

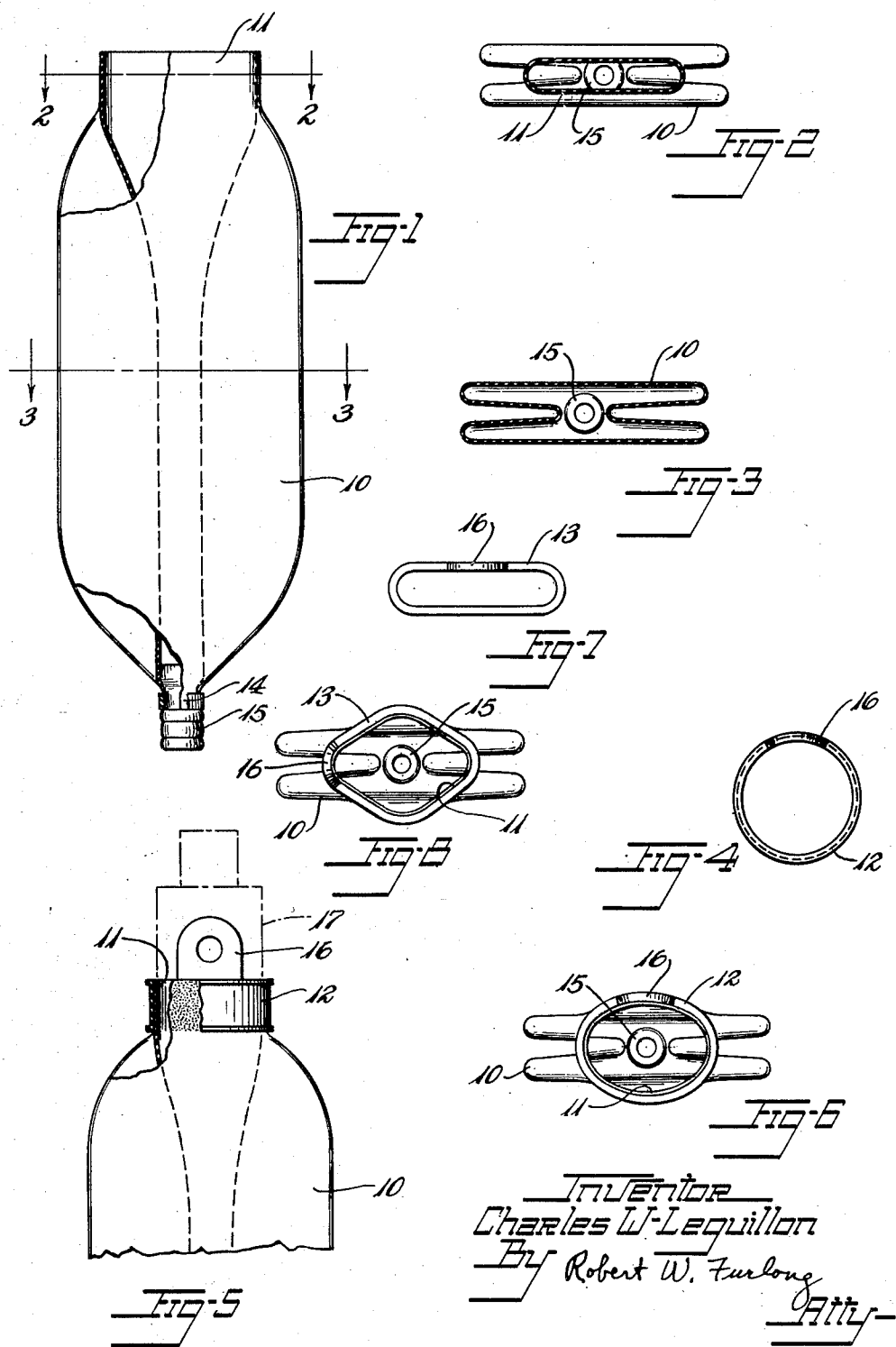
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SYRINGE BAG

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SYRINGE BAG

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This invention relates to water bags, and has particular reference to syringe bags having a flexible mouth.

The conventional type flexible wide-mouth syringe bag of rubber-like material embodies a mouth normally biased toward a flattened cross-sectional configuration and is difficult to fill, since it is necessary to extend the opening when filling. This is a serious disadvantage in that it is arduous to fill a syringe bag in this manner without dropping it or pouring the liquid over the hand. Syringe bags of this type are purposely constructed of a thin flexible material, so that they may readily be folded into a small compact unit facilitating storage.

It is an object of this invention to provide a flexible mouth syringe bag of such construction that the mouth normally is in an open condition.

It is also an object to provide increased ventilation to the inside walls of the syringe bag when not in use.

Other objects will be apparent from the description and drawings which follow.

I have discovered that, if a relatively stiff collar is secured to the neck of the flat bag and is so constructed that its periphery is cylindrical, the interaction of the forces exerted by the cylindrical collar tending to distort the flattened neck portion of the bag to a cylindrical contour and the forces exerted by the flattened neck portion of the bag tending to distort the cylindrical flexible collar to a flat contour when in equilibrium influence the periphery of the syringe bag mouth, so that the cross-sectional configuration is that of an ellipse whose minor axis approaches the length of the major axis. I have also discovered that substantially the same results may be achieved by employing a conventional relatively stiff reinforcing collar of flattened configuration, if it is secured to the neck of the bag with its parallel sides extending transversely to the parallel walls of the bag portion. While my discovery facilitates filling the syringe bag by eliminating the necessity for stretching the mouth of the bag open during the operation, the flexibility of the bag is nevertheless retained so that it still may readily be folded into a compact flattened unit for convenient storage.

In the drawings:

Fig. 1 is a view in elevation partly broken away and in section of a bag of pleated construction before application of the reinforcing collar;

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

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is an end elevation of the flexible collar;

Fig. 5 is a fragmentary view in elevation partly

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broken away and in section showing the collar in position on the bag;

Fig. 6 is an end elevation of the completed syringe bag embodying the collar as shown in Fig. 4;

Fig. 7 is an end elevation of the conventional flattened flexible collar; and

Fig. 8 is an end elevation of the completed syringe bag embodying the collar as shown in Fig. 7.

The syringe bag consists of a flexible thin-walled bag 10 of rubber-like material having a normally flattened cross-sectional contour. The bag 10 is constricted slightly at one end to form a neck 11 and is constricted at the other end to form an outlet 14 which fits into a female coupling 15.

A relatively stiff reinforcing collar 12 of rubber-like material and cylindrical contour is permanently attached to the neck 11 to form a mouth as shown in Fig. 6. In another embodiment of my invention, a relatively stiff reinforcing collar 13 of rubber-like material and a flattened contour may be bonded to the bag so that the parallel sides of the collar are transverse, preferably at right angles, to the parallel walls of the neck 11 to form a mouth as shown in Fig. 8. The collar and neck portion each having a flat periphery tend to return to this contour, but being transversely opposed each exerts forces on the other member, the resulting interaction of which causes the periphery of the syringe bag mouth to assume a cross-sectional configuration resembling an oblate cylinder. A tab 16 provided for gripping or hanging purposes is an integral part of the flexible collar.

The collar may be adhered to the bag with a rubber cement bond or other adhesive material suitable for bonding rubber-like substances. This result may also be accomplished by a vulcanization process whereby the collar and bag are vulcanized together to form a unit. It is convenient to use a mandrel 17 in this operation to extend the flattened neck of the bag so that there will be adequate contact of the surfaces to be adhered.

Preferably both the flexible bag portion and the relatively stiff collar are vulcanized before being secured together in order that each member may achieve the desired shape independently. Each member thus acquires a permanent bias toward the configuration in which it was vulcanized and tends to retain this configuration under normal conditions i. e. when free from externally applied stresses.

Heretofore water bags of flexible flattened col-

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lar and neck construction have had an additional disadvantage in that ventilation of the inside portions was unsatisfactory. This condition results in rancid and offensive odors which are repugnant to the user. Poorly ventilated areas such as mentioned above are breeding areas for bacteria thereby rendering the syringe bag unsanitary. My invention in providing a flexible mouth syringe bag with a mouth that is normally in an open state permits increased ventilation thereby minimizing the hazard of these conditions developing. It is well known by those skilled in the art that moisture tends to deteriorate rubber-like materials. The increased ventilation afforded by my invention permits more rapid and thorough drying of the inside walls of the bag which decreases the rate of degradation thereby imparting longer life to the syringe bag.

It is obvious that minor changes in design and materials may be made without departing from the scope and spirit of the invention as defined in the appended claims.

I claim:

1. A liquid container comprising a flexible bag of rubber-like material having a wide open neck portion normally biased toward a flattened cross-sectional configuration and a relatively stiff resilient reinforcing element normally biased toward a circular cross-sectional configuration, having a diameter greater than the minor axis of said neck portion, said reinforcing element engaging said neck portion along its periphery so that the interaction of the biasing forces of said element and neck portion when in equilibrium tend to produce a bag having a wide mouth normally maintained in an open condition.

2. A liquid container comprising a flexible bag of rubber-like material having a wide open neck portion, said bag and neck portion being normally biased toward a flattened cross-sectional configuration, and a relatively stiff resilient reinforcing element normally biased toward a circular cross-sectional configuration having a diameter greater than the minor axis of said neck portion, said reinforcing element engaging said neck portion along its periphery so that the interaction of the biasing forces of said element and neck portion when in equilibrium tend to produce a bag having a wide mouth normally maintained in an open condition.

3. A liquid container comprising a flexible bag of rubber-like material having a wide open neck portion, said bag being of pleated construction so that the bag and neck portion are normally biased toward a flattened cross-sectional configuration, and a relatively stiff resilient reinforcing element normally biased toward a circular cross-sectional configuration having a diameter greater than the minor axis of said neck portion, said reinforcing element engaging said neck portion along its periphery so that the interaction of the biasing forces of said element and neck portion when in equilibrium tend to produce a bag having a wide mouth normally maintained in an open condition.

4. A liquid container comprising a flexible bag of rubber-like material having a wide neck portion normally biased toward a flattened cross-

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sectional configuration and a relatively stiff resilient reinforcing element normally biased toward a flattened cross-sectional configuration, said reinforcing element engaging said neck portion along the extent of its periphery with the parallel sides of the reinforcing element at right angles to the parallel walls of the neck portion so that the interaction of the distorting forces of said element and neck portion when in equilibrium tend to produce a bag having a wide mouth normally maintained in an open condition.

5. A liquid container comprising a flexible bag of rubber-like material having a wide neck portion, said bag and neck portion being normally biased toward a flattened cross-sectional configuration and a relatively stiff resilient reinforcing element normally biased toward a flattened cross-sectional configuration, said reinforcing element engaging said neck portion along the extent of its periphery with the parallel sides of the reinforcing element at right angles to the parallel walls of the neck portion so that the interaction of the distorting forces of said element and neck portion when in equilibrium tend to produce a bag having a wide mouth normally maintained in an open condition.

6. A liquid container comprising a flexible bag of rubber-like material having an open neck portion and a relatively stiff resilient reinforcing member engaging said neck portion along the extent of its periphery, said neck portion being normally biased toward a flattened configuration, said reinforcing member being normally biased to a configuration having the axis thereof normal to the major axis of said neck portion longer than the minor axis of said neck portion, the interaction of biasing forces in said neck portion and said reinforcing member when in equilibrium tending to maintain the mouth of said neck portion normally in an open condition.

7. A liquid container comprising a flexible bag of rubber-like material having an open neck portion and a relatively stiff resilient reinforcing member secured to said neck portion along the extent of its periphery, said neck portion being normally biased toward a flattened configuration, said reinforcing member being normally biased to a configuration having the axis thereof normal to the major axis of said neck portion longer than the minor axis of said neck portion, the interaction of biasing forces in said neck portion and said reinforcing member when in equilibrium tending to maintain the mouth of said neck portion in an open condition.

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