

Aug. 22, 1944.

P. S. MADSEN

2,356,602

WATER BAG

Filed Sept. 2, 1942

2 Sheets-Sheet 1

Fig. 1.

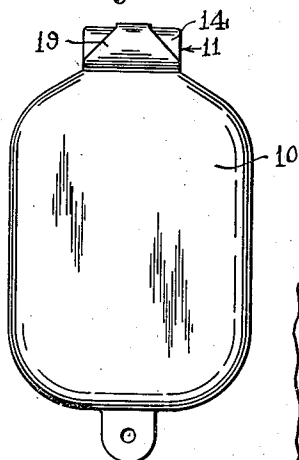


Fig. 2.

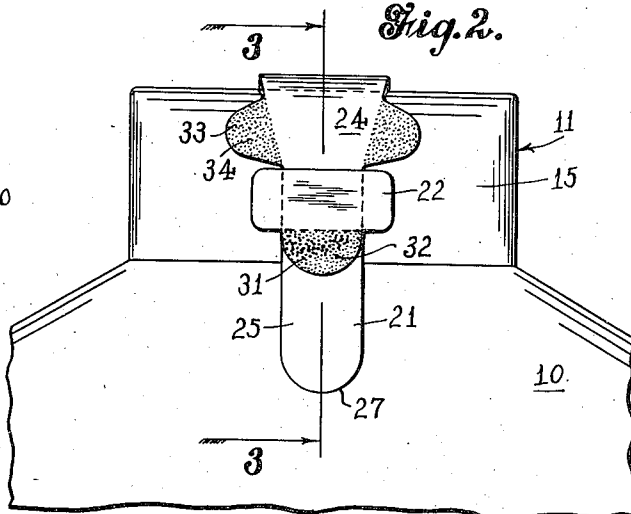


Fig. 3.

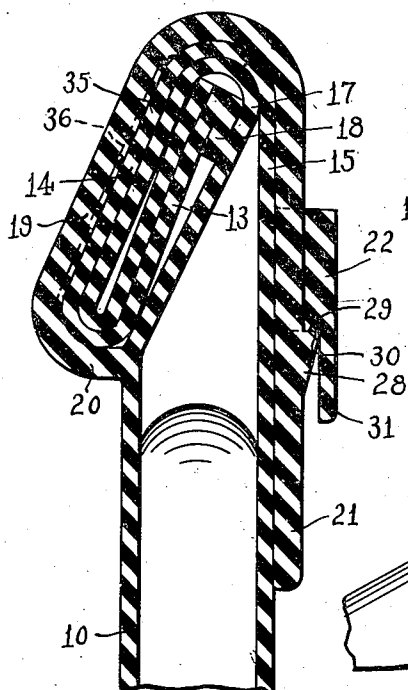
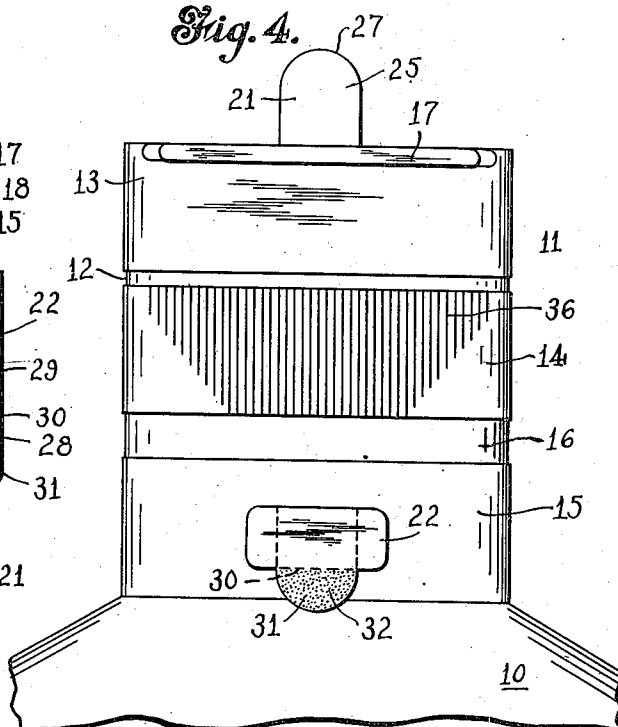


Fig. 4.



Inventor

Paul S. Madsen

By *Rockwell & Bartholow*
Attorneys

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2 Sheets-Sheet 2

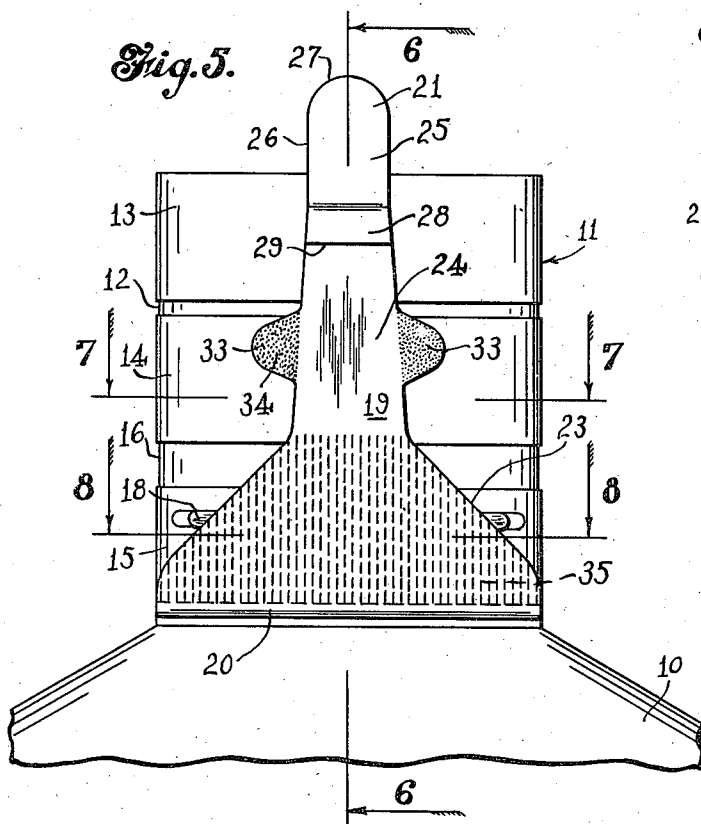
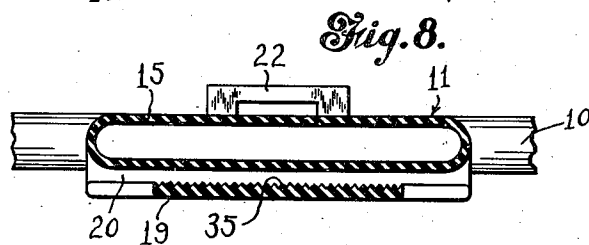
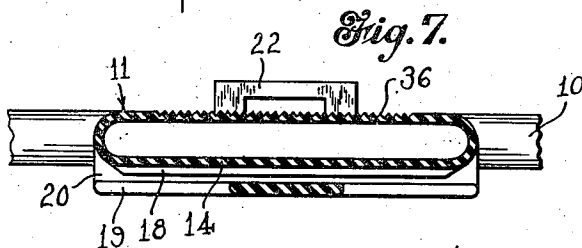
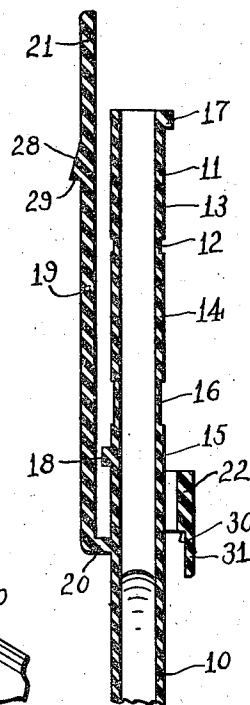


Fig. 6.



Inventor

Paul S. Madsen

By Rockwell & Garholow
Attorneys

UNITED STATES PATENT OFFICE

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WATER BAG

Paul S. Madsen, Bethany, Conn., assignor to The
Seamless Rubber Company, New Haven, Conn.,
a corporation of Connecticut

Application September 2, 1942, Serial No. 457,023

2 Claims. (Cl. 150—8)

This invention relates to water bags such as used for therapeutic purposes, and it has more particular reference to so-called stopperless bags.

In the stopperless water bag as usually constructed there is a neck of flexible elastic material which for closing is folded upon itself so as to form a seal, there being a holding device associated with the exterior portion of the neck structure having the function of holding the folded neck in its folded and sealed condition.

In bags of this general type the neck portion is of appreciable width, and this has the advantage of permitting relatively large pieces of ice to be introduced into the bag. However, as previously constructed, the provisions for holding and maintaining the folded neck in a folded and sealed liquid-tight condition have been unsatisfactory in several respects. For one thing, the holding means, in some cases, at least, involved the use of rigid members, frequently of metal, which were in a projecting location externally of the bag structure and caused discomfort to the user of the bag under certain circumstances. Another drawback was that in the operation of opening and closing the bag, for example, for introducing an additional quantity of ice, the number of steps in the way of hand manipulation was so great that the operation as a whole was time-consuming and tedious.

One of the objects of the present invention is to provide a stopperless bag in which the above-mentioned drawbacks are avoided.

Another purpose is to provide an improved and simplified holding device for water bags having foldable necks.

Another object is to provide a water bag in which the holding or retaining means can advantageously be made of the same elastic flexible material as the bag proper and can be of a simple form, capable of easy and convenient manipulation, while nevertheless the closure structure as a whole is such as to produce effective sealing against leakage.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and finally pointed out in the claims.

In the accompanying drawings:

Fig. 1 is a face view of a water bag embodying my improvements, the same being in the closed position;

Fig. 2 is a fragmentary face view on a larger scale of the closure portion of the bag looking from the opposite side or face;

Fig. 3 is an enlarged section on line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 2 showing the bag open;

Fig. 5 is a view similar to Fig. 4 looking from the opposite face of the bag;

Fig. 6 is a section on line 6—6 of Fig. 5; and
Figs. 7 and 8 are, respectively, sections on lines 7—7 and 8—8 of Fig. 5.

In the drawings the invention is shown as applied to a stopperless water bag of elastic material having a relatively wide filling neck, the same being of uniform width throughout its length, this neck being integrally joined to the body portion of the bag, and being intended for closing by successive folds made in the neck structure, working in a downward direction. In the particular case illustrated in the drawings, the neck is closed by first folding over approximately the upper third of the flexible neck, and then folding the part which is of double thickness or formation downwardly upon the remaining portion of the neck structure.

In the drawings, the body of the bag is shown at 10, and this body portion can be of any suitable or preferred form or shape. The neck portion is shown at 11, and it will be seen from Fig. 7, for example, that this neck, which is flexible and extensible, while quite wide, is of relatively small depth. For facilitating folding in the manner above mentioned, a groove 12 may be formed in the neck adjacent the lower margin of the upper folding portion 13. Below folding portion 13 is a folding portion 14, and below portion 14 is a third folding portion 15, the portions 14 and 15 being separated by a relatively wide groove 16.

For a purpose hereinafter mentioned, a rib 17 is provided at what may be termed the rear face of portion 13, this rib 17 being adjacent the mouth of the neck and extending transversely of the neck. The rib 17 is preferably made integral with the neck, the entire neck, as well as the body of the bag, being preferably made of rubber or rubberlike material. On what may be termed the front or forward side of the portion 15, a similar rib 18 is provided, this rib being spaced somewhat below the upper margin of portion 15. When the neck is folded, the ribs 17 and 18 may interlock, as shown in Fig. 3, the rib 17 occupying the space between rib 18 and the upper margin of portion 15.

For the purpose of holding the folded neck in the folded and liquid-sealing condition, a holding member disposed generally longitudinally with

respect to the neck is employed, said member being permanently anchored at one end to the bag structure, and having at the other end means whereby it may be attached or connected to the bag structure, for holding purposes, and detached therefrom when it is desired to release and open the neck. Also by preference this holding member is of resilient material so that it may be subjected to longitudinal tension over the folded neck for the purpose of bringing pressure against the neck in order to maintain it properly in the folded or closed position and prevent any displacement of the neck parts which might lead to leakage of liquid from the bag. Preferably this holding element is in the form of a strap made of the same material as the rest of the bag structure. In the case illustrated such a strap is shown at 19, and it will be seen from Fig. 6 that one end portion is permanently anchored to the bag structure adjacent one face of the latter, as indicated at 20, whereas the other end 21, which is the free end, is adapted to be attached or secured to the opposite face portion of the bag structure by means such as a keeper 22 between which and an opposing element of the bag structure the free end or tip of the strap is adapted to be passed.

In the preferred form shown, the anchored end portion of the strap is of about the same width as the neck, but near the point where the strap is joined to the bag structure (which is adjacent the base of the neck) the strap commences to narrow down sharply, the same having upwardly converging side edges 23. Where the strap when free lies about opposite the lower margin of neck portion 14 its width has been considerably diminished, and from this point to a point somewhat short of the free end there is a gradual taper in a portion of the strap indicated at 24. A portion 25 beyond portion 24, extending to the free extremity of the strap and adapted to pass through the keeper 22, has parallel side edges as indicated at 26. At the free extremity the edge of the strap is preferably rounded, as shown at 27. Near the juncture of parts 24 and 25 the strap is provided on its outer side with a transverse projection 28 providing a shoulder 29 adapted to engage a coacting shoulder 30 provided on the keeper 22. The keeper 22 is a further member preferably made of elastic material, and at the lower side (Fig. 6) keeper 22 is provided with an integral downwardly extending manipulating portion 31 of reduced thickness whereby the keeper may be pulled to expand it and release the strap. The manipulating extension 31 of the keeper preferably has a roughened outer surface 32 so that it may be readily grasped and held between the thumb and index finger. The strap member 19 preferably has lateral manipulating tabs 33 intermediate of its ends, these tabs projecting from portion 24, and preferably having roughened outer surfaces 34 for gripping purposes.

It will be noted that on the inner face of the relatively wide base portion of the strap the same is provided with a plurality of longitudinal locking ribs 35, these ribs preferably being of V formation and being disposed over the entire width of the base portion. These ribs are adapted to coact with a series of similar ribs 36 provided on the far side of neck portion 14, as shown in Figs. 4 and 6.

Assuming the bag to be in the open position shown in Figs. 4, 5 and 6, and that the bag is held with the strap 19 toward the user, as represented in Fig. 5, the first step is to fold portion 13 forwardly and downwardly on portion 14. This will bring locking rib 17 down to a position in which it is immediately above rib 18. The folded

part is then folded forwardly and downwardly against the portion 15 of the neck, which will bring the longitudinal neck ribs 36 into position facing the observer. The rib 17 will be engaged against the upper side of the rib 18. The end portions of the folded neck then being held in position by the fingers, the strap is brought against the neck so that the ribs 35 are engaged with the ribs 36 and the strap is folded over the upper marginal part of the neck structure and has its free end drawn down through the keeper 22. The keeper is opened up by pulling outward on manipulating tab or extension 31, and the end of the strap is pulled until the shoulder 29 reaches its locked position with respect to the keeper. The parts are then in the position shown in Figs. 1 and 3. In this position the side walls of the neck are in full contact with each other under pressure over a considerable area, and there is effective sealing against leakage of liquid, the folded portions of the neck being held together under considerable pressure exerted by the tensioned holding element effectively anchored at both ends. The grooves 12 and 16 show where the fold lines should be, and facilitating folding.

By the construction described, the folded neck will be very effectively held closed and sealed notwithstanding rough usage to which the bag may be subjected. The engagement between the ribs 17 and 18 provides very effectively against displacement of the adjacent neck parts in a direction lengthwise of the neck, and furthermore the rib 17 in the position and acting in the manner disclosed in Fig. 3, has very effective action in sealing the neck in a region not far from its base or attachment point. The interengagement between the portions 14 and 15 by means of their longitudinal ribs 36, 35, or similar elements having an interlocking function, effectively provides against relative dislocation of the doubled upper part of the neck and the base portion of the neck in a lateral direction.

It will be apparent from the foregoing description that the bag closure is of relatively simple form, involving a minimum number of elements, and that a water bag equipped with such a closure can be produced at low cost. There are no rigid projecting members which might cause discomfort to the user of the bag. The absence of metal parts in the closure is also a distinct advantage. Another advantage arises from the fact that in opening and closing the bag a minimum number of operations or manipulations is required. It will also be apparent that these advantages are obtained in connection with a bag structure in which the bag when opened has ample neck capacity for the introduction of ice in relatively large pieces. The character of the bag is such as to adapt it admirably for use in hospitals.

While I have illustrated and described a single embodiment, it is to be understood that the invention is susceptible of various embodiments, and that numerous modifications and changes in the details may be made within the principles of the invention and the scope of the claims.

What I claim is:

1. A water bag of the stopperless type having a body, a neck extending from the body and adapted for folding along transverse lines to form folded portions lying side by side and projecting outwardly from the body, means on the folded portions which interlock to resist unfolding, an elastic strap anchored to the bag adjacent the base of the neck at one side of the bag and adapted to be tensioned over the upper margin of the folded

neck to maintain the neck folded and sealed, means located adjacent the base of the neck at the opposite side of the bag for releasably holding said strap in tensioned condition, a plurality of longitudinal ribs on the inner face of the strap adjacent its anchored end, and a plurality of ribs on the neck which engage and interlock with said last named ribs to maintain the relationship of the strap and neck in a lateral direction.

2. A water bag of the stopperless type having a relatively wide but shallow neck adapted to be folded upon itself in a direction longitudinally

5 of the neck, said neck having an external transverse rib at one face adjacent the mouth and a coacting rib at the opposite face of the neck nearer the neck base, said ribs adapted to interlock on folding of the neck to form portions lying side by side, and a longitudinally disposed holding element carried by the bag at one side adapted to be tensioned over the upper margin of the folded neck and secured to the bag at the opposite side.

PAUL S. MADSEN.