US 20090289078A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0289078 A1**

(43) **Pub. Date: Nov. 26, 2009**

MELIN et al.

(54) **WIPES DISPENSER WITH IMPROVED DISPENSER OPENING**

(76) Inventors: **SCOTT MELIN**, Livermore, CA (US); **DAVE HONAN**, Concord, MA (US); **CHRIS GIEDA**, Long Valley, NJ (US); **INES ZAVALETA**, Buenos Aires (AR)

Correspondence Address:
THE CLOROX COMPANY
P.O. BOX 24305
OAKLAND, CA 94623-1305 (US)

(21) Appl. No.: **12/207,216**

(22) Filed: **Sep. 9, 2008**

Related U.S. Application Data

(63) Continuation-in-part of application No. 12/125,274, filed on May 22, 2008.

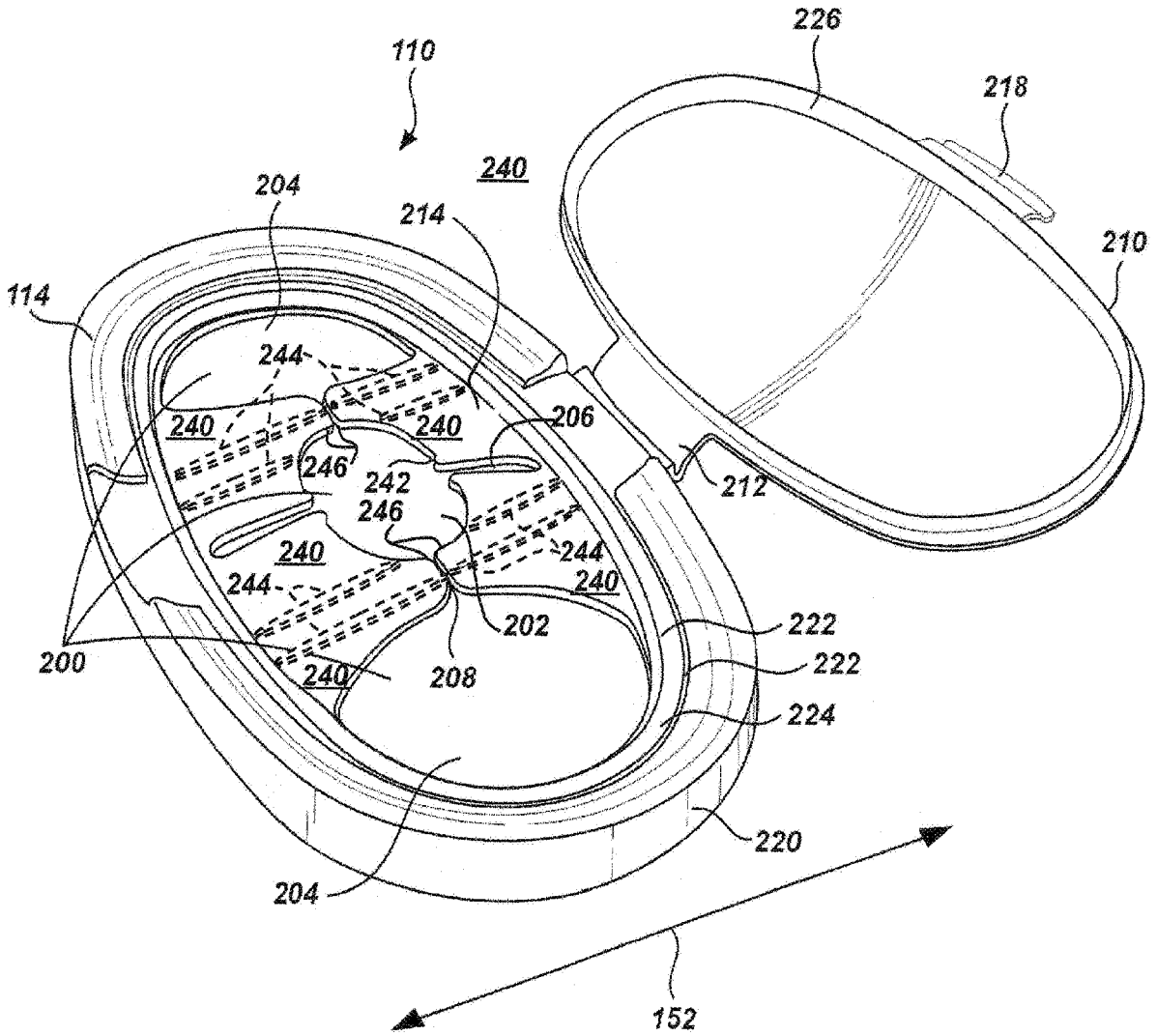
Publication Classification

(51) **Int. Cl.**
A47K 10/24 (2006.01)
B65H 1/00 (2006.01)

(52) **U.S. Cl.** **221/45**; 221/282; 221/285

(57) **ABSTRACT**

A product, such as a wipes dispenser, having an oblong housing. The product may have sidewalls that taper inward from the top to the bottom. The product may contain a u-shaped stack of wipes. The product may have a lid with one or more openings through which a user accesses the wipes.



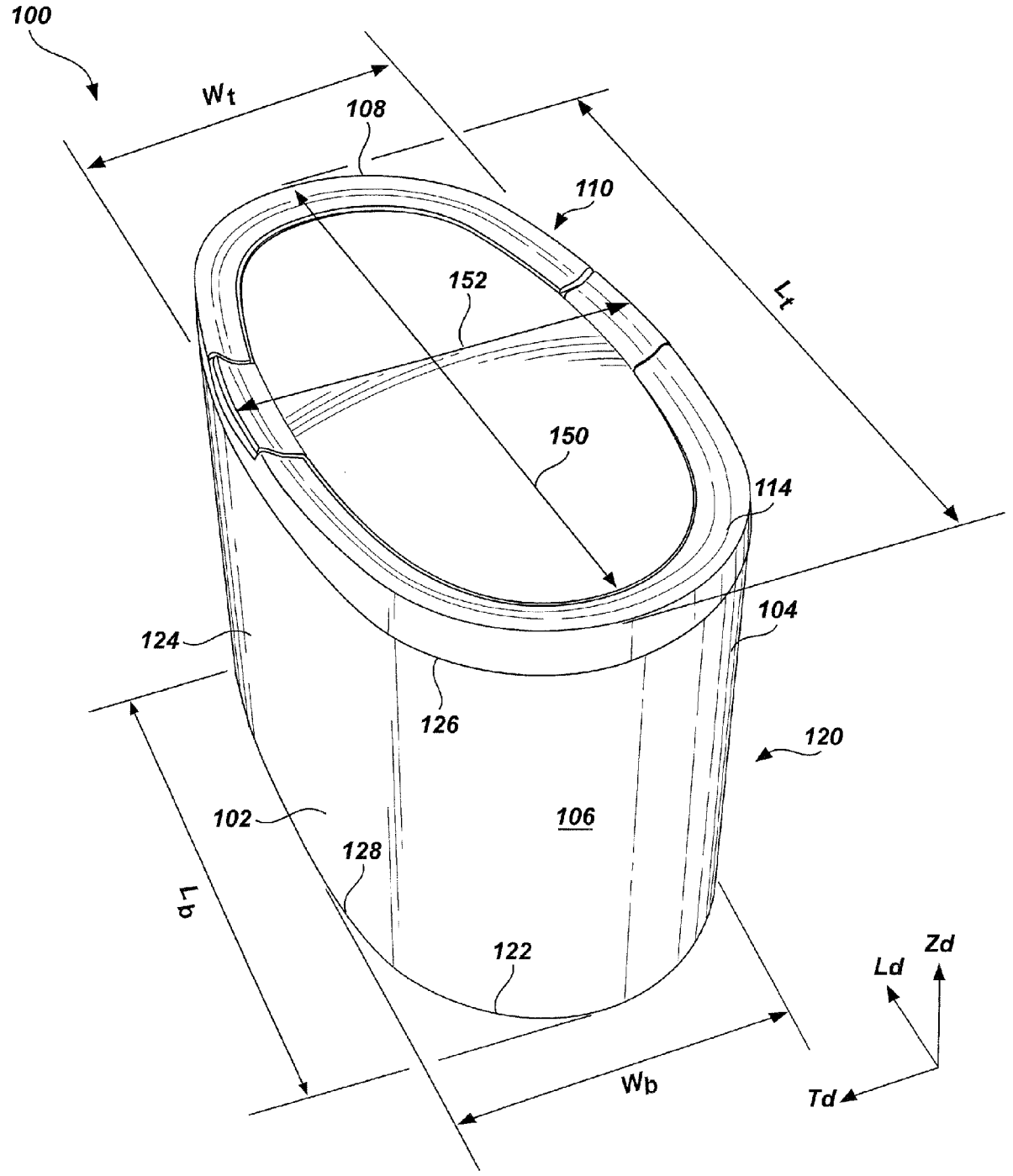

100
Wt
108
110
152
Lt
150
114
104
124
126
120
102
106
128
Lb
122
Zd
Ld
Td
Wb

Fig. 1

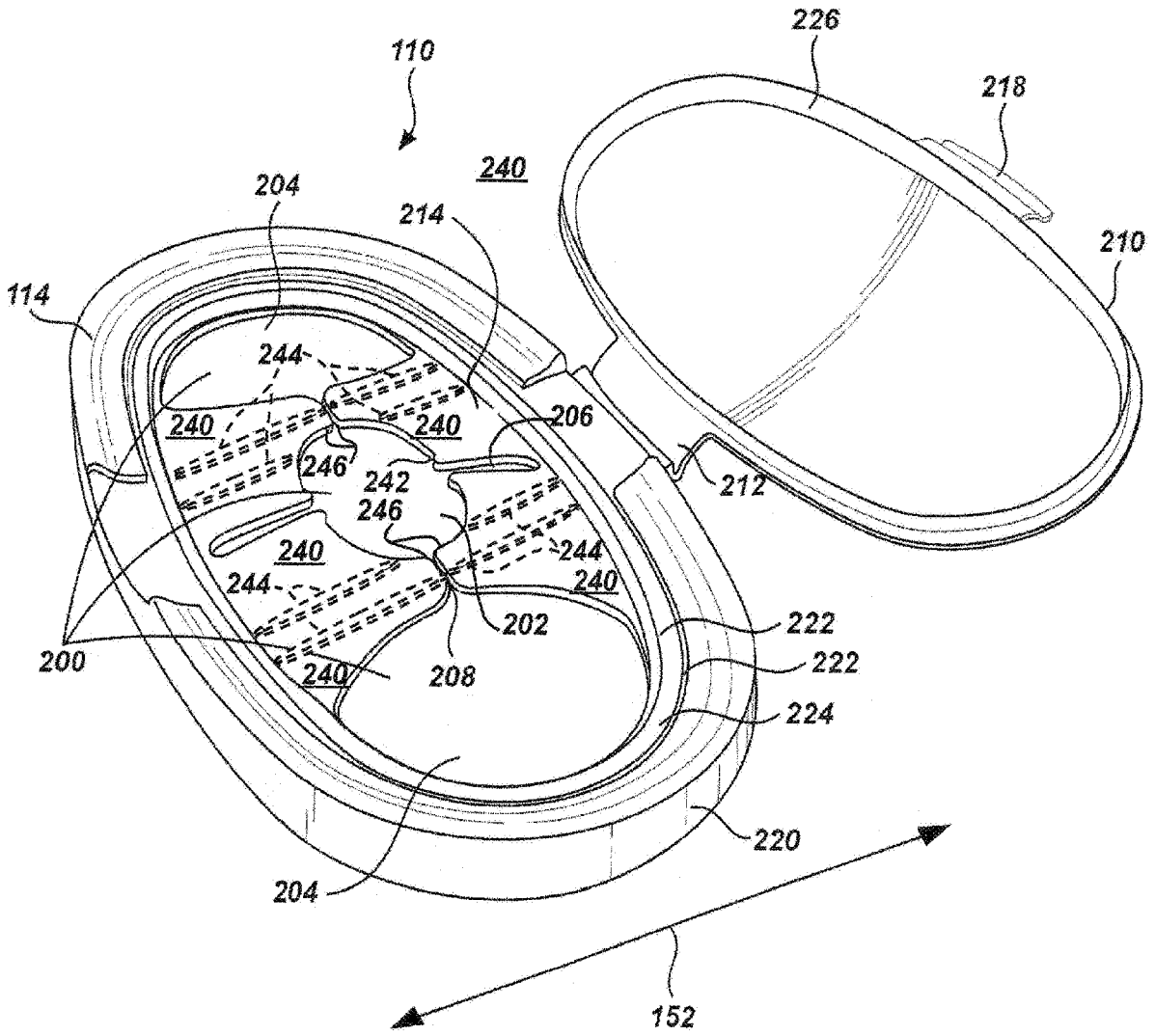

110
226
218
210
240
204
214
114
244
240
240
206
246
242
212
246
240
244
244
240
202
222
200
240
208
222
224
220
204
152

Fig. 2

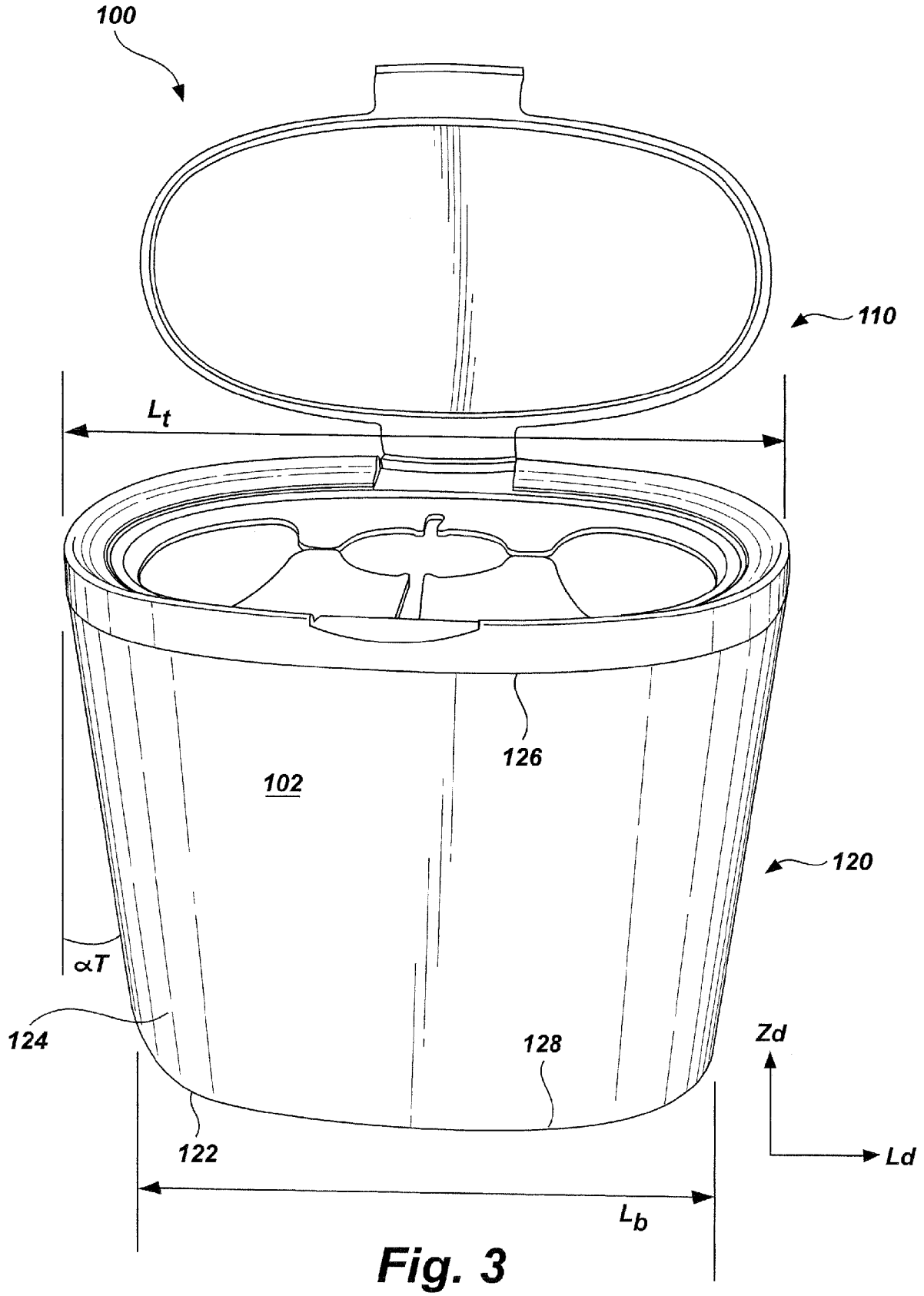


Fig. 3

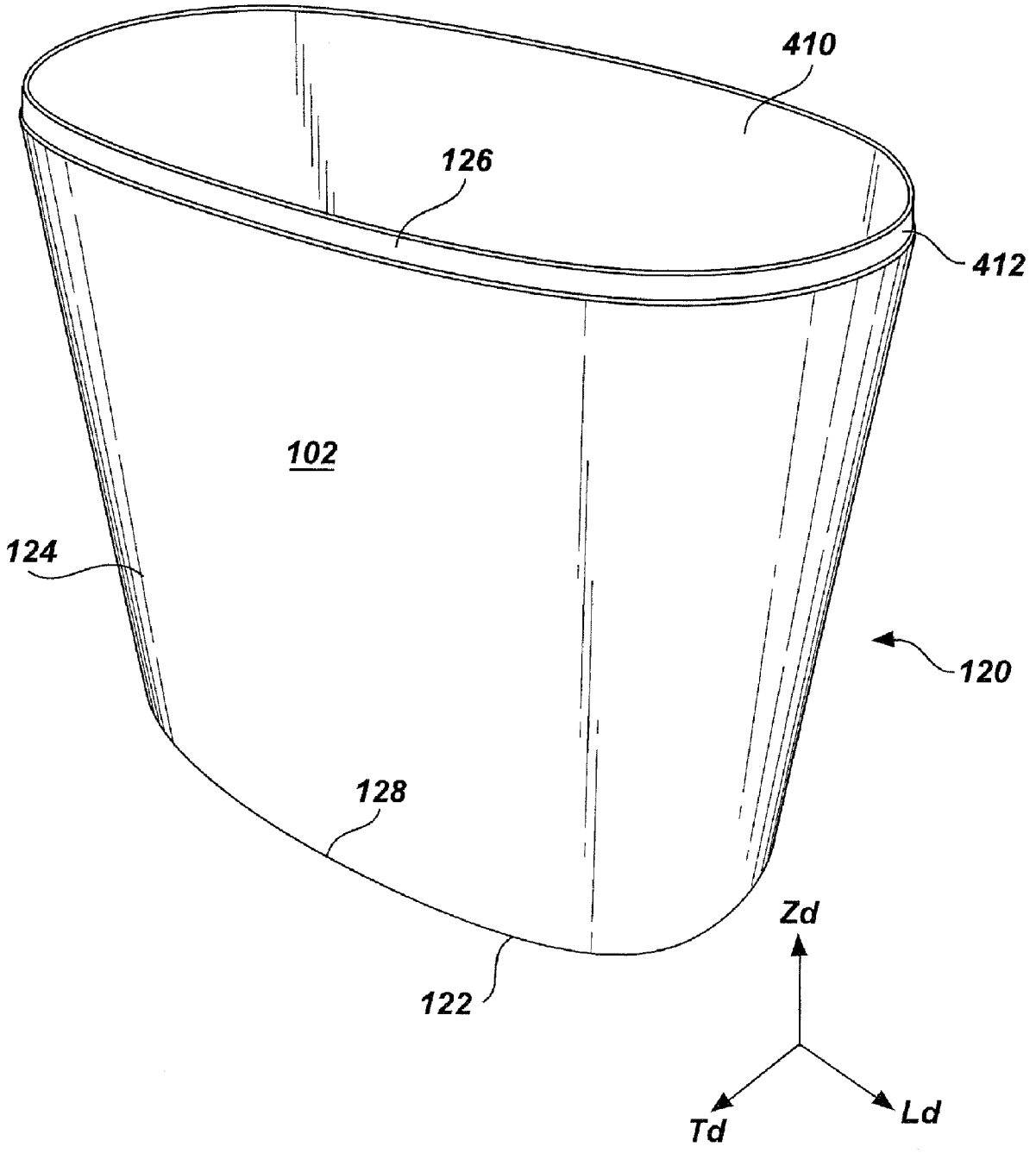


Fig. 4

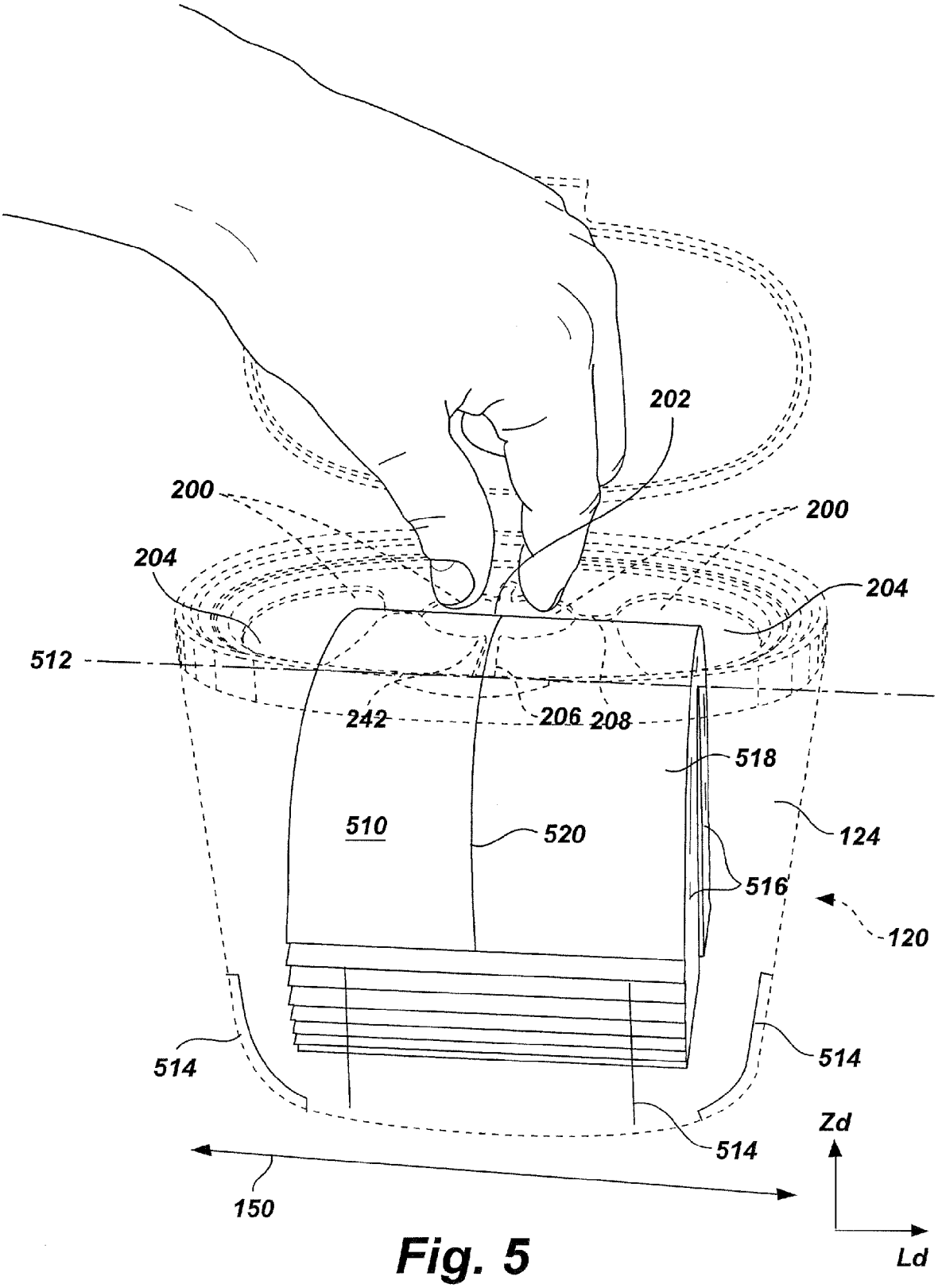

202
200
200
204
204
512
242
206
208
518
510
520
124
516
120
514
514
514
Zd
150
Ld

Fig. 5

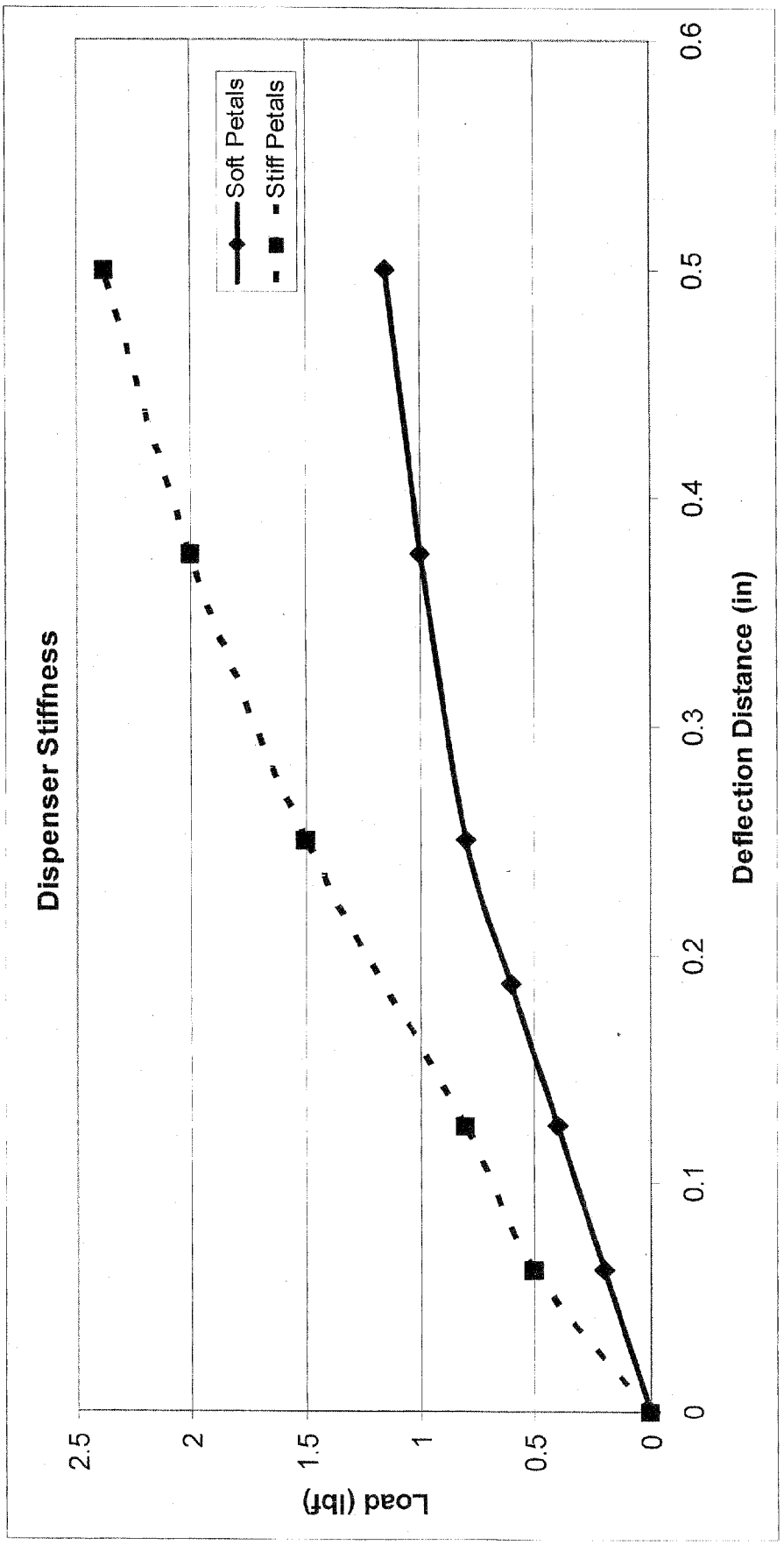

Dispenser Stiffness
Soft Petals
Stiff Petals
Load (lbf)
2.5
2
1.5
1
0.5
0
0
0.1
0.2
0.3
0.4
0.5
0.6
Deflection Distance (in)

FIG. 6

WIPES DISPENSER WITH IMPROVED DISPENSER OPENING

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation-in-part application of U.S. patent application No. 12/125,274, filed May 22, 2008.

BACKGROUND

[0002] 1. Field of the Art

[0003] The exemplary embodiments relate generally to wipes dispensers. More particularly, the embodiments relate to a generally oblong container with a dispensing aperture through which wipes may be easily grasped and dispensed.

[0004] 2. Description of Related Art

[0005] Many types of containers are known in the art for packaging dry, wet, or moistened wipes. Besides wipes, other sheet-like substrates, such as towels, tissues, sponges, pads, napkins, diapers, are also packaged in similar containers. For example, wipes are often packaged in a standard dispenser containers that are either rectangular or cylindrical in shape. These standard dispensers are sometimes fitted with a removable or hinged lid that includes a small dispensing aperture for accessing wipes. Such containers and lids, however, present problems efficiently storing wipes to reduce container size while still maximizing the number of stored wipes, and maintaining adequate moisture content. Further problems include locating, grasping, removing, and rethreading wipes from traditional dispensers.

SUMMARY

[0006] In view of the foregoing, there is a need to provide a more ergonomic and efficiently designed container to reduce cost and facilitate dispensing, as well as provide a more usable dispensing opening.

[0007] In accordance with one embodiment, a product having a longitudinal axis and a transverse axis, has an oblong dispenser having a length along the longitudinal axis that is greater than a width along the transverse axis. The oblong dispenser includes an oblong top, an oblong bottom that is smaller than the top, and a sidewall tapering inward from the top to the bottom of the dispenser. The product also has a u-shaped folded stack of wipes, that is formed from a flat stack of a plurality of sheet-like wipes folded about a transverse fold axis, and disposed in the dispenser so that the transverse fold axis is parallel to the product's longitudinal axis.

[0008] In accordance with another embodiment, a dispenser having a longitudinal axis and a transverse axis has a base, and a lid removably attached to the base. The base has a length measured along the longitudinal axis that is greater than a width measured along the transverse axis. The dispenser has a dispensing opening in the lid that has a center opening and at least one slot aligned with the transverse axis and in communication with the center opening.

[0009] In accordance with another embodiment, a product having a longitudinal axis and a transverse axis has an oblong dispenser having a length along the longitudinal axis that is greater than a width along the transverse axis. The dispenser has an oblong top, an oblong bottom, a sidewall extending between the top and bottom, and at least one internal rib on the sidewall, disposed on the interior of the dispenser. The product also has a u-shaped folded stack of wipes, that is formed from a flat stack of a plurality of sheet-like wipes folded about a transverse fold axis, and disposed in the dispenser so that the transverse fold axis is parallel to the product's longitudinal axis.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Advantages of the exemplary embodiments will be apparent to those of ordinary skill in the art from the following detailed description and the accompanying drawings, in which like reference numerals are used to indicate like elements:

[0011] FIG. **1** is a side perspective view of a closed dispenser for dispensing wipes, according to one embodiment of the present disclosure.

[0012] FIG. **2** is a top perspective view of an open lid for a dispenser, according to one embodiment of the present disclosure.

[0013] FIG. **3** is a front perspective view of an open dispenser for dispensing wipes, according to one embodiment of the present disclosure.

[0014] FIG. **4** is a front perspective view of a base for a dispenser, according to another embodiment of the present disclosure.

[0015] FIG. **5** is a transparent, front perspective view of an open dispenser containing wipes, according to one embodiment of the present disclosure.

[0016] FIG. **6** is a graph comparing the relationship between the vertical force load placed on the free end of a dispenser petal relative to the vertical deflection of the petal for a soft petal and for a stiff petal.

DETAILED DESCRIPTION

[0017] The following description provides exemplary embodiments of a dispenser for dispensing wipes. It should be appreciated, however, that the dispenser, and the configuration of the dispenser described herein is not limited to the embodiments and details disclosed, as those embodiments are exemplary only. It is further understood that one possessing ordinary skill in the art will appreciate the use of the exemplary embodiments for its intended purposes and benefits in any number of alternative embodiments, depending on specific design and other needs.

[0018] It will be understood that the dispenser as described below, as well is any components thereof, may be formed from a variety of materials, such as, for example, polypropylene (PP), high density polyethylene (HDPE), polyethylene terephthalate (PET), polystyrene (PS), acrylonitrile-butadiene-styrene (ABS), and other engineered plastics, and may be formed with a variety of fabrication technologies, such as, for example, injection molding. It will also be understood that the dispenser as shown in the embodiments is not limited to any particular size or shape.

[0019] Throughout the description, "wipes" means any substrate that is useful for household chores, cleaning, personal care, health care, food wrapping, cosmetic application or removal, or the like. Non-limiting examples of suitable substrates for use with the dispenser include nonwoven and woven substrates; hydro-entangled substrates; air-entangled substrates; cellulosic paper substrates; coform substrates comprising cellulose fibers and polymer fibers; wet substrates

such as wet wipes, moist or premoistened cleaning wipes, moist toilet paper wipes, and baby wipes; film or plastic substrates; or shop towels.

[0020] The embodiments will now be described more fully with reference to the accompanying drawings in which some, but not all, embodiments are illustrated.

[0021] With reference to FIGS. **1-5**, a dispenser **100**, according to an exemplary embodiment, will be discussed in more detail. The dispenser **100** of this embodiment may comprise a lid **110** removably attached to a base **120**. Together, the lid **110** and the base **120** may define a housing to store wipes. In various exemplary embodiments, the dispenser **100** may be any suitable size or shape, including, but not limited to polygonal, elliptical, cubic, rectangular, cylindrical, conical, frustoconical, ovoid, or the like. In various exemplary embodiments, the dispenser **100** housing may include a combination of shapes, such as one formed by a rectangular base **120**, and an elliptical lid **110**.

[0022] In an exemplary embodiment, the dispenser **100** may be oblong in shape. As used herein, the term oblong is used to describe a shape or form that is elongated in one direction, such as a rectangle having a length that is longer than a width, or an oval having a major axis that is longer than a minor axis. In an exemplary embodiment, the dispenser **100** has an oblong lid **110**. In an exemplary embodiment, the dispenser **100** has oblong base **120**. In another exemplary embodiment, the dispenser **100** has both an oblong lid **110** and an oblong base **120**.

[0023] As best illustrated in FIG. **1**, according to an exemplary embodiment, dispenser **100** may have a housing generally in the shape of an oblong rectangular prism having rounded edges and curved sidewalls, as it is best shown FIG. **1**. Alternatively, this exemplary dispenser **100** may be described as a flattened, frustoconical body. The dispenser **100** may have a front **102**, a back **104**, a first side **106**, a second side **108**, a top **112**, and a bottom **122**. The various dimensions of the exemplary dispenser **100** illustrated in FIG. **1** will be described in reference to a longitudinal axis L_d, a transverse axis T_d, and a z-axis Z_d.

[0024] The dispenser **100** may have an top **112**, bottom **122**, and sidewall **124**. The sidewall **124** may be continuous and have an upper edge **126** joining the top **112** about its perimeter, and a lower edge **128** joining the bottom **112** about its perimeter, thereby creating a cavity to store wipes. The sidewall **124** may be formed unitary with the bottom **122**, or may be formed separately therefrom, and joined together such as with mechanical, thermal, or chemical means, including, without limitation, adhesive bonding. Likewise, sidewall **124** may be formed unitary with the top **112**, or may be formed separately therefrom, and joined together such as with mechanical, thermal or chemical means, including, without limitation, adhesive bonding.

[0025] In an exemplary embodiment, the top **112** and bottom **122** may be generally oval in shape. In various exemplary embodiments, the top **112** may have the same shape as the bottom **122**. In other exemplary embodiments, the top **112** and bottom **122** may have different shapes. For example, in various exemplary embodiments, the top **112** may have a generally oval shape, and the bottom **122** may have a rectangular or rounded rectangular shape. In various exemplary embodiments, the top **112** is the same size as the bottom **122**. In other exemplary embodiments, the top **112** is a different size (either larger or smaller) than the bottom **122**.

[0026] In embodiments in which the dispenser **100** has an oval or oblong shape, the dispenser **100** may have a major axis **150** generally aligned with the longitudinal axis L_d, and a minor axis **152**, generally aligned with the transverse axis T_d. The major axis **150** may generally correspond to the longest horizontal dimension of the dispenser **100**. In exemplary embodiments in which the top **112** has a different size than the bottom **122**, the top **112** and the bottom **122** may have parallel major axes **150** and parallel minor axes **152**. It will be appreciated that the major axes **150** and minor axes **152** of the top **112** and bottom **122**, respectively, may not be parallel.

[0027] In an exemplary embodiment, the top **112** is larger than the bottom **122**, such that the sidewall **124** may taper from the top **112** to the bottom **122**. In other words, the dispenser **100** may narrow from the top **112** to the bottom **122**, thereby creating a generally frustoconical-shaped dispenser **100**. Such a generally frustoconical-shaped dispenser **100** may provide ergonomic advantages over the typical parallelepiped and cylindrical dispensers, which are readily known in the art. In addition, this configuration enables the containers to be stacked in a nested configuration, so that containers fit within each other for ease of shipping and handling. In exemplary embodiments, in which the top **112** is larger than the bottom **122**, the dispenser **100** may have a length L_t across the major axis **150** of the top **112**, and a length L_b measured across the major axis **150** of the bottom **122**, where length L_t is greater than L_b. Likewise, the dispenser **100** may have a width W_t, across the minor axis **152** of the top **112**, and a width W_b across the minor axis **152** of the bottom **122**, where width W_t is larger than W_b. As mentioned above, the top **112** and bottom **122** may generally comprise the same shape, however, the shape of the top **112** and bottom **122** may be changed as necessary or desired.

[0028] In an exemplary embodiment, the top **112** may have a length L_t measured along the major axis **150** of about 3.5 to about 8.5 inches, more preferably about 6.25 inches. In an exemplary embodiment, the top **112** may have a width W_t measured across the minor axis **152** of about 1.5 to about 6.0 inches, more preferably about 3.5 inches.

[0029] In an exemplary embodiment, the bottom **122** may have a length L_b measured along the major axis **150** of about 3.0 to about 8.0 inches, more preferably about 5.5 inches. In an exemplary embodiment, the bottom **122** may have a width W_b measured across the minor axis **152** of about 1.0 to about 5.5 inches, more preferably about 3 inches.

[0030] In an exemplary embodiment, the dispenser **100** may have a height H, measured from the top **112** to the bottom **122** in the z-axis direction Z_d, of approximately 3.0 to about 8.0 inches, more preferably about 5½ inches.

[0031] As described above, in embodiments in which the top **112** is larger than the bottom **122**, the sidewall **124** of dispenser **100** may taper inward from the top **112** to the bottom **122**. In various embodiments, the taper angle α_T as measured along the front **102** and back **104** of the dispenser **100**, may be about 0° to about 8°, more preferably about 3° as measured from the vertical (the z-axis). The sidewall **124** may have the same taper angle α_T about the entire perimeter of the dispenser **100**, or it may vary, depending on the size and shape of the top **112** and bottom **122**. In an exemplary embodiment, the taper angle α_T as measured along the first and second sides **106**, **108** of the sidewall **124** is from about 0° to about 8°, and more preferably about 5° as measured from the vertical (the

z-axis Z_d). It will be understood that as the top **112** and bottom **122** dimensions and shape are varied, the taper angle α_T will vary accordingly.

[0032] Without intending to be bound by theory, it is believed that using different tapering angles along the two axes (L_d, T_d), respectively, provides certain benefits. For example, a larger tapering angle on the first and second sides **106**, **108**, may provide a more significant curvature aesthetic purpose to the user as it sits on the retail shelf or user countertop. However, using a larger taper angle over the entire surface of the sidewall **124**, may cause a significant increase in the overall size of the dispenser **100**, impacting manufacturing efficiencies (e.g., pallet patterns), and store shelf space. Using a smaller taper angle on the front **102** and back **104** of the dispenser **100** provides a container with a smaller size, which improves the manufacturing efficiencies, allows more products to fit front-to-back on a store shelf, and that is less obtrusive on a user's countertop. It is also believed that using a smaller taper angle on the front **102** and back **104** of the dispenser **100** may improve the ability of the dispenser **100** to contain and stabilize a U-folded stack of wipes, reducing its tendency to flop around inside the dispenser, improving the user perception of the dispenser **100**.

[0033] Referring now to FIG. **5**, a U-folded stack (U-shaped clip) of wipes **510** is shown stored within the inside of the dispenser **100**. The U-shaped clip **510** may be formed from a flat stack of a plurality of individual wipes. The flat stack of wipes, which is typically rectangular, may be preassembled and folded about a transverse fold axis **512** to create the U-shaped clip **510**.

[0034] In exemplary embodiments, the U-shaped clip **510** is inverted, so that the arch-shaped portion of the folded clip **510** is disposed facing the top **112** of the dispenser **100**. In various exemplary embodiments, a head space is provided between the outermost layer of the U-shaped clip and the top **112** of the dispenser **100**. Without intending to be bound by theory, it is believed that the headspace may be related to the user's satisfaction in dispensing the first several wipes. For example, too little headspace may not allow the first few wipes to disengage from the clip **510**, which may result in an increase in pull force required to remove these wipes, and an increased probability of wipes falling back into the container. Conversely, too much headspace may cause the user to have difficulty reaching the first wipe through the lid **110** of the dispenser **100**. In exemplary embodiments the headspace distance between the U-shaped clip **510** and the top **112** of the dispenser is about 0.125 to about 1.25 inches, preferably about 0.375 to about 0.5 inches.

[0035] The flat stack of wipes may have any suitable length, as measured along a longitudinal axis, and any suitable width, as measured along a transverse axis, to allow for the U-shaped clip **510** to fit within the dispenser **100**. In an exemplary embodiment, a fully assembled flat stack of wipes (i.e., before the stack is folded about a transverse fold axis **512** to form the U-shaped clip **510**) may have a length of about 3 inches to about 16 inches, preferably about 8 inches. In exemplary embodiments, the length of the flat stack of wipes is the same as the length of an individual wipe. In an exemplary embodiment the flat stack of wipes may have a width of about 3 inches to about 7 inches, preferably about 4.5 inches. In an exemplary embodiment, the width of the flat stack of wipes is less than the width of an individual wipe, i.e., the individual wipes within the stack may be folded one or more times. In an exemplary embodiment, the flat stack of wipes may have a height of about 0.5 inches to about 4.0 inches, preferably about 1.5 inches. The height of the flat stack may be dependent upon the number of wipes in a stack, the thickness of the individual wipe, and the folded configuration of the individual wipes.

[0036] The flat stack of wipes may be folded up to 180 degrees about the transverse fold axis **512** to form the U-shaped clip **510**. The U-shaped clip **510** may have an arched top, and a bottom that comprises two opposing legs **516** located on opposite sides of the transverse fold axis **512** and extending therefrom. The U-shaped clip **510**, once folded, may be inserted into the dispenser **100**, so that the arched top is directed toward the top **112** of the dispenser **100**, and at least a portion of the legs **516** rest against the bottom **122** of the dispenser **100**. The dimensions of the U-shaped clip **510** may vary depending on the dimensions of the flat stack wipes, and the degree with which the flat stack of wipes is folded about the transverse fold axis **512**, with the maximum fold angle being approximately 180 degrees. For example, the U-shaped clip **510** may have a folded height of about 2.5 inches to about 10.0 inches, preferably about 4.5 inches. In an exemplary embodiment, the U-shaped clip **510** may have a folded width of about 3.0 inches to about 7.0 inches, preferably about 4.5 inches. In an exemplary embodiment, the U-shaped clip may have a folded length of about 0.5 inches to about 5.0 inches, preferably about 3.0 inches. In an exemplary embodiment, the legs of the U-shaped clip may have a length of about 2.0 inches to about 10.0 inches, preferably about 4.5 inches. In an exemplary embodiment, when the flat stack is folded about the transverse fold axis **512**, the U-shaped clip **510** may have a folded width that is greater than the folded length. In an exemplary embodiment, when the flat stack is folded about the transverse fold axis **512**, the U-shaped clip **510** may have a folded width that is approximately equal to or less than the folded length.

[0037] Each of the wipes in the flat stack of wipes may have a size and shape suitable for their intended use. One of ordinary skill in the art would understand how to design the size and shape of the wipe. In various exemplary embodiments, the dimensions of the wipes may be larger than the desired dimensions of the flat stack of wipes. Therefore, in exemplary embodiments, the individual wipes may have one or more folds to provide a folded stack having the desired dimensions. In an exemplary embodiment, a flat stack of wipes may contain individual wipes that are folded one or more times along their longitudinal direction, and interleaved, as is well known in the art. In an exemplary embodiment, the flat stack of wipes may be "VZ-folded," meaning that the interleaved wipes are folded in a longitudinal direction, with adjacent wipes alternating between a Z-fold and a V-fold. A V-folded wipe is a wipe that is folded once, resulting in two panels separated by a longitudinal fold line. A Z-folded wipe is a wipe that is folded twice, resulting in three panels separated by two longitudinal fold lines. The folded panels of adjacent V-folded and Z-folded wipes are interleaved, so that the edges of the folded wipes overlap. Such a configuration enables a pop-up dispensing where withdrawing one sheet from the dispenser pulls at least a portion of the next sheet out of the dispenser for easier access to the next sheet.

[0038] In various exemplary embodiments, the outermost wipe **518** of a U-shaped clip **510** may have a "starter fold" **520**, or a fold that enables a user to easily grasp the outermost wipe **518**. In an exemplary embodiment, the starter fold is disposed directly beneath an orifice in the lid **110**, so that a

user may more easily access the starter fold, and therefore the outermost wipe **518**. In an exemplary embodiment, the outermost wipe **518** V-folded, and the unfolded edge is folded on itself, along a longitudinal starter fold line, to create the starter fold **520**. In embodiments in which the lid **110** has an opening at or near the center of the lid **110**, the longitudinal starter fold line may be disposed in the center of the U-shaped clip **510**, so that it may be disposed beneath the opening. In embodiments in which the lid **110** has an opening other than in the center of the lid **110**, the longitudinal starter fold line may be disposed to the left or the right of the center of the U-shaped clip **510**, so that it may be disposed beneath the opening.

[0039] Depending on manufacturing capability, it may be common for a manufacturing line to produce flat stacks of interleaved wipes having less than the desired number of wipes for a given wipes dispenser. For example, a manufacturing line may only be capable of producing flat stacks having approximately 20 sheets per stack, while it may be desirable to produce a wipes dispenser product containing 60, 80, or 100 wipes. Therefore, according to exemplary embodiments, a plurality of flat stacks may be combined to produce the U-shaped clip **510**. The flat stacks may be combined by any of a number of suitable methods. In an exemplary embodiment, two or more flat stacks may be adhesively combined, such as by applying an adhesive between the adjacent wipes layers in two adjacent stacks.

[0040] In an exemplary embodiment, to effectively join multiple stacks with an adhesive, the adhesive may be placed towards the end of the last wipe in a preceding stack, or towards the end of the first wipe in a subsequent stack. In exemplary embodiments, the adhesive is disposed on a wipe so that it is contained within ¼ of the length of the wipe nearest the end (either end). Placing adhesive towards the end of a wipe (as opposed to the center of the wipe) may be beneficial because the U-shaped clip **510** may have stress points on the ends of the wipe as the wipes contact the inner surface of the sidewalls **124** of the dispenser **100**. In addition, by placing the adhesive at one end of the wipe, the trailing wipe may be effectively peeled from the remaining wipes in the stack and dispensed as desired. Without intending to be bound by theory, it is believed that disposing the adhesive towards the edge of the wipe results in a peeling action (e.g., between wipes) that is very similar to that of wipes that are interleaved, which may make the use of adhesive unnoticeable to a user. Conversely, placement of the adhesive closer to the center of the wipes may negatively impact the peeling action—the adhesive will cause the wipe to be pulled from the center, so that the center of the wipe is first pulled through the dispensing orifice in the lid **110**. This causes a "tent" or bunching of the wipe in the dispensing orifice, which may be perceived negatively by a user because it may cause multiple wipes to be dispensed, and may cause more tenting for the next several wipes, or may cause the user to try to push the wipes back into the dispenser **100**.

[0041] In exemplary embodiments, the amount of adhesive may vary as necessary or desired, to produce a stack of wipes with a predetermined peel force. In exemplary embodiments, the amount and type of adhesive are selected so that the adhesive may be unnoticeable to a user. One having ordinary skill in the art, informed with the teachings herein, will understand how to select an adhesive, and specify a proper amount of adhesive in accordance with the embodiments.

[0042] In an exemplary embodiment, the U-shaped clip **510** may be inserted into the dispenser **100** such that the transverse fold axis **512** is substantially parallel to major axis **150** of the dispenser **100**. Such an orientation may result in improved dispensing.

[0043] In exemplary embodiments, the U-shaped clip **510** may fill out substantially the entire longitudinal and transverse dimensions of the dispenser **100**, without substantially impinging the inner surface of the sidewall **124** of the base **120**. In an exemplary embodiment, the edges of the U-shaped clip **510** may just rest against the inner surface of the dispenser **100**, but not be substantially compressed. In another exemplary embodiment, the U-shaped clip **510** may be placed into the dispenser **100** so that the sides of the U-shaped clip **510** are slightly compressed against the sidewall **124**.

[0044] As best seen in FIG. **5**, the edges of the uppermost wipes may end significantly above the U-shaped clip's **510** bottom edge, such that only a small portion of the length of the upper wipes in the U-shaped folded stack touch the dispenser's **100** sidewall **124**. This can significantly reduce the force needed to dispense the first wipe, which may help to reduce or eliminate tearing the wipes.

[0045] The U-shaped clip **510** may be dimensioned so that the individual wipes are not substantially compressed inside the dispenser **100**, and the legs are not pinched by the sidewall **124**. As shown in FIG. **5**, the wipes in the uppermost layers of the U-shaped clip **510** forming the arched top do not extend to the bottom **122** of the dispenser **100**, since the radius of curvature caused by the transverse fold is greater in the outer wipes. As a result, the length of the folded U-shaped clip **510** decreases toward the bottom of the dispenser **100**.

[0046] The dispenser **100** may have one or more internal ribs **514**. For example, as illustrated in FIG. **5**, dispenser **100** may have several internal ribs **514** joined with the sidewall **124** and oriented along the z-axis Z_d, extending from the bottom **122**. The internal ribs **514** may serve to hold the U-shaped clip **510** in proper position within the dispenser **100**, and may facilitate dispensing by reducing the contact of the wipes with the sidewall **124** of the dispenser **100**. Further, the internal ribs **514** may improve the stacking configuration of several bases **120**, which are nested inside one another during shipping and handling. The internal ribs **514** may be integral with the sidewall **124**, or otherwise coupled with the sidewall **124**, such as by mechanical, thermal or chemical means.

[0047] The internal ribs **514** may be spaced apart about the sidewall **124**. In an exemplary embodiment, the internal ribs **514** may be spaced equidistantly along the inner perimeter of the base **120** and project inward (toward the center of the dispenser). Since wipes may be relatively free of contact with the sidewall **124**, in part because of the internal ribs **514**, the sidewall forces may be reduce, thereby requiring less pull force to remove wipes from the dispenser **100**. In exemplary embodiments, the internal ribs have a width of about 0.0625 to about 0.5 inches, preferably about 0.1875 inches. In exemplary embodiments, the internal ribs have a length of about 0.5 to about 4 inches, preferably about 1.5 inches. In one embodiment, the internal ribs **514** may have different widths such that the upper end of the internal ribs **514** may be greater than the lower end.

[0048] In addition, the internal ribs **514** may help support the U-shaped clip **510** and prevent it from settling to the bottom of the dispenser **100** during shipping. By preventing the U-shaped clip **510** from settling, the internal ribs **514** may help maintain a consistent headspace (as described above)

between the outermost layer **518** of the U-shaped clip **510** and the top **112** of the dispenser **100**.

[0049] In exemplary embodiments, the internal ribs **514** may have one or more projections or teeth (not shown) extending therefrom. As the wipe count gets low in the dispenser **100**, the weight of the remaining wipes may not be sufficient to offset the pull force exerted by a consumer to remove wipes from the dispenser **100**, which may cause multiple wipes to dispensed at once as they do not separate. In an exemplary embodiment, the one or more teeth (not shown) attached to the internal rib **514**, preferably at the upper end, may offset the pull force and prevent multiple wipes from being dispensed at once. In an exemplary embodiment, the teeth may protrude generally downward from the internal ribs **514** to allow the U-shaped clip **510** to be easily inserted into the dispenser **100**, but still hold the wipes in the dispenser **100** during dispensing.

[0050] As described above, in exemplary embodiments the top **112** is larger than the bottom **122**. It has been found that this configuration may provide an improved stacking configuration for dispensers **100**. In addition, one or more additional elements may be added to the top **112** or bottom **122** to improve the stacking configuration of dispensers **100**. For example, referring to FIG. **1**, the top **112** of the dispenser **100** may have a ridge **114** formed along its outer perimeter. Overall, the top **112** may be generally flat with respect to a horizontal plane but the ridge **114** may slope upwards at the edge of the perimeter. Conversely, the bottom **122** may be slightly convex such that a ridge (not shown) may be formed along the outer perimeter of the bottom **122**. Having the ridge **114** formed along the perimeter of the top **112** and a ridge (not shown) formed along the perimeter of the bottom **122** may allow for multiple dispensers **100** to be sturdily stacked on one another. It will be understood that the size, shape, and depth of either ridge may be changed as necessary or desired. In one embodiment, the dispenser **100** may comprise completely flat top and bottom surfaces.

[0051] In an exemplary embodiment, the dispenser includes a lid **110**. With reference to FIG. **2**, the lid **110**, according to an exemplary embodiment, will be described in more detail. Generally, the lid **110** may have a cover **210** operably coupled with a body **220**. As shown, the cover **210** may be joined with the body **220** at some point adjacent to the outer perimeter of the body **220**. In an exemplary embodiment, the cover **210** may be pivotally joined with the body **220** in such a way that the cover **210** may pivot between an open and closed position. In various exemplary embodiments, the cover **210** may be permanently joined with the body **220**, such as with a living hinge **212** integrally formed with the cover **210** and the body **220**. Any suitable hinge or hinges may be used to connect the cover **210** to the body **220**. In various exemplary embodiments embodiment, the cover **210** may be removably attached to the body **220**, such as with a hinge that is snap-fitted into the body **220**. In various exemplary embodiments, the hinge **212** may be shaped such that when cover **210** is closed, the hinge **212** forms a generally continuous surface with the rest of the lid **110**.

[0052] The body **220** may comprise one or more functional elements. For example, body **220** may comprise the ridge **114** (as described above), an recessed surface **214**, an opening **200**. The recessed surface **214** may be formed in the body **220** to create a recessed portion that may lie beneath the cover **210**. The recessed surface **214** may be configured to allow for the cover **210** to be securely closed. The cover **210** may be sized and shaped to fit on or over the recessed surface **214** defined in the body **220**. Opposite the hinge **212**, the cover **210** may have a tab **218** that allows for the cover **210** to be opened.

[0053] In exemplary embodiments, the cover **210** may frictionally engage the body **220** at the recessed surface **214**. For example, the body **220** may have one or more annular ridges **222** about the perimeter of the recessed surface **214**. The one or more annular ridges **222** may form one or more grooves **224** therebetween configured to receive a corresponding portion of the cover **210**. The cover **210** may have a downwardly projecting tab **226** configured to mate with the one or more annular ridges **222** and the one or more corresponding grooves **224**, so that, for example, the cover **210** may be snapped into place for securing the cover **210** to the body **220**. In various exemplary embodiments, the mating interface created between cover **210** and the body **220** seals the dispenser **100** to prevent moisture loss from wet or partially wetted wipes stored within the dispenser **100**. It will be understood that other manners for securing the cover **210** to the body **220** may be used.

[0054] The cover **210** may be any suitable size and shape. In various exemplary embodiments, the cover **120** has a size and shape that generally corresponds with the size and shape to that of the recessed surface **214**. However, it will be appreciated that the cover **210** may have one of many sizes and shapes, without departing from the purpose and function thereof.

[0055] Still referring to FIG. **2**, lid **110** may have an opening **200**. The opening **200** may have any of a number of sizes or shapes. For example, the opening **200** may be square, circular, or oval, having one portion or multiple separate or interconnected portions (e.g., lobes). The opening **200** may generally be larger in size for a reach-in dispenser and smaller in size for a pop-up dispenser. In an exemplary embodiment, the opening **200** may comprise a generally oval shaped center opening **202** and one or more generally semi-circular shaped side openings **204**. The side openings **204** may be symmetric and oppositely disposed about the center opening **202**. The one or more side openings **204** may be in communication with center opening **202** via one or more slits **208**. In an exemplary embodiment, the opening **200** may have a center opening **202**, two side openings **204**, one located to the left and one located to the right of the center opening **202**. In this embodiment, one slit **208** may connect each side opening **204** to the center opening **202**. The one or more slits **208** may form a narrow channel between the openings.

[0056] The center opening **202** may be configured to be a wide, oval opening through the lid **110** such that a first wipe (not shown) may be easily grasped, as subsequently shown and described herein. The center opening **202** may further comprise one or more slots **206** in communication therewith. The one or more slots **206** may extend vertically from the center opening **202** and generally align with the minor axis **152** of the dispenser (not shown in FIG. **2**). The distal end of the one or more slots **206** may be rounded and larger than the proximal end, where the proximal end is the point at which the one or more slots **206** join the center opening **202**.

[0057] In an exemplary embodiment, the opening **202** may have a width of about 0.5 to about 2 inches, preferably about 1 inch, measured from the top edge to the bottom edge, and may have a length of about 0.75 to about 2.5 inches, preferably about 1.5 inches, measured from the left side edge to the right side edge. Center opening **202** may be configured such

that, when grasping a wipe for the first time, center opening **202** may be wide enough to comfortably and easily accommodate an average sized human index finger and thumb, as will be further described and shown below. A variety of dispensing aperture dimensions may be possible, so long as the opening **200** allows for a user to access wipes in the dispenser **100**.

[0058] The opening **200** and its various portions—center opening **202**, side openings **204**, slots **206**, and slits **208**—may together define one or more petals **240**. In the embodiment depicted in FIG. **2**, four petals **240** are defined. Each petal **240** may have a nub **242** formed at each side of the proximal end of the slot **206**, i.e. where the slot **206** joins the center opening **202**. The nubs **242** may project inwardly from the center opening **202** and may be generally semi-circular. The radius of nubs **242**, as they extend inwardly from perimeter of center opening **202**, may be a few millimeters. It is believed that the nubs **242** may hold the tail of wipe such that wipes do not fall back through the opening **200**. The nubs **242** may therefore allow a consumer to access the next wipe in the dispenser **100**. In an exemplary embodiment, the nubs **242** may be configured so that they do not interfere with a consumer's finger during initial wipe extraction. In exemplary embodiments, the internal nubs **242** have a width of about 0.0625 inches to about 0.1875 inches, preferably about 0.125 inches.

[0059] The petals **240** may be made of rigid plastic of sufficient thickness to prevent them from easily bending upwardly (along the z-axis) as wipes are being dispensed from the dispenser **100**. By constructing the petals **240** of rigid plastic, the upward force from the wipes during dispensing reduces the chance of roping and clumping, both common problems in the art, especially when the wipe count gets low. Alternatively, the petals **240** may be formed from a less rigid plastic of increased thickness. In yet another embodiment, the one or more petals **240** may be formed with less rigid material of the same or lesser thickness as the rigid plastic petals further including one or more integral reinforcing petal ribs **244** on the bottom surface of petal **240** to provide petal rigidity reinforcement sufficient to reduce the chance of extraction roping and clumping when the wipe count is low.

[0060] In these embodiments, research has shown that stiffening of the closure petals **240** to form a stiff petal type dispenser by either adding petal ribs **244** or petal thickness, provides better dispensing, i.e., petal stiffening reduced clumping of wipes when extracting from about the last 8 or more wipes to the last 1-3 wipes in the dispenser when compared to a soft petal type dispenser. A soft petal type dispenser has a soft petal that results in significant wipes roping or clumping during extraction of a wipe when the wipe count is from about the last 8 or more wipes to the last 1-3 wipes. A stiff petal type dispenser has a petal that reduces the incidence of clumping and roping by at least 75% when compared to a soft petal type dispenser.

[0061] TABLE 1 summarizes research conducted to determine the ratio between a vertical force load placed on the free end **246** of the petal **240** adjacent slit **208** and the vertical deflection of a free end **246** of petal **240** caused by the vertical load. The results for both a stiff petal and a soft petal are presented. Those of skill in the art sometimes refer to this ratio as the load/deflection ratio similar to the stress/strain ratio depicted in a stress-strain curve.

[0062] The data in TABLE 1, as graphically depicted in FIG. **6**, was determined using an Instron® Series 5500 tester. The test results in obtaining the vertical loads required to obtain a given vertical deflection of the free end **246** of the petal **240**. For a soft petal, the loads that produce container standard deflections of 0.0625 (1/16ths), 0.125 (1/8th), 0.1875 (3/16ths). 0.25 (1/4th), 0.375 (3/8ths), and 0.50 (1/2) of an inch were determined. For a stiff petal, the loads that produce container standard deflections of 0.0625 (1/16ths), 0.125 (1/8th), 0.25 (1/4th), 0.375 (3/8ths), and 0.50 (1/2) of an inch were determined. A reversible load cell, properly secured to the instrument cross head and controlled by a personal computer was used to apply increasing force on the free end **246** until the various standard deflections were achieved. The load at each deflection was recorded for each type of petal.

TABLE 1

LOAD TO DEFLECTION RATIO

Comparison of the vertical load required to vertically deflect a free end of a stiff dispenser petal and a free end of a soft dispenser petal over a given distance.

GIVEN DEFLECTION (Inches)		SOFT LOAD REQUIRED (Lbs)	SOFT LOAD/DEFLECTION (Lbs/Inch)		STIFF LOAD REQUIRED (Lbs)	STIFF LOAD/DEFLECTION (Lbs/Inch)
0.0625		0.20	3.20		0.50	8.00
0.125		0.40	3.20		0.80	6.40
0.1875		0.60	3.20		*	*
0.25	SOFT	0.80	3.20	SHIFT	1.50	6.00
0.375		1.00	2.67		2.00	5.33
0.50		1.15	2.30		2.38	4.75

[0063] In one embodiment, within the range of the peak wipe extraction force required to extract a wipe from the dispenser **100** of about 0.5 to about 2.0 pounds, if the load/deflection ratio for a stiff petal is in the range of about 5.3 to about 8.0 pounds/inch, clumping of the wipes at low wipe counts is reduced. If the load/deflection ratio for a soft petal is in the range of about 2.3 to about 3.2 pounds/inch, clumping of the wipes at low wipe counts is significant.

[0064] FIG. **6** is a load/deflection curve that depicts the data of TABLE 1 graphing the vertical load placed on the free end **246** of the petal **240** to the vertical deflection of the free end of the petal for a both a stiff dispenser petal and, alternatively, a soft petal. In accordance with Hooke's Law, well known to those of ordinary skill in the art, the slopes of the stiff and soft curves are substantially constant within the extraction force range required to extract a wipe from the dispenser. This indicates that both petals are within the their respective elastic ranges over the extraction force range.

[0065] Referring now to FIGS. **3** and **4**, the base **120** is shown according to an exemplary embodiment. The base **120** comprises the bottom **122**, as described above, and the sidewall **124**. The sidewall **124** may extend upwardly from the bottom **122**, terminating in a wide-mouthed oval opening. The base **120** may form the substantial potion of the dispenser **100** for storing wipes. The base **120** may have an open top **410** for mating the lid **110** thereto. The base **120** may comprise a lip **412**. The lip **412** may provide for the lid **110** to be friction-fitted or snap-fitted onto the base **120**. Correspondingly, the lid **110** may have a groove (not shown) on its underside for mating the lid **110** to the base **120**.

[0066] Still referring to FIG. **5**, the first wipe **512** of the U-shaped clip **510** may be grasped by a user through center opening **202**. Because the U-shaped clip **510** may be oriented

such that the transverse fold axis **512** may be substantially parallel to the major axis **150** of the dispenser **100**, the starter fold **520** (or the top fold on the top wipe) may be parallel with the minor axis (not shown) of the dispenser **100**. The starter fold **520** may be aligned with the one or more slots **206**. A user may grasp the first wipe through the center opening **202** with the thumb and index finger at 3:00 and 9:00 positions, as best shown in FIG. **5**. This prevents a consumer from having to grasp the first wipe through the narrowest portion of the center opening **202**. Moreover, such a construction may eliminate the need to use soft materials (such as TPE) around the center opening **202**.

[0067] During extraction, the first wipe may easily thread through center opening **202** with portions of the first wipe threading through the one or more slots **206** that are in communication with the center opening **202**. As the first wipe is extracted, the top edge portion of the first wipe is dragged through the top slot **206**, and the bottom edge portion of the first wipe is dragged through the bottom slot **206**. While being extracted, the wipes may contact the one or more nubs **242**, which may help separate the leading wipe from a trailing wipe, thereby preventing clumping or roping.

[0068] The opening **216** may be further configured such that if wipes fall back through the opening, a consumer can easily access the wipes through the one or more side openings **204**. The one or more side openings **204** may be larger than the center opening **202** to allow a consumer to reach farther into the dispenser **100** in case rethreading is needing. A consumer can easily rethread a wipe by pulling it through one of the side openings **204**, and threading it through the corresponding slit **208** back to the center opening **202**. The center opening **202** presents numerous contact points along the petals **240** to readily engage wipes as a consumer pulls the wipe through the center opening **202**, especially if pulled at an angle. Wipes may then be easily separated from one another.

[0069] Other modifications and variations to the present invention may be practiced by those of ordinary skill in the art, without departing from the spirit and scope of the present invention, which is more particularly set forth in the appended claims. It is understood that aspects of the various embodiments may be interchanged in whole or part. The preceding description, given by way of example in order to enable one of ordinary skill in the art to practice the claimed invention, is not to be construed as limiting the scope of the invention, which is defined by the claims and all equivalents thereto.

What is claimed is:

1. A dispenser having a longitudinal axis and a transverse axis, comprising:

a base having a length measured along the longitudinal axis that is greater than a width measured along the transverse axis;

a lid removably attached to the base;

a dispensing opening in the lid having a center opening and at least one slot aligned with the transverse axis and in communication with the center opening;

wherein the dispensing opening further comprises at least one side opening in communication with said center opening via a longitudinal slit,

a plurality of rigid petals in the lid, defined in part by said dispensing opening; and

wherein a ratio between a vertical load applied to a free end of said petal to a vertical deflection of said free end of said petal caused by said vertical load is between about 2.3 to about 3.2 pounds/inch.

2. The dispenser of claim **1**, further comprising a U-shaped folded stack of wipes, being formed from one or more wipes folded about a transverse fold axis, and disposed in the dispenser so that the transverse fold axis is parallel to the dispenser's longitudinal axis.

3. The dispenser of claim **1**, wherein the dispenser is generally oval-shaped.

4. The dispenser of claim **1**, wherein the lid further comprises a ridge configured to support the base of another dispenser stacked thereupon.

5. The dispenser of claim **1**, wherein the base further comprises a top, a bottom that is smaller than the top, and a sidewall that tapers inward from the top to the bottom of the base.

6. The dispenser of claim **5**, wherein the sidewall has a taper angle, measured from the vertical, of about 0.1 degrees to about 8 degrees.

7. The dispenser of claim **2**, wherein the plurality of wipes are interleaved.

8. The dispenser of claim **7**, wherein the plurality of wipes are interleaved in an alternating VZ folding pattern.

9. The dispenser of claim **2**, wherein the u-shaped folded stack of wipes further comprises an outermost wipe having a starter fold extending along the transverse axis of the dispenser.

10. The dispenser of claim **9**, wherein the starter fold is disposed beneath the center opening.

11. The dispenser of claim **1**, wherein said at least one side opening is larger than said center opening.

12. The dispenser of claim **1** further comprising one or more petal ribs integral with a corresponding one of said plurality of said rigid petals.

13. A product having a longitudinal axis and a transverse axis and comprising:

an oblong dispenser having a length along the longitudinal axis that is greater than

a width along the transverse axis, wherein the dispenser includes:

an oblong top;

an oblong bottom;

a sidewall extending between the top and the bottom;

at least one internal rib on the sidewall, disposed on the interior of the dispenser;

a u-shaped folded stack of wipes, being formed from a flat stack of a plurality of sheet-like wipes folded about a transverse fold axis, and disposed in the dispenser so that the transverse fold axis is parallel to the product's longitudinal axis;

wherein said dispenser further comprises a base, a lid removably attached to the base, and a dispensing opening in the lid having a center opening and at least one slot aligned with the transverse axis and in communication with the center opening;

wherein the dispensing opening further comprises at least one side opening in communication with said center opening via a longitudinal slit; and

a plurality of rigid petals in the lid, defined in part by said dispensing opening.

14. The product of claim **13** wherein each of said plurality of petals further comprises a nub on the inner portion near the center of the center opening.

15. The product of claim **13** wherein a ratio between a vertical load applied to a free end of said petal to a vertical deflection of said free end of said petal caused by said vertical load is between about 2.3 to about 3.2 pounds/inch.

16. The product of claim **13**, wherein the plurality of wipes are interleaved in an alternating VZ folding pattern.

17. The product of claim **16**, wherein the u-shaped folded stack of wipes further comprises an outermost wipe having a starter fold extending along the transverse axis of the dispenser.

18. The product of claim **13** further comprising a one or more petal ribs integral with a corresponding one of said plurality of said rigid petals.

* * * * *