United States Patent [19]

Scott et al.

[11] **3,906,555**

[45] **Sept. 23, 1975**

[54] **DISPOSABLE LINER**

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[52] **U.S. Cl.** **4/112;** 4/110; 4/142; 220/65

[51] **Int. Cl.²** **A61G 9/00**

[58] **Field of Search** ..... 4/110, 112, 113, 138, 141, 4/142, 235, 239, 242, 243; 229/65, 88; 150/52 R; 128/DIG. 24; 220/65

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[57] **ABSTRACT**

A disposable liner for a receptacle for body wastes, e.g. a bedpan, includes a bag of flexible, moisture-proof sheet material adapted to loosely receive the receptacle therein so that one side of the bag can be depressed into and made to generally conform to the cavity in the receptacle. A flexible member is associated with the depressed side of the bag to project beneath the ledge on the pan overlying the sides of the cavity to retain the side of the bag in operative conformity with the cavity. The mouth of the bag is large enough so that it may be turned back inside out over and under the pan to capture the body wastes and then the mouth sealed to facilitate transportation for disposal.

6 Claims, 10 Drawing Figures

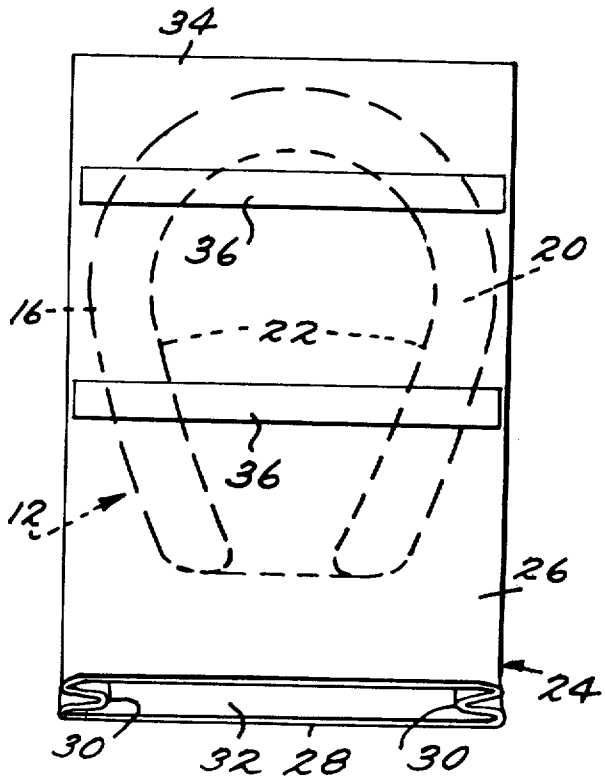


Fig. 1.

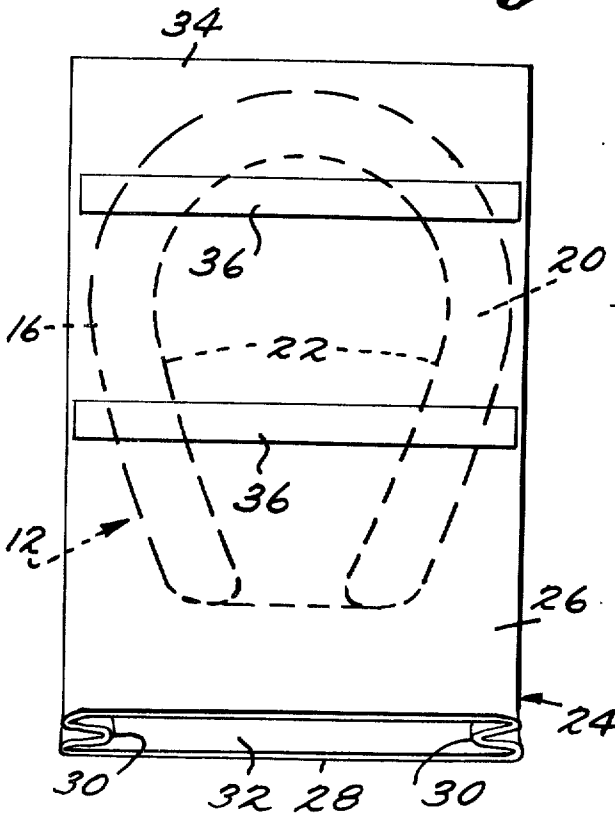


Fig. 2.

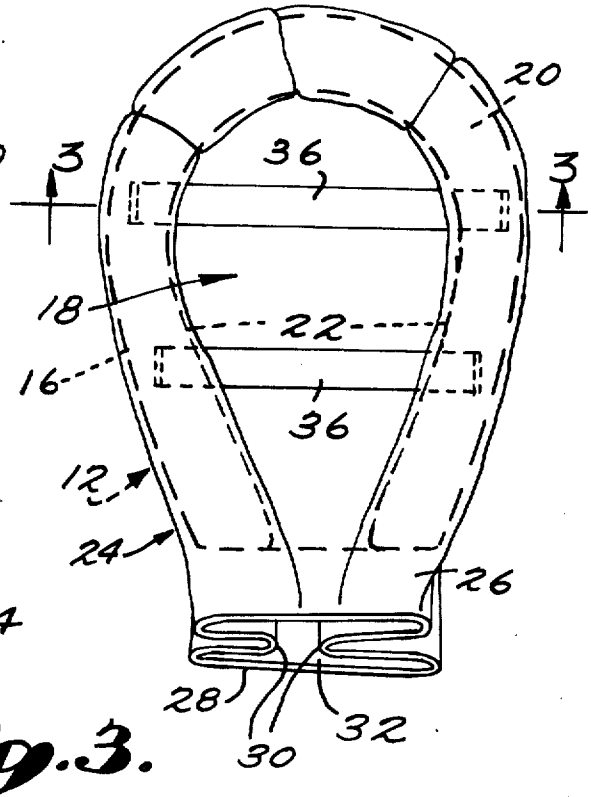


Fig. 3.

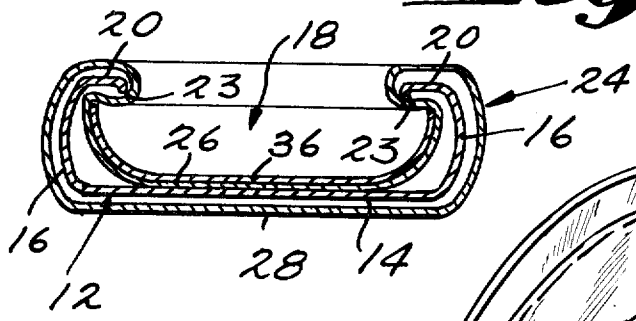


Fig. 4.

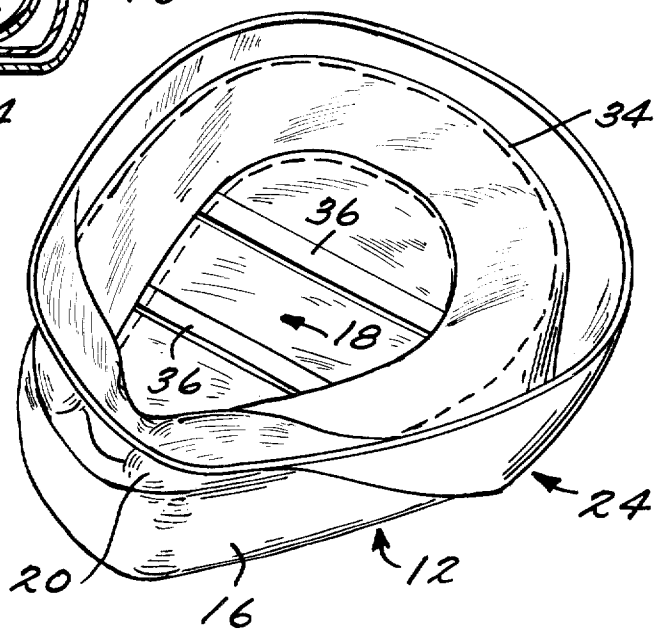


Fig. 5.

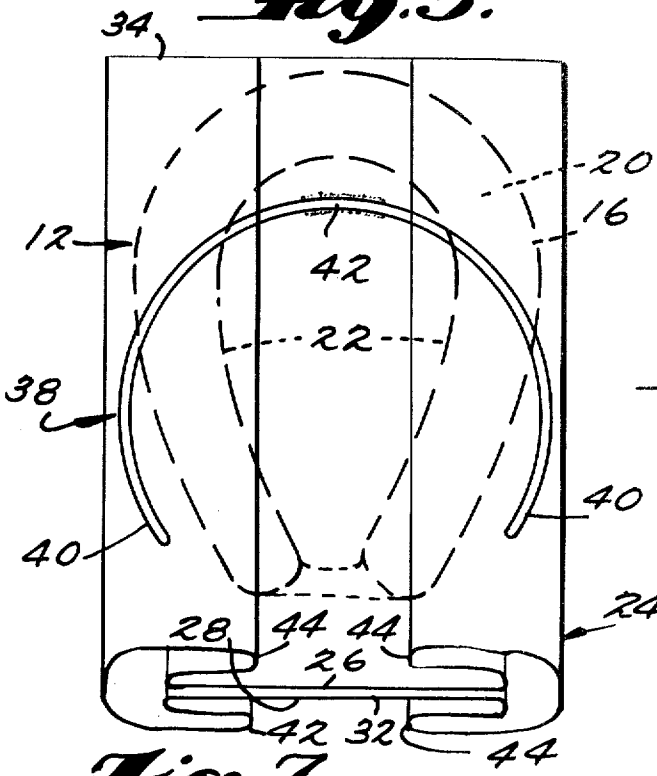


Fig. 6.

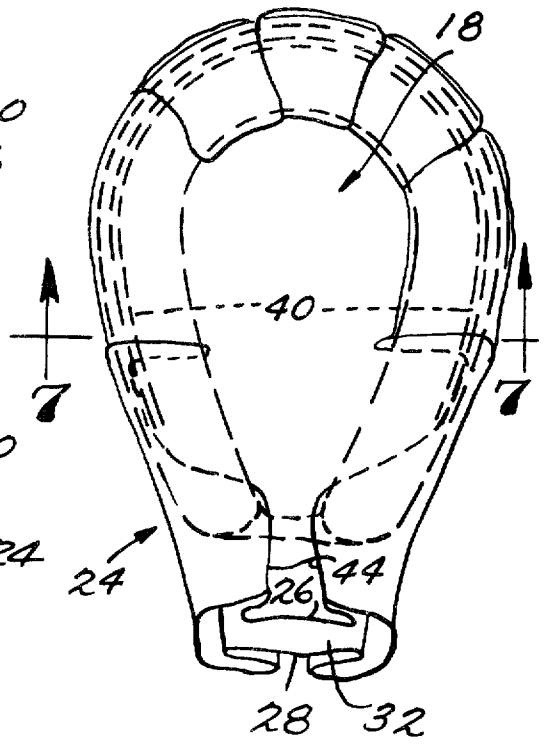


Fig. 7.

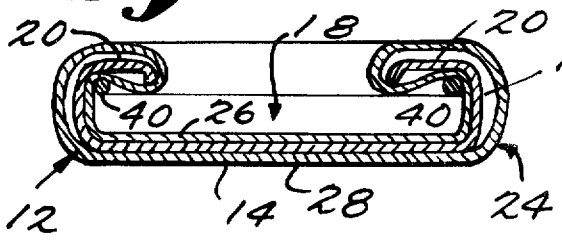


Fig. 8.

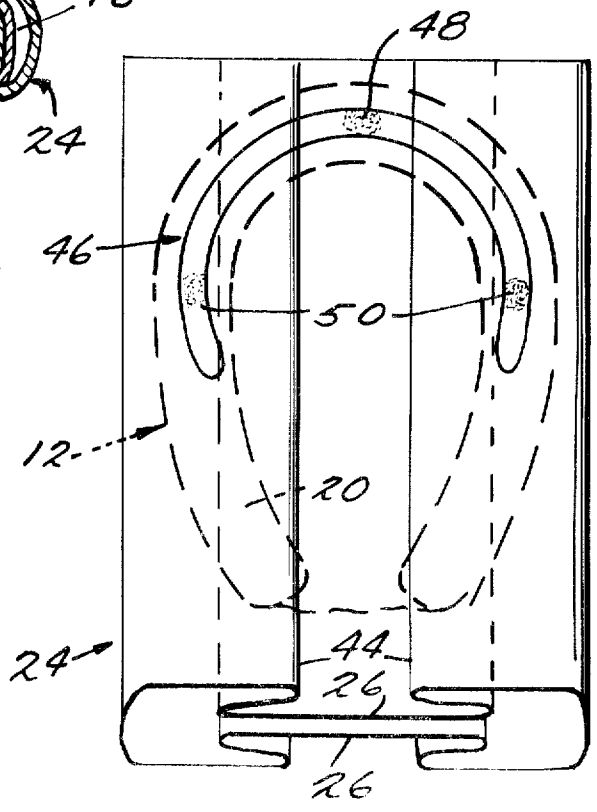


Fig. 9.

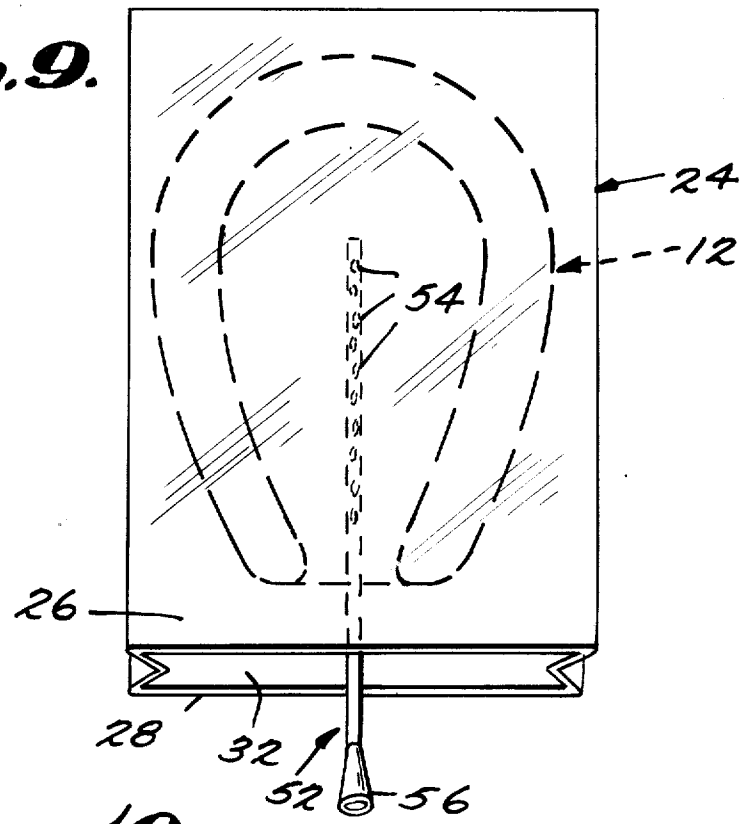
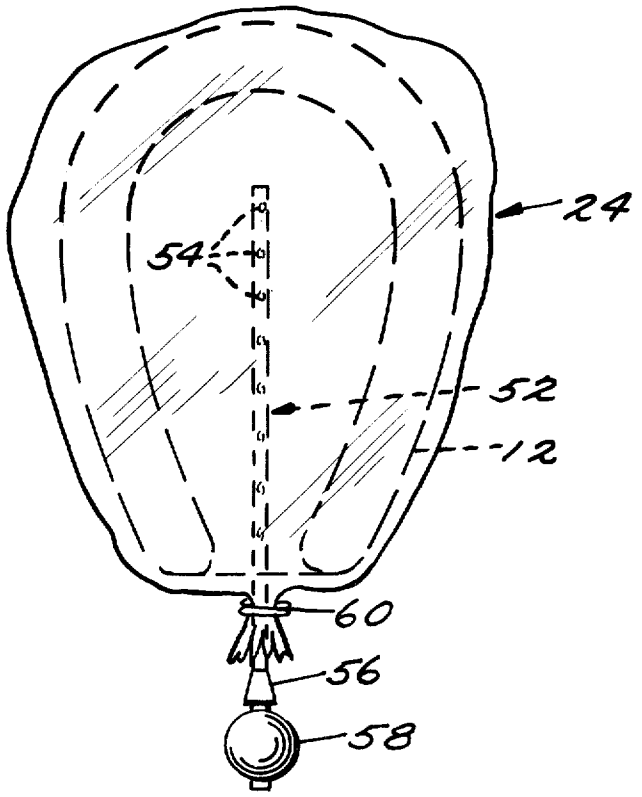


Fig. 10.



DISPOSABLE LINER

BACKGROUND OF THE INVENTION

Liners for receptacles for body wastes, such as a bedpan, are known. Such liners have been proposed in an attempt to provide for more sanitary disposal of body wastes and to avoid the labor attendant emptying and washing bedpans. Liners proposed or used in the past, however, have suffered from various disadvantages. Usually they have been fabricated to conform only to the opening or rim of the cavity in the bedpan and not to the entire cavity, thus failing to effectively utilize the entire volume of the cavity. Frequently, such liners are made of relatively stiff material or are even molded to shape, thus rendering them relatively uneconomical to make and use, let alone interferring with collection and disposal.

Accordingly, it is an object of this invention to provide an improved liner for a receptacle for body wastes, especially a bedpan, which is economical to make and use, easy to apply and remove from a bedpan, and which will capture and can be closed to completely contain body wastes without danger or spillage until disposal of the used liner.

Another object is to provide an improved liner which will facilitate the sanitary disposal of body wastes of persons confined to bed, or to wheelchairs and the like, which will contribute to asepsis in hospital rooms, improve the aesthetics of nursing care, reduce nursing personnel time use, and which can be used to limit the introduction of potentially infectious material into municipal sewage systems.

A further object is to eliminate the current practice of emptying, washing, and reusing metal or plastic bedpans or like receptacles.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a liner embodying the present invention initially enclosing a bedpan;

FIG. 2 is a view corresponding to FIG. 1 but showing the liner conformed to the cavity in the bedpan;

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 2;

FIG. 4 is a perspective view of the assembly shown in FIG. 2 showing the initial phase of turning the liner inside out;

FIGS. 5 and 6 are views corresponding to FIGS. 1 and 2 but showing a modified form of the invention;

FIG. 7 is a cross-sectional view taken along line 7—7 of FIG. 6;

FIG. 8 is a view corresponding to FIG. 1 but showing another modified form of the invention; and

FIGS. 9 and 10 are views corresponding to FIGS. 1 and 2 showing still another modified form of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIGS. 1 – 4 of the drawings, there is shown a conventional bedpan 12 having a bottom 14, and upstanding side walls 16 which define an interior cavity 18. In plan view, the pan 12 has a curved rearward portion, almost hemispherical in outline and a forward portion tapering toward a straight front end. A ledge 20, generally U-shaped in plan view, extends inwardly from the upper edge of the side walls 16, except at the front end, to provide a seat having a central opening 22 defined by the inner periphery of the ledge. About the inner periphery the ledge 20 usually is provided with a depending bead 23.

A disposable liner embodying this invention consists of a bag 24 of moisture-proof, flexible sheet material, preferably a very pliable but tough plastic. The bag before use preferably is in a generally flattened condition and has two opposed generally rectangular, generally flat sides 26 and 28 connected along their edges by generous infolds 30. At one end of the bag the sides 26 and 28 and infolds 30 terminate in a large open mouth 32, while at the other end the sides and infolds may be connected together in any suitable manner to provide a closed water-tight end or bottom 34. As shown in the drawings the bag when fully expanded is of constant area in transverse section from its mouth 32 to its bottom 34.

The mouth 32 and interior dimensions of the bag 24 are such that the bedpan 12 may be inserted completely therein with a very loose fit. Preferably, the width of the bag sides 26 and 28 and the depth of the bag 24 are greater than the width and length, respectively, of the bedpan 12 so that when the latter is completely inserted into the bag, the front of the bedpan is far within the mouth 32 of the bag, as shown in FIGS. 1 and 2.

Extending across one of the sides of the bag 24, e.g., side 26, and of a length slightly greater than the maximum width of the bedpan 12 are one or more, preferably two, relatively stiff but deformable retaining members 36. The members 36 are in the form of flat strips, preferably of a somewhat springy plastic material, spaced so that when the bedpan 12 is enclosed in the bag 24, one member 36 extends across the pan adjacent its rearward portion while the other extends across the forward portion of the pan. Preferably, for convenience in packing and handling, the strips 36 are secured to the outer surface of the bag side 26 by a suitable adhesive, either throughout their area of contact or at least at a centrally located small area.

In use, the bedpan 12 is inserted into the bag 24, as shown in FIG. 1, and the side 26 of the bag overlying the seat 20 is manually depressed through the opening 22 therethrough and conformed generally to the contour of the cavity 18. It will be seen that the infolds 30 of the bag 24 provide an excess of sheet material to permit such conformance. At the same time, the retaining strips 36 are pushed downwardly through the opening 22 into the cavity 18 so that most of their lengths engage the pan bottom 14, with the bag side 26 therebetween and their end portions fit under the ledge 20 on the pan 12 behind the bead 23, as shown in FIGS. 2 and 3. It will be seen that the engagement of the ends of the strips 36 under the ledge 20 retains the bag side 26 against the bottom 14 of the pan 12 and also somewhat conforms the bag side 26 to the side walls 16 of the pan underneath the ledge. The bag side 26 is thus retainingly shaped into a suitable receptacle for the body wastes of a user of the pan 12.

After use, the pan 12 and enclosing bag 24 are raised up and the lower portion of the bag mouth 32 turned back beneath the bottom 14 and thence up and over the rear end of the pan 12 while portions of the sides of the mouth pass up over the sides 16 of the pan, as shown in FIG. 4. Meanwhile, the upper portion of the

mouth **32** is lifted so that the bag **24** is turned inside-out thus capturing the body wastes therewithin without soiling the pan **12.** The inside-out mouth **32** may then be closed, and the neck of the bag **24** preferably sealed, as by a twisted wire (not shown) or the like, to prevent any possible spillage of the contents of the bag pending disposal. The closed bag **24** may then be detached from the pan **12** by lifting the bag out of the pan by its neck. It will be seen that when the bag **24** is inverted, i.e., turned inside-out, the strips **36** will be inside the bag, so that the foregoing action will pull the end portions of the strips out from under the ledge **20** to enable detachment of the bag **24** from the pan **12.**

In FIGS. **5 – 7,** there is shown a somewhat modified form of the invention wherein there is a single member **38** for retaining a side, e.g., **26** of the bag **24** in conformance within the cavity **18** of the pan **12.** In this embodiment the retaining member **38** is a resilient rod, preferably of plastic, shaped generally into a greater than **180°** segment of a circle or generally into a U-shape having curved arms **40** converging toward their ends. The maximum distance between the arms **40** is greater than the maximum transverse dimension of the opening **22** in the pan **12.** The base of the rod **38** preferably is secured by a suitable adhesive, or the like, to the side **26** of the bag **24** so as to be just in front of the rim of the ledge **20,** adjacent the rear end thereof, when the bedpan **12** is inserted in the bag **24,** as shown in FIG. **5.**

In this embodiment the sides **26** and **28** of the bag **24** are joined along their lateral margins by at least one generous outfold **44,** although two are shown in FIG. **5,** which overlies the marginal side edge portions of the bag sides. Thus, when the side **26** of the bag **24** is pushed down into the cavity **18** of the pan **12,** the outfolds **44** provide sufficient material to facilitate conformance of this side within the cavity. During this operation the arms **40** of the rod **38** are pulled together to clear the inner rim of the ledge **20** and then released so as to spring back beneath the ledge and retain the bag side **26** in conformance within the cavity **18,** as shown in FIGS. **6** and **7.**

After use the bag **24** may be turned inside-out, closed, sealed, and detached from the pan **12** in the same manner as described above with respect to the embodiment shown in FIGS. **1 – 4.** Again, it will be seen that the act of pulling the closed and sealed bag **24** out of the cavity **18** will pull the arms **40** inwardly out of retaining engagement beneath the ledge **20** on the bedpan **12.**

In FIG. **8** there is shown a further embodiment similar to that shown in FIGS. **5 – 7.** In this arrangement the bag **24** may be identical to that shown in FIG. **5,** but the retaining member is a generally U-shaped flat strip **46** of somewhat stiff yet deformable material, such as cardboard, celluloid or the like. The member **46** is shaped to conform to the curved configuration of the ledge **20** and to underlie the latter at its rearward and some of its side portions, when in operative position. Preferably, at least the base portion of the member **46** is secured to the side **26** of the bag **24,** such as by a suitable adhesive as at **48,** although it is desirable that the arms of the member also be secured to the outer ply of the upper outfold **44,** as at **50,** when such arms overlie such ply. In use the bag **24** and member **46** are applied to and removed from the pan **12** in much the same manner as the bag **24** and member **38** shown in FIGS. **5 – 7.**

In FIGS. **9** and **10** there is shown a further embodiment of this invention wherein the bag does not have a retaining member more or less permanently associated therewith. This arrangement utilizes a bag **24,** substantially identical to that shown in FIG. **1,** and an aspirator tube **52** which may be either disposable and made of inexpensive materials, e.g., plastic or the like, or of reusable more expensive material, such as metal. The tube **52** is adapted to be inserted into the bag **24** and into or above the cavity in the pan **12** after the latter is enclosed within the bag. The inner portion of the tube **52** is provided with a plurality of apertures **54** while the outer portion extends through the neck of the bag **24** to the exterior thereof. This outer portion is impervious and terminates in a flared outer end **56** adapted to detachably receive the suction end of a bulb-operated aspirator **58.**

After the tube **52** is in operative position, the neck of the bag **24** is closed and sealed about the outer portion of the tube, as by a twist of wire **60.** The aspirator **58** is then connected to the outer end of the tube **52** and operated to evacuate the air in the bag **24.** Such evacuation will cause the side **26** of the bag **24** to be depressed into and to conform to the cavity in the pan **12.** Because of the extreme pliability of the material of the bag **24,** the seal between the bag and the tube **52** can be broken, the tube removed, and the neck of the bag reclosed and resealed without appreciably disturbing the conformance of the bag side **26** with the cavity in the pan **12.**

After use, the neck of the bag **24** is opened and the bag turned inside-out and removed from the pan **12** in the same manner as described above.

It thus will be seen that the objects of this invention have been fully and effectively accomplished. It will be realized, however, that the specific embodiments shown and described herein are susceptible of change without departing from the principles of this invention. Accordingly, the invention encompasses all modifications within the spirit and scope of the following claims.

What is claimed is:

1. A disposable liner for use with a receptacle for body wastes, the receptacle having a bottom and side walls defining a cavity partly overlaid by a peripheral ledge portion forming a seat about a top opening comprising:

an open-mouthed bag of moisture-proof pliable sheet material, said bag being large enough to loosely receive the receptacle and to have a side portion of the bag pushed through the opening in the receptacle and generally conformed to the cavity therein for reception of body wastes, the mouth of said bag being large enough to be turned back over the receptacle and to turn the bag inside-out to capture the wastes and then have the mouth sealed to facilitate transportation to disposal without spillage or escape of odors; and

deformable means secured to said bag, insertable through the receptacle top opening, and engageable beneath the receptacle ledge portion at at least opposite sides of the opening to retain said bag side portion in general conformance with the receptacle cavity while enabling said bag when inside-out to be readily detached from the receptacle, said deformable means including a plurality of

spaced strips of material stiffer than that of said bag extending across the exterior of said bag side portion and having their end portions adapted to engage beneath the ledge portion and their central portions adapted to hold said bag side portion against the receptacle bottom.

2. The structure defined in claim **1** in which the strips are secured to the outside of the bag.

3. A disposable liner for use with a receptacle for body wastes, the receptacle having a bottom and side walls defining a cavity partly overlaid by a peripheral ledge portion forming a seat about a top opening comprising:

an open-mouthed bag of moisture-proof pliable sheet material, said bag being large enough to loosely receive the receptacle and to have a side portion of the bag pushed through the opening in the receptacle and generally conformed to the cavity therein for reception of body wastes, the mouth of said bag being large enough to be turned back over the receptacle and to turn the bag inside-out to capture the wastes and then have the mouth sealed to facilitate transportation to disposal without spillage or escape of odors; and

deformable means secured to said bag, insertable through the receptacle top opening, and engageable beneath the receptacle ledge portion at at least opposite sides of the opening to retain said bag side portion in general conformance with the receptacle cavity while enabling said bag when inside-out to be readily detached from the receptacle, said deformable means comprising a U-shaped member of resilient material adapted to be constricted to pass through the opening and thereafter expand to fit beneath the ledge portion in overlying engagement with a portion of the periphery of said bag side portion.

4. The structure defined in claim **3** in which the base portion of the member is secured to the outside of the bag portion.

5. A disposable liner for use with a receptacle for body wastes, the receptacle having a bottom and side walls defining a cavity partly overlaid by a peripheral ledge portion forming a seat about a top opening comprising:

an open-mouthed bag of moisture-proof pliable sheet material, said bag being large enough to loosely receive the receptacle and to have a side portion of the bag pushed through the opening in the receptacle and generally conformed to the cavity therein for reception of body wastes, the mouth of said bag being large enough to be turned back over the receptacle and to turn the bag inside-out to capture the wastes and then have the mouth sealed to facilitate transportation to disposal without spillage or escape of odors; and

deformable means secured to said bag, insertable through the receptacle top opening, and engageable beneath the receptacle ledge portion at at least opposite sides of the opening to retain said bag side portion in general conformance with the receptacle cavity while enabling said bag when inside-out to be readily detached from the receptacle, said deformable means comprising a U-shaped strip of material stiffer than that of said bag and having dimensions permitting insertion through the opening to underly the ledge portion and overly a portion of the periphery of said bag side portion.

6. The structure defined in claim **5** in which the base of the strip is secured to the outside of the bag portion.

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