April 10, 1951 B. STREZOFF 2,548,076

HOT-WATER BOTTLE HEATING ELEMENT

Filed Sept. 30, 1949

Fig. 1

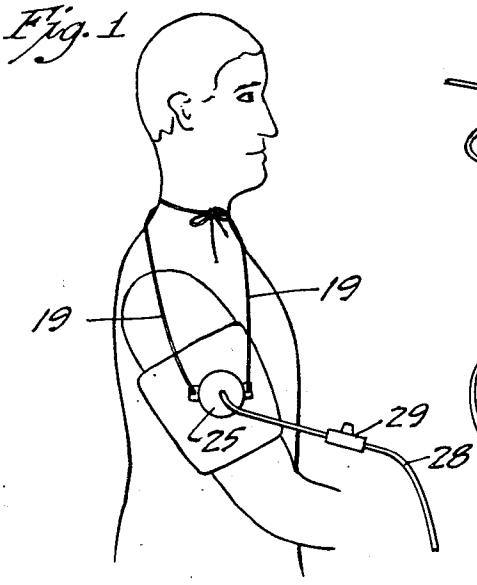
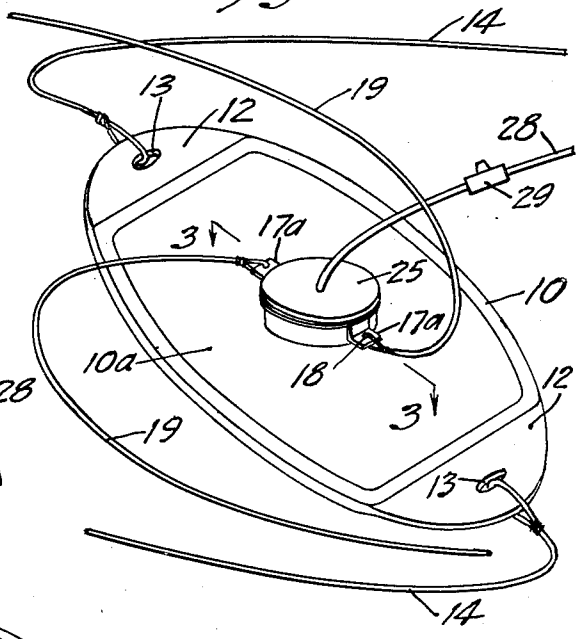


Fig. 2



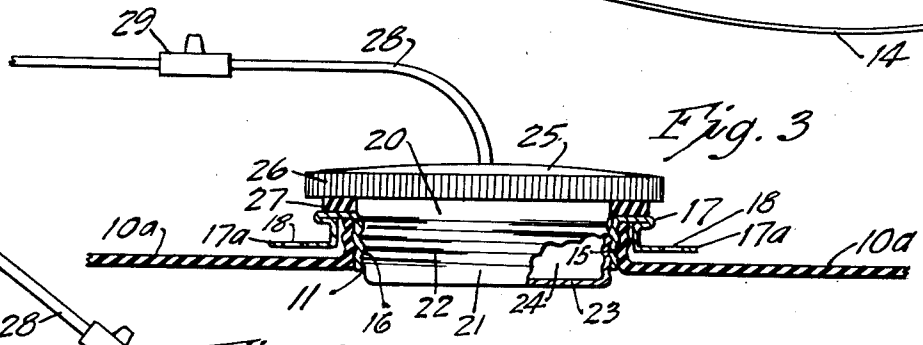


Fig. 3

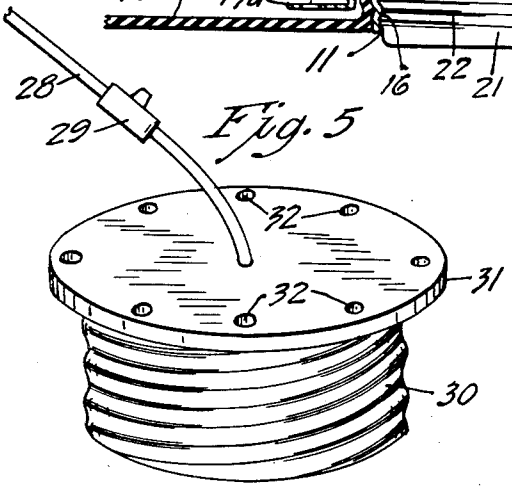


Fig. 5

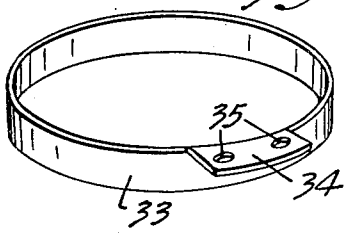


Fig. 4

Inventor
Bogoia Strezoff
By Williamson & Williamson
Attorneys

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HOT-WATER BOTTLE HEATING ELEMENT

Bogoia Strezoff, Minneapolis, Minn.

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5 Claims. (Cl. 219—41)

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This invention relates to a combined heating unit and closure for comfort bags.

The object of my invention is to provide a combined closure and heating unit for a comfort bag which will not diminish the flexibility of said bag or the comfort of the user.

More specifically, it is an object of my invention to provide for a comfort heat-exchanger bag, a heating unit which will not extend inwardly beyond a position substantially flush with the wall of said bag in which it is located, thereby precluding interference with the flexibility of said bag and the comfort of the user and which will at the same time maintain said bag at a desired temperature and serve as a closure for said bag.

Another object of my invention is to provide a comfort bag which will maintain a desired temperature and yet be completely flexible so as to fit the various curved portions of the body of a human being and add substantially to his comfort.

A further object of my invention is to provide a combined closure, heating unit and suspension device for a comfort bag which will substantially enhance the comfort of the user by insuring maximum flexibility of said bag when applied to curved portions of the human body.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views and, in which:

Fig. 1 is a diagrammatic view of one embodiment of the invention fastened on the arm of a wearer;

Fig. 2 is a perspective view of one embodiment of the invention unattached;

Fig. 3 is a vertical sectional view taken through the heating unit along the line 3—3 of Fig. 2 with a section of the threaded portion broken away to show the heating element;

Fig. 4 is a perspective view of an additional means of suspension for the comfort bag when in use; and

Fig. 5 is a perspective view of a combined heating unit, closure, and suspension device.

An embodiment of the invention, as shown in Figs. 1–3, includes a shallow flexible container 10 commonly known as a comfort bag or a comfort heat exchanger bag having a filler opening 11 of substantial area relative to the size of the container in one side 10a thereof and a flexible attachment flap 12 on each end with an aperture 13 formed therein for securing a tie device 14 thereto. Secured in the filler opening 11 is a rigid upstanding collar 15 of metal or other suitable material which has internal coupling threads 16 thereon. An extension of the collar 15 forms a substantially horizontal seat 17 which extends

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around the periphery of the collar 15 and a further extension forms at each of three sides of the collar 15, a flange 17a which is substantially parallel to the sides 10a of the container 10 and in close proximity thereto. Each of the flanges 17a has an aperture 18 which provides a means for securing thereto a tie device 19.

Removably mounted in the filler opening 11 is a combined heating unit and closure 20 comprising a hollow plug-like member 21 formed of metal or other similar material of dimensions equal to the size of the aperture 11 and having external coupling threads 22 thereon of pitch and depth equal to the internal threads 16 on the collar 15. The bottom 23 of the plug-like member 21 is made of metal which is a good heat conductor. When the combined heating unit and closure 20 is mounted in the collar 15, the bottom 23 lies substantially parallel to and substantially flush with the side 10a of the container 10 in which the collar 15 is mounted.

As shown in Fig. 3 the bottom 23 extends inwardly a slight distance beyond the wall 10a of the container but is nevertheless in closely spaced relationship thereto. This is desirable but not necessary and in no case should it extend inwardly beyond one-half of one inch. Superimposed on and registering with the bottom 23 is an electrical heating element 24 of any conventional type. Secured by any suitable means to the upper end of the hollow member 21 is a cover 25 which is made of heat insulating material and is of sufficient diameter so that it extends outwardly a short distance beyond the periphery of the hollow member 21 and the collar 15, thereby forming a rim 26. Snugly encircling the hollow member 21 and adjacent to the rim 26 is a washer 27 made of rubber or other suitable material adapted to prevent the escape of any of the liquid from the container when the combined heating unit and closure 20 is mounted in the filler opening 11. Connected to the heating element 24 is an electric conductor 28. Interposed in the electrical conductor 28 is a variable resistance circuit maker 29 which permits making or breaking of the circuit through the conductor 28 and also permits control of the degree of heat produced by the heating element 24.

Operation

In operation, the container 10 is filled with a liquid having the desired temperature by way of the filler opening 11. The combined heating unit and closure 20 is then screwed tightly into the collar 15, thereby sealing the filler opening 11 by compressing the rubber washer 27 between the rim 26 and the seat 17. The comfort bag is then ready for application and fastening to curved portions of a human body as shown in

Fig. 1 through the use of the tie devices 14 and 19. Fig. 1 shows the comfort bag being applied to the arm of a wearer with the tie devices 19 encircling his neck to properly suspend the comfort bag so as to prevent its slipping downwardly on the arm. The tie devices 14 are used to hold the comfort bag 10 snugly around the arm. The electric conductor 28 is then connected with a source of electric current and the temperature desired is maintained by properly adjusting the variable resistance circuit maker 29. The heat developed by the heating element 24 is conducted to the metal bottom 23 which in turn conducts the heat to the liquid in the container 10. In this manner it is possible for a wearer to continue his work and keep the comfort bag attached at a desired temperature indefinitely.

It should be noted my invention is constructed to provide a comfort bag which will substantially increase the wearer's comfort and at the same time provide him with freedom of movement by retaining all the flexibility which such a bag has without a heating unit. In addition, it combines the closure and the heating unit into one unit, thereby eliminating the need for an additional opening in the container for the insertion of a heating element. By constructing my combined heating unit and closure with its bottom substantially flush with the wall of the container in which it is mounted, I have achieved the maximum in flexibility and comfort to the wearer. A comfort bag having my combined heating unit and closure installed in the filler opening is just as flexible and adapted to fit curved portions of the wearer's body as one with an ordinary closure. Its contents are maintained at the proper temperature just as efficiently as by any type of heating unit. The broad area of the bottom 23 is sufficient to keep the entire contents of the bag 10 at any desired temperature without an appreciable extension of the same into the interior of the bag 10. My unit 20 seals the container just as completely as any other type of closure. The net result is a comfort bag which provides a wearer with a greater degree of comfort than is attainable with any other type of heating exchanging bag.

Figs. 4 and 5 show an additional embodiment of the invention providing for other means of suspension. Fig. 5 shows a combined heating unit, closure, and suspension unit 30 which is built much the same as the combined heating unit and closure 20 except that it has a broader rim 31 on its top with a plurality of perforations 32 therein adapted for the insertion of a tie device for use in suspending the comfort bag, thereby obviating the need for the flanges 17a. Fig. 4 shows a ring or collar 33 made of metal or other suitable material and of dimensions to permit the ring 33 to be slipped over the upstanding collar 15 and at the same time prevent its slipping off said collar 15 and over the rim 31 when the unit 30 is screwed in place. The lower edge of said ring 33 has a flange 34 extending outwardly and horizontally. Two apertures 35 are provided in the flanges 34 for the attachment of a tie device.

In operation the combined heating unit, closure and suspension device 30 is screwed into place just like the combined heating unit and closure 20 after the comfort bag 10 has been filled. Thereafter it may be suspended by fastening a tie device to the two or more most appropriate of the apertures 32 and tying them about the neck or other desired portion of the body.

If the user does not desire to use the apertures 32, he may accomplish the same results by slipping the ring 32 over the collar 15 and screwing the unit 30 tightly in place and fastening a tie device in the apertures 35 and around the desired portion of the body. The rim 31 thereafter will prevent the ring 33 from slipping off. The method of suspension utilizing the ring 33 has the advantage that the collar 15 is not thereby tilted relative to the side 10a of the container 10.

It will, of course, be understood that various changes may be made in the form, details, arrangements and proportions of the various parts without departing from the scope of my invention.

What I claim is:

1. A combined closure and heating unit for a filler opening in the walls of a comfort bag comprising a hollow member having a bottom of heat-conducting metal, said hollow member being adapted to seal said filler opening when placed in proper position therefor and said bottom being substantially flush with the wall of said comfort bag having the filler opening therein when said hollow member is in sealing position, and an electrical heating element disposed within said hollow member and superimposed upon said bottom.

2. A combined closure and heating unit for the filler opening in the walls of a heat exchanger bag comprising a plug shaped hollow member having a bottom of heat-conducting metal and having an upper portion of heat insulating material, said upper portion being adapted for connection with suspension means for said hollow member, said hollow member being adapted to seal said filler opening when placed in proper position therefor, and an electrical heating element disposed within said hollow member and superimposed upon said bottom, the bottom of said plug member being disposed substantially parallel to the wall of the bag in which said filler opening is formed and extending at least in closely spaced relation thereto.

3. A combined closure, heating unit and suspension unit for a comfort bag with a filler opening, comprising a plug-shaped hollow member having a bottom of heat conducting metal and a top of heat insulating material, said top having a rim extending outwardly around its periphery and said rim being adapted for the attachment of flexible suspension means for said member, and said member being adapted to seal said filler opening when placed in proper position therefor, and an electrical heating element disposed within said hollow member and superimposed upon said bottom.

4. In a comfort bag, a shallow, flexible, waterproof container having a filler opening in the intermediate portion of one side of said container of substantial area relative to the size of said container, a rigid collar secured in said filler opening and having internal coupling means thereon, a heating unit of dimensions to fit snugly within said collar and to seal said opening when placed in sealing position and having external coupling means thereon for co-operation with said internal coupling means of said collar and having its bottom surface, when said unit is in sealing position, substantially flush with the inner surface of said wall of said container and an annular member encircling said

collar, said member having a means thereon for attaching a flexible suspension device.

5. In a comfort bag, a shallow, flexible container having a filler opening and having end and side edges, a flexible attachment flap of considerable surface area extending from at least one end edge of said container, a tie device secured to said attachment flap, a means for securing said tie device to the other end of said container, a rigid collar secured in said filler opening and having internal coupling means thereon, and a heating unit of dimensions to fit snugly within said collar so as to seal said opening when placed in sealing position and having external coupling means thereon for co-operation with said internal coupling means of said collar and having its bottom surface parallel to

the wall in which said collar is secured and at least in closely spaced relation thereto.

BOGOIA STREZOFF.

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