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.

[0005] Some users may at times assemble such a bottle with the vent assembly omitted from the bottle, such as when traveling or when a child is older and parent decides to no longer use the vent assembly. In such an instance, the collar assembly is threaded onto the neck of the bottle until the collar is tightened down as much as possible. However, the neck of the bottle and the height of the collar are such that the collar assembly, and in particular the nipple of the collar assembly, do not adequately seal down against the rim of the bottle. As such, leakage of liquid from the bottle can occur.

[0006] There is a need, therefore, for a bottle assembly, and in particular a vented bottle assembly, in which the vent assembly can be removed and the bottle assembly still used without the risk of leakage.

SUMMARY

[0007] In one aspect, there is disclosed 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 vent assembly positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container.

[0007A] Also disclosed herein is a bottle assembly comprises a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber of the container. The neck comprises a rim defining the open end of the container. The bottle assembly also comprises a vent assembly that is positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use. A collar assembly generally defines a closure for the container and is configured for releasable engagement with the neck of the container over the open end thereof. The collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container.

[0008] In another aspect, disclosed herein is a bottle assembly comprising:

a container having an open end, a closed end, a base portion, and a neck, the neck having a rim defining the open end of the container;

a vent assembly positionable on the rim of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration and a second configuration,

wherein in the first configuration, the collar assembly is configured to sealingly engage the vent assembly and urge the vent assembly into sealing engagement with the rim of the container, and

wherein in the second configuration, in which the vent assembly is omitted from the bottle assembly, the collar assembly is configured to sealingly engage the rim of the container

[0008A] Also disclosed herein is a bottle assembly generally comprises a container having an open end, a closed end, a base portion, and a neck. The neck comprises a rim defining the open end of the container. A vent assembly is positionable on the rim of the container to enable venting of the container during use. A collar assembly generally defines a closure for the container and is configured for releasable engagement

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.

[0005] Some users may at times assemble such a bottle with the vent assembly omitted from the bottle, such as when traveling or when a child is older and parent decides to no longer use the vent assembly. In such an instance, the collar assembly is threaded onto the neck of the bottle until the collar is tightened down as much as possible. However, the neck of the bottle and the height of the collar are such that the collar assembly, and in particular the nipple of the collar assembly, do not adequately seal down against the rim of the bottle. As such, leakage of liquid from the bottle can occur.

[0006] There is a need, therefore, for a bottle assembly, and in particular a vented bottle assembly, in which the vent assembly can be removed and the bottle assembly still used without the risk of leakage.

SUMMARY

[0007] In one aspect, there is disclosed 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 vent assembly positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container,

, the bottle assembly being configured for venting to atmosphere in the second configuration with the vent assembly omitted from the container

[0007A] Also disclosed herein is a bottle assembly comprises a container having an open end, a closed end, a base portion, and a neck together defining a liquid chamber of the container. The neck comprises a rim defining the open end of the container. The bottle assembly also comprises a vent assembly that is positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use. A collar assembly generally defines a closure for the container and is configured for releasable engagement with the neck of the container over the open end thereof. The collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container.

[0008] In another aspect, disclosed herein is a bottle assembly comprising:

a container having an open end, a closed end, a base portion, and a neck, the neck having a rim defining the open end of the container;

a vent assembly positionable on the rim of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration and a second configuration,

wherein in the first configuration, the collar assembly is configured to sealingly engage the vent assembly and urge the vent assembly into sealing engagement with the rim of the container, and

wherein in the second configuration, in which the vent assembly is omitted from the bottle assembly, the collar assembly is configured to sealingly engage the rim of the container.

[0008A] Also disclosed herein is a bottle assembly generally comprises a container having an open end, a closed end, a base portion, and a neck. The neck comprises a rim defining the open end of the container. A vent assembly is positionable on the rim of the container to enable venting of the container during use. A collar assembly generally defines a closure for the container and is configured for releasable engagement

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;

a vent assembly positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container.

2. The bottle assembly set forth in claim 1 wherein the neck of the container comprises an inner surface including a shoulder, the shoulder configured to support the vent assembly within the container during use.

3. The bottle assembly set forth in claim 2 wherein a top of the vent assembly extends above the rim of the neck when the vent assembly is seated on the shoulder of the neck of the container.

4. The bottle assembly set forth in claim 3 wherein the collar assembly comprises a collar and a nipple.

5. The bottle assembly set forth in claim 4 wherein the collar comprises an annular nub and an annular projection, and the nipple comprises an external projection and a peripheral lip, the external projection of the nipple configured to retain the annular

nub of the collar, and the peripheral lip of the nipple configured to retain the annular projection of the collar to couple the nipple to the collar for conjoint assembly onto the container.

6. The bottle assembly set forth in claim 4 wherein in the first configuration of the bottle assembly the nipple sealingly engages the vent assembly, and wherein in the second configuration of the bottle assembly the nipple sealingly engages the rim of the neck of the container.

7. The bottle assembly set forth in claim 4 wherein the nipple comprises a flange having a bottom face, the bottom face of the flange comprising a plurality of vent features extending radially inward from an outer edge of the flange in an equal, circumferentially-spaced relationship with each other.

8. The bottle assembly set forth in claim 7 wherein the plurality of vent features extends radially inward of the rim of the neck of the container but does not extend radially inward of the top of the perimeter wall of the vent insert, such that in the first configuration of the bottle assembly the vent assembly sealingly engages the bottom face of the nipple radially inward of the vent features, and such that in the second configuration of the bottle assembly the plurality of vent features engages the rim of the container so that air can enter the container by the plurality of vent features.

9. A bottle assembly comprising:

a container having an open end, a closed end, a base portion, and a neck, the neck having a rim defining the open end of the container;

a vent assembly positionable on the rim of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration and a second configuration,

wherein in the first configuration, the collar assembly is configured to sealingly engage the vent assembly and urge the vent assembly into sealing engagement with the rim of the container, and

wherein in the second configuration, in which the vent assembly is omitted from the bottle assembly, the collar assembly is configured to sealingly engage the rim of the container.

10. The bottle assembly set forth in claim 9 wherein the neck of the container comprises external threads thereon, and wherein the collar assembly comprises internal threads for threaded engagement with the external threads of the neck of the container.

11. The bottle assembly set forth in claim 10 wherein the number of internal threads on the collar assembly is greater than the number of external threads on the neck of the container.

12. The bottle assembly set forth in claim 9 wherein the collar assembly comprises a collar and a nipple.

13. The bottle assembly set forth in claim 12 wherein the collar comprises an annular nub and an annular projection, and wherein the nipple comprises an external projection and a peripheral lip, the external projection configured to retain the annular nub, and the peripheral lip configured to retain the annular projection to couple the nipple to the collar for conjoint assembly onto the container.

14. The bottle assembly set forth in claim 12 wherein in the first configuration of the bottle assembly the nipple sealingly engages the vent assembly, and wherein in the second configuration of the bottle assembly the nipple sealingly engages the rim of the container.

15. The bottle assembly set forth in claim 9 wherein the neck of the container has a first height extending from the shoulder of the container to the rim thereof, the collar assembly comprises a side wall disposed in opposed relationship to the neck of the container upon engagement of the collar assembly with the neck of the container, the side wall of the container having a second height, the second height being one of equal to and less than the first height of the neck of the container.

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;

a vent assembly positionable substantially entirely within the liquid chamber of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration in which the vent assembly is disposed substantially entirely within the liquid chamber of the container and a second configuration in which the vent assembly is omitted from the container, the bottle assembly being configured for venting to atmosphere in the second configuration with the vent assembly omitted from the container.

2. The bottle assembly set forth in claim 1 wherein the neck of the container comprises an inner surface including a shoulder, the shoulder configured to support the vent assembly within the container during use.

3. The bottle assembly set forth in claim 2 wherein a top of the vent assembly extends above the rim of the neck when the vent assembly is seated on the shoulder of the neck of the container.

4. The bottle assembly set forth in claim 3 wherein the collar assembly comprises a collar and a nipple.

5. The bottle assembly set forth in claim 4 wherein the collar comprises an annular nub and an annular projection, and the nipple comprises an external projection and a peripheral lip, the external projection of the nipple configured to retain the annular nub of the collar, and the peripheral lip of the nipple configured to retain the annular projection of the collar to couple the nipple to the collar for conjoint assembly onto the container.

6. The bottle assembly set forth in claim 4 wherein in the first configuration of the bottle assembly the nipple sealingly engages the vent assembly, and wherein in the second configuration of the bottle assembly the nipple sealingly engages the rim of the neck of the container.

7. The bottle assembly set forth in claim 4 wherein the nipple comprises a flange having a bottom face, the bottom face of the flange comprising a plurality of vent features extending radially inward from an outer edge of the flange in an equal, circumferentially-spaced relationship with each other.

8. The bottle assembly set forth in claim 7 wherein the plurality of vent features extends radially inward of the rim of the neck of the container but does not extend radially inward of the top of the vent assembly, such that in the first configuration of the bottle assembly the vent assembly sealingly engages the bottom face of the nipple radially inward of the vent features, and such that in the second configuration of the bottle assembly the plurality of vent features engages the rim of the container so that air can enter the container by the plurality of vent features.

9. A bottle assembly comprising:

a container having an open end, a closed end, a base portion, and a neck, the neck having a rim defining the open end of the container;

a vent assembly positionable on the rim of the container to enable venting of the container during use; 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,

wherein the collar assembly and the container are configured relative to each other to enable selective configuration of the bottle assembly between a first configuration and a second configuration,

wherein in the first configuration, the collar assembly is configured to sealingly engage the vent assembly and urge the vent assembly into sealing engagement with the rim of the container, and

wherein in the second configuration, in which the vent assembly is omitted from the bottle assembly, the collar assembly is configured to sealingly engage the rim of the container.

10. The bottle assembly set forth in claim 9 wherein the neck of the container comprises external threads thereon, and wherein the collar assembly comprises internal threads for threaded engagement with the external threads of the neck of the container.

11. The bottle assembly set forth in claim 10 wherein the number of internal threads on the collar assembly is greater than the number of external threads on the neck of the container.

12. The bottle assembly set forth in claim 9 wherein the collar assembly comprises a collar and a nipple.

13. The bottle assembly set forth in claim 12 wherein the collar comprises an annular nub and an annular projection, and wherein the nipple comprises an external projection and a peripheral lip, the external projection configured to retain the annular nub, and the peripheral lip configured to retain the annular projection to couple the nipple to the collar for conjoint assembly onto the container.

14. The bottle assembly set forth in claim 12 wherein in the first configuration of the bottle assembly the nipple sealingly engages the vent assembly, and wherein in the second configuration of the bottle assembly the nipple sealingly engages the rim of the container.

15. The bottle assembly set forth in claim 9 wherein the neck of the container has a first height extending from the shoulder of the container to the rim thereof, the collar assembly comprises a side wall disposed in opposed relationship to the neck of the container upon engagement of the collar assembly with the neck of the container, the side wall of the container having a second height, the second height being one of equal to and less than the first height of the neck of the container.

16. The bottle set forth in claim 9, wherein the vent assembly defines one or more lateral vents.

17. The bottle set forth in claim 16, wherein the vent assembly further comprises a vent tube in fluid communication with the one or more lateral vents.