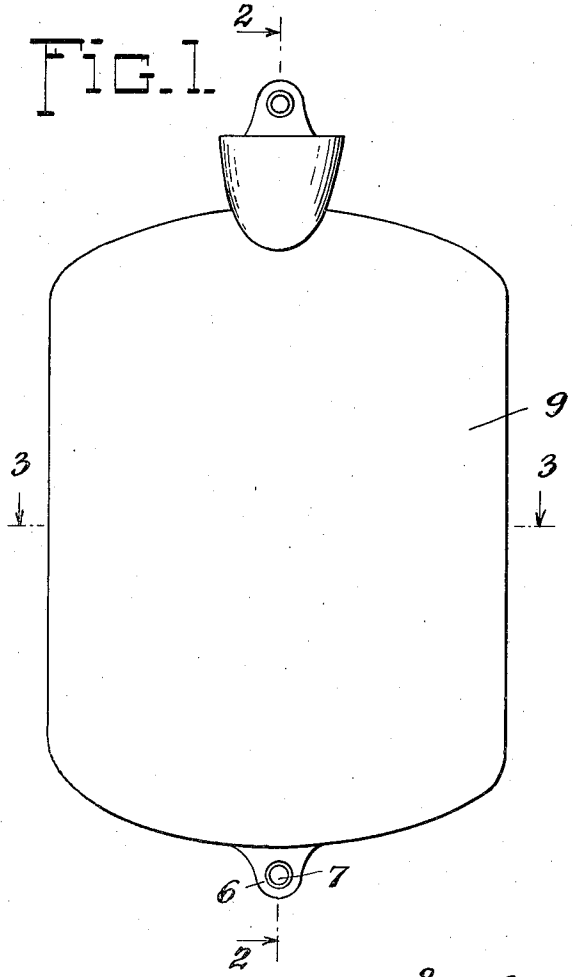
Oct. 31, 1933. L. A. LAURSEN 1,933,441

HOT WATER BOTTLE

Filed Feb. 20, 1929

Fig. 1.



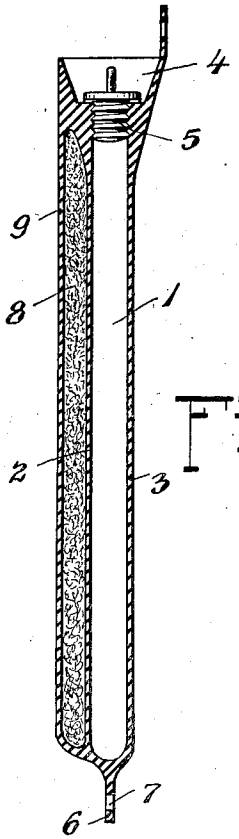


Fig. 2.

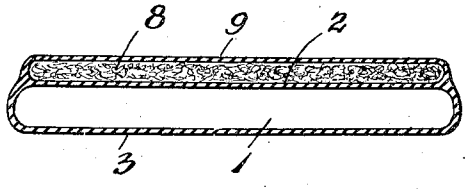


Fig. 3.

INVENTOR

L. A. Laursen.

BY Robson Robb

ATTORNEYS

Patented Oct. 31, 1933 1,933,441

UNITED STATES PATENT OFFICE

1,933,441

HOT WATER BOTTLE

Laurits A. Laursen, Akron, Ohio

Application February 20, 1929. Serial No. 341,466

9 Claims. (Cl. 128—258)

The purpose of this invention has been to produce a novel and improved construction of hot water bottle, and while the invention is illustrated as applicable to the well known type of rubber hot water bottle, it is to be understood the principles of construction employed, may be readily adapted to bottles of rigid construction, certain types of which are at present in use, and customarily made of metal.

In the employment of hot water bottles such as referred to, it is well known that usually very hot water, often boiling water, is placed within the bottle and gives off so great heat that it becomes necessary to wrap the bottle with towels or some sort of non-heat conducting material, to prevent the patient on whom the bottle is used, from being burned by the excessive heat of the contained water. Many crude expedients are resorted to to the above end of reducing the heat radiation temporarily, until the water cools in the bottle sufficiently that it may be directly applied, practically speaking, to the person being treated by its use.

Now according to this invention, I have provided a hot water bottle, the actual construction of which embodies at least one insulating side or wall, the insulation being incorporated in the bottle structure itself in its manufacture, preferably.

My preferred form of the bottle is such that the insulation of at least one side or wall is formed by the use of a section of sponge rubber formed on the usual rubber wall, the said sponge rubber being quite porous and offering an insulation body of considerable efficiency as a heat non-conductor, thus reducing the radiation of the heat obviously so that the contained heat within the bottle may be maintained a longer time than is usual.

Owing to the porous nature of the sponge rubber insulating section, in the formation of my bottle in manufacture, I provide a covering layer of ordinary rubber gum, the primary function of which is to prevent water from becoming absorbed in the pores of the gum rubber insulating section as the bottle is filled. Obviously, water thus entering the pores would pass therefrom when the bottle is applied to the person and cause wetting of the person or the clothes against which the bottle is laid.

While in its preferred adaptation I employ a single insulated wall or side for the bottle so that it may derive the advantage of applying the bottle directly to the surface to be treated with the insulated wall resting against the surface, I contemplate, if desired, to provide both sides or the entire wall structure of the bottle with the insulated section that functions in the manner previously stated. When one side of the receptacle alone is insulated, the whole may initially be applied to the surface treated by laying the same upon the surface with the insulated wall thereagainst, and after the heat in the bottle has become reduced, the opposite non-insulated wall may be shifted over and applied to the surface treated, in a very advantageous manner for obvious reasons.

I show in the accompanying drawing, one simple and preferred type of rubber hot water bottle construction, and in this drawing:—

Figure 1 is a reduced side view showing the general outline of my bottle in elevation.

Figure 2 is a vertical longitudinal sectional view through a bottle embodying my invention.

Figure 3 is a transverse sectional view.

Owing to the simplicity of the construction of my hot water bottle, an understanding thereof will be had from the following simple description applicable to the drawing.

As shown in Figure 2, the rubber bottle is very much of the usual general shape or form, comprising the chamber or water compartment 1, the sides 2 and 3, and the customary filling opening 4 flared to facilitate the introduction of the hot water in the well known manner. A metal stopper 5 of customary type is employed as usual, and at the lower end of the receptacle I provide the rubber lug or projection 6, having the suspending eye portion 7.

As seen in Figure 1, there is no unusual shape necessary in the construction of my bottle, the customary outline or form of rubber hot water bottles in use being followed pretty closely. But Figures 2 and 3 show that external to the side or wall 2 of the bottle is disposed the sponge rubber insulating section 8. This insulating section of sponge rubber is made so that it forms a part of the wall or side 2 and its outer surface is formed additionally with an enclosing film or layer of ordinary gum rubber 9, which is united at its various edges with the corresponding rubber from which the wall 2 is made. There is no liability therefore of water or moisture entering the sponge rubber insulating section 8 in the practical use of my article.

It is obvious that both the walls 2 and 3 may be formed with layers of sponge rubber to provide insulating sections at opposite sides.

In view of the fact that in the actual manufacture of my bottle, the insulating section 8

may be readily produced, and formed practically integral with the parts 2 and 9, it will be recognized that an exceedingly advantageous article of manufacture is provided, one which may be made almost as cheaply as the rubber water bottles now on the market but having advantages of tangible importance thereover. The manner of use of my invention will be readily apparent from the foregoing, without further detailed elucidation other than to indicate that when one wall of the bottle only is insulated the opposite sides of the receptacle will have different temperatures for heat treatment purposes. Moreover the insulation section enables the heat to be retained within the receptacle much longer than is true in ordinary hot water bottles even when one section is provided. When both sides of the bottle have insulating sections, the radiation of the heat from the sides of the receptacle is proportionately reduced. I have found that sponge rubber affords a very excellent insulation structure. The thickness of the insulation may vary within the purview of the invention, though I have determined that the sponge rubber gum insulation will be quite effective if provided in a thickness of three-sixteenths of an inch. Naturally, however, I do not wish to be limited to any particular thickness of the insulating section or sections dependent upon how many are used.

It is to be understood that the term "hot" water bottle includes rubber articles or bags known as ice bags and is not to be restricted to a bottle in which hot water is employed alone.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. A rubber hot water bottle consisting of a chamber having rubber side walls, at least one of which is provided with an integral heat insulating section thereon, said insulating section being made of sponge rubber.

2. A rubber hot water bottle consisting of a chamber having rubber side walls, at least one of which is provided with an integral heat insulating section thereon, said insulating section being made of sponge rubber, and having a covering film for preventing entrance of moisture into the pores of the rubber.

3. As a new article of manufacture, a rubber hot water bottle comprising the usual water chamber, a side body contacting wall of which is formed with a porous heat insulating section, having a covering film of rubber to prevent entrance of moisture into the pores of the insulating section.

4. A hot water bottle comprising a hot water chamber having walls of liquid impervious gum rubber, and a relatively thick layer of sponge rubber over at least one body contacting wall of the chamber and coextensive in area therewith, the sponge rubber being integrally united with the gum rubber of the wall.

5. A hot water bottle comprising a hot water chamber having walls of liquid impervious gum rubber, a relatively thick layer of sponge rubber over at least one wall of the chamber and coextensive in area therewith, the sponge rubber being integrally united with the gum rubber of the wall, and a layer of gum rubber over the sponge rubber forming a liquid impervious surface thereover and united at its extremities with the rubber of the chamber wall, thereby completely enclosing the sponge rubber in water-tight relationship.

6. A hot water bottle composed of vulcanized rubber material and provided at least on one of its side walls with a substantially co-extensive insulating layer of sponge rubber homogeneously united thereto by vulcanization.

7. A hot water bottle composed of vulcanized rubber material and provided at least on one of its side walls with a substantially co-extensive integral sheet of rubber homogeneously united thereto by vulcanization around its entire perimeter, and means located in the space between the wall and the outside sheet and forming an insulation therebetween.

8. A hot water bottle composed of vulcanized rubber material and provided at least on one of its side walls with a substantially co-extensive integral sheet of rubber homogeneously united thereto by vulcanization around its entire perimeter, and a body of rubber presenting air spaces or pockets within itself located in the space between the wall and the outside sheet and homogeneously united to both by vulcanization.

9. A hot water bottle composed of vulcanized rubber material and provided at least on one of its side walls with a substantially co-extensive integral sheet of rubber homogeneously united thereto by vulcanization around its entire perimeter, and a layer of sponge rubber located in the space between the wall and the outside sheet and united homogeneously to both by vulcanization.

LAURITS A. LAURSEN.