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(54) **SANITARY WASTE BIN AND SYSTEM**

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(76) Inventors: **Richard Petras Titas**, Lyndhurst, OH (US); **Christopher Andrew Brizes**, Westlake, OH (US); **Mark Edward Cipolla**, Chardon, OH (US); **Paul Dana Stephens**, Twinsburg, OH (US); **Christopher Daniel Carsten**, Mason, OH (US); **Kirk Minor Kirssin**, Mason, OH (US); **Mary Ellen Travis**, Milford, OH (US)

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(57) **ABSTRACT**

A sanitary waste bin and disposal system for the convenient and hygienic disposal of waste products. A waste bin comprises a container for storing the waste material, the container having a first opening; a cover for the first opening, the cover having a second opening; a lid comprising top and bottom surfaces defining a receptacle, the lid being attached to the cover such that the lid is pivotable within the second opening between an open position where the receptacle is positioned to receive waste material, and a closed position where the receptacle is positioned to deposit waste material into the container; a lever for engaging the lid to operate between the closed position and the open position; and a handle for lifting the bin when disposing of the waste material. Also disclosed is a sanitary waste system comprising the waste bin and a bracket for mounting the bin to a wall, and a system comprising the waste bin and a tray for carrying at least two of the bins in a predetermined position.

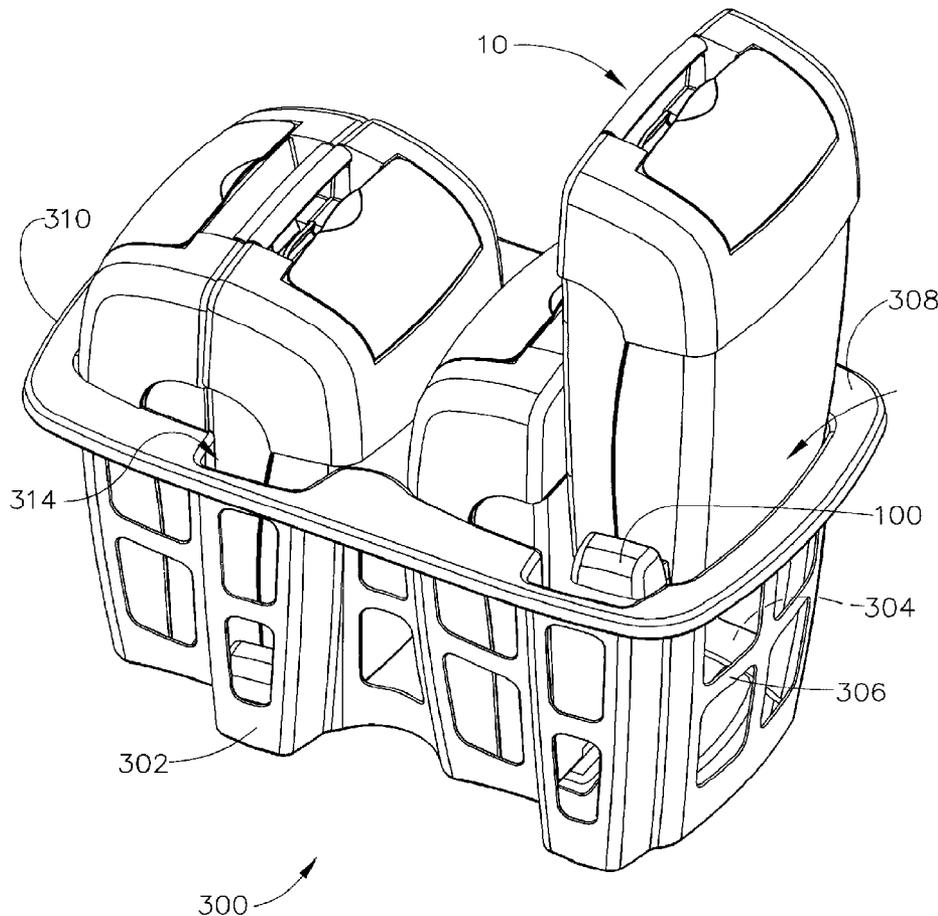
Correspondence Address:
HASSE & NESBITT LLC
8837 CHAPEL SQUARE DRIVE
SUITE C
CINCINNATI, OH 45249 (US)

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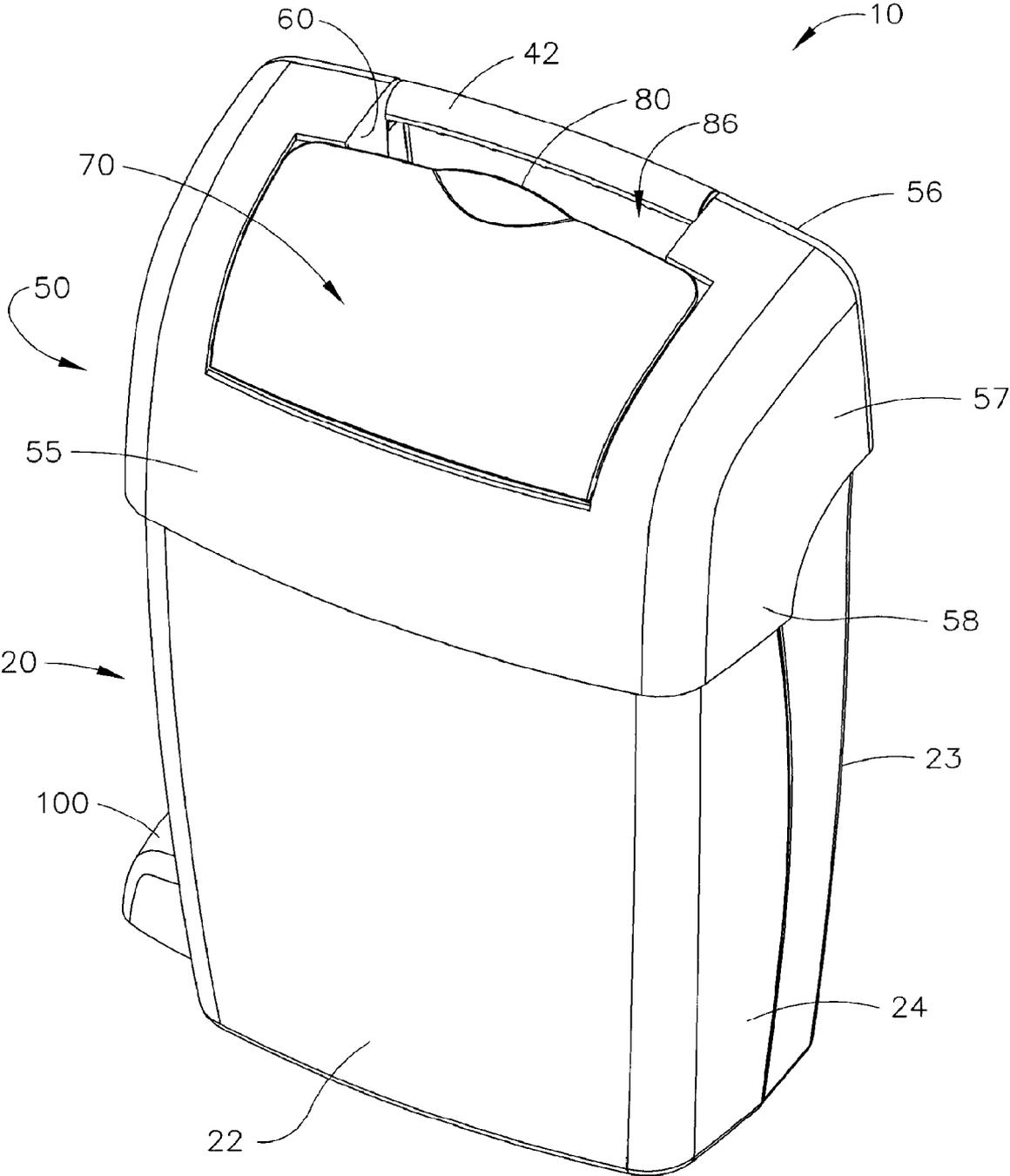


FIG. 1

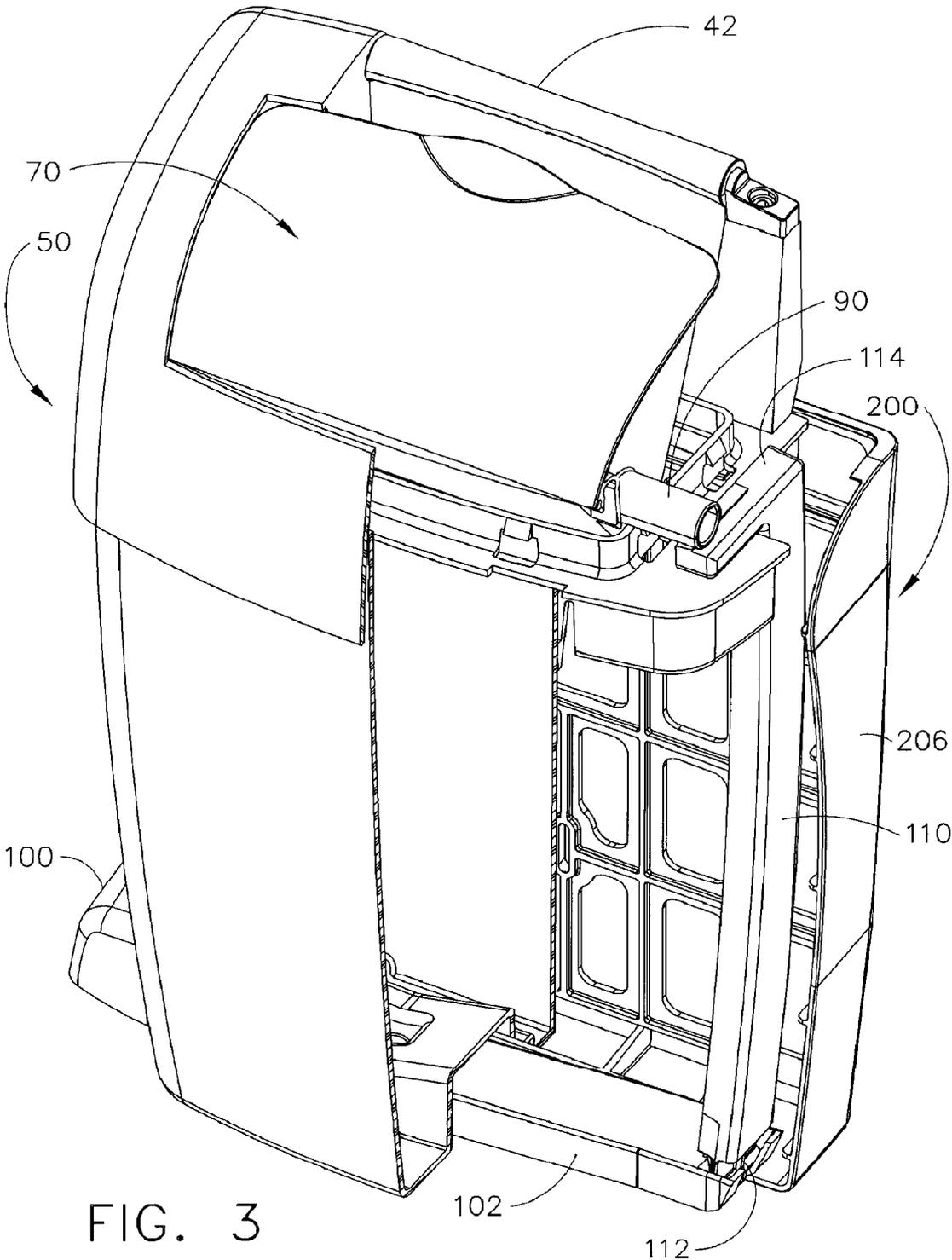


FIG. 3

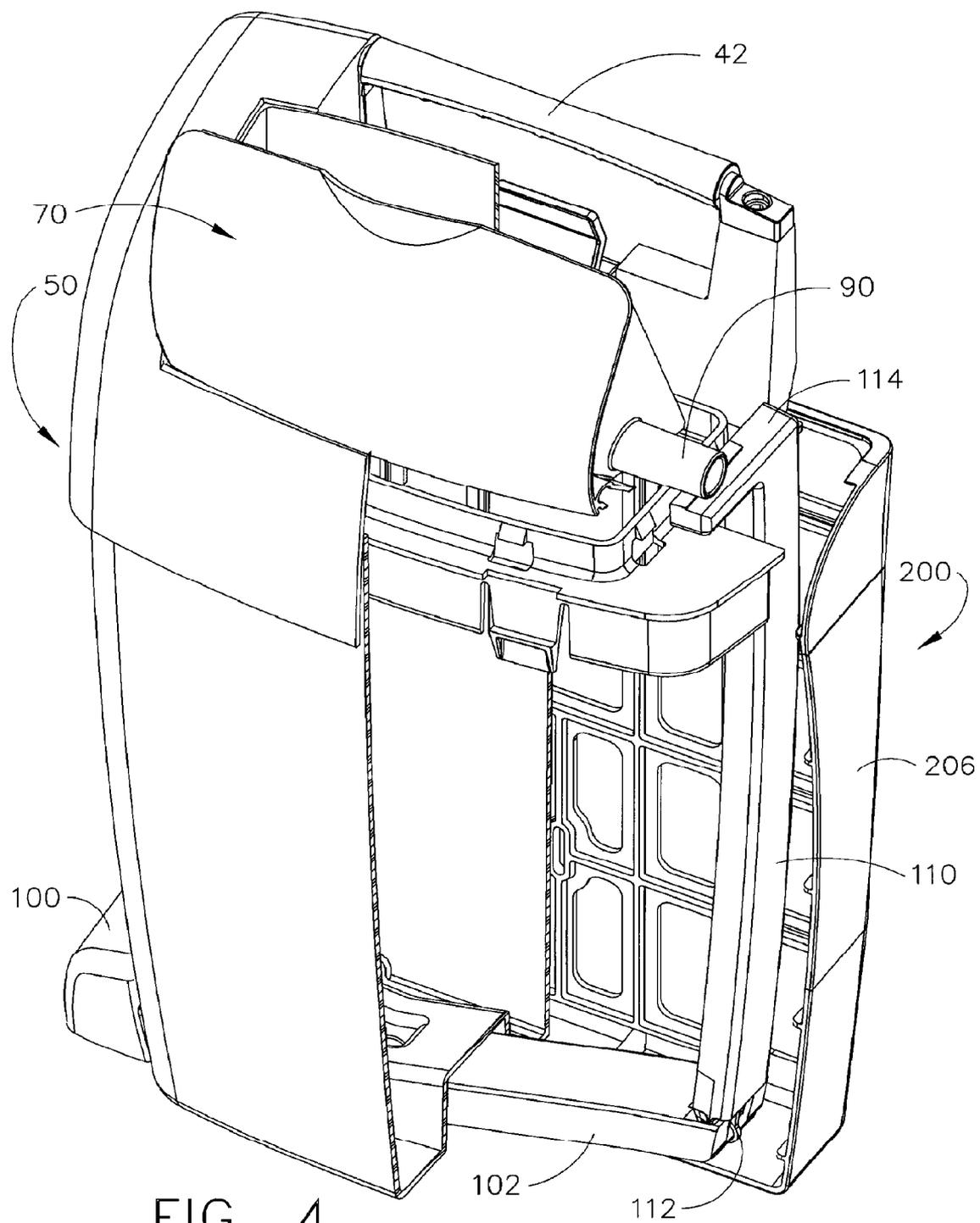


FIG. 4

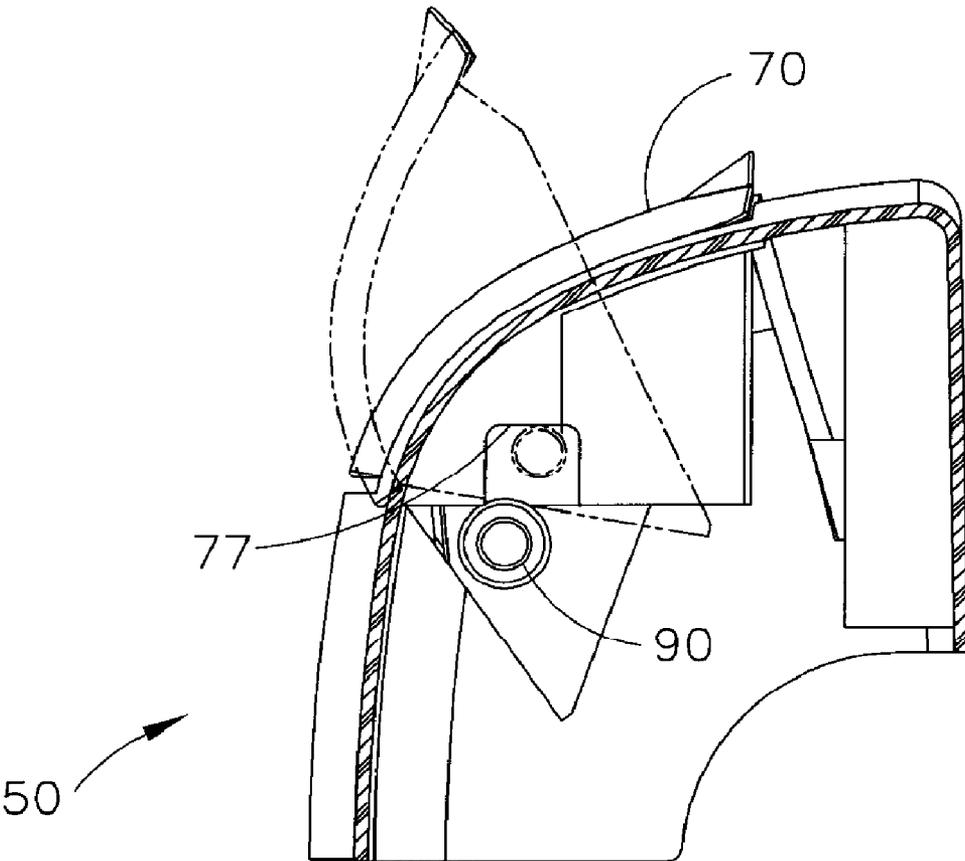


FIG. 5

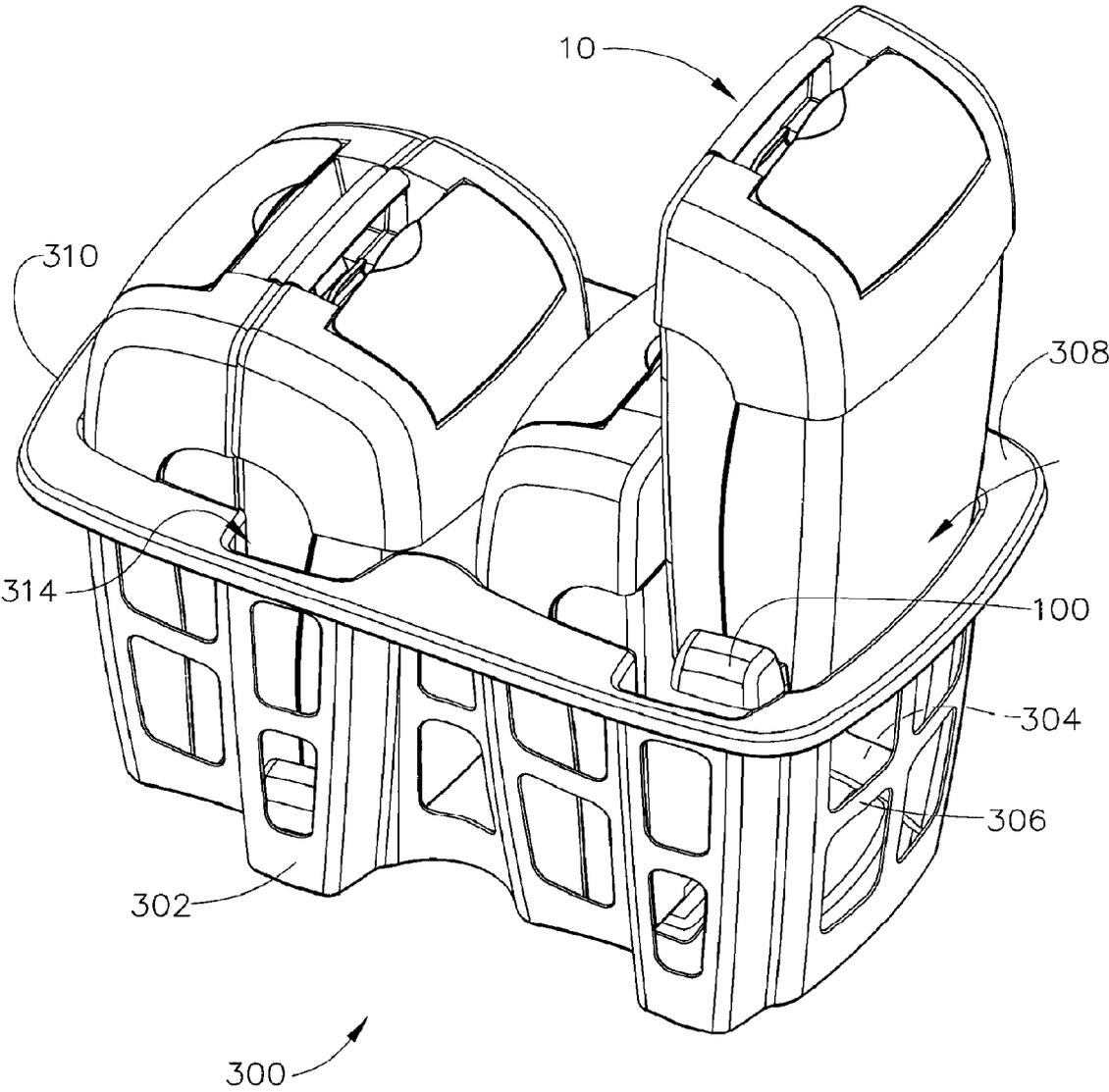


FIG. 6

SANITARY WASTE BIN AND SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of co-pending U.S. Provisional Application No. 60/805,700, filed Jun. 23, 2006.

FIELD OF INVENTION

[0002] The invention relates to waste bins for the hygienic disposal of waste products such as sanitary napkins, pads, bandages, diapers and medical waste products. The invention also relates to sanitary waste systems comprising the waste bin and a bracket for mounting the bin to a wall, and to systems comprising the waste bin and a tray for carrying at least two of the bins in a predetermined position.

BACKGROUND OF THE INVENTION

[0003] The hygienic disposal of sanitary napkins presents a problem for most public washroom facilities. Disposal of sanitary napkins via the normal sewage system is not practical since the napkins may plug drainage pipes and cause backups and blockages. As a result sanitary napkins can accumulate in regular waste receptacles of public washrooms. This causes problems with odor and can be a potential source of infection and disease if not dealt with effectively.

[0004] Various systems have been developed in an attempt to deal with sanitary napkin waste disposal in public washroom facilities. The products typically consist of storage containers separate from regular washroom waste receptacles. Such containers may be floor-standing or recessed into the washroom wall and generally have flip-top lids or flaps through which waste material is deposited into the container. In some cases the containers may contain a disinfecting solution for killing germs and bacteria and for reducing odours associated with such waste material.

[0005] The systems currently available do not provide a secure, controlled environment for the disposal of sanitary napkins. Many of the current systems do not deal effectively with the associated odours and bacteria created by the disposal of sanitary napkins. If disinfecting solutions are used, they should be contained in a secure container so that spillage and splashing of the solution can be avoided by those using the container to dispose of waste and those cleaning the container. The current systems also do not effectively prevent viewing of the waste products being disposed. Opening the container to deposit waste often presents the washroom patron with an unpleasant visual image, which may cause one to simply flush the sanitary napkin down the toilet.

[0006] The lids on many of the current systems also have a tendency to become contaminated with waste fluids, thus presenting a risk of disease and infection to washroom patrons who touch soiled portions of the lid in order to place waste material into the container. While the above discussion focuses on problems associated with the hygienic disposal of sanitary napkins and pads, similar issues apply to the disposal of soiled diapers, bandages and medical waste products in public washrooms and health care facilities.

[0007] Thus there is a continuing need for an improved disposal system for the hygienic disposal of various waste

products, particularly one that can be used in public washroom or health care facilities. Moreover, the disposal system should be designed to remain in use for typical service or cleaning periods, and should be easy to use and provide a cost-effective method for the safe and effective disposal of waste products.

SUMMARY OF THE INVENTION

[0008] The present invention relates to a sanitary waste bin comprising:

[0009] a) a container for storing waste material, the container having a first opening;

[0010] b) a cover for the first opening, the cover having a second opening;

[0011] c) a lid comprising top and bottom surfaces defining a receptacle, the lid being attached to the cover such that the lid is pivotable within the second opening between an open position wherein the bottom surface covers the second opening and the receptacle is positioned to receive waste material, and a closed position wherein the top surface covers the second opening and the receptacle is positioned to deposit waste material into the container;

[0012] d) a lever for engaging the lid to operate it between the closed position and the open position; and

[0013] e) a handle for lifting the bin when disposing of the waste material.

[0014] The invention also relates to a sanitary waste system comprising the above waste bin and a bracket for mounting the bin to a wall.

[0015] In another embodiment, the invention relates to the above waste bin, and a tray for carrying at least two, and often four, of the bins in a predetermined position.

[0016] Other advantages and features of the present invention will be readily apparent to those skilled in the art from a review of the following detailed descriptions of various embodiments in conjunction with the accompanying drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 is a front perspective view of a sanitary waste bin of the invention with the lid fully closed.

[0018] FIG. 2 is an exploded view of the waste bin shown in FIG. 1.

[0019] FIG. 3 is a partial cut away view of the waste bin shown in FIG. 1, with the mounting bracket detached.

[0020] FIG. 4 is a partial cut away view of the waste bin shown in FIG. 1, with the mounting bracket detached and the lid fully open.

[0021] FIG. 5 is a partial cut away, side view of the waste bin in FIG. 1 showing the stop for the bar attached to the lid.

[0022] FIG. 6 is a perspective view of a sanitary waste system of the invention comprising a tray for carrying four waste bins in a predetermined position.

[0023] Similar reference numerals are used in different figures to denote similar components.

DETAILED DESCRIPTION OF THE
INVENTION

[0024] Referring to FIGS. 1 to 5, a sanitary waste bin 10 for storing waste material comprises a generally box-like container 20 open at the top and closed at the bottom. Container 20 is typically formed of a generally rectangular shell having a front wall 22, a back wall 23 (shown in FIG. 2) and opposed side walls 24, all terminating in a top, generally rectangular, peripheral edge 25 (shown in FIG. 2). In waste bin 10, front wall 22 and back wall 23 include holes 26 and 27 (shown in FIG. 2) near the top of the container to receive attachment latches, such as latches 31 and 32 (not shown), respectively, to securely attach a collar, such as collar 30, to container 20. Collar 30 comprises latches 31 and 32, a generally horizontal surface 34 that sits on tip of peripheral edge 25, a generally vertical surface 36 that comprises latches 38, a generally vertical handle support 40, and a generally horizontal handle 42. Handle 42 is spaced apart from the base 44 of the handle support by posts 48 to establish a generally rectangular void space therebetween that is sufficiently large to allow cleaning personnel to easily grip the handle, and to lift and carry the waste bin 10. Alternative handle designs may be used, and the handle may be secured to back wall 23 of the container, or to other parts of the waste bin.

[0025] The waste bin 10 has a top cover 50 for the opening in container 20. Cover 50 is formed separately from container 20. Cover 50 typically has a generally rectangular shape and of the same general outer dimension as the top rectangular peripheral edge 25 of container 20. Cover 50 has a front 55, a back 56 and opposed sides 57. In the embodiment shown in FIG. 3, each of front 55 and sides 57 has a rounded surface, and back 56 has a generally planer vertical surface. Adjacent this back surface and extending from generally planar, vertical, wall 60 about half way to sides 57 and 58, channels 62 are provided in the cover. When cover 50 is slipped over the top of handle support 40, the posts 48 of handle support 40 fit into the channels 62 and hold cover 50 in place. Channels 62 are of sufficient height and width to accommodate the posts 48 of handle support 40. Cover 50 is thus fit onto the top of container 20 by fitting the channels over and around the posts of the handle support.

[0026] Cover 50 has a central rectangular opening 66 as shown in FIG. 2 that permits access to the interior of container 20. Each inside surface of sides 57 of cover 50 has a clip 68 (not shown) protruding toward the interior of the cover. When the cover is fit over the top peripheral edge 25 of container 20, clips 68 engage corresponding clip retainers 28 (shown in FIG. 2) on the outside surface of side walls 24 and securely attach cover 50 to container 20. To remove the cover from the container, the distal ends 58 of sides 57 can be flexed slightly outward to disengage clips 68 from clip retainers 28, and the cover can be lifted off the container.

[0027] A lid 70, such as shown in FIGS. 2 and 4, is constructed to fit into opening 66 in cover 50. The lid comprises top and bottom surfaces defining a receptacle. Lid 70 comprises a curved rectangular top panel 72 and a planar rectangular bottom panel 74 joined along a common edge 75, and further joined by opposing triangular side panels 76 to form a wedge-shaped scoop or receptacle having an angular cavity. When the lid is fully open and viewed from the side, the edge of side panel 76 forms an angle of from

about 75 to about 135 degrees, e.g., from about 90 to about 110 degrees, relative to the top of the cover. The dimensions of lid 70 are slightly smaller than those of opening 66 so that the lid may freely pivot within the opening. On the exterior surface of each side panel 76 near edge 75 is a channel 78. The channels 78 receive and pivot on fixed pins 79 protruding from opposed interior surfaces of cover 50 that are substantially parallel to sides 57 and define the sides of rectangular opening 66.

[0028] When cover 50 is fit over the top peripheral edge 25 of container 20 and lid 70 is fit into opening 66 as shown in FIG. 2, channels 78 line up with the pins 79 in cover 50 to secure the lid to the cover. The pins and channels are designed to permit lid 70 to pivot within opening 66 between a fully open position as shown in FIG. 4 and an at rest, fully closed position as shown in FIGS. 1 and 3. The lid is not permanently attached to the cover, but may only be separated from the cover using force. This prevents easy or accidental access to the container through opening 66, and helps ensure that access to the interior of the container is restricted to cleaning personnel only.

[0029] A grip 80 is formed at the distal edge of top panel 72 of lid 70. Grip 80 is designed to provide a finger grip that can be used to grasp and open the lid. While grip 80 has a protruded surface, alternative grips are possible. For example, the distal edge of top panel 72 may extend slightly beyond the substantially vertical surface 82 defining the back side of opening 66. Alternatively, a knob or handle may be formed or be secured on top panel 72 and used to open the lid.

[0030] Referring now to FIGS. 3-5, lid 70 has a bar 90 located on the vertical outside surface of one side panel 76. The rotation of lid 70 on pins 79 within opening 66 is halted when bar 90 contacts the interior edge 77 of cover 50. Upon release, lid 70 comes to rest in a fully closed position where the top surface of top panel 72 is substantially flush with the top surface of front 55 of cover 50. A lip 84 (shown in FIG. 2) halts the downward rotation of lid 70 at the desired position as shown in FIGS. 1 and 3.

[0031] When it is desired to place waste material into the waste bin 10, grip 80 may be grasped with one or more fingers of one hand and lid 70 is rotated toward the user on pins 79 to a fully open position as shown in FIG. 4. The pivoting of lid 70 on pins 79 continues until bar 90 contacts edge 77 on the underside of cover 50, which functions as a stop for the bar, as shown in FIG. 5. In this fully open position, back panel 74 is oriented substantially parallel with the horizontal plane of opening 66 and presents a smooth horizontal surface on which waste material may be placed. Once the waste material has been placed on back panel 74, grip 80 is released and lid 70 is allowed to rotate under the force of gravity in a downward direction and return to its normal, at rest fully closed position. The waste material is thus deposited into container 20 where it is stored until emptied. The container and waste material may be detoxified, sanitized and deodorized by using various perfumes and chemicals known in the art. A cleaning solution may be used to destroy any bacteria or infectious germs that may be present in or on the waste material and eliminate any unpleasant odors. Any splashing that may occur is effectively contained within the waste bin 10 by the design of the scoop-shaped lid 70. Once the lid has returned to its normal,

at rest fully closed position, it functions to substantially seal the container limiting the escape of any unpleasant odors and any chemical vapors.

[0032] One advantage of the sanitary waste disposal system herein described is that, regardless of the observation angle, it is not possible to view the contents of container 20 during the opening and closing of lid 70 between its fully closed position and its fully opened position as described above. This characteristic of the design of scoop-shaped lid 70 and cover 50 also functions to effectively contain any splashing of any liquids completely within the sanitary waste bin 10, and further prevents any contact between the waste material already in container 20 and any person depositing additional waste into the container.

[0033] Another advantage of the present waste bin 10 is that a person depositing waste material need not come into contact with any soiled or potentially infected surfaces. A person depositing waste material need only touch grip 80 in order to open lid 70. Grip 80 should not come into contact with any waste material. Only the inside surfaces of back panel 74 and side panels 76 of lid 70 come into contact with waste material and only these surfaces normally become soiled. The inside surfaces of back panel 74 and side panels 76 of lid 70 remain completely enclosed at all times when lid 70 is closed and thus can be disinfected by any chemical vapors within container 20.

[0034] Under normal operating conditions, pins 79 secure lid 70 and cover 50 to container 20 allowing the free rotation of lid 70, preventing the removal of the lid and cover from the container, thereby restricting access to the contents of the container. When the container is full or after the normal period of use, cleaning personnel may remove the waste bin and/or the cover of the bin and empty the contents of the container. Any chemical solution can then be replenished and the sanitary waste bin reassembled for further use. As shown in FIG. 1, the handle 42 is spaced apart from the lid 70 to establish a generally rectangular void space 86 between the handle and lid to allow cleaning personnel to easily grasp the handle and lift and carry the waste bin.

[0035] The waste bin 10 further comprises a lever for engaging the lid to operate it between the closed position and the open position. In FIG. 1, the lever is foot pedal 100, which is connected to horizontal arm 102. Arm 102 has a pivot 104 that is held in place by retainer 106, which allows the foot pedal and attached arm to move vertically. Arm 102 is attached to vertical arm 110 through pivot joint 112. Arm 110 has at its distal end a lift arm 114. The arms 102 and 110 are partially enclosed by hollowed out portions in the bottom wall and in one side wall 24 of container 20. When foot pedal 100 is depressed, lift arm 114 pushes against bar 90 attached to lid 70. This pushes bar 90 upward and opens lid 70 without the need to manually open the lid by pulling grip 80. Upon release of foot pedal 100, lift arm 114 and bar 90 return to their at rest positions, which allows lid 70 to close via the force of gravity. Alternatively, the lever may be located higher on the container, or even on the cover, and may be operated by hand or electronically by a motion sensor or by pushing a button. In the above embodiments, the lid of the waste bin opens toward the user when the user engages the lever. However, in other embodiments of the invention, the lid opens away from the user when the user engages the lever, or when the user pushes the lid open from the grip of the lid.

[0036] In one embodiment, a sanitary waste system is provided comprising the above waste bin and a bracket for mounting the waste bin to a wall. A suitable mounting bracket 200 is shown in FIG. 1. Bracket 200 has a generally vertical back frame 202 that fits against the wall, a generally horizontal bottom support wall 204, and opposed generally vertical left and right side walls 206. Frame 202 has screw mounting holes 208 and 210, and a semi-rigid latch 212 that can clip onto bracket attachment lip 46 of handle support 42 to removably attach waste bin 10 to the bracket. As shown in FIG. 1, the left and right side walls 206 are shaped to fit the sides 24 of waste bin 10, thereby providing a smooth surface and attractive design when the mounting frame is attached to the waste bin. The bottom support wall 204 has a well 214 that allows the pivot 104 assembly of waste bin 10 to function without being impeded by the bracket.

[0037] In another embodiment, a sanitary waste system is provided comprising the above waste bin and a tray for carrying at least two, but typically four, of the bins in a predetermined position. The bins typically are oriented back to back with their handles adjacent each other so the bins can be gripped with one hand. A suitable carrying tray 300 is shown in FIG. 6. Tray 300 has a generally rectangular shape having a front wall 302, a back wall 304, and opposed side walls 306, all terminating in a generally rectangular, horizontal top peripheral surface 308 and a vertical peripheral edge 310. The peripheral edge 310 forms a lip that extends around the exterior of tray, and provides a convenient hand grip for carrying the tray. The tray 300 has four recessed sections 314 that extend vertically from the top of the tray to near the bottom of the tray to accommodate the foot pedals of the waste bins. The tray thus holds the bins in a back to back, space saving orientation. This design also helps to securely hold the bins in the tray during transport.

[0038] The components of the waste bin 10, including container 20, top cover 50 and lid 70, mounting bracket 200, and tray 300 may be constructed of hard plastic material molded to the desired shape using known techniques. Other materials such as stainless steel, aluminum or glass may also be used provided they can be formed into the desired shape and hold the contents of the waste bin and any perfume or disinfecting composition added to the container.

[0039] Container 20 typically comprises a suitable perfume or fragrance that can counteract the objectionable odors from the waste products and any disinfectant chemicals used in the container.

[0040] Container 20 may also be partly filled with a chemical disinfecting solution that is both a virucide and a germicide. The solution acts to detoxify, sanitize and deodorize waste material placed into the waste bin 10. The solution is typically non-toxic and non-corrosive and has no adverse environmental or occupational effects. Suitable disinfecting solutions are described in U.S. Pat. No. 6,120,743, Papari, incorporated herein by reference.

[0041] While particular embodiments of the present invention have been illustrated and described, various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover all such changes and modifications that are within the scope of this invention.

What is claimed is:

- 1. A sanitary waste bin comprising:
 - a) a container for storing waste material, the container having a first opening;
 - b) a cover for the first opening, the cover having a second opening;
 - c) a lid comprising top and bottom surfaces defining a receptacle, the lid being attached to the cover such that the lid is pivotable within the second opening between an open position wherein the bottom surface covers the second opening and the receptacle is positioned to receive waste material, and a closed position wherein the top surface covers the second opening and the receptacle is positioned to deposit waste material into the container;
 - d) a lever for engaging the lid to operate it between the closed position and the open position; and
 - e) a handle for lifting the bin when disposing of the waste material.
- 2. A sanitary waste bin according to claim 1 wherein the lid opens toward the user when the user engages the lever.
- 3. A sanitary waste bin according to claim 1 wherein the lid has a grip for manually opening the lid without engaging the lever.
- 4. A sanitary waste bin according to claim 1 wherein the lever is a foot pedal.
- 5. A sanitary waste bin according to claim 1 wherein the cover is removably attached to the container.
- 6. A sanitary waste bin according to claim 5 wherein the cover comprises latches for removably attaching the cover to the container.
- 7. A sanitary waste bin according to claim 1 wherein the handle is spaced apart from the lid to establish a generally rectangular void space therebetween.
- 8. A sanitary waste bin according to claim 7 wherein the lid opens toward the user when the user engages the lever and the lid has a grip for manually opening the lid without engaging the lever.
- 9. A sanitary waste bin according to claim 8 wherein the lever is a foot pedal and the cover is removably attached to the container.
- 10. A sanitary waste bin according to claim 1 further comprising a bracket for mounting the bin to a wall.
- 11. A sanitary waste bin according to claim 10 wherein the bracket comprises a latch for removably attaching the bin to the bracket.
- 12. A sanitary waste system comprising:
 - a) a sanitary waste bin comprising:
 - a container for storing waste material, the container having a first opening; a cover for the first opening, the cover having a second opening; a lid comprising top and bottom surfaces defining a receptacle, the lid being attached to the cover such that the lid is pivotable within the second opening between an open position

- wherein the bottom surface covers the second opening and the receptacle is positioned to receive waste material, and a closed position wherein the top surface covers the second opening and the receptacle is positioned to deposit waste material into the container; a lever for engaging the lid to operate it between the closed position and the open position; and a handle for lifting the bin when disposing of the waste material; and
- b) a bracket for mounting the waste bin to a wall.
- 13. A sanitary waste system according to claim 12 wherein the lid of the bin opens toward the user when the user engages the lever.
- 14. A sanitary waste system according to claim 12 wherein the lid of the bin has a grip for manually opening the lid without engaging the lever.
- 15. A sanitary waste system according to claim 12 wherein the handle of the bin is spaced apart from the lid to establish a generally rectangular void space therebetween.
- 16. A sanitary waste system according to claim 12 wherein the bracket comprises a latch for removably attaching the bin to the bracket.
- 17. A sanitary waste system according to claim 16 wherein the lid of the bin opens toward the user when the user engages the lever and the lid has a grip for manually opening the lid without engaging the lever.
- 18. A sanitary waste system according to claim 17 wherein the handle of the bin is spaced apart from the lid to establish a generally rectangular void space therebetween.
- 19. A sanitary waste system comprising:
 - a) a sanitary waste bin comprising:
 - a container for storing waste material, the container having a first opening; a cover for the first opening, the cover having a second opening; a lid comprising top and bottom surfaces defining a receptacle, the lid being attached to the cover such that the lid is pivotable within the second opening between an open position wherein the bottom surface covers the second opening and the receptacle is positioned to receive waste material, and a closed position wherein the top surface covers the second opening and the receptacle is positioned to deposit waste material into the container; a lever for engaging the lid to operate it between the closed position and the open position; and a handle for lifting the bin when disposing of the waste material; and
 - b) a tray for carrying at least two of the waste bins in a predetermined position.
 - 20. A sanitary waste system according to claim 19 wherein the trays holds the at least two bins back to back with their handles adjacent each other so the bins can be gripped with one hand.
 - 21. A sanitary waste system according to claim 20 further comprising a bracket for mounting the waste bin to a wall.

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