March 22, 1938. M. B. REACH 2,111,731

WATER BOTTLE

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Fig. 1.

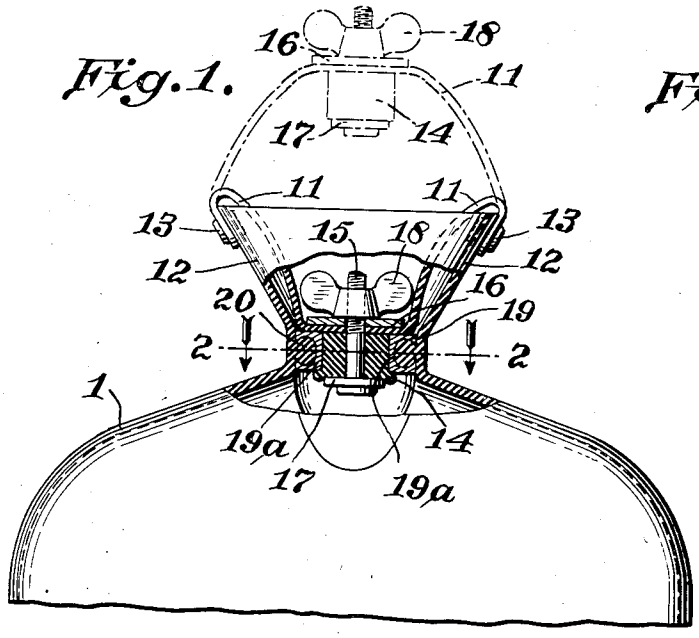


Fig. 1a.

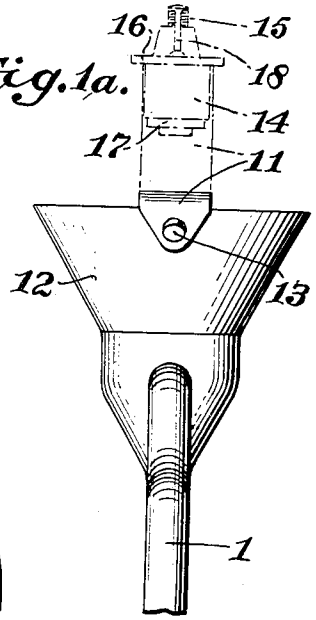


Fig. 2.

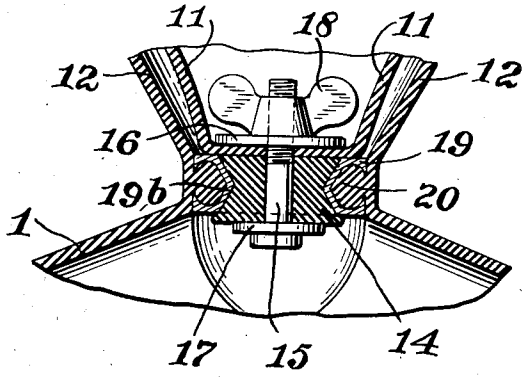
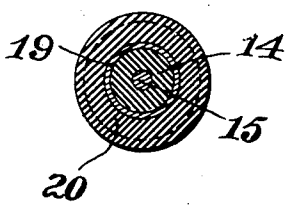


Fig. 3.



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Fig. 5.

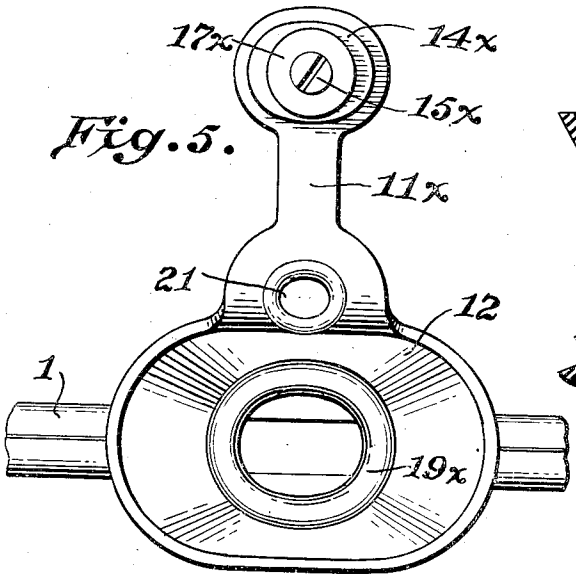


Fig. 7.

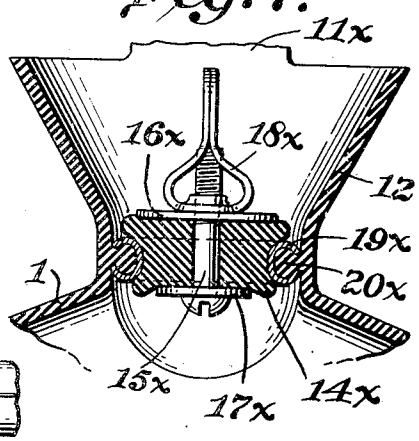


Fig. 8.

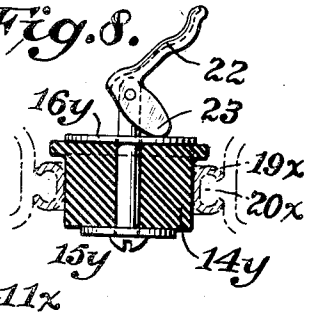


Fig. 4.

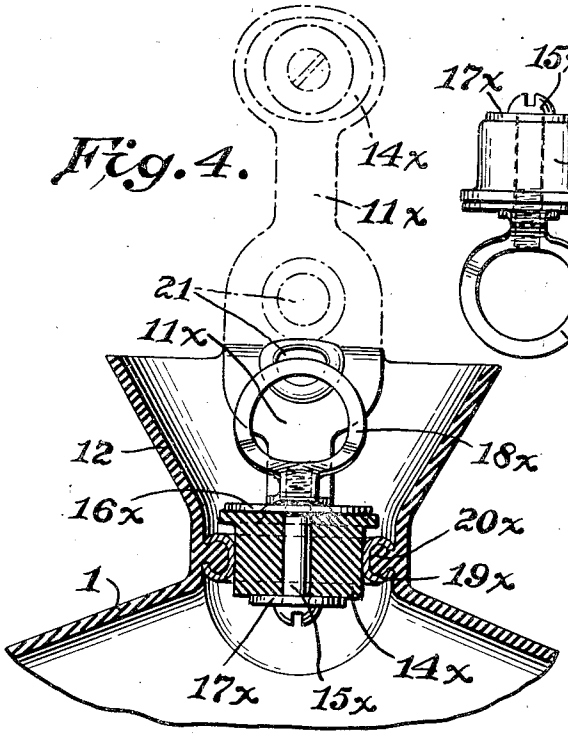
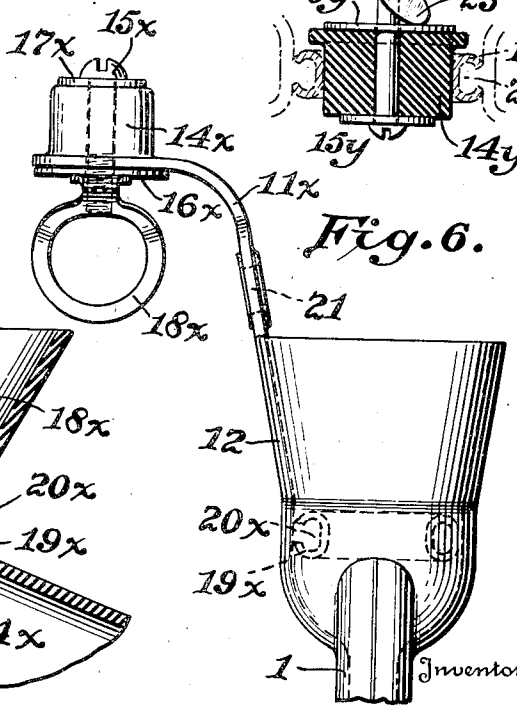


Fig. 6.



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Patented Mar. 22, 1938 2,111,731

UNITED STATES PATENT OFFICE

2,111,731

WATER BOTTLE

Milton B. Reach, Springfield, Mass.

Application August 24, 1936, Serial No. 97,681

4 Claims. (Cl. 150—8)

The present application is a continuation in part of my copending application Serial No. 65,131, filed Feb. 21, 1936 for water bottle.

The invention relates particularly to the construction at the filling opening end of a water bottle and to the filling mouth and the closure means therefor.

In the drawings,

Fig. 1 is a view of the construction at the filling opening end of a water bottle and embodying the invention.

Fig. 1*a* is an edge view of the device of Fig. 1.

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

Fig 3 shows a modified construction of filling mouth.

Fig. 4 is a vertical sectional view of a preferred modification of the invention before applying pressure to the stopper.

Fig. 5 is a top plan view of the construction of Fig. 4 with the stopper in detached position.

Fig. 6 is a side view of the same.

Fig. 7 shows the device after pressure is applied to the stopper.

Fig. 8 is a view of a modified construction.

Referring to the drawings, 1 represents the body of the water bottle which is provided with a filling opening and closure means therefor, the preferred forms of which according to the invention are shown in the drawings and described hereinafter.

The closure for the water bottle in the embodiments shown in Figs. 1 to 3 comprises a band 11 of rubber or other material which is secured to the flaring walls 12 of the mouth of the bottle above the filling opening by any suitable means such as buttons 13 or the like. Molded integrally with the band 11 is a soft rubber plug or stopper 14, through which passes a bolt 15 with washers 16 and 17 and wing nut 18 which in operation squeezes the rubber so that it overflows the walls of the filling opening and effects a tight closure.

The walls of the filling opening comprise a channel shaped ring member 19. The channel member is preferably of the clinch type, the rubber wall of the bottle being molded with a bead construction 20 of a size such that when forced into the clincher channel it is held under compression. This avoids any costly assembly of the bottle because of cementing or moulding operations, the bottle being molded in one part, the stopper and ring member assembled in another part and the two snapped together in a leakproof union in the final assembly.

The walls 19*a* of the filling opening provided by the channel member are straight in the form shown in Fig. 1, but these may be shaped as shown at 19*b* in the enlarged view of Fig. 3 to provide an "hourglass" shape which will be assumed by the rubber plug under compression to form an effective sealing closure.

The rubber strap or bail 11 in the filling operation will swing sideways over the neck of the bottle and completely out of the way during the filling stage, while being adapted for use as a bail to hang the bottle in use as a fountain syringe.

In the embodiment shown in Figs. 4 and 5 the rubber strap or band 11*x* is molded integrally with the flaring wall 12 of the mouth of the bottle and is joined therewith only at one end, the other end of the strap terminating in the soft rubber plug or stopper 14*x* which is molded in one piece with the strap.

In this embodiment of the invention, the stopper is of oblong shape and designed to fit and conform to the shape of the channel shaped ring member 19*x* which is oblong and provides an oblong filling opening.

As shown in Fig. 5, the strap or band 11*x* and the stopper 14*x* are so molded integrally with the flaring wall 12 of the bottle mouth, that if the oblong stopper is applied to the oblong ring member and opening by bending the strap or band straight over without twisting the strap, the oblong shape of the stopper will register with the oblong opening. That is to say, a plane including the axis of the strap or band and the minor axis of the oblong filling opening also normally passes through the minor axis of the oblong stopper, as the parts are molded. The major axes of the oblong filling opening and the oblong stopper, as the parts are molded and without any twisting or sidewise flexing of the strap, are therefore normally in parallelism. This enables the oblong stopper to be readily and properly applied to the oblong opening, guided by the strap, by simply avoiding twisting of the strap.

Expressed in another way, the strap normally maintains the central axis of the axis of the stopper in the same plane with the central axis of the filling opening, whether the stopper is inserted or not.

The oblong shape of the stopper and filling opening prevent any turning of the cork or stopper as friction is applied and insures its proper placement. The prevention of turning of the stopper as the thumb nut is turned eliminates any tendency of the ring member to turn relative to the bag body which might result in leakage.

A bolt 15*x* is provided, passing through the

stopper with washers 16x and 17x and thumb nut 18x for squeezing the rubber to effect a tight closure with the ring member 19x of the filling opening, the walls of the ring member being shaped as shown so that the rubber can readily expand over the rounded surfaces thereof.

The internally molded bead 20x is of relatively soft rubber that under pressure is compressed into the channel of the metal ring member, or throat piece 19x. The parts are preferably prepared with a suitable vulcanizing compound whereby the throat piece or ring is held in an homogeneous relationship to the internal bead and thereby further safeguarding the mechanical assembly against any possibility of leakage.

An opening 21 is preferably provided in the strap or band for hanging the bag when desired.

The stopper construction provided according to one embodiment of the present invention employs a rotating threaded means for effecting compression, but the invention is not limited to this particular means of effecting the compression and lateral expansion of the stopper.

As indicated in Fig. 8, cam operated compressing means for the stopper may be employed, and in the embodiment shown in Fig. 8, the central bolt 15y for the stopper 14y is provided with a closing or operating lever 22 at its upper end, the lever 22 having a cam portion 23 to ride on the face of the upper washer 16y and when the lever is moved in one direction will compress the stopper and be locked in position.

It will be noticed that the soft rubber stopper is longer than the bore of the ring in the direction of the axis, so that when the stopper is deformed by pressure, its lower portion will assume a flange-like formation extending under and lying against the flat underside of the ring.

I claim:

1. A water bottle or the like having a filling opening and a stopper closure of soft rubber or similar material, and a strap or band molded integrally in one piece with said stopper and with the wall of the bottle adjacent the filling opening, said filling opening being non-circular in shape and said stopper being non-circular in shape to correspond therewith, said strap normally maintaining the central axis of said stopper and the central axis of said filling opening in the same plane so that registering of the non-circular stopper with the non-circular opening is facilitated.

2. A water bottle having a neck provided on its interior with an annular ring member, a soft rubber stopper of a length to fit within and extend to a plane below the lower edge of said ring, and means for exerting a compressive force upon the upper and lower faces of said stopper to deform the same where it contacts the annular inner face of the ring, the lower end of said soft rubber being expanded outwardly in the form of a flange extending beyond the bore of said ring and beneath the lower edge thereof and lying against the under, substantially flat face of the ring.

3. A water bottle having a neck provided on its interior with an annular ring the bore of which is of generally hour glass shape, a soft rubber stopper, and means for exerting pressure upon said stopper axially thereof deforming it to fit the substantially upwardly and downwardly flaring wall of the bore of the ring, said soft rubber stopper being of substantially plain cylindrical form longer than the bore of the annular ring to extend to a plane below the lower edge of said ring, forming a flange, when deformed by the pressure, lying against the under face of the ring, said flange extending in a plane substantially at right angles to the axis of the stopper.

4. A water bottle according to claim 1 in which said filling opening is of elongated shape with its longer dimension in the plane of the body of the bottle, said stopper being also of elongated cross sectional shape with its longer dimension normally maintained by said strap in parallel relation with the longer dimension of said filling opening.

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