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Irani et al.(10) **Pub. No.: US 2014/0299598 A1**(43) **Pub. Date: Oct. 9, 2014**(54) **INFANT FORMULA CONTAINER****Publication Classification**(76) Inventors: **Zena J. Irani**, Bryn Mawr, PA (US);
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B65D 51/24 (2006.01)(21) Appl. No.: **13/997,032**(52) **U.S. Cl.**
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(2013.01); **B65D 43/18** (2013.01)(22) PCT Filed: **Dec. 15, 2011**USPC **220/212**; **220/810**(86) PCT No.: **PCT/IB2011/055719**(57) **ABSTRACT**

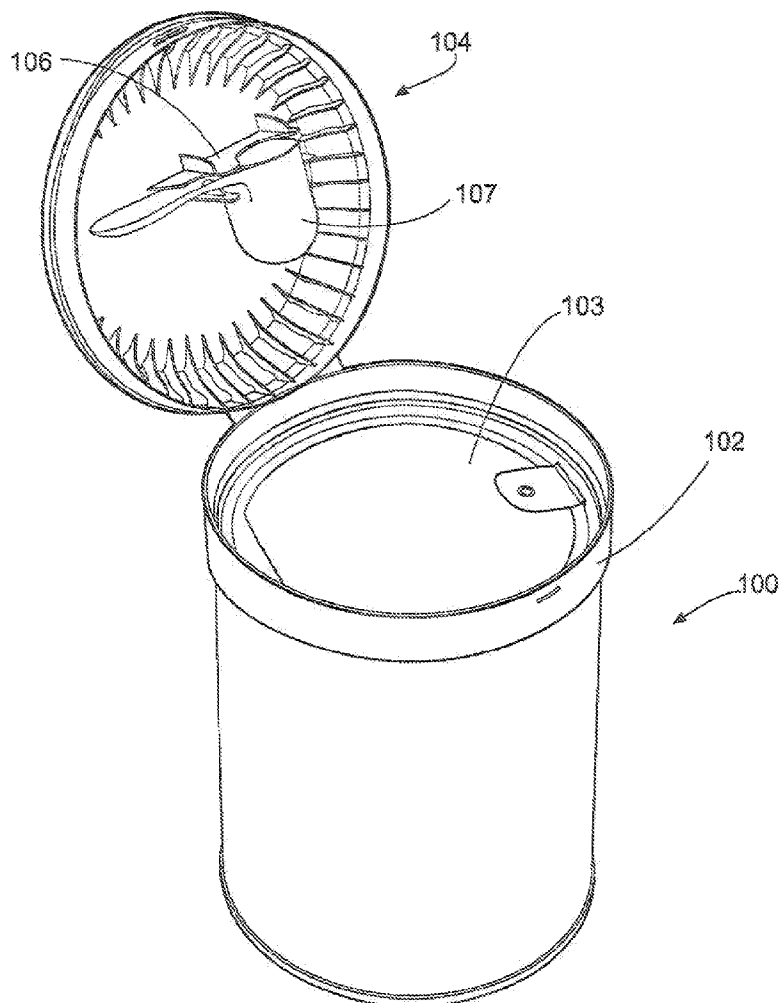
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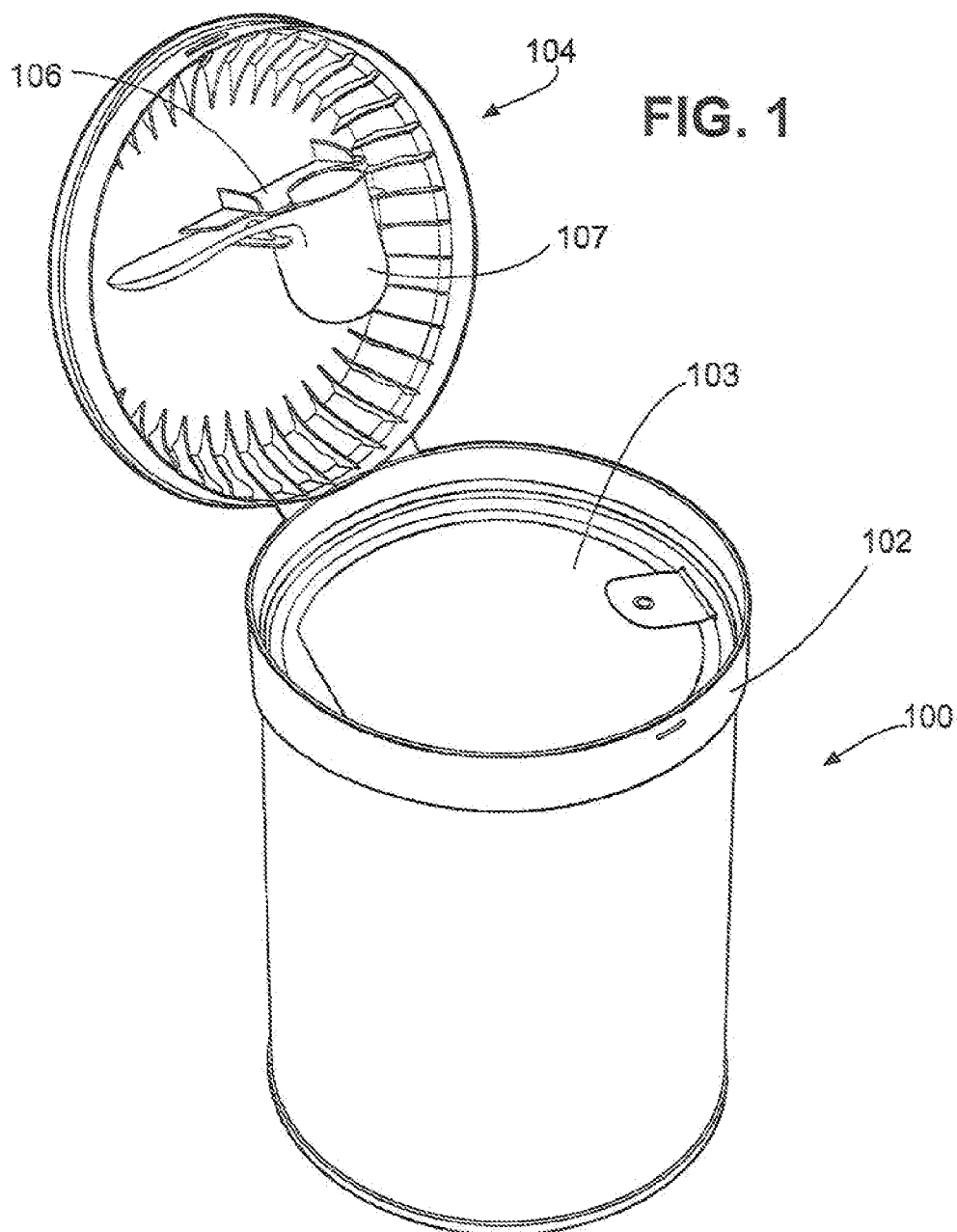
(2), (4) Date: **Aug. 14, 2013**

A container (100) for storing and dispensing flowable nutritional products. The container (100) includes a reservoir (101), a removable seal (103), a collar (102), a lid (104) hingedly attached to the collar, and a docking station (106) for a measuring device (107), such as a scoop for measuring the product. The container may also include a leveling bar (108) to use in conjunction with the measuring device (107).

Related U.S. Application Data

(60) Provisional application No. 61/425,978, filed on Dec. 22, 2010.





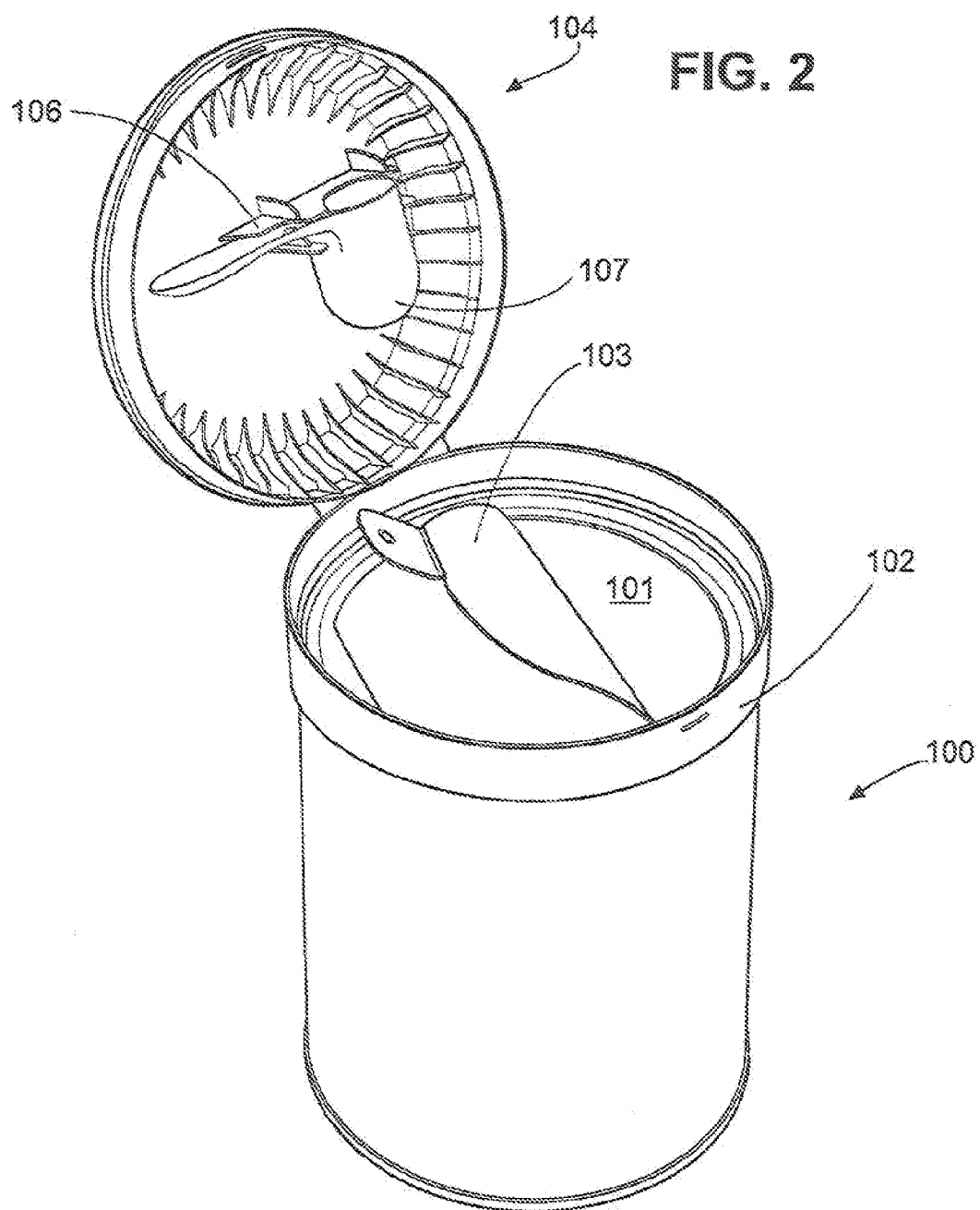


FIG. 3

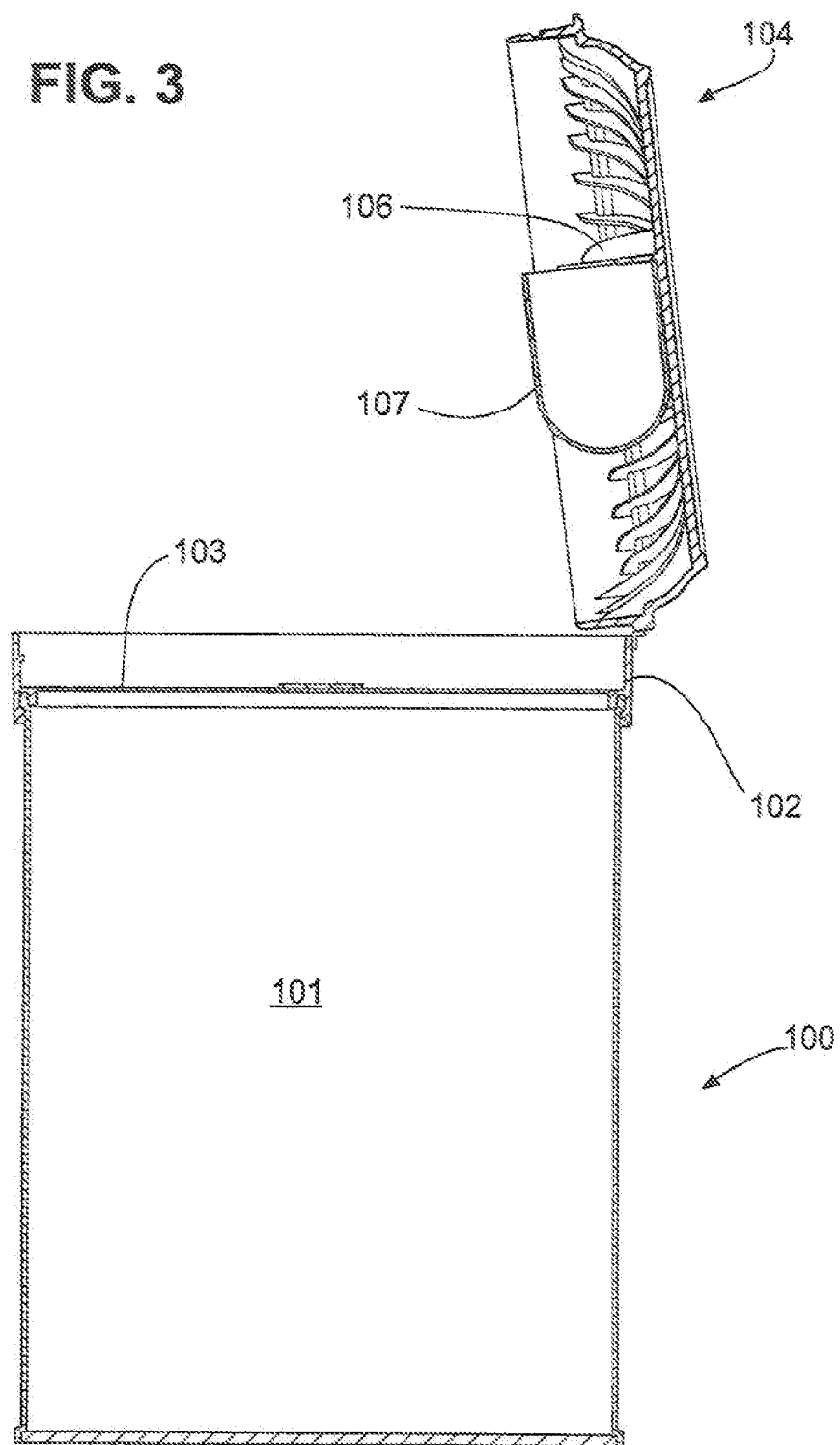
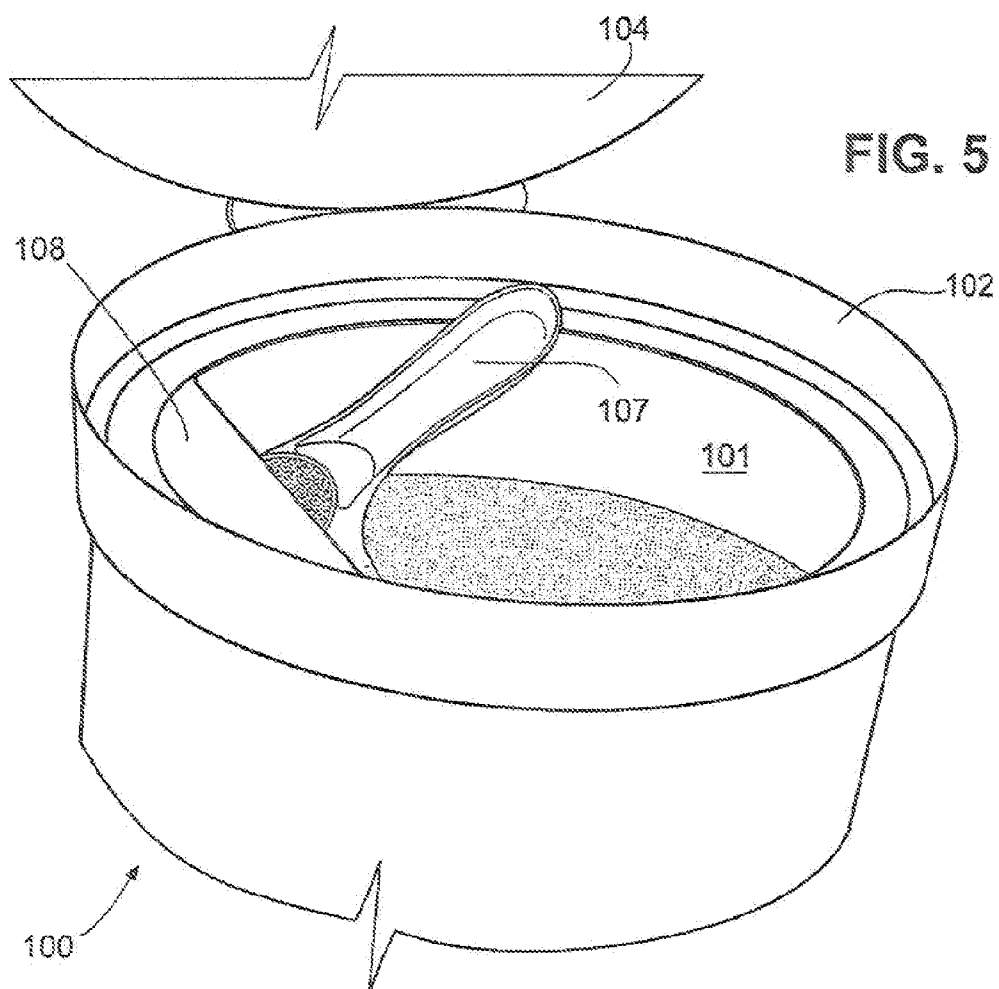
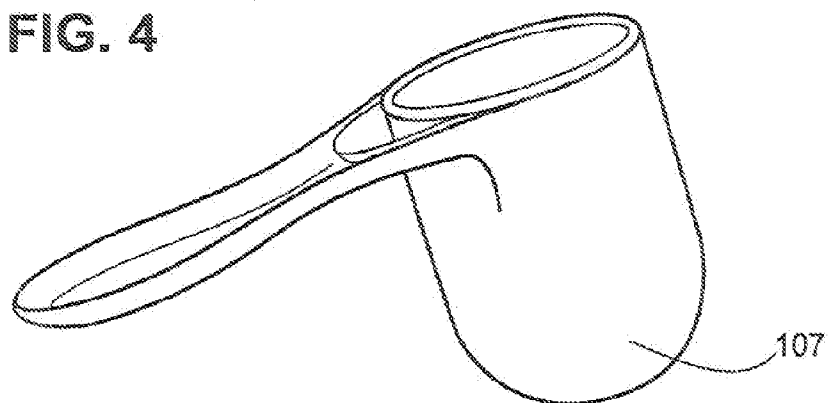


FIG. 4



INFANT FORMULA CONTAINER

FIELD OF THE INVENTION

[0001] This invention pertains to an improved, tamper evident container for storing and dispensing flowable products.

BACKGROUND OF THE INVENTION

[0002] Currently, granulated or powder products, such as infant formula, are packaged in containers. Consumers or users of such containers have often found that it is difficult to open the container and to locate and remove the scoop from the packaging upon the first use without experiencing spillage. Once the container lid is removed or opened, the granulated or powdered contents are often packed into parts of the interior of the lid or top of the container, which results in spillage as the contents fall away from the lid or top. While some of the falling powder may fall back into the interior of the container, much of it is wasted and contaminated as it spills onto the surrounding workspace.

[0003] Additionally, containers may not adequately seal the contents after the container has been opened for the first time, allowing the contents to become oxidized and/or contaminated. The design of such containers also may permit undesirable and inadvertent discharge of the contents from various poorly sealed areas of the container.

[0004] Certain infant formula container designs are known in the art. For example, U.S. Patent Appl. Publ. No. 2008/0173657 discloses a container and congruent scoop assembly with a removable lid for holding powdered material. There is a need for an improved infant formula container that is tamper evident, that allows a user to accurately measure infant formula to be dispensed, that enables a user to open and re-open the container without contaminating the infant formula, that allows a user access to the measuring scoop without contamination of the contents, that minimizes pressure differentials to the container without compromising the contents of the container and which minimizes spillage and contamination of the contents of the container.

SUMMARY OF THE INVENTION

[0005] The present invention provides a container comprising: a body having a bottom and a side wall defining a reservoir; a collar attached to the top end of the body; a removable seal to seal the top of the reservoir; and, a lid hingedly engaged with the collar. The underside of the lid provides a docking station for holding a measuring device, such as a scoop, suitable for measuring the contents of the container. The container may also have a leveling bar located at or near the top of the reservoir to allow the contents of the scoop to be leveled so that a consistent amount is dispensed by the scoop.

[0006] The lid closes tightly against the collar to seal the can and prevent spillage of the contents. In the closed position, the docking station is inside the can so that any measuring device docked therein will be secure from loss or contamination.

[0007] The container may also include a tamper evident band on a portion of the lid and/or collar to indicate if the container has been opened. It may also include a tamper strip on one side which will indicate the amount or condition of the contents.

BRIEF DESCRIPTION OF DRAWINGS

[0008] Features illustrated in the figures are not necessarily drawn to scale, and the relative sizes of certain features may be exaggerated to better illustrate the features. Embodiments will be described with reference to the following figures, in which like numerals represent like items throughout the figures.

[0009] FIG. 1 shows a perspective view of one embodiment of the infant formula container **100** in an open position with a scoop **107** held in the lid **104** by a docking station **106**, with the removable seal **103** over the reservoir in a closed position.

[0010] FIG. 2 shows a perspective view of one embodiment of the infant formula container **100** with the lid **104** in an open position with the seal **103** over the reservoir **101** in a partially opened position.

[0011] FIG. 3 shows a side view of the container **100**, collar **102** and hingedly attached lid **104**.

[0012] FIG. 4 shows a perspective view of a scoop **107**.

[0013] FIG. 5 shows a perspective view of one embodiment of the infant formula container **100** in which the lid **104** is open, the seal **103** has been removed, and a scoop **107** is in contact with a leveling bar **108** at the top of the reservoir **101**.

DETAILED DESCRIPTION OF THE INVENTION

[0014] In one embodiment, the present invention provides a container suitable to hold flowable contents, such as a powdered or granular infant formula, which includes a removable seal to seal in the contents held in the reservoir of the container, a collar attached to the top of the container, and a lid hingedly attached to the collar. When the lid is open the contents of the container can be dispensed from the reservoir; when closed, the lid tightly engages the collar to seal in the contents. The underside of the lid, which is inside the container when the lid is closed, contains a docking station and sufficient space so that a measuring device, such as a scoop, may be stored securely within the can to prevent loss or contamination thereof. Optionally, a leveling bar for leveling the contents removed by the scoop is located near the top of the reservoir.

[0015] According to an exemplary embodiment, FIG. 1 shows a perspective view of the infant formula container **100** in an open position. Infant formula container **100** includes a reservoir **101** configured to hold contents to be dispensed; a collar **102** affixed to a top end of the reservoir **101**; the collar further comprising a removable seal **103** that seals the contents held in the reservoir **101**; a lid **104**, hingedly engaged with the collar **102**, providing an open position wherein the contents of the container can be dispensed from the reservoir **101** or providing a closed position wherein the lid **104** is resealed to the collar **102**. The lid **104** provides space and a docking station **106** for holding and storing a scoop **107**. The container further comprises a leveling bar **108** for leveling the contents removed by the scoop **107**.

[0016] The reservoir **101** of the infant formula container **100** is designed to hold granulated infant powder, or the like. The body of the container **100** is constructed of a suitable metal or plastic material to be a unitary member of approximately uniform wall thickness.

[0017] In one embodiment, the body of the container **100** is constructed from a metal material, including but not limited to tin, metal plated tin, and aluminum. In a separate embodiment, the body of the container **100** is constructed from a suitable plastic material that is recyclable or non-recyclable.

Suitable plastics for forming the container **100** include, but are not limited to, polystyrene, polystyrene-acrylonitrile, acrylonitrile-butadiene-styrene, styrene-maleic anhydride, polycarbonate, high density polyethylene, polyethylene copolymers, polypropylene, polypropylene copolymers, polyethylene terephthalate, polyvinylcyclohexane, and the like, and blends thereof.

[0018] In one embodiment, the container **100** will have a semi-transparent to transparent tamper evident strip as part of the side wall to allow one to see into the reservoir **101** and thus to visually indicate to a potential user the quality and/or volume of the granulated infant formula in the reservoir. Typically, containers of the invention are constructed to accommodate infant powder weights of: 100 to 2000 g; more typically 500 to 1000 g; for example 900 g.

[0019] In one embodiment, the container **100** has a cylindrical body, providing a circular cross-section, and the collar **102** is circular. In another embodiment, the body has a rectangular cross-section and the collar is likewise rectangular. In any case, the lid **104** is shaped to snugly mate with the collar **102**. Those skilled in the art will readily understand that other shapes are also feasible in the practice of this invention; the invention is not limited to the shapes described herein.

[0020] Referring now to FIG. 2, there is shown a perspective view of the infant formula container **100** with the lid **104** in an open position with the removable seal **103** in the collar **102** in a partially opened position.

[0021] In one embodiment, the lid **104** will have a tamper evident band that is wrapped around the lid **104** of the infant formula container **100**. In one embodiment of the band, there is a noticeable red strip between perforated lines to indicate to a user where to tear the tamper evident band off, and a container opening icon located in four places on the tamper evident band communicating to the user the best way to open the infant formula container. The tamper evident band also adds a level of security preventing the closure from opening during transporting, handling, shipping, shelf stocking and consumer handling.

[0022] A removable seal **103** is attached to container **100** at the top of the reservoir **101** to vacuum seal the contents in the reservoir **101**. The removable seal **103** allows for vacuum packaging of the contents in the container **100** and acts as an anti-tamper inner liner. One skilled in the art of food packaging will be familiar with such releasably or removably attached packaging seals. Specifically, metal processing, adhesive or heat may be used to attach a seal formed of polyvinyl chloride, polystyrene, metal foil, plastic foil or other suitable material to form an airtight seal. Therefore, opening of the lid **100** will not disturb the seal **103** unless the seal **103** is cut or removed by the use.

[0023] Referring now to FIG. 3, there is shown a side view of the container **100** having reservoir **101**, collar **102**, and hingedly attached lid **104**. In one embodiment, the lid and collar are constructed from a suitable plastic material that is recyclable or non-recyclable.

[0024] Suitable plastics for forming the lid and collar include, but are not limited to, various polymers such as polystyrene, polystyrene-acrylonitrile, acrylonitrile-butadiene-styrene, styrene-maleic anhydride, polycarbonate, high density polyethylene, polyethylene copolymers, polypropylene, polypropylene copolymers, polyethylene terephthalate, polyvinylcyclohexane, and the like, and blends thereof.

[0025] As shown in FIG. 3, the lid **104** is dome shaped and hingedly attached to the collar **102**, in a skirt and a sleeve type

arrangement that allows them to snap together. The lid **104** and the collar **102** are connected together by a butterfly hinge and are molded as one piece. When closing the lid **104**, the lid **104** swings into the collar **102** to form a sleeve type seal. The outer diameter of the lid **104** and the inner diameter of the collar **102** are designed to have minimum clearance for air passing and to minimize air oxidation of the contents. On top of the collar **102**, there is a sealing rim (bead), which has an interference fit with the lid **104**, so that when the lid is pushed down to pass the sealing bead and the skirt, air is forced out through the minimum space between lid **104** and the collar **102** and a tight seal is obtained.

[0026] In FIG. 4, there is shown a perspective view of a scoop **107**. The scoop **107** consists of a bifurcated handle attached to a scoop bowl. The scoop handle is bifurcated where it connects to the scoop bowl to allow the scoop **107** to efficiently collect infant powder and avoid powder build-up on the handle, so less powder spills on the preparation area.

[0027] In one embodiment, the scoop **107** is molded from a suitable plastic material, which may be blow molded, by extrusion or injection. Suitable plastics for forming the scoop include, but are not limited to, various polymers such as polystyrene, polystyrene-acrylonitrile, acrylonitrile-butadiene-styrene, styrene-maleic anhydride, polycarbonate, high density polyethylene, polyethylene copolymers, polypropylene, polypropylene copolymers, polyethylene terephthalate, polyvinylcyclohexane, and the like, and blends thereof. In one embodiment, the scoop has a small opening at the bottom of the bowl to allow air to exit while collecting infant powder so that the powder will pack better in the scoop.

[0028] FIG. 5 shows a perspective view of the leveling bar **108**.

[0029] Many of the problems of the prior art are solved by the infant formula container of this invention, which provides previously unavailable features including improved sealing capabilities, new ways to minimize contamination of infant formula and control spillage of the contents, integrated dispensing scoops, and strengthened containers that can further protect against spillage and damage to product due to adverse pressure differentials between the sealed product container and the external environment.

[0030] The embodiments of the present invention are suitable for use in many applications that involve manufacture, distribution, storage, sale, and use of flowable substances such as powders, granular materials, or liquids. The configurations of the inventive container can be modified to accommodate nearly any conceivable type of such materials, and the shape, size, and arrangement of the features and components of the novel container can be modified according to the principles of the invention as may be required to suit a particular type or quantity of flowable material, as well as a preferred mode of use, storage, manufacture, distribution, and/or sales environment.

[0031] Modifications and alternative embodiments which may be necessary or desired to establish compatibility with the wide variety of possible applications for the container of this invention are contemplated herein. Accordingly, even though only a few embodiments and modifications of the present invention are described and illustrated, it is to be understood that the practice of such additional modifications and embodiments and the equivalents thereof are within the spirit and scope of the invention as defined in the claims.

1. A container comprising:
a body having a bottom and a side wall defining a reservoir;
a collar attached to a top end of the body;
a removable seal at the top end of the body to seal the reservoir; and,
a lid hingedly engaged with the collar, the lid having an underside and configured to provide a docking station on the underside for holding a measuring device.
2. The container of claim 1 wherein the side wall is a cylindrical sleeve attached at one end to the bottom and at the other end to the collar.
3. A container of claim 1 comprising a leveling bar at the top end of the body.
4. The container of claim 1, wherein a tamper strip is located on the side wall, which visibly indicates the volume or condition of the contents in the container to a user.
5. The container of claim 1, wherein a tamper evident band is located on a portion of the lid.
6. The container of claim 1, wherein the lid and collar are constructed from a plastic material.
7. The container of claim 6, wherein the lid and the collar are connected together by a butterfly hinge and are molded as one piece.
8. The container of claim 1, wherein the removable seal is a metal or polymer foil.
9. A container for holding powdered or granulated infant formula comprising: a body having a bottom and a cylindrical side wall defining a reservoir;
a collar attached to a top end of the body;
a leveling bar at the top end of the body;
a removable seal at the top end of the body to seal the reservoir; and,
a lid hingedly engaged with the collar, the lid having an underside and configured to provide a docking station on the underside for holding a measuring device.
10. A container as in claim 9 comprising a measuring device designed to fit into the docking station, wherein the measuring device is a scoop comprising a bowl and a handle affixed to the bowl.

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