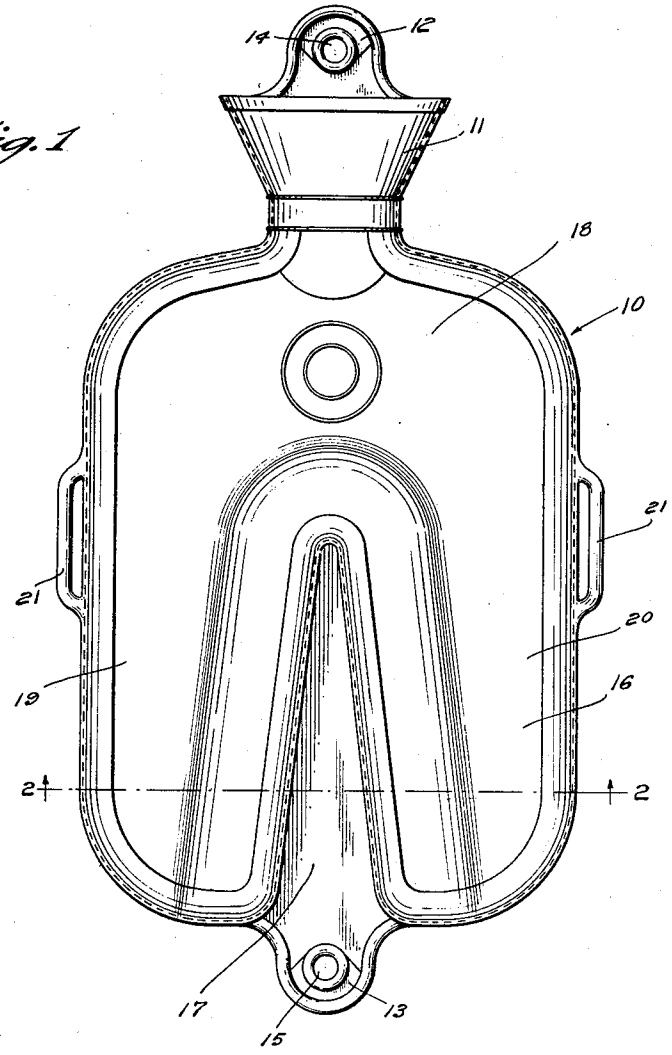
Nov. 28, 1933. E. I. KILCUP 1,937,387

FLEXIBLE FLUID CONTAINER

Filed March 20, 1933

Fig. 1



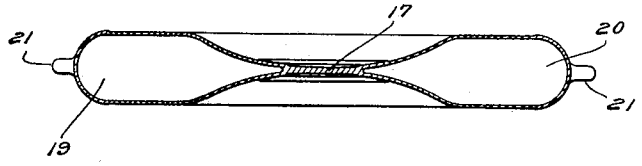


Fig. 2

Inventor
Ernest I. Kilcup
By Nathaniel Fruchtbaum
his Attorney

Patented Nov. 28, 1933 1,937,387

UNITED STATES PATENT OFFICE

1,937,387

FLEXIBLE FLUID CONTAINER

Ernest I. Kilcup, Barrington, R. I., assignor to Daval Rubber Company, Providence, R. I., a corporation of Rhode Island

Application March 20, 1933. Serial No. 661,702

2 Claims. (Cl. 128—258)

My present invention relates to flexible fluid containers which are applied externally for the relief of pain and discomfort, and has particular reference to improvements in the construction of hot water bottles and the like.

The use of flexible water bottles as a medium for the external application of heat and cold to the body has entailed certain difficulties; the standard type water bottle has a tendency to maintain a convex exterior and thus to contact the body for a limited area only, and is moreover easily displaced as result of slight movements of the body because of the relatively small area of contact and the high center of gravity.

Various bottle constructions have been devised to more closely fit the body parts, but these have not proven satisfactory, as a contour for a hot water bottle that will fit one portion, such as the back, will not fit another portion having different curvatures. It is the principal object of my invention to provide a flexible fluid container that will fit the usual body contours in a snug manner, without requiring manual adjustment or change.

A further difficulty found in using the standard type of water bottles resides in the ease with which more liquid may be added than is adequate or desirable to obtain the desired heating or cooling effect, the resulting bulging and convexity of the surface renders the container unstable and top heavy when placed on the body, and requires the addition of towels and the like for holding the container in close contact to the body. It is a further object of my invention to provide a fluid container construction that resists the addition of excess fluid, and that so distributes the fluid in the container when the container is applied to the body, as to lower the center of gravity of the container and obtain a concave effect substantially conforming to the convexity of the body portion to which the container is applied.

With the above and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully described in the detailed description following, when considered in conjunction with the accompanying drawing, and more specifically defined in the claims appended thereto.

In the drawing:

Fig. 1 is a plan view of the novel water bottle, and

Fig. 2 is a section on the line 2—2 of Fig. 1.

Referring to the drawing, the water bottle 10 is preferably of the same general shape as the standard type, and includes a filling inlet 11 equipped with the usual metallic screw stopper, the container also having the customary end tabs 12 and 13 provided with the usual openings 14 and 15. The body 16 of the container differs from standard type construction, however, by including a centrally disposed section 17, preferably of inverted V form as shown, of sheet or plate construction; the water containing portion therefore includes an upper hollow portion 18 and two depending hollow leg portions 19, 20, the sectional form of these legs being indicated in Fig. 2. If desired, the sides of the leg portions may be equipped with strap receiving ears 21. The general arrangement may be characterized as including a hollow U shape portion for containing liquid, the legs of the U being joined by an integral flexible intermediate solid section which is preferably of inverted V shape.

Preferably, the novel water container has rounded ends as indicated in Fig. 2 to increase the volume of liquid in the two leg portions and to bring the capacity of the container up to the desired standard. The described construction limits bulging and thus resists addition of excess liquid, and ensures filling of the container with the most satisfactory quantity of hot or cold water. When the container is properly filled, the outer surface presents two convex surfaces at the lower end with a large intermediate concave area, the concave area progressively decreasing in width to the upper end of the section 17, when the remaining surface becomes convex. The filled container thus provides changing contours which selectively fit substantially all body contours, and which increase the contact area so as to bring substantially the entire surface of the container into snug engagement with the body. Since the portion 17, which has no water therein, is maintained at the same temperature as the two leg portions by conduction of heat or cold therefrom, the novel construction provides an effective fitting arrangement having large contact area and uniform temperature.

Moreover, the use of a flexible thin center section 17 provides a natural dividing line for permitting bending and flexing of the two leg portions, whereby the upper portion becomes a reservoir for maintaining a liquid content for the leg portions; the novel construction thus flexes the leg portions around the body part the container is applied to and lowers the center of the gravity of the container as a whole to fit the body part and to resist displacement therefrom. A natural center of repose is thus provided around

which the water carrying parts mold themselves to the body shape, to extend the engaging area and resist shifting and displacement.

It is therefore evident that the described construction provides a flexible fluid container which yields when placed on a body part and molds itself to snugly engage the body part, the flexing and molding bringing the water carrying portions downwardly so as to obtain a maximum contact and so as to strongly resist displacement.

While I have described a specific constructional embodiment suitable for fluid containers in general and hot water bags in particular, the same principles apply to flexible containers for air, as for example air cushions. The standard type of air cushion is of ring or annular formation, and the tubular sections do not snugly fit the body of the user. The air cushion, according to my invention, is preferably U-shaped with a flexible intermediate member of preferably solid construction, whereby the weight of the user produces a resilient give of the intermediate member and a resultant pull on the tubular air sections, the air cushion thus fitting in a better and more comfortable manner.

If found desirable, changes in the relative proportion of the parts, in the length and shape of the central solid section, and in capacity and shape of the liquid holding portions, may be made to suit the requirements for fluid containers such as hot water bottles, hot water bags, surgical bags, and the like, within the spirit and the scope of the invention as defined in the appended claims.

I claim:—

1. In a water container of flexible material, spaced compartments having their adjacent sides inclined towards each other and merging to provide a common upper compartment, the inclined sides of the spaced compartments being joined by a flat web, whereby the surrounding portion of the container when filled provides a convex bulge around the top and sides of the web.

2. In a water container of flexible material, spaced compartments having their adjacent sides inclined towards each other and merging to provide a common upper compartment, the inclined sides of the spaced compartments being joined by a flat web, integral with the sides, whereby the surrounding portion of the container when filled provides a convex bulge around the top and sides of the web.

ERNEST I. KILCUP.