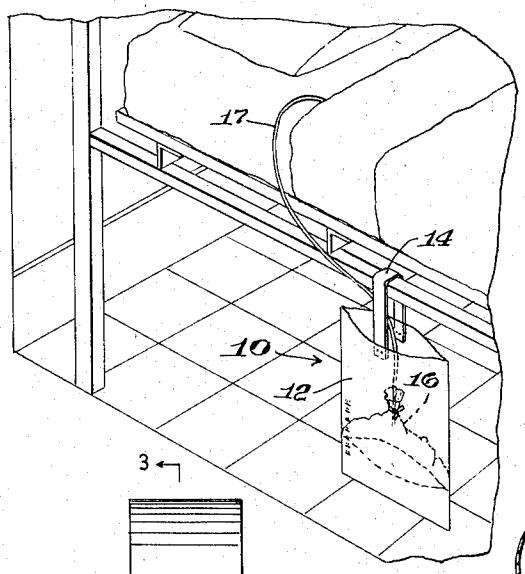
May 12, 1959 R. W. PRICE 2,886,036

HOSPITAL DRAIN BAG

Filed Feb. 24, 1956

FIG. 1



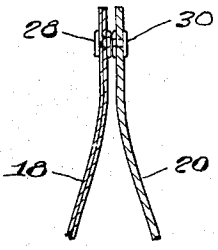
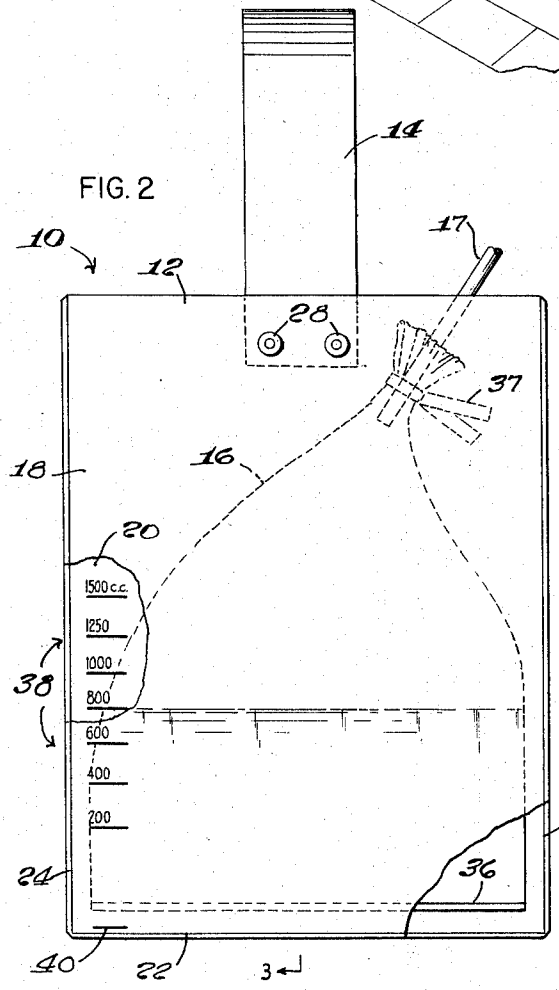


FIG. 4

FIG. 2



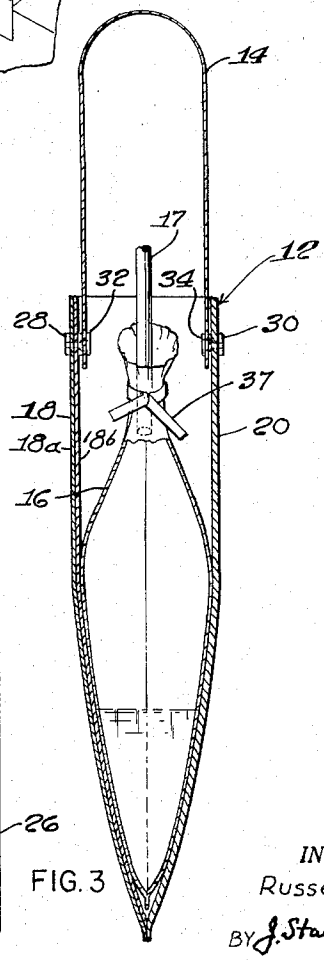


FIG. 3

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HOSPITAL DRAIN BAG

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6 Claims. (Cl. 128—275)

This invention relates to a drain bag for hospital use.

The invention has for an object to provide a novel and improved drain bag for use in hospitals for connection to a drainage tube and which is adapted to be suspended from the frame of a hospital bed or other support in a simple and convenient manner.

With this general object in view and such others as may hereinafter appear, the invention consists in the drain bag hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention:

Fig. 1 is a perspective view of the present drain bag suspended from the frame of a hospital bed;

Fig. 2 is a front elevation detail view of the present drain bag;

Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a cross sectional detail view showing the mouth of the bag closed.

In general the present invention contemplates a novel solution to the problem of drainage collection and disposal for use in hospitals and which is designed to replace the drainage equipment now in use, such prior equipment comprising the usual glass containers having a closure arranged to receive the drainage tube and wherein the closure is provided with an atmospheric opening to permit air to escape as the container is filled. Such glass containers are usually placed on the floor and are subject to several disadvantages, such as liability of breakage; bulky and heavy to carry and to handle for sterilizing; require a relatively large amount of storage space; and in use the escaping air from the glass container may carry unpleasant odors into the hospital room.

In accordance with the present invention the present drain bag includes an outer flat plastic holder provided with a detachable handle for attaching the holder to the frame of the bed and a disposable inner plastic bag which may be tightly connected to the drainage tube leading from the catheter in the patient. In practice the plastic inner disposable container may be placed in the holder in a flat condition, and during the drainage operation the flat plastic bag may expand so that no air outlet is required, and as the flat inner bag expands the flat outer bag of plastic may also expand or open up to accommodate the increasing distention of the inner bag. In use when the drainage operation is completed the drainage tube may be shut off by the usual clamp and removed from the inner bag whereupon the inner bag is immediately sealed. The detachable handle may then be removed, and the novel outer bag may be closed for transporting the disposable inner bag to the laboratory for examination or to the disposal point to be discarded. The plastic outer bag may then be sterilized and stored for future use, a new disposable inner bag being provided for each drainage operation. Thus it will be seen that in practice the present flat plastic bag is unbreakable; may be conveniently attached to the bed frame or other support; is light in weight and easy to handle when carrying and during sterilization, and may be stored in a relatively small space; and since little or no air escapes from the inner bag during the drainage operation unpleasant odors are prevented from entering the hospital room.

Referring now to the drawings, the present drain bag, indicated generally at **10**, includes an outer container or holder **12** provided with a detachable handle **14** for suspending the bag from the frame of a bed or other support, as shown in Fig. 1, and an inner disposable container **16** fitted within the outer bag, the open end or mouth of the inner bag being adapted to be bunched together and detachably secured around the end of the drainage tube **17** leading from the catheter inserted in the patient being drained.

The outer bag or holder **12** may and preferably will comprise a flat bag made from two flat sheets of a transparent plastic material, the two sheets forming the side walls **18**, **20** of the flat bag being heat sealed together at the marginal edges along the bottom **22**, and the two adjacent opposed sides **24**, **26** forming a flat bag sealed on three sides and open at the top or mouth thereof. In practice the plastic material preferably comprises a highly polished transparent vinyl chloride plastic for maximum transparency and having characteristics such as to render it capable of withstanding sterilization by steam without adverse effect. The open end or mouth of the outer bag **12** is provided with closure means, herein shown as a pair of snap fasteners, one side wall **18** having the socket portions **28** of the fasteners secured thereto and the other side wall **20** having the stud portions **30** secured thereto for cooperation in closing the mouth of the outer bag **12** when desired, as shown in Fig. 4, such closure being effected for transporting a filled and closed inner bag from the bed to the disposal point. The detachable handle **14** may comprise an elongated strap of vinyl chloride plastic material of suitable width and having the same characteristics as the outer bag material. As herein shown, the strap or handle **14** is provided with a pair of snap fasteners at both ends of the strap, one end having the stud portions **32** of the fasteners secured thereto and the other end having the socket portions **34** secured thereto, the strap fastener elements being arranged for cooperation with the corresponding portions **28**, **30** of the fastener elements carried by the side walls **18**, **20** respectively of the outer bag. Thus, in use one end of the strap may be detachably secured to a side wall of the outer bag, the other end being looped around a supporting structure, such as a frame portion of a bed, and then detachably secured to the other side wall of the outer bag to suspend the bag in a convenient position as shown in Fig. 1. It will be observed that the fastener elements **28**, **30** are arranged to face inwardly so that the ends of the straps extend within the outer bag, thus forming a minimum obstruction on the outside of the bag and also enabling the opposed fastener elements **28**, **30** to be used to close the mouth of the bag, as above described, when the handle **14** is removed or detached therefrom.

The inner bag comprising the disposable container **16** may and preferably will comprise a relatively strong, flexible and leakproof transparent polyethylene plastic material which may take the form of an extruded flat tube, heat sealed at the bottom, as indicated at **36**, and open at the top. The disposable bag **16** may be fitted within the outer bag, as shown in Fig. 2 with sufficient clearance along the side edges to permit normal expansion thereof. The flexible plastic material is such as to permit bunching of the mouth thereof around the end of the drain tube **17**, as shown, the bunched mouth portion being secured tightly about the tube **17** by any suitable means, herein shown as a so-called "twister" **37**, which comprises a length of wire covered with a water-proofing material and enclosed within two ribbonlike strips adhesively secured together about the wire. In operation the wire twister may be wrapped about the bunched mouth portion

of the inner bag and the tube extended therebetween and then twisted to secure the same in place.

As herein illustrated, the outer bag may be provided with graduated markings **38** for indicating the approximate number of centimeters of fluid contained in the inner bag. In the illustrated embodiment of the invention in order to protect such markings from being worn off or washed off during sterilization, one side wall **18** is made of two plies of transparent vinyl plastic, one ply **18***a* being printed with the graduated markings and the other ply **18***b* then being laminated on top of the printed face as indicated in Fig. 2.

In operation the inner bag **16** is placed within the outer bag in a flattened condition so that little or no air is contained therein, and as the inner bag **16** is filled by gravity during the drainage operation the weight of the fluid effects expansion or distention of the inner bag which likewise effects a corresponding expansion and separation of the side walls **18, 20** of the outer bag, such expansion and separation of the side walls **18, 20** increasing as the volume or amount of fluid is increased. Thus, the markings **38** are graduated in accordance with such variations in volume as effected by increasing amounts of fluid and separation of the side walls to indicate the approximate number of cubic centimeters of fluid contained in the bag. For convenience in manufacture the inner ply **18***a* may also be provided with a mark **40** indicating the approximate position of the heat seal **22** to assure uniformity in the markings relative to the bottom of the bag.

In practice the transparent vinyl chloride plastic material of the outer bag or holder **12** may be about .016 of an inch in thickness and possesses characteristics which permit repeated sterilization of the bag by steam at 255° for twenty minutes without any adverse effect thereon. Preferably, a cloth or paper lining is inserted into the bag between the two side walls thereof during such sterilization to prevent adherence or clouding of the adjacent inner faces of the side walls.

From the description thus far it will be seen that the present drain bag **12** is designed to be suspended from a bed frame or other convenient support, such as an operating table, stretcher or the like by means of the snap fastener strap **14**, the drainage tube **17** being inserted within the inner bag **16** and tightly secured thereto by the twister fastener **37**, thus preventing any odors from escaping from the bag. In practice the inner bag **16** is initially placed within the outer bag in an absolutely flattened condition so that there is practically no air within the bag **16** at the start of the drainage operation. When the bag is filled the drainage tube **17** may be closed off by the usual shut-off clamp and the twister **37** loosened to remove the drainage tube from the bag, the twister being again immediately twisted to tightly seal the mouth of the disposable bag. The detachable handle **14** may then be unfastened from the outer bag or holder **12** and the side walls **18, 20** thereof closed by the snap fasteners **28, 30** for transporting the disposable bag to the laboratory for examination or to the disposal point. The inner bag and its contents may then be discarded whereupon the outer bag may be sterilized and provided with a new disposable inner bag. In practice a label with the patient's name and other information may be adhesively attached to the bag.

From the above description it will be seen that the present drain bag for hospital use is a radical departure from the prior system of using glass drainage containers requiring an atmospheric opening to permit air to escape as the drainage fluid enters the container with its obvious disadvantage of releasing unpleasant odors. The present plastic drain bag also eliminates liability of breakage and lends itself conveniently to storage and sterilization. It has also been found that the present drain bag is more economical in use than the prior glass container and its inherent disadvantages.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. A drain bag of the character described comprising a flat transparent plastic bag having two opposed side walls heat sealed together on three sides and open at the top, fastening elements secured to said opposed side walls medially of the upper edges thereof, a detachable handle for said bag comprising a length of plastic material having fastening elements at both ends thereof for detachable cooperation with said bag fastening elements whereby to permit suspension of the bag from a bed frame, a drainage tube, and an inner disposable transparent plastic container of a width substantially conforming to and fitted within the bag and connected in airtight relation to said drainage tube, said inner container being initially flat and substantially devoid of air and capable of distention upon filling thereof, said opposed side walls being capable of spreading apart upon distention of said inner container.

2. A drain bag as defined in claim 1 wherein one of said opposed side walls is provided with markings indicating the volume of the drainage when the side walls are spread apart, said one side wall comprising two plies of transparent plastic laminated together with said markings being printed on the inner face of one of said plies prior to lamination thereof.

3. A drain bag as defined in claim 1 wherein the inner container comprises a flexible plastic material and having an open mouth portion capable of being bunched together around the end of the drainage tube, and means for tightly connecting the bunched mouth portion to said drainage tube.

4. A drain bag as defined in claim 3 wherein the inner container comprises an extruded tubular polyethylene material flattened and heat sealed along the bottom edge.

5. A drain bag comprising a flat transparent outer bag having two opposed side walls heat sealed together along opposed sides and the bottom and open at the top, means detachably connected to the side walls for suspending the bag from a support, a drainage tube, an inner disposable transparent plastic container of a width substantially conforming to and fitted within the outer bag and having its mouth portion bunched and detachably connected in airtight relation to said drainage tube, said inner container being initially flat and substantially devoid of air and capable of distention upon filling thereof, the opposed side walls of said outer bag being capable of spreading apart upon distention of said inner container, said outer bag having markings thereon indicating the volume of the drainage within said inner container, said outer bag being adapted to be disconnected from its support and said inner container being adapted to be detached from its drainage tube and sealed for transporting the inner container to a disposal point.

6. A drain bag as defined in claim 5 which includes means for closing the open end of the outer bag to prevent displacement of the sealed inner bag during transporting of the same.

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