may be holding a distressed infant and be simultaneously attempting to prepare the bottle.

[0005] At least some bottle assemblies include a removable vent assembly that can be positioned within the bottle. Some examples of vented bottle assemblies include those available from Handi-Craft Company under the trade name Dr. Brown's. Additional examples are disclosed in U.S. Patent No. 5,779,071 issued July 14, 1998, U.S. Patent No. 7,828,165 issued November 9, 2010, U.S. Patent No. 8,113,365 issued February 14, 2012, and U.S. Patent No. 8,146,759 issued April 3, 2012, the disclosures of all of which are herein incorporated by reference in their entirety. In these bottle assemblies, the vent assembly allows air to enter the bottle while the infant consumes the liquid through the nipple, thus alleviating or reducing the formation of a vacuum within the bottle during nursing. The vent assembly typically seats, at least in part, on the rim of the bottle and a collar assembly including a collar and nipple are together threadably secured down over the vent assembly to external threads on the neck of the bottle. The vent assembly may vent the bottle to the atmosphere via a vent in the vent assembly that is located proximate the threads of the collar assembly. However, airflow into the vent could be inhibited by the amount of space available between the vent assembly and the collar assembly.

[0006] There is a need, therefore, for a bottle assembly that may be easily and quickly assembled even when a preparer has limited use of their hands. In addition, there is a need for a vent assembly that provides improved airflow into the bottle assembly during use and prevents leakage.

SUMMARY

[0007] In an ~~first~~ aspect, the present disclosure provides a bottle assembly comprising a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container, the container having a central axis; a vent assembly positionable at least in part on the rim of the container to permit venting of the container during use, the vent assembly comprising at least one lateral vent

extending other than parallel to the central axis of the container when the vent assembly is positioned on the rim of the container, the vent assembly comprising a vent insert including the at least one lateral vent and a perimeter wall, wherein the perimeter wall defines at least one vent opening and at least partially defines an annular gap extending circumferentially around the vent insert, ~~the perimeter wall includes a curved surface defining the annular gap, the curved surface being concave relative to an exterior of the vent assembly,~~ wherein the at least one vent opening is in flow communication with the at least one lateral vent and the annular gap such that air is allowed to flow from the annular gap into the lateral vent through the vent opening; and a collar assembly generally defining a closure for the container, the collar assembly configured for releasable engagement with the neck of the container over the open end thereof to retain the vent assembly together with the container, wherein the annular gap is defined between the collar assembly and the vent assembly.

[0008] In an embodiment ~~second aspect~~, the present disclosure provides a bottle assembly comprising: a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the container having a central axis, the neck having a rim defining the open end of the container, wherein the neck of the container comprises external threads thereon; and a collar assembly generally defining a closure for the container, the collar assembly configured for releasable engagement with the neck of the container over the open end thereof, the collar assembly comprising a collar and a nipple, wherein the collar comprises a side wall and internal threads for threaded engagement with the external threads of the neck of the container, the side wall having an outer surface and an internal surface, the internal threads being disposed on the internal surface, wherein the outer surface includes a plurality of elongate grooves extending along the central axis of the container when the collar is secured to the container, the elongate grooves being configured to provide a grip for a user to remove the collar assembly from the container.

[0009] In an embodiment ~~third aspect~~, the present disclosure provides a bottle assembly comprising: a container having an open end, a closed end,

a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container; a collar assembly generally defining a closure for the container, the collar assembly configured for releasable

engagement with the neck of the container over the open end thereof, the collar assembly comprising a collar and a nipple; and a cap including a closed end, an open end, and a side wall extending between the closed end and the open end, the closed end, the open end, and the side wall together defining an interior and an exterior of the cap, the cap configured for releasable engagement with the collar assembly such that the nipple is received within the interior of the cap, the side wall including a curved surface defining a recess for removal of the cap from the collar assembly, wherein the curved surface is concave relative to the exterior of the cap, the recess being closer to the cap closed end than to the cap open end.

[0010] In an embodiment ~~fourth aspect~~, the present disclosure provides a bottle assembly comprising: a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container, the container having a central axis; and a vent assembly positionable at least in part on the rim of the container to permit venting of the container during use, the vent assembly comprising: a vent insert including an inner portion and an outer portion, wherein the outer portion is configured to at least partially rest on the rim of the container, and wherein the inner portion includes an internal vent tube and a lip, the lip being cylindrical and extending along the central axis, the lip including a plurality of bulges extending circumferentially around the lip; and a receptacle portion including a top and a tube, wherein the top is configured to receive the lip of the vent insert, and wherein the plurality of bulges are configured to engage the top of the receptacle portion to form a seal between the vent insert and the top.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Figure 1 is a perspective view of a nursing bottle assembly including a cap.

[0012] Figure 2 is a perspective view of the nursing bottle assembly of Figure 1 with the cap omitted.

[0013] Figure 3 is a cross-section of the bottle assembly of Figure 2.

WHAT IS CLAIMED IS:

1. A bottle assembly comprising:

a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container, the container having a central axis;

a vent assembly positionable at least in part on the rim of the container to permit venting of the container during use, the vent assembly comprising at least one lateral vent extending other than parallel to the central axis of the container when the vent assembly is positioned on the rim of the container, the vent assembly comprising a vent insert including the at least one lateral vent and a perimeter wall, wherein the perimeter wall defines at least one vent opening and at least partially defines an annular gap extending circumferentially around the vent insert~~, the perimeter wall includes a curved surface defining the annular gap, the curved surface being concave relative to an exterior of the vent assembly,~~ wherein the at least one vent opening is in flow communication with the at least one lateral vent and the annular gap such that air is allowed to flow from the annular gap into the lateral vent through the vent opening; and

a collar assembly generally defining a closure for the container, the collar assembly configured for releasable engagement with the neck of the container over the open end thereof to retain the vent assembly together with the container, wherein the annular gap is defined between the collar assembly and the vent assembly.

~~2. (Cancelled).~~

2. The bottle assembly set forth in claim 1, wherein the perimeter wall includes a curved surface defining the annular gap, the curved surface being concave relative to an exterior of the vent assembly.

3. The bottle assembly set forth in claim 1, wherein the collar assembly comprises a collar and a nipple, the collar comprising internal threads for threaded engagement with external threads of the neck of the container, the annular gap being

defined between the vent assembly and the collar when the collar assembly and vent assembly are assembled with the bottle.

4. The bottle assembly set forth in claim 3, wherein the nipple is configured to sealingly engage the vent assembly when the collar assembly and the vent assembly are assembled with the bottle and to engage the rim when the vent assembly is omitted from the bottle assembly, the nipple including at least one vent feature that allows airflow into the container when the nipple is positioned on the rim of the container.

5. The bottle assembly set forth in claim 1, wherein the vent insert includes an inner portion and an outer portion, the outer portion including the perimeter wall, the inner portion including a top wall and the lateral vent extending upward from the top wall, wherein a gap is defined between the perimeter wall and the top wall to enable liquid in the container to flow toward therethrough.

6. The bottle assembly set forth in claim 1, wherein the perimeter wall defines a plurality of the vent openings, the lateral vent including a first end and a second end and extending across the entire diameter of the vent insert, each end of the lateral vent being in flow communication with one of the vent openings defined by the perimeter wall.

~~7. A bottle assembly comprising:~~

~~a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the container having a central axis, the neck having a rim defining the open end of the container, wherein the neck of the container comprises external threads thereon; and~~

~~a collar assembly generally defining a closure for the container, the collar assembly configured for releasable engagement with the neck of the container over the open end thereof, the collar assembly comprising a collar and a nipple, wherein the collar comprises a side wall and internal threads for threaded engagement with the external threads of the neck of the container, the side wall having an outer surface and an internal surface, the internal threads being disposed on the internal surface, wherein the outer surface includes a plurality of elongate grooves extending along the central axis of the container when the collar is secured to the container, the elongate grooves being configured to provide a grip for a user to remove the collar assembly from the container.~~

~~8. The bottle assembly set forth in claim 7, wherein the grooves are equally spaced circumferentially about the side wall.~~

~~9. The bottle assembly set forth in claim 7, wherein each groove includes an open first end at a bottom of the side wall and a closed second end defined by the side wall at a point between the bottom and a top of the side wall.~~

~~10. The bottle assembly set forth in claim 9, wherein each groove extends from a bottom of the side wall to beyond a midpoint of the side wall.~~

~~11. The bottle assembly set forth in claim 9, wherein the width of each groove decreases from the first end to the second end such that the open first end defines a maximum width of each groove and the closed second end defines a minimum width of each groove.~~

~~12. The bottle assembly set forth in claim 7, wherein the collar includes a top panel configured to retain the nipple together with the collar, the side wall depending from the top panel.~~

~~13. A bottle assembly comprising:~~

~~a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container;~~

~~a collar assembly generally defining a closure for the container, the collar assembly configured for releasable engagement with the neck of the container over the open end thereof, the collar assembly comprising a collar and a nipple; and~~

~~a cap including a closed end, an open end, and a side wall extending between the closed end and the open end, the closed end, the open end, and the side wall together defining an interior and an exterior of the cap, the cap configured for releasable engagement with the collar assembly such that the nipple is received within the interior of the cap, the side wall including a curved surface defining a recess for removal of the cap from the collar assembly, wherein the curved surface is concave relative to the exterior of the cap, the recess being closer to the cap closed end than to the cap open end.~~

~~14. A bottle assembly comprising:~~

~~a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber within the container, the neck having a rim defining the open end of the container, the container having a central axis; and~~

~~a vent assembly positionable at least in part on the rim of the container to permit venting of the container during use, the vent assembly comprising:~~

~~a vent insert including an inner portion and an outer portion, wherein the outer portion is configured to at least partially rest on the rim of the container, and wherein the inner portion includes an internal vent tube and a lip, the lip being cylindrical and extending along the central axis, the lip including a plurality of bulges extending circumferentially around the lip; and~~

~~a receptacle portion including a top and a tube, wherein the top is configured to receive the lip of the vent insert, and wherein the plurality of bulges are configured to engage the top of the receptacle portion to form a seal between the vent insert and the top.~~

~~15. The bottle assembly set forth in claim 14, wherein the vent insert includes a perimeter wall and a lateral vent extending other than parallel to the central axis of the container when the vent assembly is positioned on the rim of the container, the lateral vent being in flow communication with the internal vent tube, wherein the perimeter wall defines at least one vent opening and at least partially defines an annular gap extending circumferentially around the vent insert, wherein the at least one vent opening is in flow communication with the lateral vent and the annular gap such that air is allowed to flow from the annular gap into the lateral vent through the vent opening.~~