June 20, 1950 A. J. TATTERSALL 2,512,448

RUBBER HOT-WATER BOTTLE

Filed Nov. 16, 1946

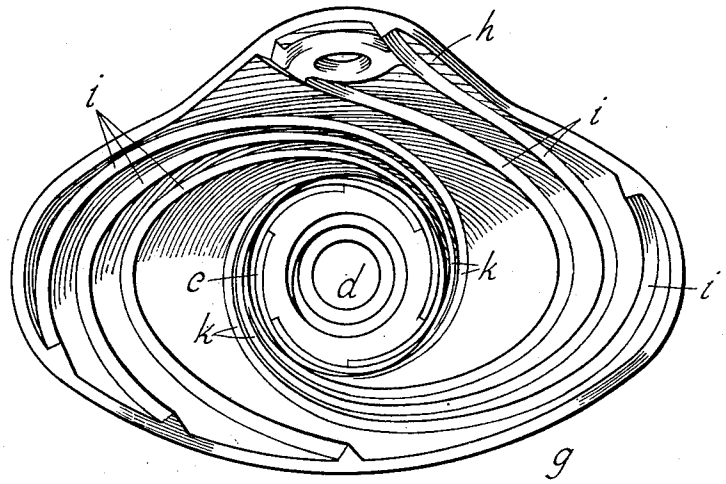


FIG. 1

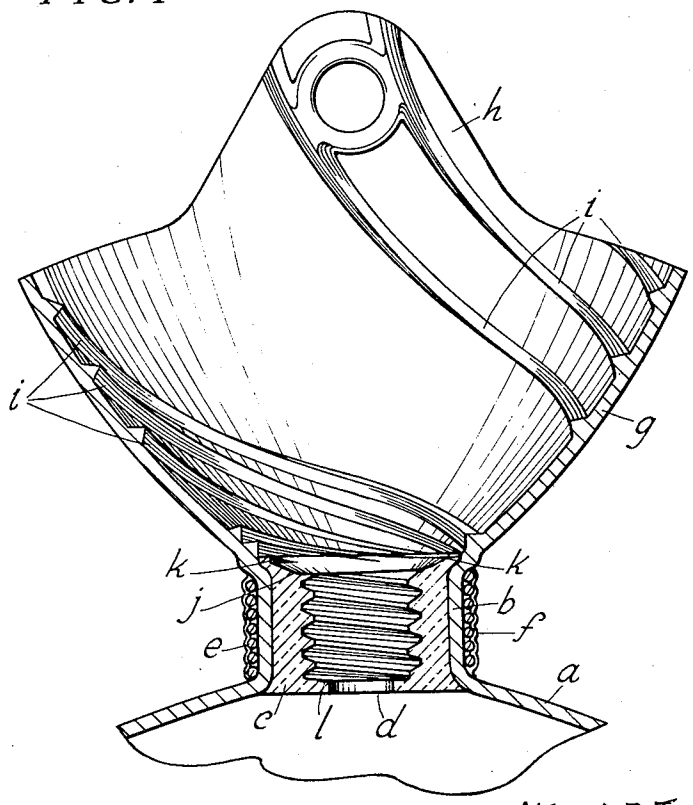


FIG. 2

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Patented June 20, 1950 2,512,448

UNITED STATES PATENT OFFICE

2,512,448

RUBBER HOT-WATER BOTTLE

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Application November 16, 1946, Serial No. 710,365
In Great Britain June 4, 1946

8 Claims. (Cl. 150—2.1)

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It is a common experience that, during the filling of a rubber hot-water bottle with hot water, the bottle belches out hot water and steam, due inter alia to the ingoing water closing the inlet orifice through which air and steam need to escape. It is the object of this invention to eliminate such belching.

According to the invention a rubber hot-water bottle having a funnel-like filler surrounding the inlet orifice has the inner face of such filler formed with upstanding ribs, elongated projections or the like designed to give to the ingoing water a gyratory motion and thereby to produce within the filler and orifice a vortex through which steam and air can escape freely without any undesirable belching.

Usually the fillers of rubber hot-water bottles are of a laterally-flattened or elliptical shape in plan view, with a flat bottom in which is formed the threaded orifice for the closure plug.

According to a further feature of the present invention, such flat bottom is eliminated, the sloping sides of the filler, with the raised ribs thereon, being continued substantially to the periphery of the inlet orifice which is screw-threaded at its lower part to receive the closure plug, and has a shoulder at the lower part on which the latter seats.

The ribs, elongated projections or the like may be of triangular section and are directed spirally, as viewed from the top of the filler.

In the accompanying drawing:

Fig. 1 is a plan view of an oval hot-water bottle filler embodying the present invention and

Fig. 2 is a sectional side elevation of the same.

In the construction illustrated, the invention is applied to a known form of rubber hot-water bottle indicated at *a* having a restricted neck *b* in which is engaged a rigid bush *c* having the inlet orifice *d* formed therein. After this bush *c* has been pushed into position, it may be effectively secured in the usual manner by binding the neck externally with wire, as at *e*, and subsequently protecting the wire binding with a strip of adhesive tape *f*.

The walls of the bottle *a* are continued, integrally or otherwise, above the neck *b* to provide a funnel-like filler *g* which, as shown, is of oval shape in plan view, but may equally well be circular. One side of this filler may be provided with an apertured suspension tab *h*.

On the inner face of the filler *g* are moulded a plurality of spirally-arranged upstanding ribs *i* (say six in number) which curve in a clockwise direction from the top to the bottom of the filler.

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It will be appreciated that when hot water is poured into the filler, these ribs *i* cause it to swirl with a downward vortical motion which, as the water reaches the mouth of the inlet orifice *d* causes it to travel around the surface of the latter, leaving a clear central space through which steam and air can escape from the interior of the bottle *a* without any dangerous or inconvenient belching.

Instead of the bottom of the filler cavity (i. e. the upper face of the bush *c*) being substantially flat, as is usual, it is shaped concavely at *j* to continue the slope of the filler walls down to the periphery of the orifice *d* and thus avoid any obstruction to the vortical motion of the ingoing water.

Ribs or projections *k* corresponding to those on the filler walls may be moulded on the face *j* of the bush *c* and be aligned with the filler ribs *i*, which latter may thus be continued to the edge of the orifice *d* if desired.

Alternatively the ribs may terminate a short distance from the orifice edge, as shown, so as not to obstruct the insertion of the closure plug when the latter is of the known type having a projecting lip around the top.

The inlet orifice *d* may be screw-threaded in the usual manner and may have a shoulder *l* at its lower end on which the plug seats.

It is of course, conceivable that the walls of the inlet orifice *d* may be made integral with those of the filler *g*, in which case each rib would be in one piece.

The cross-sectional shape of the ribs *i* is optional but preferably takes the form of an equilateral triangle with sides about ⅛ inch long. The inclination of the ribs, with reference to a plane perpendicular to the axis of the orifice *d* may be approximately 45 degrees at the mouth of the filler and become progressively less towards the lower ends of the ribs, which latter may be spaced equally around the orifice *d* as shown. The angle and pitch of the ribs, may however be varied within wide limits.

If desired, the ribs *i* may run in a contra-clockwise direction, but the clock-wise arrangement is preferred as it conforms to the arrangement of the screw thread in the inlet orifice.

Instead of the ribs *i* being formed as raised parts on a filler wall of uniform thickness, there may be corresponding spiral grooves in the outer face of the filler, to provide a more or less constant thickness of rubber at all points.

Obviously, the continuous ribs *i* may be replaced by elongated projections of any suitable section and inclination which are so arranged as to pro-

duce the desired guiding action on the ingoing water.

What I claim is:

1. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding, elongated projections extending down the inner face of said filler, said projections being spirally arranged to give the ingoing water a gyratory motion and to produce within said filler and orifice a vortex through which steam and air can escape freely from said bottle.

2. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle, the area immediately around said orifice being shaped as a continuation of the sloping walls of said filler and a plurality of elongated projections extending down the inner face of said funnel substantially to the periphery of said orifice, said projections being spirally arranged to give the ingoing water a gyratory motion and to produce within said filler and orifice a vortex through which steam and air can escape freely from said bottle.

3. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding elongated projections of triangular cross-section extending down the inner face of said filler, said projections being spirally arranged to give the ingoing water a gyratory motion and to produce within said filler and orifice a vortex through which steam and air can escape freely from said bottle.

4. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding projections extending spirally down the inner face of said filler, a bush constituting said orifice, the upper face of said bush being shaped concavely to continue the slope of said funnel to the periphery of said orifice, said projections being arranged to give the ingoing water a gyratory motion and to produce within said filler and orifice a vortex through which steam and air can escape freely from said bottle.

5. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle, said inlet orifice being screw-threaded to receive a closure plug and a plurality of upstanding ribs extending spirally down the inner face of said filler and adapted to produce within the latter and said orifice a vortical motion of the ingoing water, the direction of the spiral arrangement of said ribs being clockwise, to conform to the screw-thread in said orifice.

6. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding ribs extending spirally down the inner face of said filler and adapted to produce within the latter and said orifice a vortical motion of the ingoing water, the inclination of said ribs, with reference to a plane perpendicular to the axis of said orifice, diminishing progressively from the upper to the lower ends of said ribs.

7. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding ribs extending spirally down the inner face of said filler and adapted to produce within the latter and said orifice a vortical motion of the ingoing water, the inclination of said ribs, with reference to a plane perpendicular to the axis of said orifice, being about 45 degrees at the top of said filler and becoming less and less towards the lower ends of the ribs.

8. In combination, a rubber hot-water bottle, a funnel-like filler integral therewith and having at its lower end the inlet orifice of said bottle and a plurality of upstanding projections extending spirally down the inner face of said filler, said projections being arranged to give the ingoing water a gyratory motion and to produce within said filler and orifice a vortex through which steam and air can escape freely from said bottle, additional projections on said bush face alined with said filler projections, the latter extending to the edge of said orifice.

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