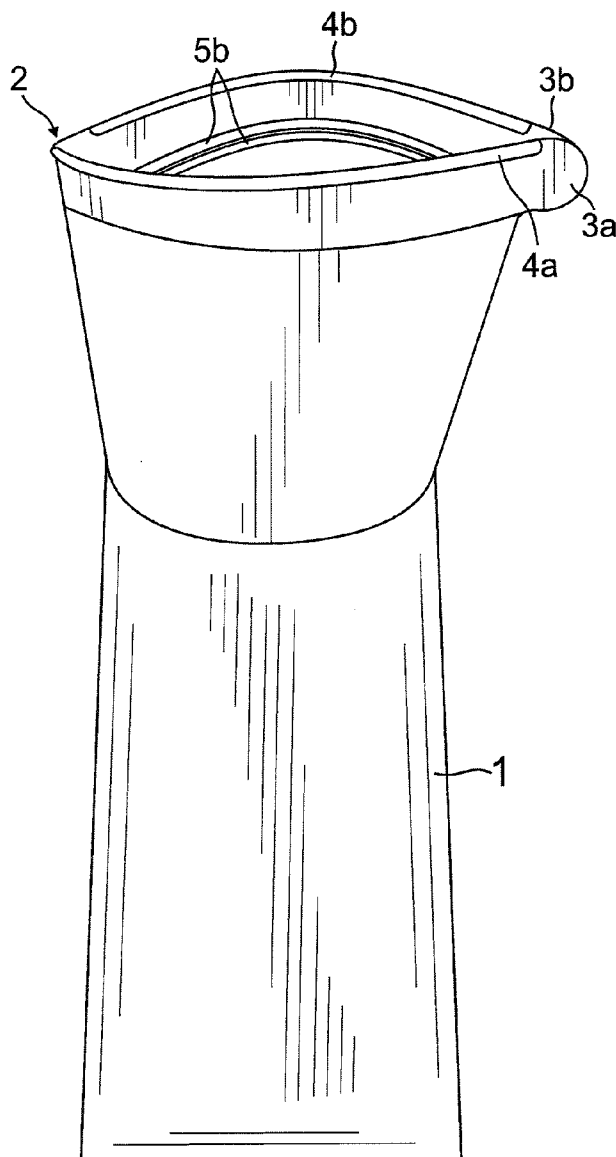




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Jacobson et al.(10) **Pub. No.: US 2012/0222208 A1**(43) **Pub. Date: Sep. 6, 2012**(54) **URINE BAG****Publication Classification**(75) Inventors: **Timothy Lorin Jacobson,**
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A47K 11/12 (2006.01)(52) **U.S. Cl.** **4/484**(57) **ABSTRACT**(73) Assignee: **Phillips Environmental Products,**
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MT (US)(21) Appl. No.: **13/038,329**(22) Filed: **Mar. 1, 2011**

The present invention is a urine bag comprising a bag portion and a collar comprised of a single piece of plastic and having a top edge, a medial edge, two distal edges, and an inside face. A tab extends outward from each of the distal edges. The collar further comprises a lip that extends at least partially around the top edge two sets of ridges on the inside face of the collar. The ridges are positioned such that they form a closure mechanism when the collar is folded along the medial edge. The plastic collar extends into the bag portion approximately one-fifth of the length of the bag portion.



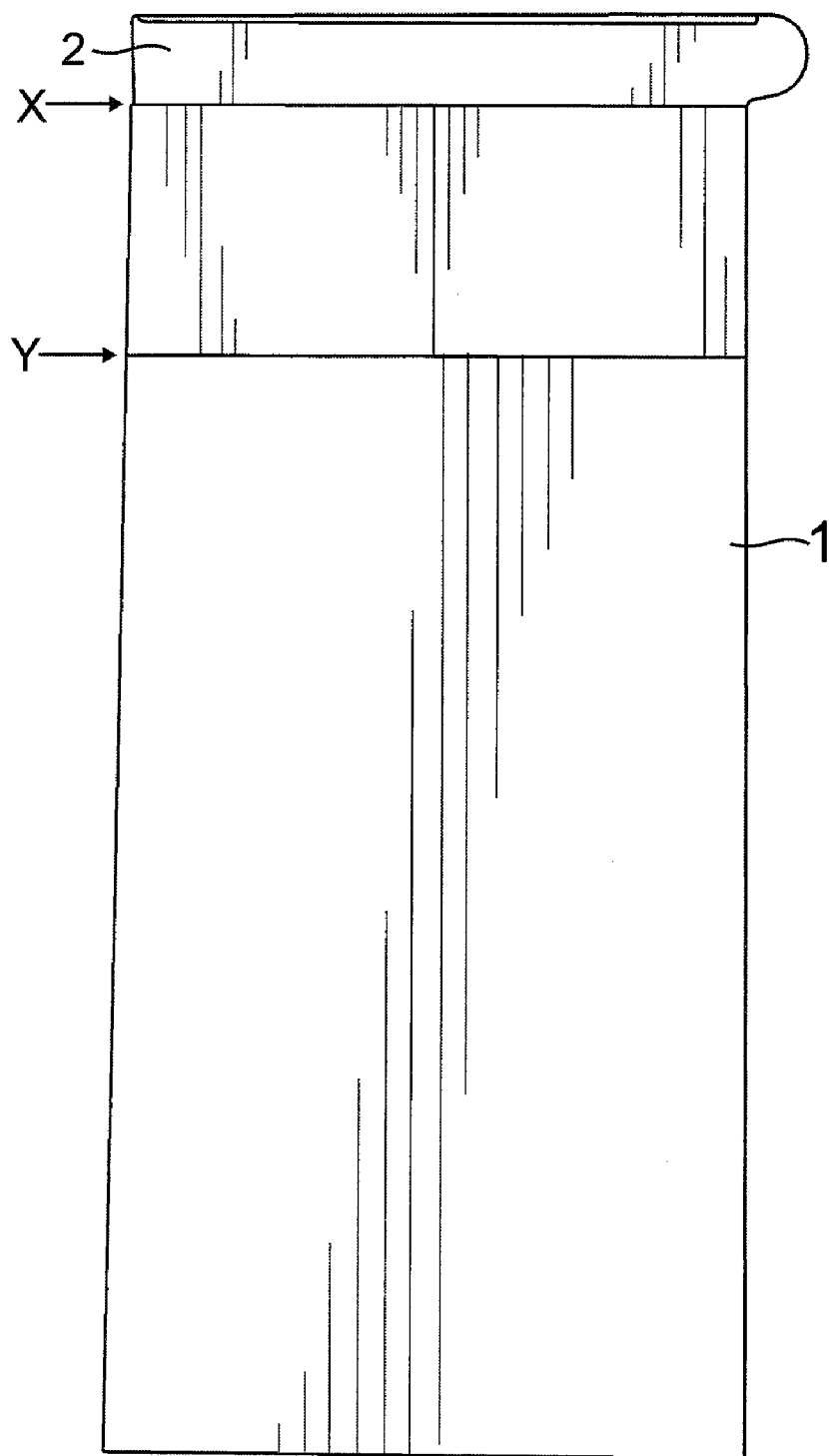


FIG. 1

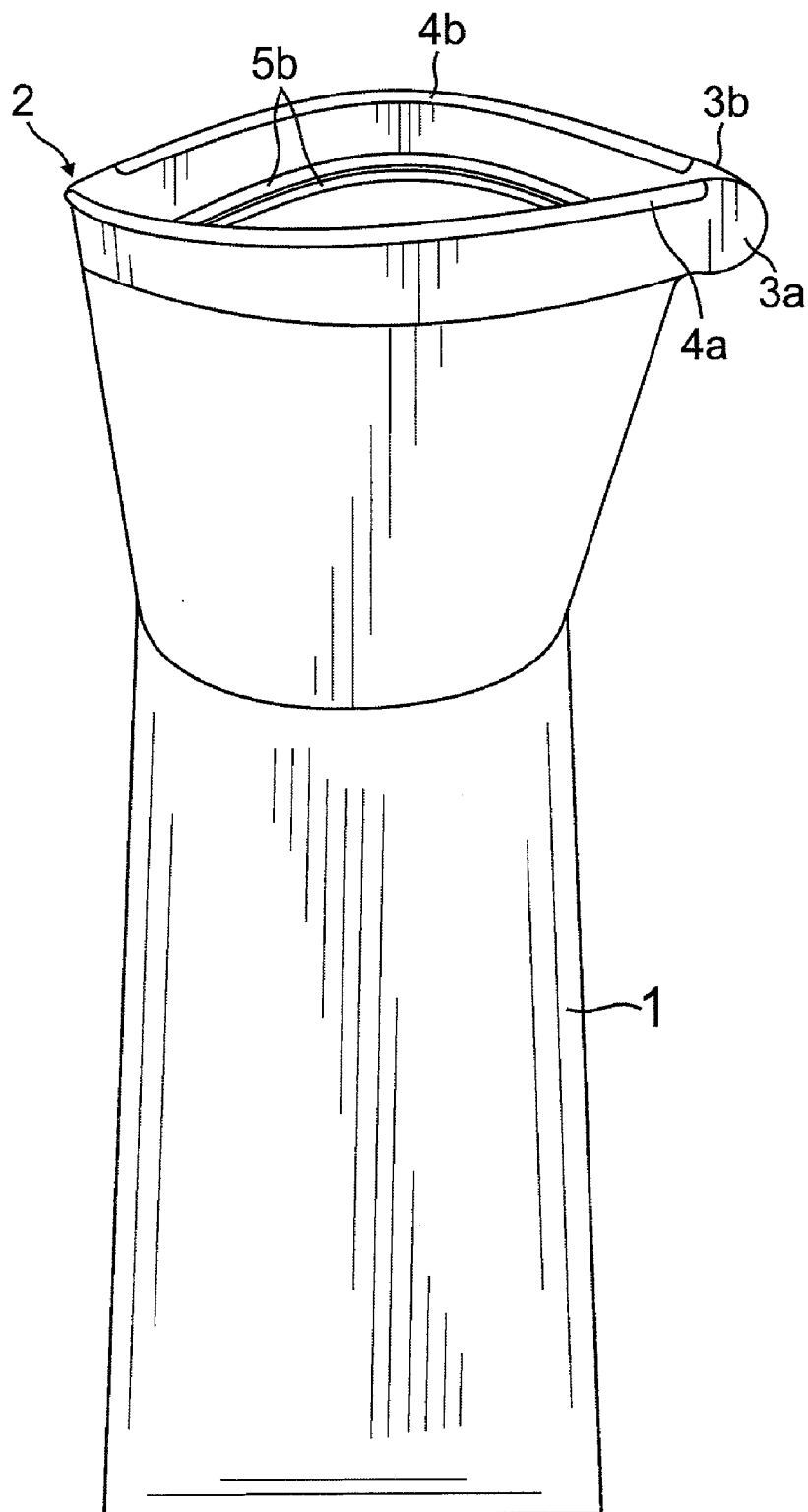


FIG. 2

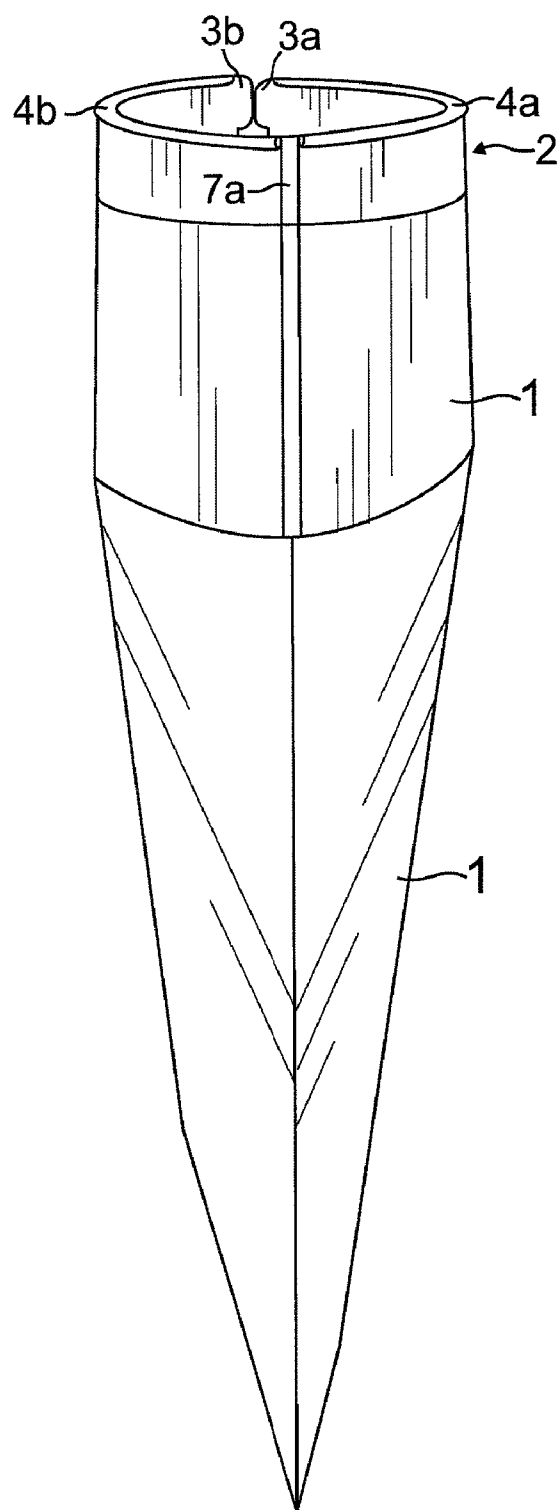


FIG. 3

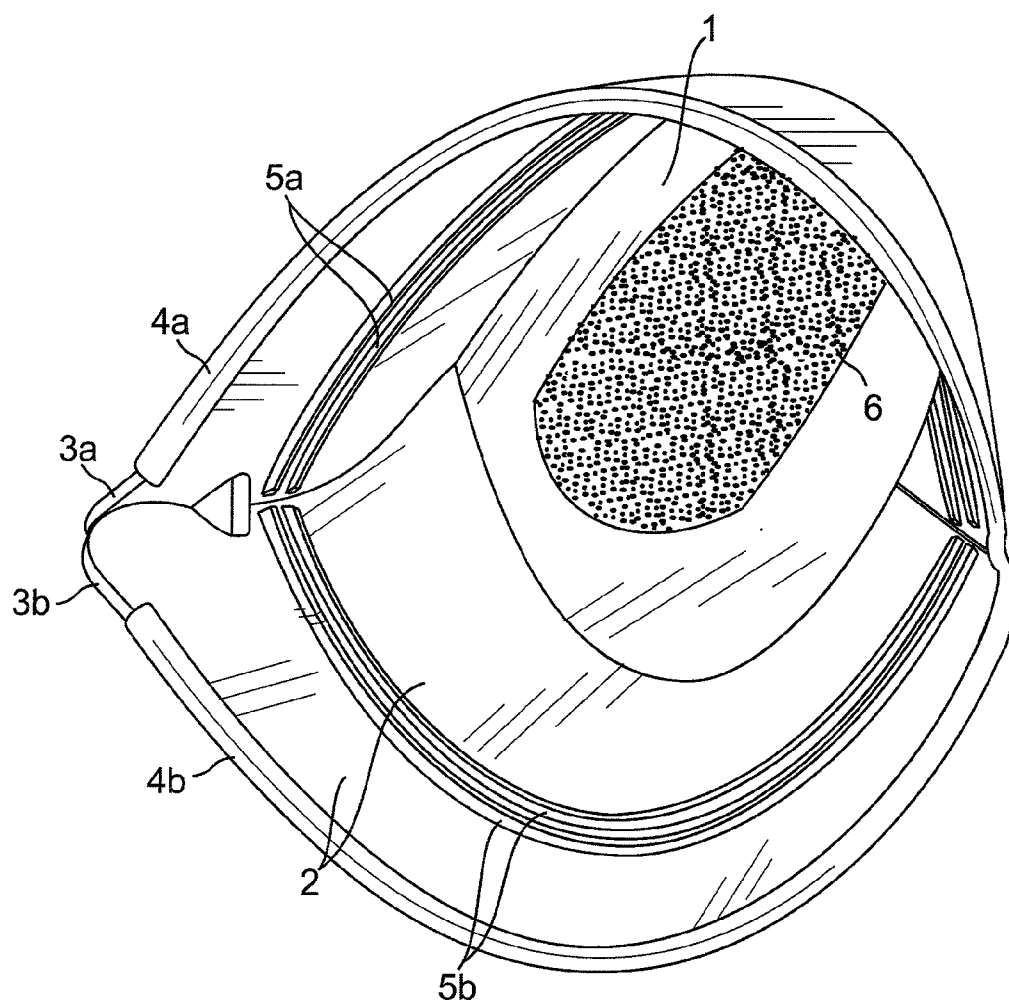


FIG. 4

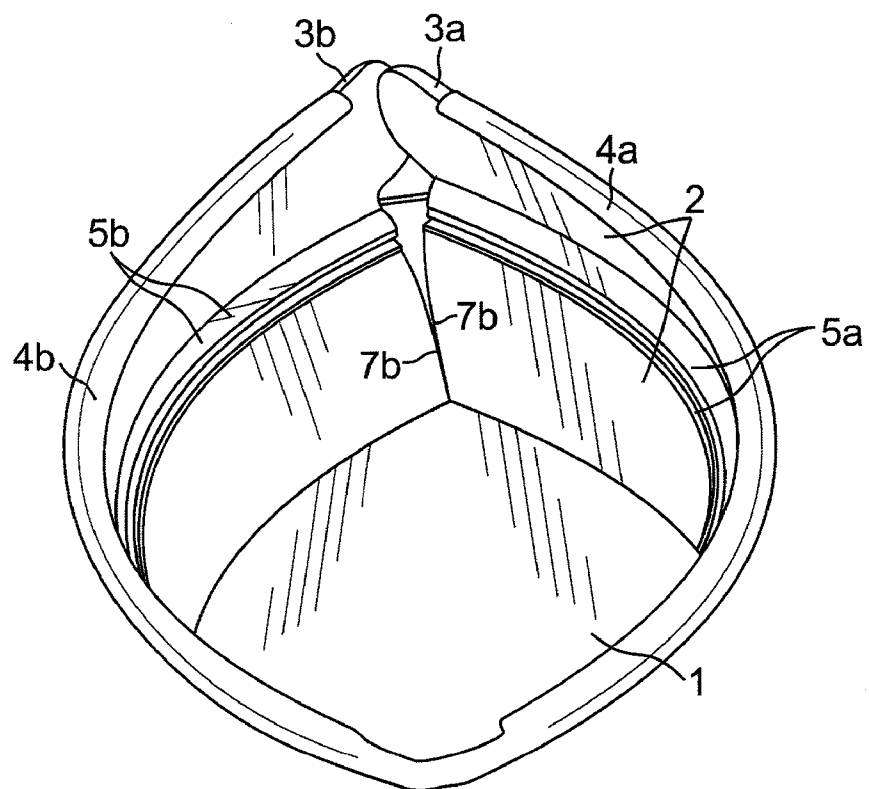


FIG. 5

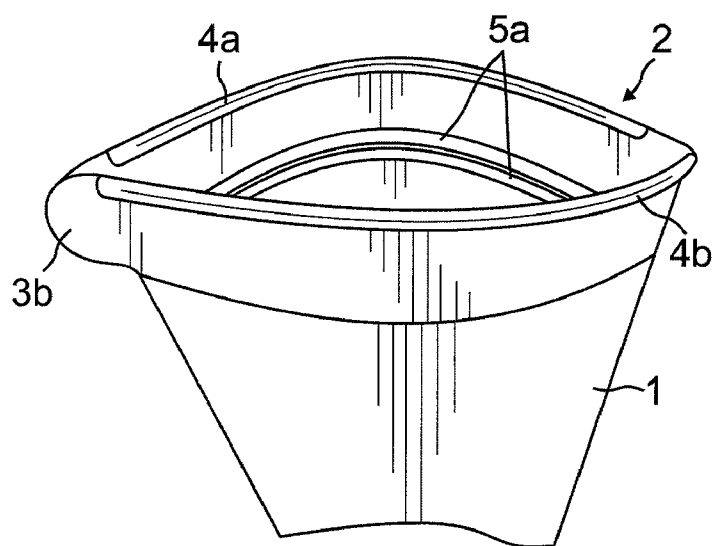


FIG. 6

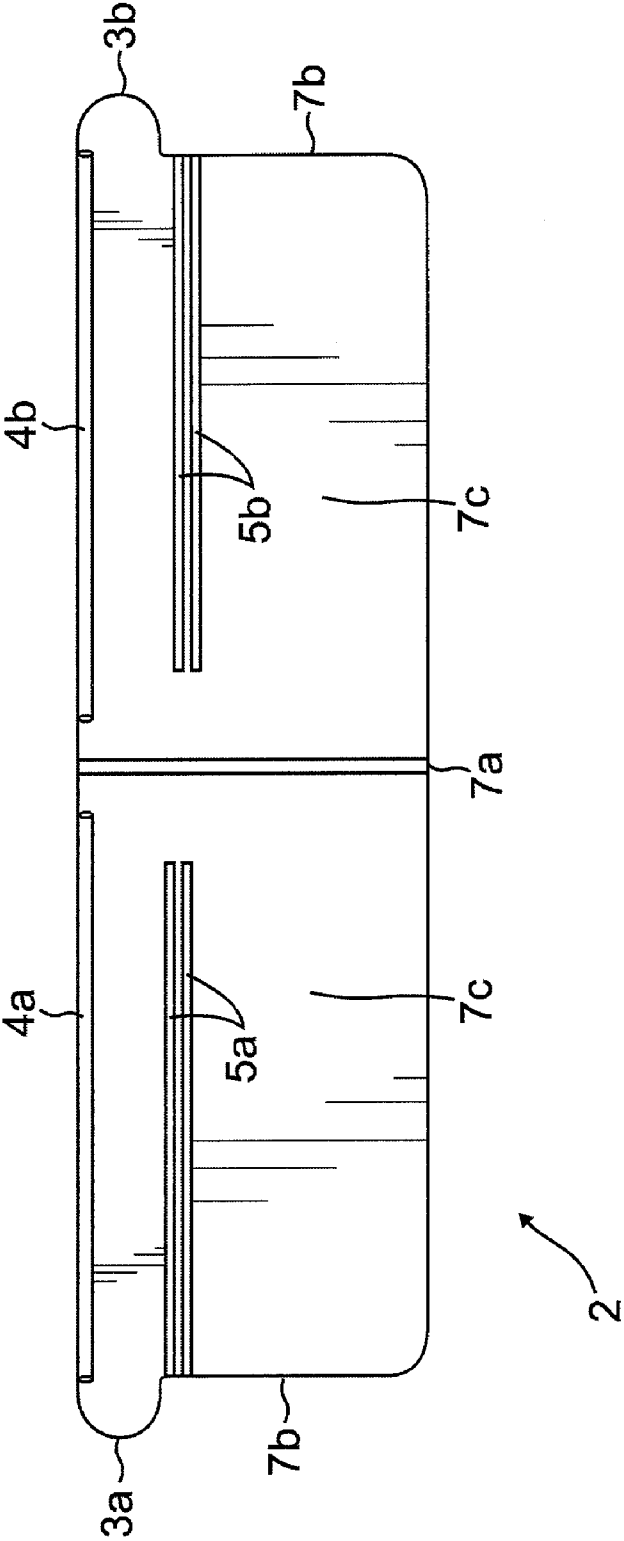


FIG. 7

URINE BAG

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates generally to the field of personal sanitation devices, and more specifically, to a portable urine bag.

[0003] 2. Description of the Related Art

[0004] People can become stressed, uncomfortable and often embarrassed when they have a need to urinate, but conventional plumbing is not available or conveniently accessible. This group of people may include healthy individuals as well as sufferers of stress and urgency incontinence who have very limited time to respond to the need to urinate. In addition, those who are wheelchair-bound, travelers in private aircrafts, commuters, vacationers, boaters, rafters, hikers, rock climbers, campers, hunters, fishermen, utility workers, truckers, and military personnel in the field, in combat, on maneuvers or in convoys all may suffer at some time from having to urinate without access to a proper facility. Emergency situations such as hurricanes, earthquakes, power outages, mining accidents, etc. may also disrupt plumbing, creating a need for a safe and sanitary way to urinate.

[0005] What is needed is an apparatus that is portable, safe and easy to use, and preferably biodegradable and into which an individual may urinate when other facilities for this purpose are unavailable. The ideal apparatus can be used multiple times and would include a means for controlling odor and facilitating waste decay.

BRIEF SUMMARY OF THE INVENTION

[0006] A urine bag comprising: a bag portion; and a collar comprised of a single piece of plastic and having a top edge, a medial edge, two distal edges, and an inside face, wherein a tab extends outward from each of the distal edges, further comprising a lip that extends at least partially around the top edge, and further comprising two sets of ridges on the inside face of the collar, wherein the ridges are positioned such that they form a closure mechanism when the collar is folded along the medial edge. In a preferred embodiment, the bag portion has a length, the plastic collar lies inside of the bag portion and is adhered to a portion of the bag portion, and the plastic collar extends into the bag portion approximately one-fifth of the length of the bag portion. In yet another preferred embodiment, the bag portion has a length, the plastic collar lies inside of the bag portion and is adhered to a portion of the bag portion, and the plastic collar extends into the bag portion approximately one-eighth to approximately one-third of the length of the bag portion.

[0007] In a preferred embodiment, the bag contains a composition comprised of a superabsorbent polymer, an odor control agent, and/or a decay catalyst. The superabsorbent polymer is preferably sodium polyacrylate. The odor control agent is preferably zeolite. The decay catalyst is preferably an enzyme found in yeast. In a preferred embodiment, the enzyme is selected from the group consisting of sucrase, zymase, maltase, lactase, hexosephosphatase, reductase, carboxylase, melibiase, and endo-tryptase.

[0008] In a preferred embodiment, each of the superabsorbent polymer, odor control agent, and decay catalyst has a percentage by weight of the composition, and the percentage by weight of the superabsorbent polymer is in the range of 0.1% to 99%, the percentage by weight of the odor control

agent is in the range of 0.1% to 25%, and the percentage by weight of the decay catalyst is 0.1% to 15%. In yet another preferred embodiment, the percentage by weight of the superabsorbent polymer is 84%, the percentage by weight of the odor control agent is 15%, and the percentage by weight of the decay catalyst is 1%. Preferably, the composition comprises approximately 0.0302 pounds of sodium polyacrylate, approximately 0.0055 pounds of zeolite, and approximately 0.0003 pounds of yeast.

[0009] In a preferred embodiment, both the bag portion and the plastic collar are comprised of a biodegradable material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a side view of the present invention with the plastic collar in a closed position.

[0011] FIG. 2 is a side perspective view of the present invention with the plastic collar in an open position.

[0012] FIG. 3 is a rear perspective view of the present invention with the plastic collar in an open position.

[0013] FIG. 4 is a top perspective view of the present invention with the plastic collar in an open position.

[0014] FIG. 5 is a partial top perspective view of the present invention with the plastic collar in an open position.

[0015] FIG. 6 is a partial side perspective view of the present invention with the plastic collar in an open position.

[0016] FIG. 7 is a plan view of the plastic collar of the present invention.

REFERENCE NUMBERS

- [0017]** 1 Bag portion
- [0018]** 2 Plastic collar
- [0019]** 3a First tab
- [0020]** 3b Second tab
- [0021]** 4a First lip
- [0022]** 4b Second lip
- [0023]** 5a First pair of ridges
- [0024]** 5b Second pair of ridges
- [0025]** 6 Composition
- [0026]** 7a Medial edge (of plastic collar)
- [0027]** 7b Distal edge (of plastic collar)
- [0028]** 7c Mid-section (of plastic collar)

DETAILED DESCRIPTION OF INVENTION

[0029] The present invention is a portable urine bag with a plastic collar that is specifically designed to facilitate use, comfort and sanitation. The bag also contains agents that will cause the urine to solidify within seconds, facilitate waste decay, and control odor. The present invention is discussed more fully below in connection with FIGS. 1-6.

[0030] FIG. 1 is a side view of the present invention with the plastic collar in a closed position. As shown in FIG. 1, the present invention comprises a bag portion 1 and a plastic collar 2. The bag portion 1 is attached to the plastic collar 2, and both are preferably comprised of a biodegradable material. The bag portion 1 and the plastic collar 2 overlap, and the top part of the bag portion 1 may lie either outside of or inside of the plastic collar 2. In the embodiment shown in the figures, the top part of the bag portion 1 lies outside of the plastic collar 2; in other words, the plastic collar 2 is adhered (preferably heat sealed) to the inside of the top part of the bag portion 1.

[0031] In the embodiment shown in FIG. 1, the bag portion 1 extends to point "X," and the plastic collar 2 extends to point

“Y.” Note that at point “Y,” the plastic collar 2 is actually inside of the bag portion 1. In a preferred embodiment, the plastic collar 2 extends roughly one-fifth ($\frac{1}{5}$) of the way down the bag portion 1; the preferred range is anywhere from one-eighth ($\frac{1}{8}$) to one-third ($\frac{1}{3}$). This is an important feature of the present invention because it helps ensure that the bag will open sufficiently when the medial and distal edges 7a, 7b (see FIG. 7) of the plastic collar are pressed together. As explained more fully below in connection with FIG. 2, because the plastic collar 2 expands outward at its mid-sections 7c when pressure is placed on the medial and distal edges 7a, 7b of the collar 2, it is preferably to have the bag portion 1 on the outside of the plastic collar 2 rather than the inside.

[0032] FIG. 2 is a side perspective view of the present invention with the plastic collar in an open position. To use the urine bag, the user would first disengage from each other the ridges 5a, 5b on the inside of the plastic collar 2 (FIG. 4 shows both sets of ridges); these ridges form the closure mechanism of the present invention. Each set of ridges 5a, 5b is preferably a pair of ridges, and the first set of ridges 5a is positioned slightly higher on the inside of the plastic collar 2 than the second set of ridges (see also FIG. 7). In this manner, when the plastic collar 2 is folded along its medial edge 7a with the ridges 5a, 5b on the inside of the fold, the upper-most ridge in the second set of ridges 5b falls in between the two ridges that form the first set of ridges 5a, and the lower-most ridge in the first set of ridges 5a falls in between the two ridges that form the second set of ridges 5b, thereby closing the plastic collar 2 so that the contents of the bag portion 1 cannot escape.

[0033] FIG. 2 also shows the lips 4a, 4b on top of the plastic collar. The lips 4a, 4b serve a specific purpose that applies particularly to female users. Whereas male users may not need to hold the plastic collar 2 up against their body, female users likely will. For female users, the lips provide an added level of comfort when the plastic collar 2 is pressed up against the user's body. The lips 4a, 4b preferably extend around all or nearly all of the top edge of the plastic collar 2 (see also FIG. 7).

[0034] FIG. 3 is a rear perspective view of the present invention with the plastic collar in an open position. This figure shows the medial edge 7a of the plastic collar 2. Once the ridges 5a, 5b have been disengaged from one another, the user would typically place his thumb on the medial edge 7a of the plastic collar 2 and his index finger on the distal edges 7b of the plastic collar 2 (see FIG. 5) and press the thumb and index finger together (toward each other). This pressure in turn causes the mid-sections 7c (see FIG. 7) of the plastic collar 2 to expand outward, thereby creating an opening at the top of the bag. While continuing to exert pressure on the medial and distal edges 7a, 7b of the plastic collar 2, the user does his business, releases the pressure, and seals the bag up by pressing the ridges 5a, 5b together. The bag may be used again by opening the plastic collar 2, re-using the bag, and sealing it back up again with the closing mechanism (ridges 5a, 5b).

[0035] FIG. 4 is a top perspective view of the present invention with the plastic collar in an open position. The tabs 3a, 3b are shown (but not labeled) in FIG. 1, and they are also shown in FIGS. 2-7. After the bag has been used and closed by pressing the ridges 5a, 5b together, the user may hold the bag by the tabs 3a, 3b with thumb and forefinger, thereby avoiding any contamination that may have occurred on the bag portion 1 or the rest of the plastic collar 2. Typically, when the bag is in use, the user would hold the distal ends 7b of the plastic

collar 2 away from himself so that the tabs 3a, 3b, which extend outward from the distal ends 7b of the plastic collar 2, are less likely to become contaminated. Another purpose of the tabs 3a, 3b is to act as a protrusion under which the user may place his forefinger to ensure correct placement for purposes of opening the plastic collar 2. With the user's forefinger underneath the tabs 3a, 3b, the bag is prevented from slipping out of the user's grasp as it is filled with material.

[0036] FIG. 4 also shows the composition 6 that is contained within the bag. The composition 6 preferably comprises sodium polyacrylate, zeolite and common bread yeast. In a preferred embodiment, the percentage by weight is 84% sodium polyacrylate, 15% zeolite and 1% common bread yeast; however, the preferred range for the percentage by weight of sodium polyacrylate is 0.1% to 99%, the preferred range for the percentage by weight of zeolite is 0.1% to 25%, and the preferred range for the percentage by weight of common bread yeast is 0.1% to 15%. In a preferred embodiment, the composition 6 contains 0.0302 pounds of sodium polyacrylate, 0.0055 pounds of zeolite, and 0.0003 pounds of common bread yeast.

[0037] Sodium polyacrylate is a sodium salt of cross-linked polyacrylic acid. It is a white, granular, odorless polymer that yields a gel-like material with the addition of water. It is insoluble in water and causes extremely slippery conditions when wet. It is not regulated as a hazardous material; however, the respirable dust is a potential respiratory tract irritant. The particle size distribution necessary must be between 1 and 1000 microns in order to effectively come into contact with the urine, and the absorption of deionized water is preferably greater than 100 gram per gram. Preferably, the sodium polyacrylate has a teabag absorption of 0.9% sodium chloride of at least 20 grams per gram. The apparent bulk density of the sodium polyacrylate is preferably 500 to 1000 grams per liter, and the percent moisture is preferably 0% to 10%. Sodium polyacrylate is capable of absorbing and retaining amounts of water several times its own weight under a variety of conditions.

[0038] A deodorizing agent such as, but not limited to, zeolite will absorb offensive odors. Additional deodorizing agents such as kaolin, clay, talc, cornstarch, essential oils (such as, but not limited to, lavender, thyme, thieves, mint, wintergreen, spearmint, lemon, cherry, citrus, grape, etc.) may be used in lieu of or in addition to zeolite. Zeolite is comprised of a porous structure of negatively charged ions and is recognized for its ability to actively contain odors such as hydrogen sulfide gases, indoles and skatoles. Zeolite is naturally absorptive and traps hydrogen sulfide and other gases by means of its structure, thereby reducing the odor associated with human waste.

[0039] The decay catalyst included in the composition of the present invention is preferably an enzyme found in yeast. *Saccharomyces cerevisiae* (common bread yeast) is an all-natural decay catalyst that, in the presences of liquid waste, produces enzymes that actively break down contaminants (e.g., blood or urinary tract pathogens) found in liquid waste. In addition, *Saccharomyces cerevisiae* facilitates the decay of waste products such as feces and emesis, which may also be present. Among the catalytic enzymes found in *Saccharomyces cerevisiae* are sucrase, zymase, maltase, lactase, hexosephosphatase, reductase, carboxylase, melibiase, and endo-tryptase.

[0040] FIG. 5 is a partial top perspective view of the present invention with the plastic collar in an open position. As shown

in this figure and in FIG. 7, the first set of ridges **5a** are positioned slightly higher on the inside of the plastic collar **2** than the second set of ridges **5b**, for the reasons explained above. FIG. 6 is a partial side perspective view of the present invention with the plastic collar in an open position.

[0041] FIG. 7 is a plan view of the plastic collar of the present invention. This figure shows the plastic collar **2** prior to it being adhered to the bag portion **1**. In a preferred embodiment, the plastic collar **2** is preferably comprised of a single piece of plastic that is molded to provide the tabs **3a**, **3b**, lips **4a**, **4b** and ridges **5a**, **5b**. It is also preferably thinner along the medial edge **7a** so as to facilitate folding of the plastic collar **2** along the medial edge **7a**. Note that FIG. 7 shows the inside face of the plastic collar.

[0042] As described above, the present invention is portable, easy-to-use, unisex and biodegradable. It preferably contains a non-toxic blend of superabsorbent polymer preferably in powder form, a natural odor control agent, and enzymes in an all-natural decay catalyst. (As used herein, the term “superabsorbent polymer” means a polymer that can absorb and retain extremely large amounts of a liquid relative to its own mass.) The preferred composition will turn up to 24 ounces of urine to a solid in a matter of seconds. When used and sealed, the bag and its contents are easily disposed of in conventional solid waste streams, such as dumpsters, trash cans, trash bins, landfills, and the like.

[0043] As the human population increases, problems associated with urination are compounded. These problems include, but are not limited to, contact with unsanitary liquid mess in spilling or splashing, the potential spread of disease, and odor. These problems are alleviated by the present invention, which provides a portable and sanitary device that can be used for urination purposes virtually anywhere. In addition, the present invention is small and light-weight and may be carried in a pocket, purse or glove box.

[0044] Although the preferred embodiment of the present invention has been shown and described, it will be apparent to those skilled in the art that many changes and modifications may be made without departing from the invention in its broader aspects. The appended claims are therefore intended to cover all such changes and modifications as fall within the true spirit and scope of the invention.

We claim:

1. A urine bag comprising:

(a) a bag portion; and

(a) a collar comprised of a single piece of plastic and having a top edge, a medial edge, two distal edges, and an inside face, wherein a tab extends outward from each of the distal edges, further comprising a lip that extends

at least partially around the top edge, and further comprising two sets of ridges on the inside face of the collar, wherein the ridges are positioned such that they form a closure mechanism when the collar is folded along the medial edge.

2. The urine bag of claim 1, wherein the bag portion has a length, wherein the plastic collar lies inside of the bag portion and is adhered to a portion of the bag portion, and wherein the plastic collar extends into the bag portion approximately one-fifth of the length of the bag portion.

3. The urine bag of claim 1, wherein the bag portion has a length, wherein the plastic collar lies inside of the bag portion and is adhered to a portion of the bag portion, and wherein the plastic collar extends into the bag portion approximately one-eighth to approximately one-third of the length of the bag portion.

4. The urine bag of claim 1, wherein the bag contains a composition comprised of a superabsorbent polymer, an odor control agent, and/or a decay catalyst.

5. The urine bag of claim 4, wherein the superabsorbent polymer is sodium polyacrylate.

6. The urine bag of claim 4, wherein the odor control agent is zeolite.

7. The urine bag of claim 4, wherein the decay catalyst is an enzyme found in yeast.

8. The urine bag of claim 7, wherein the enzyme is selected from the group consisting of sucrase, zymase, maltase, lactase, hexosephosphatase, reductase, carboxylase, melibiase, and endo-tryptase.

9. The urine bag of claim 4, wherein each of the superabsorbent polymer, odor control agent, and decay catalyst has a percentage by weight of the composition, and wherein the percentage by weight of the superabsorbent polymer is in the range of 0.1% to 99%, the percentage by weight of the odor control agent is in the range of 0.1% to 25%, and the percentage by weight of the decay catalyst is 0.1% to 15%.

10. The urine bag of claim 8, wherein the percentage by weight of the superabsorbent polymer is 84%, the percentage by weight of the odor control agent is 15%, and the percentage by weight of the decay catalyst is 1%.

11. The urine bag of claim 4, wherein the composition comprises approximately 0.0302 pounds of sodium polyacrylate, approximately 0.0055 pounds of zeolite, and approximately 0.0003 pounds of yeast.

12. The urine bag of claim 1, wherein both the bag portion and the plastic collar are comprised of a biodegradable material.

* * * * *