

(No Model.)

B. F. SPRINGSTEEN.
WATER BANDAGE.

No. 546,436.

Patented Sept. 17, 1895.

Fig. 1.

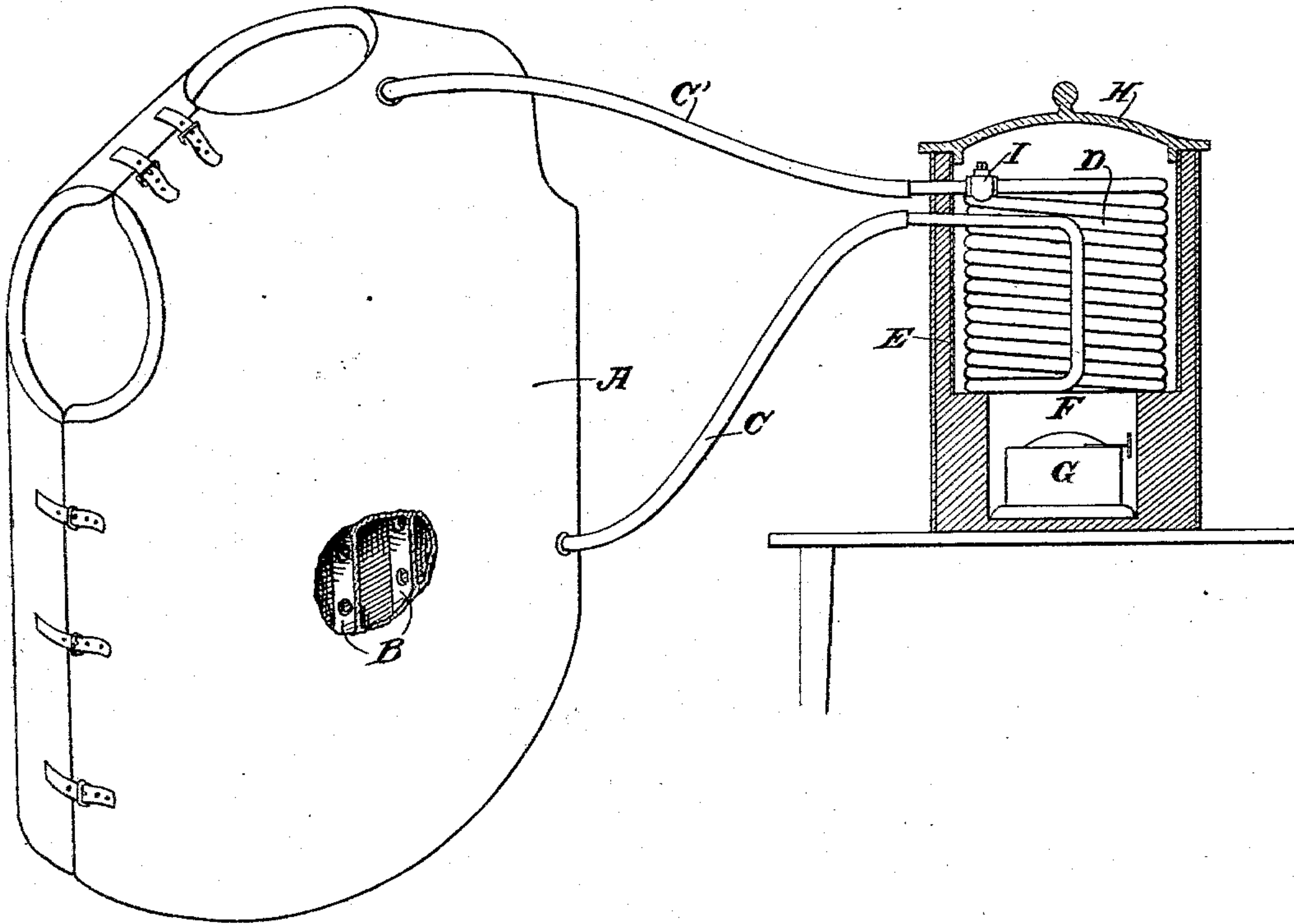
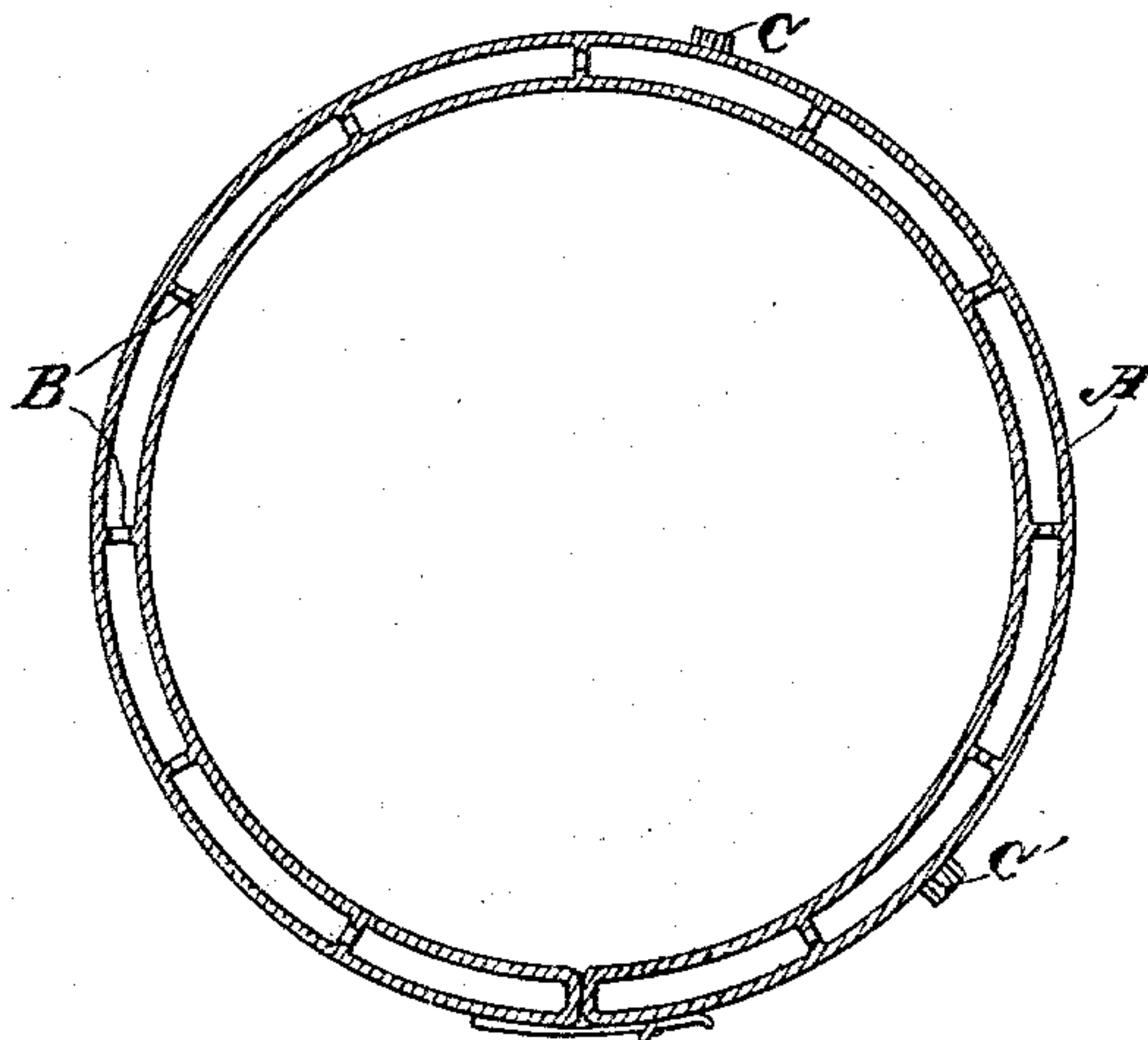


Fig. 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. SPRINGSTEEN, OF SAN FRANCISCO, CALIFORNIA.

WATER-BANDAGE.

SPECIFICATION forming part of Letters Patent No. 546,436, dated September 17, 1895.

Application filed November 24, 1893. Serial No. 491,881. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SPRINGSTEEN, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Water-Vests and Heater Attachments; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device adapted to be applied to the body so as to surround the same for the application of heat in acute affections of the lungs and a means for heating and regulating the temperature of the water contained therein.

It consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of my device, showing the heater in section. Fig. 2 is a horizontal section through the vest.

The object of my invention is, first, to provide a water-containing flexible vest with means whereby the water is retained evenly in all compartments of the vest, and, secondly, to provide a means by which the water contained in any one or more compartments may be maintained at any desired temperature.

A is the vest or envelope, which is made of rubber or other flexible material impervious to water and provided with fastenings by which it may be secured so as to entirely surround the body of the patient and be fixed thereon. This vest is adapted to be filled with hot water, and in order to keep the water from flowing from one part to the other and leaving one portion empty while the other is distended I construct the vest with a series of diaphragms or transverse partitions B, which connect the inner and outer walls of the vest and by which the water is separated into smaller bodies, the vest practically forming a series of independent water-containing chambers, each of which may be provided with its own connection, by which it is filled and by which the temperature is maintained after it is filled, or the separate chambers may be connected by openings which will allow a circulation for the purpose of keeping up a regular temperature, while the water will be prevented from moving too freely and settling entirely to the lower side.

In order to prevent the water getting cold after being placed in the bag, and thus enabling the device to remain upon the person without removal as long as may be necessary, I connect rubber tubes C and C' with each or any of the compartments of the vest, and these are led to a heater of any suitable form, so that the water as it becomes colder will flow through one of the pipes back to the lower part of the heater, while the hot water from the upper portion of the heater will be delivered through the other pipe into the bag or compartment, thus keeping up the temperature.

The heater D may be made of any suitable or desired form. In the present case I have shown it in the form of a coil of pipe fixed in a suitable inclosing casing E, which has a compartment F in the lower portion for the reception of a lamp or heater G.

H is a cover placed upon the top of the casing which holds the coil, which may be removed or replaced at pleasure to regulate in some degree the temperature by allowing a freer draft of cold air to pass up through the coil when the cover is removed or to prevent it and confine the heated air around the coil when it is in place. The pipes from the upper and lower end, respectively, of the coil project outwardly through an opening in the side of the casing, and the flexible tubes C C' are connected with these pipes, having sufficient length to extend to the device or bag which is placed upon the person.

The heating apparatus being regulated properly, the water will constantly circulate through the coil into the bag or vest, and thence back to the coil, thus keeping up a constant temperature, which makes it unnecessary to remove the bag or replenish the water therein.

In order to prevent too great a heat in case the patient falls asleep or the attendant is temporarily absent, I have shown a spring-actuated safety-valve I attached to the delivery-pipe of the heater, the tension of which is such that a slight increase in the pressure will open the valve and allow the water to escape, thus checking the circulation, or if a sufficient quantity escapes it will flow down and extinguish the lamp.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

5 An improved water-tight vest adapted to contain water and to surround the body of the patient, said vest being separable at its side and consisting of an inner and an outer wall of flexible imperforate material, partitions or
10 diaphragms extending in the direction of the length of the vest, in parallel series, and arranged on edge so that they may be connected directly with the inner and outer walls and hold the same separated, whereby water con-
taining chambers are formed, said partitions

or diaphragms having openings made transversely through them so as to connect the
15 chambers one with the other, pipes entering the space between the walls at different levels, and a heating coil connected with the pipes to insure circulation of water and maintenance of heat. 20

In witness whereof I have hereunto set my hand.

BENJAMIN F. SPRINGSTEEN.

Witnesses:

S. H. NOURSE,

H. F. ASCHECK.