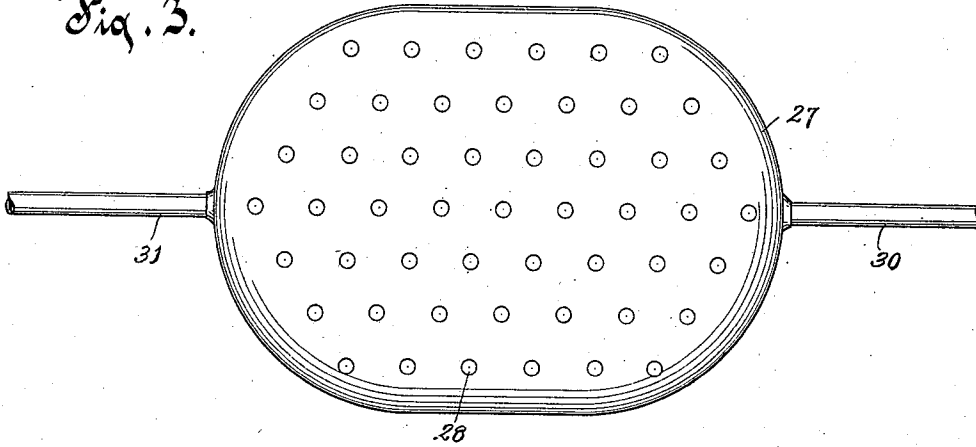
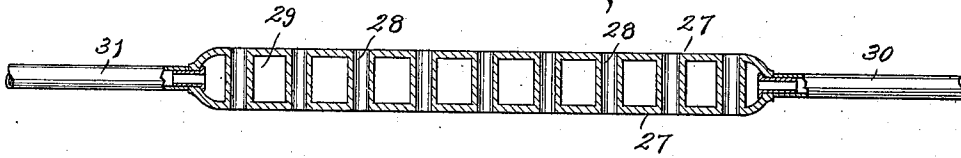


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK E. CRAWFORD, OF LAKEMILLS, WISCONSIN, ASSIGNOR OF ONE-HALF TO WILLIAM A. ENGSBERG, OF LAKEMILLS, WISCONSIN.

HOT-WATER BAG.

SPECIFICATION forming part of Letters Patent No. 687,004, dated November 19, 1901.

Application filed November 15, 1900. Serial No. 38,570. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. CRAWFORD, of Lakemills, in the county of Jefferson and State of Wisconsin, have invented a new and useful Improvement in Hot-Water Bags, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in hot-water bags.

The form of hot-water bag now in common use consists merely of a rubber casing in bag form adapted to be filled with hot water. The objection to this is that the bag after a time loses its heat and is then required to be emptied of its contents and refilled with hot water.

It is the object of my invention to provide a novel form of water-bag and in connection therewith means providing for a positive circulation of hot water therethrough whereby the necessity for refilling the bag is entirely avoided and convenience and other desirable ends thereby promoted.

With the above primary object in view the invention consists of the devices and parts or their equivalents, as hereinafter set forth.

In the accompanying drawings, Figure 1 is an elevation of the complete invention, certain parts being in section and certain parts broken away. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is an elevation of a modified form of bag. Fig. 4 is a longitudinal section of Fig. 3. Fig. 5 is a sectional view of a modified form of water-reservoir.

Referring to the construction shown in Figs. 1 and 2, the hot-water bag is made up of a rubber tubing coiled around in close coils, as indicated by the numeral 7. While I have shown these coils in the accompanying drawings as close enough together to touch each other, yet this is not absolutely necessary, as the coils might be arranged a little distance apart, if preferred. In fact this latter arrangement may be found more desirable, as where the coils are arranged close together, as shown, in some instances the bag will become unduly heated. The coils are preferably arranged in a casing 8, consisting of two side pieces composed of rubber sheets and secured together at adjacent

edges, and in order to hold the coils together it is advisable to embed in one of the side pieces of the casing a small flat spring 9, extending around said side piece near the outer edge thereof. Instead of providing a casing consisting of two side pieces united together, as shown, the coils may be merely placed upon and secured to a single sheet of rubber—that is to say, one of the side pieces of Fig. 1 or Fig. 2 could be entirely omitted, or, again, both side pieces could be entirely dispensed with and some simple means employed for holding the coils together.

The numeral 10 indicates a water reservoir or chamber of any desirable construction; but the form shown in the accompanying drawings has been found by practice to possess merit and to answer the purposes of my invention to advantage. This reservoir consists of a casing, preferably of cylindrical form and having a removable top or cover 11 and a conical bottom 12. The apex of the conical bottom is open and from the opening extends upwardly a short tube 13. The casing is provided therearound with a series of openings 14 for the escape of steam and the heat from the heating device hereinafter referred to. The ends of the rubber tubing composing the water-bag are extended outwardly from the casing, and one length (indicated by the numeral 15) extends to and communicates with the interior of the water-reservoir at the lower portion thereof, and the other length 16 extends to and communicates with a pressure-bulb 17. From the opposite end of the pressure-bulb extends another length of rubber tubing 18, and this tubing communicates with the interior of the reservoir at the lower portion thereof, but opposite the point where the tube 15 communicates. The nipples of the tubing 17 and 18, which connect with the pressure-bulb, are provided with interior valve-chambers 19 19', said chambers provided with valve-openings 20 20', which are controlled by means of valves 21 21'.

As a convenient means for holding the water-reservoir at an elevated position I provide the same with an arm 22, said arm having at its outer end a semicircular enlargement 23, adapted to fit around a bed-post 24

and to be clamped adjustably thereto by means of a set-screw 25, whereby the height of the reservoir may be conveniently regulated.

5 In order to heat the water in the reservoir, any suitable form of heating device may be placed below the conical bottom of said reservoir. In the accompanying drawings I show an ordinary lamp 26. The heat from
10 this lamp strikes the bottom of the reservoir and by reason of the conical shape thereof is diffused thereover and then converges to the tube 13, ascending upwardly through said tube and into the casing and finally out
15 through the perforations 14.

In the use and application of my invention the height of the water-reservoir is first regulated in the manner hereinbefore fully pointed out, so as to bring the water-bag at the
20 proper distance to be conveniently laid upon the patient lying on a bed. The lamp is then placed below the water-reservoir, as shown in Fig. 1, and the heat from this lamp soon heats the water contained in the reservoir.
25 It will be seen that the valves 21 and 21' are normally open, so that the heated water is free to flow through the tube 18, thence through the pressure-bulb, thence through the length of tubing 16, thence around the coils of the
30 bag 7, and finally back to the water-reservoir by way of the tube 15, the flow of the water being positively regulated merely by pressing upon the pressure-bulb 17 and subsequently relaxing pressure thereon.

35 In the modified form of construction shown in Figs. 3 and 4 of the drawings instead of making the bag of a series of coils, as in Figs. 1 and 2, said bag is composed of side pieces
40 27 27, which are transversely connected by a series of tubes 28, extending across the main chamber 29 of the bag, whereby air is free to pass transversely through the tubes from one side of the bag to the other. To opposite
45 ends of the bag are connected rubber tubings 30 and 31, respectively, which tubings lead to the water-reservoir and one of said tubes provided in its length with a pressure-bulb similar to 17. In this form of construction
50 from the water-reservoir will pass through

one of the rubber tubes and into the chamber 29 and circulate around the tubes 28 and finally out of the other tube and back to the reservoir. The air, which is free to pass
55 through the tubes 28, is of course heated by the water flowing through the chamber, and the heat of the bag is thus to this extent augmented.

In Fig. 5 of the drawings I show a modified form of water-reservoir, which not only acts
60 to contain the water to be heated, but, furthermore, as a chimney for the lamp or heating device. It consists of a cylindrical outer portion 40 and an inner conical portion 41, the space between the outer cylinder and the
65 inner cone forming a water-chamber 42. The lower end of this device is fitted over the lamp or heating device, so that the flow of heat therefrom will be within the cone 41. The water will thereby be quickly heated and will
70 be free to flow through rubber tubings similar to the tubings hereinbefore described, said tubings being connected to the nipples 43 and 44. It will be seen that the general characteristics of this Fig. 5 form of reservoir are
75 similar to the reservoir shown in Fig. 1. The conical portion 41 of Fig. 5 corresponds to the conical bottom of the Fig. 1 form, excepting that it is more tapering and is continued upwardly a greater distance to answer the purpose
80 of the tube 13.

It will be understood that one of the most important features of my invention is its capability of having the hot water forced through
85 the bag. For this purpose I have shown the pressure-bulb 17.

What I claim as my invention is—

The combination of a water-bag, lengths of tubing extending from the bag, the ends thereof connecting with a source of hot-water
90 supply, and a valve-controlled pressure-bulb in one of the lengths of tubing, said bulb when operated regulating the flow from the reservoir and through the bag.

In testimony whereof I affix my signature
95 in presence of two witnesses.

FRANK E. CRAWFORD.

Witnesses:

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