Sept. 26, 1961 J. L. BEACH 3,001,565

DRAINAGE BAG

Filed Sept. 25, 1959

Fig. 2

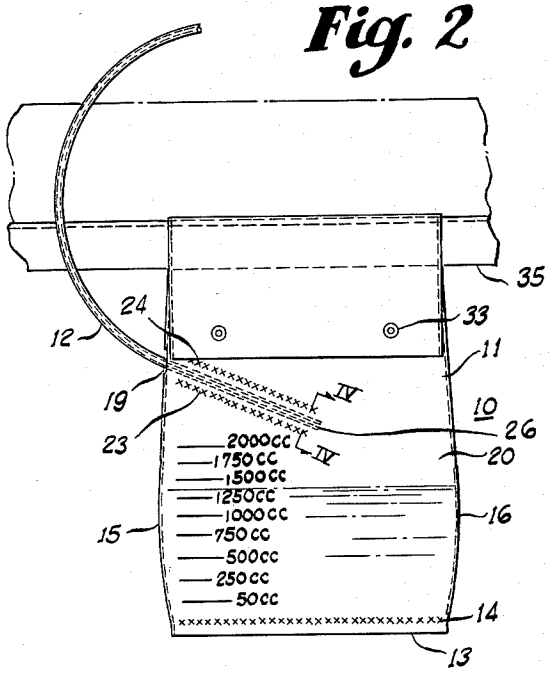
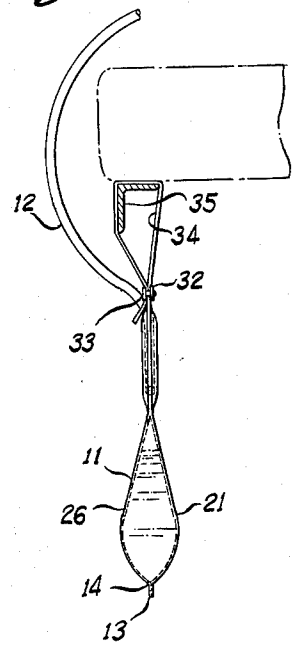


Fig. 3



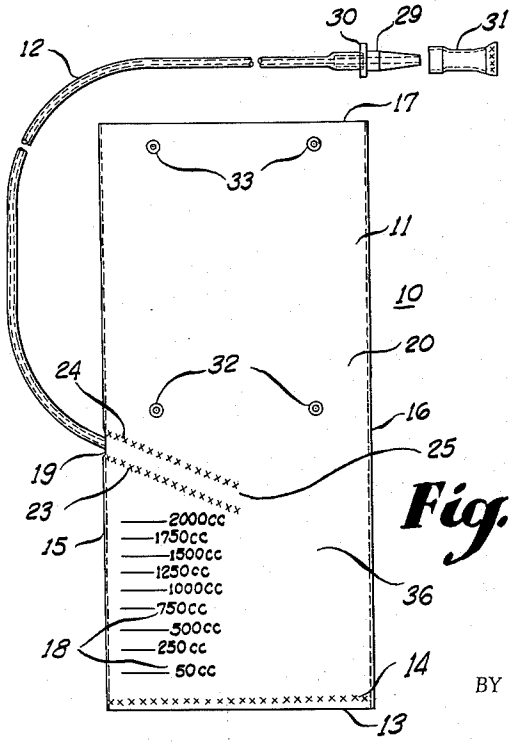
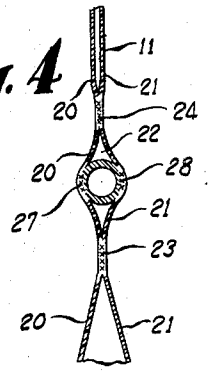


Fig. 1

Fig. 4



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DRAINAGE BAG

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This invention relates to a drainage bag for convalescent, hospital, or other use. More particularly, this invention pertains to a disposable urinary drainage bag which may be removably attached to a bed or other support, or to a person.

In the drainage bag of this invention, an imperforate flexible plastic material, such as polyethylene, preferably of transparent or translucent quality, may be used for cleanliness, economy and ease of fabrication and use. Further, this device may be readily attached to or removed from a support such as a bed rail by fastening members which may be of a snap-fastening variety, or the bag may be tied to the leg or waist of a person who may be incontinent of urine. When the drainage bag collects liquid, markings which are preferably theron may be used to indicate quantities and when the bag should be unfastened for emptying; and rinsing if it is to be reused. Unlike prior devices, a drainage tube is preferably attached to the inside of the bag and held above the liquid receiving portion thereof so as not to interfere in any way with the drainage into and collection of urine or other liquid by such bag. As a consequence, the handling of catheterized or conduited persons, whether or not ambulatory, becomes a very simple matter in terms of the ease with which the patient or other person may be cared for, or take care of himself.

Other objects, features and advantages of this invention will be apparent from the following description and the accompanying drawings, which are illustrative only of one embodiment, in which:

FIGURE 1 is a front view in elevation of an empty drainage bag of this invention inclusive of its drainage tube ready for use;

FIGURE 2 is a front view of the drainage bag of FIGURE 1 in use, fastened to a bed rail of a patient using the same;

FIGURE 3 is an end view of the device shown in FIGURE 2; and

FIGURE 4 is a partial view in section taken along line IV—IV of FIGURE 2.

Referring to the drawings, a drainage bag **10** comprises a transparent plastic bag body proper **11** and a drainage tube **12**. The bag **11** may be made in the form of an endless tube of transparent polyethylene or other suitable material closed at its bottom **13** by a transverse heat-sealed seam **14** between its respective sides **15** and **16**. The bag **11** is open at its top **17**. Quantity graduations **18**, such as cubic centimeters, may be printed or otherwise marked on bag **11** in a contrasting color or manner to show the quantity of liquid collecting in bag **11** in use for medical or other reasons.

Side **15** may be provided with a channel opening **19** above the markings **18** at the entrance to a downwardly extending channel between front wall **20** and back wall **21** of bag **11**. A channel **22** is defined therein between two parallel heat-sealed seams **23** and **24** joining walls **20** and **21** and respectively extending from the bottom and top opening **19** toward opposite side **16**. Seams **23** and **24** slope downwardly and terminate, as channel **22** necessarily also does, inside bag **11** at inner end **25** approximately a half or a third of the width of bag **11** away from side **16**. Drainage tube **12** is provided with a discharge end **26** which is inserted through opening **19** into channel **22** and positioned so that the edge of end

26 preferably projects slightly inwardly of the inner ends of the seams **23** and **24**. Thereby, any liquid flowing through tube **12** will drop into the bottom of the body proper of bag **11** where it is held by the liquid-tight plastic and seam **14**. The drainage end of tube **12** may be secured in position by heat-sealing at **27** and **28** respectively to the front and back walls **20** and **21** substantially within the channel portion **22**.

The tube **12** is made of flexible plastic which at the same time is preferably sufficiently rigid so that it will not collapse under conditions of use. The entry end of tube **12** is provided with a tapered nozzle **29** having a stop flange **30**, the nozzle being insertable into the outer end of a catheter or body cavity drainage conduit in the person served by the drainage bag **10**. A removable plastic cap **31** may be used to cover all of nozzle **29** up to flange **30** before a bag **10** is used to keep nozzle **29** sterile and foreign matter out of the tube **12**. The cap **31** is pulled off and removed when nozzle **29** is connected to the catheter or body cavity drainage conduit. Because tube **12** may be readily connected to and disconnected from a catheter or other body drainage conduit, the taking of urine or other liquid from a person's body becomes a relatively, simple, safe and painless matter since the catheter or conduit itself may remain in place.

The mounting and holding of bag **10** in appropriate position may readily be accomplished by providing a pair of snap fasteners in which one part **32** of each is in horizontal spaced alignment above opening **19**, those parts **32** joining the front and back walls **20** and **21** of bag **11** above channel **22** as by being clinched therethrough, such parts **32** being either the male or female parts of the snap fasteners, as desired. Mating parts **33** of such snap fasteners are in like horizontal spaced alignment a sufficient vertical distance above parts **32** to provide a transverse closed loop **34** when the parts **32** and **33** are engaged. Such loop **34** will serve to close and hold bag **10** securely, but removably, on a bed rail **35** or other substantially horizontal support below the place of discharge from the user's body. Or, a belt or cord may be passed through loop **34** and used to support the bag **10** from the waist or leg of a person in ambulatory condition who may be using the same for reasons such as incontinence of urine. At no time can the drainage and collection of liquid be interfered with inasmuch as the end **26** of drainage tube **12** stays above the liquid receiving portion of the bag and the closure of the bag **11** minimizes odors and remains in a sanitary condition.

Whenever the bag is full, or at any other time that it may be desired to empty the same, the snap fastener parts **32** and **33** are disengaged and the bag emptied by pouring therefrom through the top **17** with the side **16** downmost, the liquid emptying through a throat passage **36** within bag **11** between the inner end of channel **22** and side **16**. If the same patient or person has further use therefor, the body portion **11** of the bag may be rinsed and the empty bag reconnected to its support, the nozzle **29** likewise being reconnected at the same time. On the other hand, if there is no further use therefor by that person, the bag **10** may readily be thrown away as it is a relatively low cost item, thereby avoiding the expense and handling, including sterilization and storage, prior to reuse by someone else. On the other hand, such sterilization and reuse may be done, if desired.

Embodiments of the drainage bag device of this invention may take many forms and have many uses beyond those described herein for illustrative purposes. Such drainage bags are simple and easy to work with, do not take up much room, require little or no handling, are readily made and kept hygienically clean prior to use. They will show the amount of urine or other liquid collected, cannot interfere with the flow thereon from the

patient or person using the same and greatly facilitate the care of persons with such drainage problems.

Although a seamless plastic tube has been shown in the illustrated embodiment, it will be recognized that other plastics and other forms of bags may also be utilized within the teachings of this invention including bags of other than plastic material and bags which also are made with liquid tight seams along the sides thereof. It will also be recognized that where desired, the drainage tube and body portions of the bags may be supplied separately and readily joined upon use either relatively permanently as in the case of a heat-seal or other adhesion, or by means, where desired, of a suitable clamp against the outside of channel **22** and discharge end **26** of the drainage tube therein. Further, the securing means may be of a nature other than the snap fasteners illustrated. These and various other changes may be made without departing from the spirit of this invention or the scope of the appended claims.

I claim:

1. A drainage bag comprising, in combination, an open-topped transparent flexible plastic tube bag having a heat-sealed bottom closure seam, quantity graduation markings on said bag, a drainage tube opening at one side of said bag above said markings, a pair of heat-sealed drainage channel parallel seams extending from the top and bottom of said opening respectively in a downwardly sloping manner toward the opposite side of said bag and defining a drainage channel, the inner end of said channel terminating at least a quarter of the width of said bag from said opposite side, a transparent plastic drainage tube having its discharge end inserted in said channel with said discharge end positioned adjacent the end of said channel to drain into the bottom of said bag, said drainage tube being heat-sealable in said channel, a pair of snap fastener parts joining the back and front of said bag above said channel, said parts being in horizontal spaced alignment, a pair of snap fastener mating parts for said first-named parts joining the front and back of said bag a spaced distance above said first-named parts, said mating parts also being in horizontal spaced alignment, the vertical distance between said first-named parts and said mating parts being sufficient to go around a rail or other member to support said bag when said mating parts are snap fastened to said first-named parts.

2. A drainage bag through which collected liquid may be seen comprising, in combination, a flexible plastic bag having an open top and a drainage tube opening at one side, a pair of heat-sealed drainage channel seams extending from the top and bottom of said opening in a downwardly sloping manner toward the opposite side of said bag to define a channel opening, the inner end of said channel terminating a sufficient distance from said opposite side to enable liquid to be poured from said bag, said channel being adapted to receive a drainage tube with its discharge end positioned adjacent the end of said channel to drain into the bottom of said bag, means for so positioning said drainage tube in said channel, fastener means joining the back and front of said bag above said channel in horizontal spaced alignment, cooperating fastener means joining the front and back of said bag a vertically spaced distance above said first-named fastener means, said cooperating fastener means also being in horizontal spaced alignment, the vertical distance between said respective fastener means being sufficient to close the bag and form a closed transverse loop for support when said respective fastener means are engaged and to open the bag for emptying when said respective fastener means are disengaged.

3. A convalescent drainage bag comprising, in combination, a flexible liquid-proof bag through which liquid is visible having an open top, graduations on the bottom portion of said bag, a drainage tube opening at one side of said bag above said graduations, a closed channel extending downwardly from said opening toward the opposite side of said bag, the inner end of said channel being spaced from said opposite side, a drainage tube having its lower end adapted to be inserted and held in said channel adjacent the end of said channel to discharge liquid into said bottom portion of said bag, and snap fastener members positioned above said channel in vertically spaced arrangement to form a transverse closed loop in the upper portion of said bag when said upper portion is folded over and said members are engaged.

4. A convalescent drainage bag comprising, in combination, a flexible liquid-proof bag, a drainage tube opening at one side of said bag intermediate the top and bottom thereof, an open-ended channel closed top and bottom and sloping downwardly from said opening toward the opposite side of said bag, the lower end of said channel being spaced from said opposite side, a drainage tube adapted to be inserted through said opening with its lower end adjacent to the lower end of said channel to discharge liquid into said bottom of said bag, and disengageable fastener means positioned above said channel in vertically spaced arrangement to form a transverse closed loop in the upper portion of said bag when said upper portion is folded over and said means are engaged.

5. A drainage bag through which collected liquid is visible comprising, in combination, a flexible bag having an open top and a drainage tube opening adjacent the middle thereof, drainage channel seams extending downwardly from said opening and terminating intermediately of the walls of said bag, said channel being adapted to receive a drainage tube with its discharge end positioned adjacent the termination of said channel to drain into the bottom of said bag, fastener means above said channel, cooperating fastener means a vertically spaced distance above said first-named fastener means, the vertical distance between said respective fastener means being sufficient to form a closed transverse loop for support when said respective fastener means are engaged.

6. A drainage bag for convalescents or the like, comprising, in combination, a collapsible bag having walls terminating in generally upright opposed edges, said bag having an interior channel formed between said walls, said channel sloping downwardly from an opening intermediate the top and bottom of said bag to a lower end spaced from said edges, said lower end of said channel being spaced above the bottom of said bag a distance sufficient normally to keep said channel above liquid draining into said bag, said channel further being adapted to hold the lower end of a drainage tube to conduct liquid drainage into said bag through said tube and channel, and disengageable fastener means in the upper portion of said bag adapted when closed to form a transverse loop by means of which said drainage bag can be suspended.

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