CONTAINER HAVING SNAP-ON METAL LID TO PLASTIC HINGE, AND CONTAINER INCLUDING TRASH RECEPTACLE

A hinged container with a container bottom operably hingedly connected to the lid portion is provided. The container bottom may be provided by one or more components. In another embodiment, a container includes an interior enclosure for storing waste material. The enclosure fully enclosed by a container bottom and container lid to provide two levels of protection from preventing leakage from the enclosure. In other embodiments, the container includes a hinge ring that provides an integral hinge to couple a lid portion to a bottom portion.
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FIELD OF THE INVENTION

[0001] This invention generally relates to containers and more particularly to hinged containers, and even more particularly to containers for tobacco and tobacco products.

BACKGROUND OF THE INVENTION

[0002] For many years containers for many small products, such as tobacco, were made from a metal lid connected to a metal bottom. A metal container was desirable aesthetically, and gave the product a quality, high-class feel.

[0003] In many containers, a hinged connection has been provided. The hinged connection between the lid and the bottom of a container facilitates repeated opening and closing of the container and eliminates the possibility of mislaying the container lid.

[0004] Metal containers are expensive, however, and hinged metal containers are especially so. The hinge on a metal container is typically intricately formed from metal tabs extending from the sides of the container halves. The sheet metal blank from which a container half is formed must be processed to form tabs, and the tabs are then rolled or otherwise processed to make a hinge half. The formation of such hinges generally requires extra metal processing steps and more complicated tool sets so a container made without these steps would be significantly simpler and cheaper.

[0005] Moreover, if the container could be made from plastic or similar material using a single-pull mold, the cost of production would again be decreased. Forming a hinged container made from plastic or a similar material using a single-pull mold would be cost-effective. However, there would still be advantages to having the option of using a metal lid.

[0006] Another problem common in the smokeless tobacco industry is waste disposal. One exemplary type of product is smokeless tobacco in prepackaged in small semi-permeable bags. Typically, the bags were made of the same material as tea bags so as to easily permit saliva to transfer through the bag to transfer flavor from the tobacco contained
therein. After such a smokeless tobacco product has been used, the used bag remains. Often a user is not in a location where disposal of the waste product would be allowed or was convenient.

[0007] Having a waste disposal area built into the container holding the product has been tried, however the waste disposal areas have been prone to leakage, which is especially undesirable for wet, used smokeless tobacco products. The leakage has resulted in staining or undesirable wetting of clothing in which the container is stored.

[0008] The present invention relates to improvements over the present state of the art for hingedly connected containers, as well as waste disposal mechanisms within these containers.

BRIEF SUMMARY OF THE INVENTION

[0009] Embodiments of the present invention have several aspects that may be claimed and stand as patentable independently and individually or in combination with other aspects, including but not limited to the following.

[0010] In one embodiment, the container includes a lid and a bottom that are hingedly connected to one another. The container bottom includes a bottom portion including a bottom wall and a sidewall defining a cavity for storing product. The container bottom further includes a connecting ring portion operably hingedly coupled to the bottom portion. The lid is operably coupled to the connecting ring portion. The lid is pivotable relative to the bottom portion via the hinged coupling between an open orientation and a closed orientation. In the closed orientation, the container bottom and lid portion enclose the cavity.

[0011] In one embodiment, the container bottom is provided by two separate independent pieces that are operably coupled together. One piece being a hinge ring providing the hinge and the other piece being a bottom portion snap connected to the hinge ring. The hinge ring providing the connecting ring portion.

[0012] In another embodiment, the container bottom is provided by a single unitary piece such that the bottom portion and connecting ring portion are formed from a single unitary piece.
Preferably, all molded components are substantially free of undercuts.

In another embodiment, a container is provided that includes a lid portion and a bottom portion defining a cavity. The lid portion movable relative to the bottom portion between open and closed orientations. The container further including a trash receptacle housed within the cavity. The trash receptacle only being accessible when the container is in the open orientation. The trash receptacle including a door that is fully positioned within the cavity and not engageable and/or operable by the user when the container is in the closed orientation. This trash receptacle feature can be provided with the previous features relating to the hinged connection or in other containers that do not include the inventive hinged relationship.

Other aspects, objectives and advantages of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings incorporated in and forming a part of the specification illustrate several aspects of the present invention and, together with the description, serve to explain the principles of the invention. In the drawings:

FIG. 1 is a top isometric illustration of an exemplary embodiment of a container in accordance with the teachings of the present invention with the container in a closed orientation;

FIG. 2 is a cross-sectional view of the container of FIG. 1 in an assembled and open orientation;

FIG. 3 is a perspective illustration of the container bottom of FIG. 1 with the container lid removed in an open orientation;

FIG. 4 is a partial perspective illustration of the container bottom of FIG. 3 illustrating the bottom portion;

FIG. 5 is a cross-sectional, exploded illustration of the container of FIG. 1;
FIG. 6 is a cross-sectional, assembled illustration of the container of FIG. 1;

FIG. 7 is perspective illustration of the container bottom of FIG. 3;

FIG. 8 is a top plan view of the container bottom of FIG. 3 in an as molded orientation;

FIG. 9 is a side profile view of the container bottom of FIG. 3 in an as molded orientation;

FIG. 10 is a top perspective view of the container of FIG. 1 in an assembled and open orientation;

FIG. 11 is a top plan view of the annular connecting ring portion of the container bottom of FIG. 3;

FIG. 12 is a side isometric view of the container bottom in a closed orientation;

FIG. 13 is a top isometric illustration of a second exemplary embodiment of a container in accordance with the teachings of the present invention with the container in a closed orientation;

FIG. 14 is an top perspective illustration of a connecting ring of the container of FIG. 13 in an as molded orientation;

FIG. 15 is an isometric exploded view of the container of FIG. 13;

FIG. 16 is a side cross-sectional exploded illustration of the container of FIG. 13;

FIG. 17 is a side cross-sectional illustration of the container of FIG. 13 in a closed and assembled orientation;

FIG. 18 is a side cross-sectional illustration of the container of FIG. 13 in a closed and assembled orientation taken about a cut line that is perpendicular to the cut line of FIG. 17;
FIG. 19 is a top perspective view of the container of FIG. 13 in an open configuration;

FIG. 20 is a side perspective view of the connecting ring in an as molded orientation;

FIG. 21 is a side profile illustration of the connecting ring of the container of FIG. 13; and

FIGS. 22 and 23 are partial, enlarged cross-sectional views of the container of FIG. 13.

While the invention will be described in connection with certain preferred embodiments, there is no intent to limit it to those embodiments. On the contrary, the intent is to cover all alternatives, modifications and equivalents as included within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates a first embodiment of a container 100 constructed according to the teachings of the present invention. The container 100 generally includes a container lid portion 101 operably hingedly attached to a container bottom 102.

As illustrated in FIGS. 2 and 3, the container bottom 102 generally includes two portions including a bottom portion 145 forming a portion to store or house product and a top connecting ring portion 103 that operably connects the container lid portion 101 to the container bottom 102 to form the hinged container 100. The container lid portion 101 is operably secured to the top connecting ring portion 103 to couple the container lid portion 101 to the container bottom 102.

The top connecting ring portion 103 is operably coupled to the bottom portion 145 by a living hinge 107. The living hinge 107 permits the top connecting ring portion 103 to pivot relative to the bottom portion 145 such that the lid portion 101 may be pivoted relative to the container bottom 102 between open and closed positions. In this arrangement, the top connecting ring portion 103 and bottom portion 145 are formed as a one piece construction such that the container bottom 102 is a one-piece construction. As used herein, a one-piece construction is a single piece of material such as, for example, a
molded piece or a piece that has been machined from a single piece of material. A one-piece construction does not include multiple components that separately formed and then subsequently connected such as by fasteners or welding.

[0043] With additional reference to FIG. 4, the bottom portion 145 includes a closed bottom wall 105 with a first annular sidewall 106 formed integrally with and extending from the closed bottom wall 105. Sidewall 106 includes upper and lower wall portions 106a, 106b. The bottom wall 105 and first annular sidewall 106 define and bound cavity 121 of the container bottom 102 for storing product, such as tobacco, therein.

[0044] The bottom portion 145 also includes a flange extending radially outward from the first annular sidewall 106 in a cantilevered fashion defining a shoulder portion 111 permanently attached to the first annular sidewall 106. As shown in FIG. 2, the flange extends between end 122 proximate sidewall 106 and end 123 (proximate second annular sidewall 112. In the illustrated embodiment, the shoulder portion 111 is located axially along the first annular sidewall 106 proximate the junction of upper and lower wall portions 106a, 106b.

[0045] In the illustrated embodiment, but not required by all embodiments, the container bottom 102 also includes a second annular sidewall 112, which forms a portion of the exterior of the container 100 when the container 100 is closed. The second annular sidewall 112 is radially spaced apart from the first annular sidewall 106, thereby forming a cavity 124 between the first and second annular sidewalls 106, 112. The second annular sidewall 112 generally forms a skirt that surrounds lower wall portion 106b. The top end of the second annular sidewall 112 is permanently attached to the shoulder portion 111 at the radially outermost end 123 of the shoulder portion 111, radially opposite the attached end 122 of the first annular sidewall 106.

[0046] Living hinge 107 is formed between shoulder 111/second annular sidewall 112 and top connecting ring portion 103.

[0047] As illustrated in FIG. 2, the top connecting ring portion 103 acts as a connector to secure the lid portion 101 to the rest of the container bottom 102. As additionally illustrated in FIG. 3 and indicated previously, the top connecting ring portion 103 is connected to bottom portion 145 through living hinge 107. The living hinge 107 allows the top connecting ring portion 103, and consequently an attached lid portion 101 to pivot
relative to bottom portion 145 between an open and a closed position so as to permit opening and closing the container 100.

[0048] As illustrated in FIGS. 2 and 5-7, the container lid portion 101 is dished or cupped including a closed end wall 113 with annular sidewall 114 formed integrally with and extending or transitioning from the closed end 113 defining an interior cavity 128 of the container lid portion 101 as a one-piece construction. The annular sidewall 114 of the container lid portion 101 terminates in a formed edge 110. The formed edge 110 is a portion of sidewall 114 that is rolled inward forming a rolled bead. Alternatively, the formed edge 110 could be provided by a fold. Further yet, the formed edge 110 could be replaced by a formed bead that is pressed radially inward into annular sidewall 114. In any event, a radially inward projecting catch is formed.

[0049] With reference to FIGS. 5 and 6, the formed edge 110 forms a radially inward extending ledge or catch 135 (referred to generally as catch 135) that can be used to connect the lid portion 101 to the top connecting ring portion 103 (see FIG. 6). The top connecting ring portion 103 defines a connecting seat 137 that axially interacts with catch 135 to axially secure the lid portion 101 to container bottom 102, and particularly top connecting ring portion 103. Connecting seat 137 is formed by an end or shoulder of the annular sidewall 139 of top connecting ring portion 103.

[0050] As further illustrated by FIG. 6, sidewall 139 of the top connecting ring portion 103 is received and retained within cavity 128 of the container lid portion 101 axially between catch 135 and closed end 113.

[0051] Thus, with primary reference to FIG. 5, the formed edge 110 has an inner dimension D1 that is less than the corresponding inner dimension D2 of annular sidewall 114 of the container lid portion 101. Half of the difference between D2 and D1 provides the width of catch 135. Sidewall 139 of top connecting ring portion 103, and consequently connecting seat 137, has an outer dimension D3 that is greater than inner dimension D1 of formed edge 110, but is less than inner dimension D2 of sidewall 114. This configuration allows sidewall 139 to be engaged with catch 135 when received within lid portion 101. The configuration provides an axial interference fit between connecting seat 137 and catch 135. Thus, when the top connecting ring portion 103 is attached to the container lid portion 101, see for example FIG. 6, the top connecting ring portion 103 is received and axially trapped within cavity 128 of the container lid portion 101.
[0052] With reference to FIG. 7, a gap 141 is formed between a seat 151 formed, in part, by top surface 143 of shoulder portion 111 and connecting seat 137 when top connecting ring portion 103 is in a closed position relative to bottom portion 145. The rest of seat 151 is formed by a top surface 147 of a connecting portion 149 of the top connecting ring portion 103 that transitions into living hinge 107. The connecting portion 149 extends from a bottom end of sidewall 139. As illustrated in FIG. 6, this gap 141 accommodates formed edge 110 of the container lid portion 101 when the container 100 is assembled and in the closed position. Thus, in the closed position, the formed edge 110 is axially positioned between shoulder 111 and the end of sidewall 139 which includes connecting seat 137. Preferably, formed edge 110 rests on seat 151.

[0053] In this closed position, the connecting seat 137 faces top surfaces 143/147 forming seat 151. In alternative embodiments, top surface 143 could merely be a stepped shoulder feature formed in the sidewall of the bottom 102 defining cavity 121, rather than being a separate flange extending outward from sidewall 106.

[0054] As illustrated in FIG. 4, the top of the shoulder portion 111 includes a recessed section forming cavity 117. With reference to FIG. 7, when the container 100 is in a closed configuration, the connecting portion 149 sits in the cavity 117 such that top surface 147 is substantially planar and continuous with top surface 143 of the rest of shoulder 111. Thus, when the container is closed, seat 151 is substantially continuous about the periphery of the container bottom 102, i.e. by being formed by the combination of surface 143 and surface 147, all the while seat 151 is being provided by two different portions of container bottom 102.

[0055] As further illustrated in FIG. 4, the outer surface of sidewall 106, and substantially upper wall portion 106a includes a radially inward extending recess 126. This recess 126 assists in providing a clearance for allowing the top connecting ring portion 103 to transition between open and closed positions via living hinge 107. More particularly, it permits clearance for connecting portion 149 to rotate relative to sidewall 106.

[0056] Recess 126 extends the same length L1 as the length L2 of living hinge 107. This recess 126 need not be the exact length as living hinge 107. However, it is desirable that length L1 is equal to or greater than length L2. Further, in other embodiments, this recess 126 need not be included at all.
[0057] The container lid portion 101 is preferably formed from a thin metal body that is typically deep drawn, though the container lid portion 101 could be constructed from plastic or other suitable material. As used herein, the term annular shall be broad enough to encompass continuous ring-like sidewalls or ring-like shapes with both curved sections, as well as straight sections, which may include, but are not limited to, circular, polygonal, elliptic or other shapes. These sections may also have stepped features or recesses.

[0058] The container bottom 102 is preferably formed from plastic, metal or other similar material using a straight-pull mold (also known as a one-pull mold), though the container bottom 102 could be made from other materials. By using a straight-pull mold, the structure must be substantially free of any undercuts in the direction in which the two mold pieces are moved apart from one another when dispensing the molded part. If there were undercuts, the portion of the mold forming the undercuts would be required to pass through the molded material, thereby destroying it. However, when molding flexible resilient materials such as plastics, the design need only be substantially free of undercuts as the material may elastically flex or bend and overcome minor undercuts during removal without damaging the molded piece.

[0059] During molding, the top connecting ring portion 103 is pivoted one hundred and eighty degrees relative to bottom portion 145 from the closed position as illustrated in FIGS. 8 and 9.

[0060] To eliminate undercuts in the design, with reference to FIG. 7, sidewall 139 of top connecting ring portion 103 includes stepped section 153 that is stepped radially inward. In the illustrated embodiment, the entire thickness of sidewall 139 (i.e. a step in both the inner and outer surfaces of sidewall 139) is radially stepped inward at stepped section 153. However, in alternative embodiments, the outer surface of sidewall 139 could merely be stepped with the inner surface of sidewall 139 remaining substantially continuous (i.e. free of a corresponding stepped section). In other words, the thickness of sidewall 139 could merely be reduced in section 153 to form recess 118.

[0061] This stepped section 153 aligns with the connection portion 149 such that gap 141 is not present in this section when the container 100 is closed. This stepped section 153 eliminates any undercuts that would otherwise be provided if connection portion 149 were provided along with a continuous outer surface. More particularly, with reference to FIG. 9, the undercut would be provided at location 161 between top surface 147 and seat 137 of sidewall 139 forming part of gap 141.
As shown in FIG. 10, integrally attached to the upper wall portion 106a and extending radially outward is a nib 109. This nib 109 is positioned axially spaced from surface 143. It extends radially less distance than the second annular sidewall 112. The nib 109, when the container is assembled and in a closed configuration, serves as a latch or catch to releasably engage the formed edge 110 of the container lid portion 101 within the gap 141, requiring some force to be applied by a user in the upward axial direction on the container lid portion 101 to move the formed edge 110 out of the gap to open the container 100.

As shown in FIG. 11, the top connecting ring portion 103 also includes a reinforcement section 120 extending radially inward along the top of the top connecting ring portion 103 radially opposite the living hinge 107. The reinforcement piece prevents flexing of the top connecting ring portion 103 which could cause the top connecting ring portion 103 to slip from its position atop the formed edge 110 of the container lid portion 101 causing the container 100 to go from an assembled configuration to a disassembled configuration. A similar reinforcement piece 154 is provided proximate living hinge 107. The reinforcement piece is desirable in the straight side portions of sidewall 153 to prevent bending while allowing for reduced overall wall thickness. Further, the curved ends have hoop strength which reduces the need for strengthening in those locations.

Preferably, as the container 100 is a handheld container and preferably a container sized to fit within a pocket, the container 100, in a closed condition, has a height of between about 0.5 inches and 3 inches, a width in one direction of between about 2 inches and 10 inches and a width in the other direction of between about 2 inches and 10 inches. The container 100 is intended with these dimensions to be roughly hand-held and sized to fit within a pocket, such as of a shirt, pant or jacket, for example.

FIG. 13 is a top view illustration of a second embodiment of a hinged container 200 according to the teachings of the present invention. The container 200 generally includes a container lid portion 201 and a container bottom operably hingedly connected to the container bottom.

The container bottom of this embodiment, unlike the previous embodiment, is formed of two independent components, a bottom portion 202 (substantially identical to top portion 201) and a connection ring 235 coupled to bottom portion 202. These two components can be generically referred to as the container bottom. Thus, the combination
of the container bottom portion 202 and connection ring 235 function substantially similar to container bottom 102 of the previous embodiment, except as described more fully below.

[0067] With reference to FIG. 14, the connection ring 235, which may also be referred to as hinge ring 235, is a unitary body including an top connecting ring portion 220 and a bottom connecting ring portion 226 forming a one-piece construction. The top connecting ring portion 220 and the bottom connecting ring portion 226 are hingedly joined by a living hinge 221 for relative pivotal movement between a closed position (see e.g. FIG. 13) and an open position (see e.g. FIG. 14).

[0068] The top connecting ring portion 220 connects to the container lid portion 201. The bottom connecting ring portion 226 connects to the container bottom portion 202. The top connecting ring portion 220 and the bottom connecting ring portion 226, pivotally joined by the living hinge 221, pivotally join the container lid portion 201 and the container bottom portion 202 to form the hinged container 200.

[0069] As illustrated in FIG. 15, the container bottom portion 202 and container lid portion 201 are substantially identical. Additionally, the container lid portion 201 and container bottom portion 202 are substantially identical to the container lid portion 101 of the previous embodiment. However, other container lid and container bottom configurations may be used in other embodiments. Additionally, the container lid need not be identical to the container bottom while remaining within the teachings of the present invention.

[0070] The container bottom portion 202 includes a closed end wall 206 with an annular sidewall 207 formed integrally with and extending from the closed end wall 206 defining the interior of the container bottom portion 202 and forming a cavity 209. The annular sidewall 207 terminates in a formed edge 208.

[0071] Similarly, the container lid portion 201 includes a closed end wall 203 with an annular sidewall 204 formed integrally with and extending from the closed end wall 203 defining the interior of the container lid portion 201 and forming a cavity 210 (see FIG. 19). The annular sidewall 204 terminates in a formed edge 205.

[0072] The top connecting ring portion 220 is identical to annular connecting ring portion 103 of the previous embodiments and couples to a corresponding container lid
portion 201 in a same fashion. Therefore, only limited discussion of the structure will be provided.

[0073] As illustrated in FIGS. 14 and 16, the bottom connecting ring portion 226 includes a generally annular ring 228 that provides numerous features for facilitating connecting the container bottom portion 202 thereto, as well as providing a seat for the container lid portion 201 when the container 200 is in a closed configuration.

[0074] The annular ring 228 includes a top shoulder portion 229 forming an end of generally axially extending portion 230. Proximate should portion 229 is a seat element 232 that provides lid seat 234 and bottom seat 236. As illustrated in FIGS. 17 and 18, the formed edge 205 of the container lid portion 201 rests on lid seat 234 when the container 200 is in a closed position. The formed edge 208 of the container bottom portion 202 seats against bottom seat 236 when the container bottom portion 202 is connected to bottom connecting ring portion 226.

[0075] Because the container lid portion 201 and container bottom portion 202 are generally identical, the lid seat 234 and bottom seat 236 are generally radially aligned. However, in alternative embodiments, depending on the configuration of the container lid relative to the container bottom, the lid seat 234 may be radially offset (inward or outward) from the bottom seat 236. Additionally, irrespective of the radial alignment, the bottom seat 236 and lid seat 234 axially face away from one another.

[0076] With reference to FIG. 18, it will be understood that a top surface 246 of connecting portion 245 of the top connecting ring portion 220 forms part of the lid seat 234. Thus, lid seat 234 is formed in part by the top connecting ring portion 220 while another portion is provided by the bottom connecting ring portion 226. Coincidentally, seat element 232 is discontinuous at the location where connecting portion 245 provides a portion of lid seat 234. The discontinuity in seat element 232 is provided by recess 248 that receives connecting portion 245 when the container is in a closed position (See FIG. 16).

[0077] Axially extending portion 230 depends downward past bottom seat 236. Portion 230 also includes a radially outward extending projection 238 that forms an undercut region or recess 211 in which formed edge 208 is retained when container bottom portion 202 is secured to bottom connecting ring portion 226. The formed edge 208 of the container bottom portion 202 forms a catch region 242 that axially engages projection 238 to axially
secure the container bottom portion 202 to bottom connecting ring portion 226 when assembled. This configuration provides an interference fit therebetween.

[0078] The axially extending portion 230 further includes a tapered region 240 that transitions into projection 238 to facilitate snap connecting container bottom portion 202 to the bottom connecting ring portion 226.

[0079] As illustrated in FIGS. 13, 17 and 18, seat element 232 is axially positioned between formed edges 205, 208 of the container lid portion 201 and container bottom portion 202, respectively, when the container is assembled. Additionally, outer surface 244 of the seat element 232 is exposed when the container 200 is in the closed position (see FIG. 13).

[0080] This embodiment also illustrates an additional feature, which may or may not be incorporated in any embodiment of the present invention. Namely, with reference to FIGS. 17 and 19, the connection ring 235, and particularly bottom connecting ring portion 226, includes an interior enclosure 250. The interior enclosure 250 includes a bottom 222 with a generally annular sidewall 223 formed integrally with and extending from the bottom 222, defining an interior cavity 209 of the interior enclosure 250. Waste material such as used tobacco and particularly used tobacco packets or bags, such as used with the snus or snuff form of smokeless tobacco. Thus, the interior enclosure 250 can form a waste receptacle, typically a temporary waste receptacle for the waste product.

[0081] The inclusion of such a waste receptacle can be very beneficial in the event that the user is in a position where the user does not have immediate or future access to a garbage. The user is permitted to store the waste product while waiting to discard the product in the future. In the past containers that included separate waste receptacles, the waste receptacle was formed on the outside of the container, i.e. it was accessible when the container was in a closed configuration. However, unfortunately, this often resulted in leakage of moisture from the receptacle. The problem with moisture leakage is that the containers, particularly when used for smokeless tobacco, are often carried in the pocket of the user. Thus, such leakage can result in unsightly or embarrassing staining, permanent or temporary, of the users clothing. However, the present arrangement provides a dual layer of protection to prevent such leakage, as will be more fully described below.

[0082] The interior enclosure 250 includes a door 224, attached to the axial top of the annular sidewall 223 of the interior enclosure 250 by a living hinge 225. As illustrated in
FIG. 17, the interior enclosure door 224 includes an integral handle 227. Preferably, lid 224 has a friction or snap fit with shoulder 252, which is generally formed on three sides of sidewall 223. This configuration will keep door 224 in a closed position. Further, bottom surface 253 of door 224 preferably axially rests on shoulder 254 of sidewall 223 and even more preferably provides some sealing to prevent leakage from interior enclosure 250 into the cavity defined by the container lid portion 201, container bottom portion 202 and connecting ring 235.

[0083] Further, even if the closure door 224 does not stop all leakage, it should be apparent that the present invention provides a second layer of leakage prevention, namely that the interior enclosure 250 is housed within the container formed by lid 201, a bottom 202, and connecting ring 235. Thus, any moisture must also find its way out of the overall container as well.

[0084] The annular sidewall 223 of the interior enclosure 250 is integrally attached to the shoulder portion 229 on three sides of the interior enclosure 250 except for the side of the interior enclosure 250 which is hingeably connected to the interior closure door 224 forming a one-piece construction.

[0085] As illustrated in FIGS. 17 and 18, when assembled, projection 238 is axially below the recess 211 and within the cavity 209 of the container bottom portion 202. The seat element 232 of the bottom connecting ring portion 226 sits on top of the formed edge 208 of the container bottom portion 202. When the container 200 is in a closed configuration, formed edge 205 of the container lid portion 201 contacts lid seat 234.

[0086] As illustrated in FIG. 18, the bottom connecting ring portion 226 is permanently attached to the top connecting ring portion 220 by an living hinge 221 such that connection ring 235 is a one-piece construction.

[0087] As illustrated in FIG. 21, when the container 200 is in a closed configuration a gap 263 is formed between the axial top of the bottom connecting ring portion 226, i.e. the top of seat element 232, and the axial bottom 273 of the top connecting ring portion 220. When the container 200 is assembled and in a closed configuration, the formed edge 205 of the container lid portion 201 rests in this gap 263. This gap 263 performs essentially the same function as gap 104 of the first embodiment.
[0088] The container lid portion 201 and container bottom portion 202 are preferably formed from a thin metal body that is typically deep drawn, though the container lid portion 201 and container bottom portion 202 could be constructed from plastic or other suitable material. As used herein, the term annular shall be broad enough to encompass continuous ring-like sidewalls or ring-like shapes with both curved sections, as well as straight sections, which may include, but are not limited to, circular, polygonal, elliptic or other shapes. As the container lid portion 201 and container bottom portion 202 are preferably deep drawn, container lid portion 201 and container bottom portion 202 are continuous one-piece constructions that are desirably free from voids.

[0089] The top connecting ring 235 is preferably manufactured using similar techniques as container bottom 102. Further, it is desirous to be substantially free of any undercuts to facilitate straight-pull molding. Thus, when molded, the top connecting ring portion 220 and bottom connecting ring portion 226 are rotated relative to one another approximately 180 degrees toward a fully open position, see FIGS. 14 and 20. Additionally, as illustrated in FIG. 14, the door 224 of interior enclosure 250 is also fully open. As indicated previously, the molded structures only need to be substantially free of undercuts. Substantially free shall be considered to include minor undercuts such as that are provided between projection 238 and seat 236 (see FIG. 16) or between nib 109 and surface 143. These undercuts are minor and would not inhibit ejection of the part from a mold.

[0090] Preferably, the container 200, in a closed condition, has a height of between about 0.5 inches and 3 inches, a width in one direction of between about 2 inches and 10 inches and a width in the other direction of between about 2 inches and 10 inches. The container 200 is intended with these dimensions to be roughly hand-held.

[0091] All references, including publications, patent applications, and patents cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0092] The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) is to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to," ) unless otherwise noted. Recitation of ranges of values herein are merely
intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0093] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.
WHAT IS CLAIMED IS:

1. A container comprising:
   a container bottom including a bottom portion including a bottom wall and a
   sidewall defining a cavity for storing product, the container bottom further including a
   connecting ring portion operably hingedly coupled to the bottom portion; and
   a lid portion operably coupled to the connecting ring portion,
   wherein the lid portion is pivotable relative to the bottom portion via the
   hinged coupling between an open orientation and a closed orientation, in the closed
   orientation, the container bottom and lid portion enclosing the cavity.

2. The container of claim 1, wherein the container bottom is formed from two
   discrete pieces including a hinge ring, the hinge ring providing the connecting ring portion,
   and a bottom portion coupled to the hinge ring.

3. The container of claim 2, wherein the hinge ring includes a top connecting
   ring portion hingedly connected to a bottom connecting ring portion by an integral living
   hinge, the bottom portion coupled to the bottom connecting ring portion and the lid portion
   coupled to the top connecting ring portion.

4. The container of claim 3, wherein the lid portion and bottom portion are
   identical.

5. The container of claim 3, wherein the top connecting ring portion includes an
   annular sidewall, the annular sidewall being entirely received within the lid portion, lid
   portion including a lid formed edge defining a radially inward extending lid catch, the lid
   catch axially engaging an end of the annular sidewall.

6. The container of claim 5, wherein the bottom connecting ring portion
   includes a seat element, the bottom portion including a bottom formed edge defining a
   radially inward extending bottom catch, the seat element being axially interposed between
   the lid and bottom formed edges when the container is in a closed orientation.

7. The container of claim 6, wherein the seat element includes a lid seat that is
   contacted by the lid formed edge and a bottom seat that is contacted by the bottom formed
   edge when the container is in a closed orientation.
8. The container of claim 6, wherein the bottom connecting ring portion includes a sidewall extending axially from the seat element, the sidewall including a radially outward extending projection that axially engages the bottom catch to secure the bottom portion to the bottom connecting ring portion.

9. The container of claim 7, wherein the lid seat and the bottom seat face axially away from one another, and wherein a gap is axially formed between the lid seat and the end of the annular sidewall that is engaged by the lid catch, when the container bottom is in a closed orientation.

10. The container of claim 1, wherein the container bottom is formed from a one-piece construction and the connecting ring portion and bottom portion are integrally coupled by a living hinge to form a one-piece construction.

11. The container of claim 10, wherein the top connecting ring portion includes an annular sidewall, the annular sidewall being entirely received within the lid portion, lid portion including a lid formed edge defining a radially inward extending lid catch, the lid catch axially engaging an end of the annular sidewall.

12. The container of claim 11, wherein the bottom portion defines, at least in part, a radially outward extending seat, the radially outward extending seat and the end of the annular sidewall defining a gap therebetween when the container is in a closed orientation, the lid formed edge being received in the gap when the container is in the close orientation.

13. The container of claim 12, wherein the lid formed edge axially contacts the radially outward extending seat when the container is in the closed orientation.

14. The container of claim 13, wherein the radially outward extending seat is formed, in part, by the connecting ring portion.

15. The container of claim 1, further including an interior enclosure housed entirely within the cavity, the interior enclosure defining a waste receptacle and including a door to provide access to the waste receptacle, the container requiring to be opened prior to opening the waste receptacle.
16. A container comprising:
   a lid portion;
   a bottom portion operably coupled to the lid portion for movement between an open orientation and a closed orientation relative to the lid portion,
   a waste receptacle within the lid and bottom portions, the waste receptacle being accessible from within the lid and bottom portions and not accessible when the lid portion is positioned in the closed orientation relative to the bottom portion.