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CLOSURE MEANS FOR RUBBER HOT WATER BOTTLES OR BAGS

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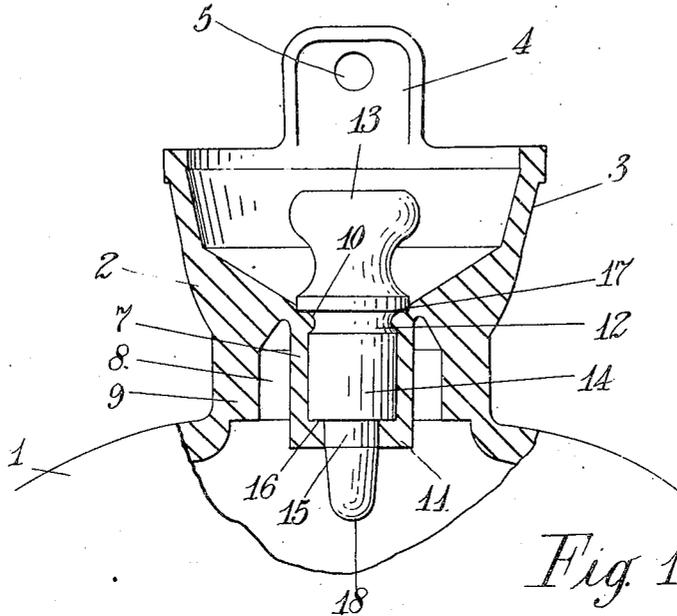


Fig. 1.

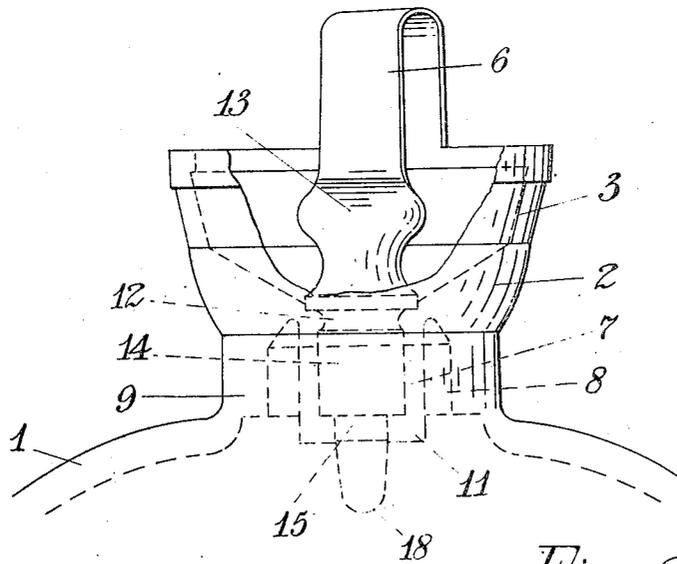


Fig. 2.

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CLOSURE MEANS FOR RUBBER HOT-WATER BOTTLES OR BAGS

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2 Claims. (Cl. 150—8)

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This invention relates to bottles and particularly hot water bottles or bags and especially such as are formed of rubber, and has for its object to provide a bottle or bag having an improved form of closure.

According to the invention within the neck or equivalent portion of the bottle or bag there is provided for the engagement of the stopper a re-entrant tubular element formed of an elastic material such as rubber leaving about it a recess into which the contents of the bottle may enter, the lower or inner end of the re-entrant tubular element being furnished with a shoulder against which a correspondingly formed shoulder located towards the lower end of the stopper will engage and leaving an aperture through which a spigot portion provided on the stopper will extend.

Conveniently, this re-entrant tubular element is provided towards its upper or outer extremity with an internal shoulder or rib adapted to be engaged in a correspondingly formed groove in the stopper.

Thus, preferably in accordance with the invention, the stopper comprises an outer end portion adapted to facilitate its manipulation, that is to say its introduction into and withdrawal from the filling aperture of the bottle, a flange to seat on the outer end of the re-entrant tubular element, a groove below the flange into which the rib provided on the outer end of the tubular element will engage, a parallel or somewhat tapered portion extending from the lower extremity of this groove and preferably of a slightly greater length than the corresponding portion of the tubular element, a spigot portion on the lower end of the stopper which may be tapered to pass through the aperture surrounded by the rib on the lower end of the tubular element, the inner peripheral surface of the rib and the peripheral surface of the spigot portion being also conveniently tapered.

To facilitate the entry or centralising of the stopper with respect to the filling aperture in inserting it in the tubular element, the extremity of the stopper may be tapered or rounded and in the latter case formed to provide a substantially hemi-spherical portion.

In the case of a hot water bottle formed of rubber or the like, the tubular element may be cemented in position in the neck portion of the

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bottle but preferably it will be formed in the moulding operation to which the rubber mix is subjected in forming the bottle.

Further, the neck of the bottle may be formed to provide towards its outer end a funnel to facilitate filling.

The construction of the neck of a hot water bottle or like flexible container for liquid, in accordance with the invention, will operate to prevent or give rise to difficulty in extracting as is usual the core member through the neck or filling aperture.

Conveniently, or preferably, therefore, in accordance with the invention, the body of the bottle is formed to enable the core to be extracted through the end thereof remote from the filling aperture, the opening left for the extraction of the core being subsequently closed as, for instance, by the insertion of a layer or sheet of a vulcanizable rubber mix between the adjacent surfaces of the end of the bottle through which the core is withdrawn and then vulcanizing.

The invention will be described further in detail and by way of example with reference to the accompanying drawings in which:

Figure 1 is a view partly in section of a neck portion of a rubber hot water bottle in accordance with the invention;

Figure 2 is a view in elevation of a construction modified in respect to the association of the stopper with the body of the bottle.

In the construction illustrated, 1 is the body of the bottle, 2 the neck portion which, as usual, is formed to provide toward its outer end a funnel 3 adapted to facilitate filling the bottle, this portion being provided with a tab 4 in the case of the construction illustrated in Figure 1, furnished with a hole 5 by which the bottle may be suspended.

In the case of the construction illustrated in Figure 2 a tab 6 is provided to which the stopper is secured, the stopper being formed integral with the tab and the neck and body of the bottle in this case.

In the case of the construction shown in Figure 1 the stopper is formed as an independent element but is otherwise of a form corresponding with the form of the stopper shown in Figure 2.

Within the neck portion of the bottle there

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is provided a re-entrant tubular element 7, formed of rubber, leaving a recess 8 between it and the wall 9 of the neck, and on the inner face of the re-entrant tubular element there is provided towards its upper or outer extremity an internal shoulder or rib 10 and at its lower or inner end a shoulder or rib 11.

The internal shoulder or rib 10 is designed to engage in a groove 12 formed in the stopper below the end portion 13 of which, provided to facilitate its manipulation, extends a generally cylindrical portion 14 terminating in a spigot portion 15 and providing a shoulder 16 the face of which will engage against the correspondingly formed face of the shoulder or rib 11, which is formed to leave an aperture through which the spigot portion 15 will extend.

One face of the groove 12 in the stopper is shaped to constitute a flange adapted to seat upon the base 17 of the neck in the vicinity of the outer end of the re-entrant tubular element.

The portion 14 may, if desired, be somewhat tapered and will in any case extend from the lower extremity of the groove 12 and terminate at a distance therefrom which may be somewhat greater than the length of the corresponding portion of the tubular element, while the spigot portion on the lower end of the stopper is as shown somewhat tapered and is furnished at its extremity with a rounded end 18.

In conclusion it may be pointed out that not only does the construction of the neck of the bottle formed of relatively flexible material such as rubber in accordance with the invention provide a simple means for engaging the stopper in position in the bottle and for securing an effective liquid tight joint between the stopper and the neck of the bottle, but it enables the bottle to be formed wholly of such flexible material and renders unnecessary the employment, in connection with the bottle or the stopper, of elements formed of metal or other rigid material.

To facilitate extracting the stopper from the bottle the rib 10 may be formed as a helix, the groove 12 in the stopper being similarly helically formed, so that on relative rotation between the stopper and the neck in the appropriate direction, in consequence of the inter-engagement and for-

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mation of these parts, the stopper will be displaced axially.

I claim:

1. A hot water container made of resilient material and having a restricted neck portion, a resilient stopper for closing the neck portion, said neck portion being formed with a re-entrant tubular element provided with a shouldered opening into the container at its bottom end and with an inwardly directed annular rib at its upper end, said stopper having an elongated cylindrical portion and a shouldered bottom extension for closing the opening in the tubular element, and with an annular groove at its upper end, for frictional engagement and co-operation with the annular rib of the tubular element.

2. The container of claim 1, in which the re-entrant tubular extension provides an annular channel between its exterior surface and the interior surface of the restricted neck portion, and wherein the stopper is provided with an enlarged head portion and with a shouldered flange at the bottom of the head portion, for seating co-operation with the upper edge of the annular rib, and wherein the bottom extension of the stopper is tapered, to facilitate its entry into sealing engagement with the opening in the re-entrant tubular element, whereby liquid pressure within the annular channel surrounding the re-entrant tubular element will accentuate the fluid-tight seal between itself and the stopper.

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