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(54) **SIPPY CUP WITH MULTIPLE VALVE CONFIGURATIONS**

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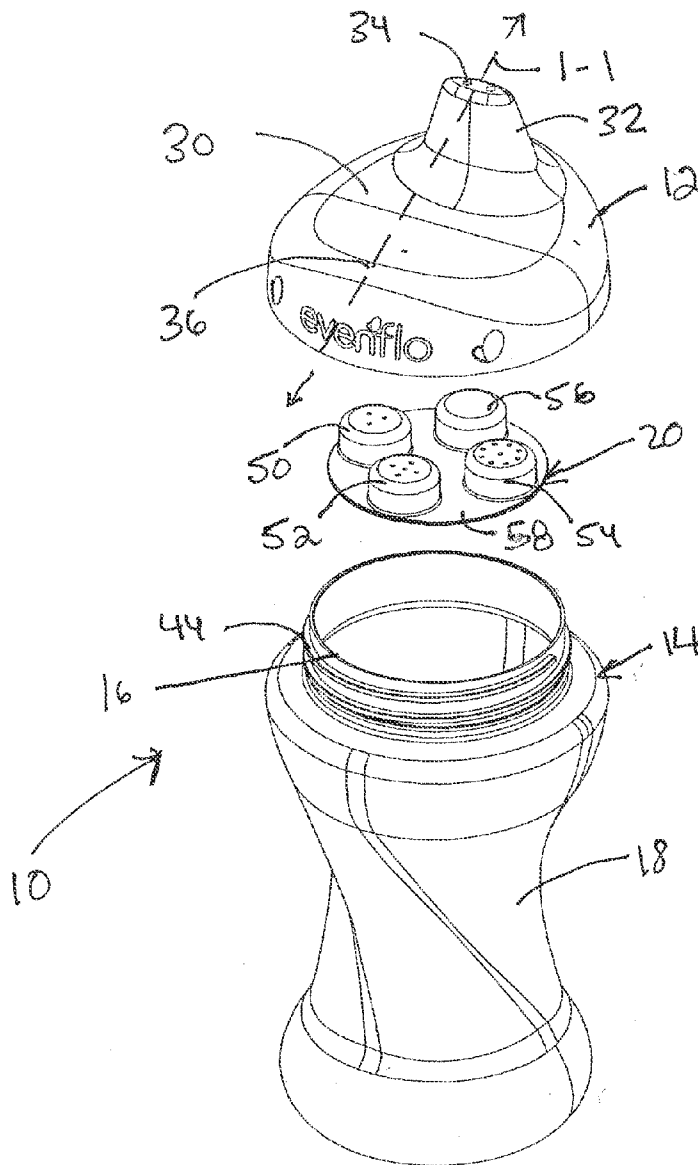
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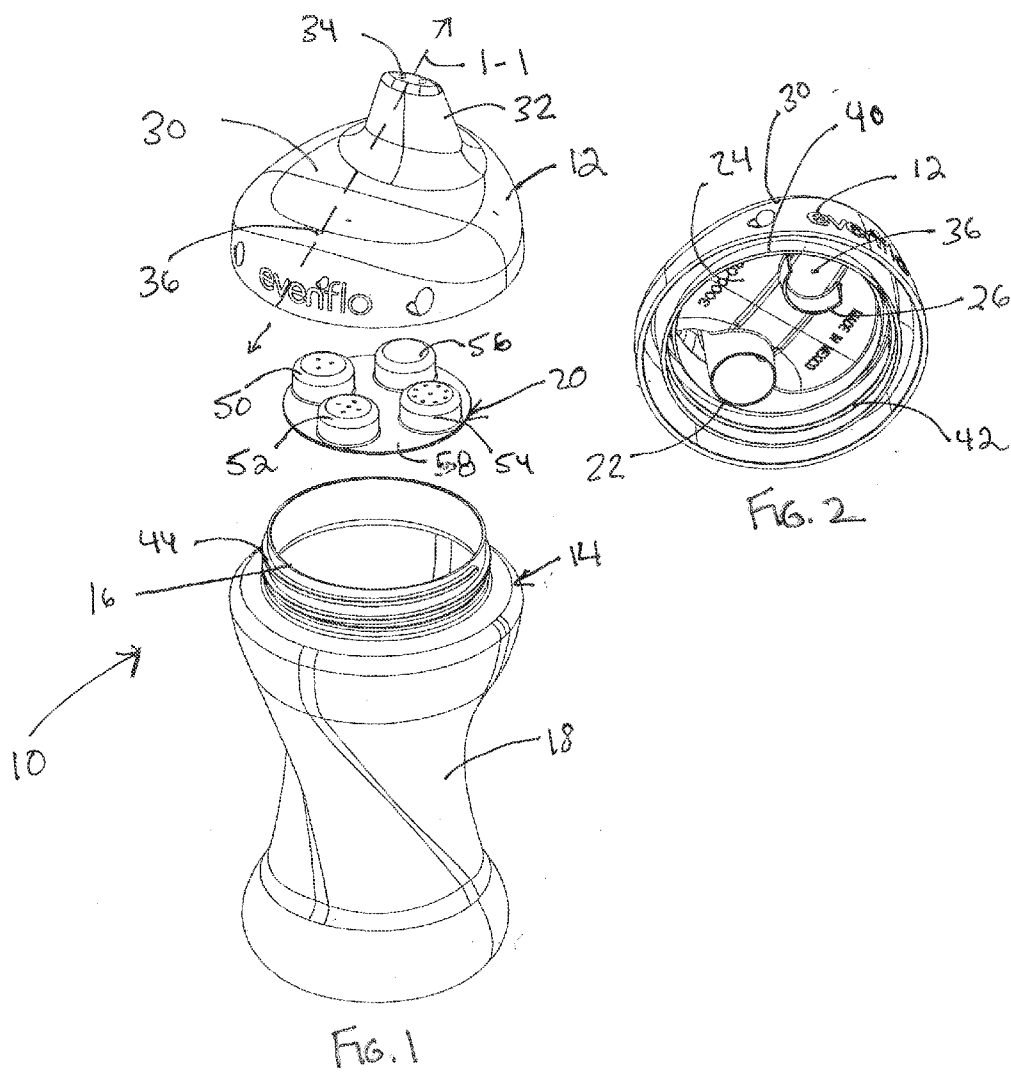
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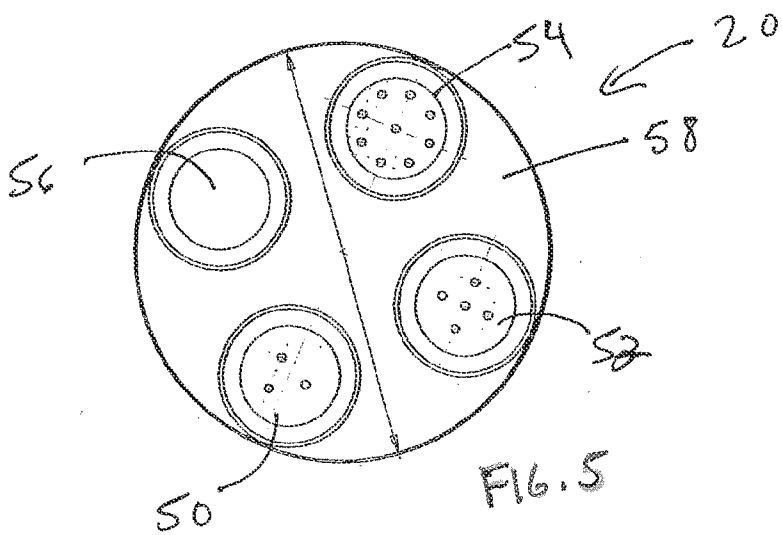
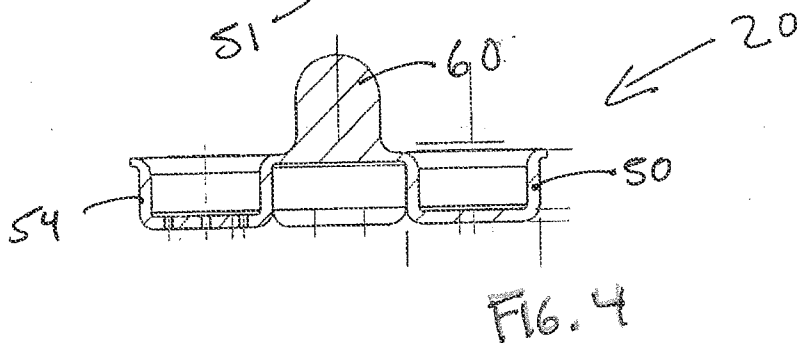
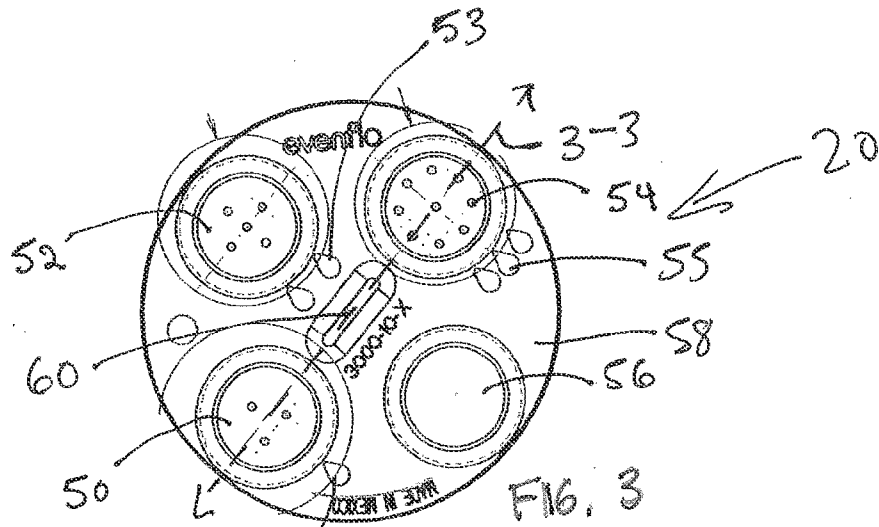
(57) **ABSTRACT**

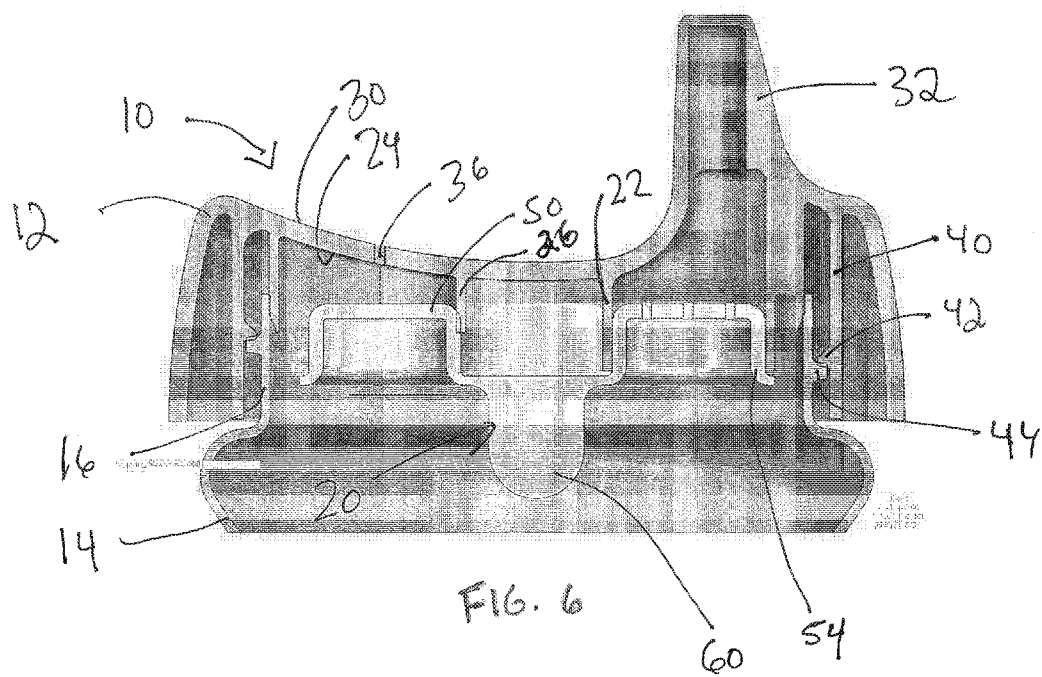
A sippy cup assembly including a flow control element having selectable flow controllers thereon allowing a caregiver to selectively control a desired flow condition for the sippy cup assembly.

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SIPPY CUP WITH MULTIPLE VALVE CONFIGURATIONS

TECHNICAL FIELD

[0001] The present invention relates to beverage containers having liquid flow control devices, and more specifically, relates to a sippy cup having a flow control element having flow controllers thereon providing multiple flow conditions.

BACKGROUND

[0002] Sippy cups are generally known in the infant/child feeding field. In general, sippy cups are a type of spill-resistant container typically made for children that include a cup body and a screw-on or snap-on lid having a drinking spout thereon. A flow control element is often provided that mates with or otherwise is received on or in the sippy cup lid to control the flow of liquid through the drinking spout and to prevent leakage when the sippy cup is tipped over when not in use. While sippy cups having flow control elements of this type have been useful, there are some drawbacks.

[0003] For example, one problem associated with prior art sippy cup flow control elements is that depending on the age of the infant, child or toddler using the sippy cup, or other factors, certain flow characteristics (i.e. more flow, less flow, no flow) may be desirable. However, many prior art sippy cup flow control elements do not have any ability to alter flow control characteristics including, if desired, stopping the flow altogether.

[0004] Accordingly, it would be desirable to have a sippy cup incorporating a flow control element that is capable of being adjusted to different flow conditions including, if needed, to a “no-flow” condition.

SUMMARY

[0005] The present disclosure is directed to a sippy cup having a flow control element that may be adjusted by a caregiver to provide various desired flow control conditions for a sippy cup drinking spout. More specifically, the present disclosure relates to a sippy cup comprising a flow control element having multiple flow controllers thereon, each flow controller providing a different flow condition.

[0006] More specifically, the present disclosure may comprise a sippy cup assembly having a lid, a body, and a flow control element wherein the lid has a spout thereon, the flow control element controls the flow of liquid therethrough, and the lid may be selectively and releasably attached to the body while providing a seal therewith to compose the completed sippy cup assembly. The flow control element disclosed may preferably shaped and sized to be received by an engagement feature on the underside of the lid. The lid preferably includes a spout thereon having at least one engagement feature depending therefrom for engaging a flow control element. The spout includes at least one, although it may include many, egress openings extending therethrough from the outer surface and the flow control element comprises at least 3 separate flow controllers, but could include more, each of which provides separate flow conditions to a user thereof. Some example flow conditions that can be provided include low flow, medium flow, high flow and no-flow. The flow controllers may comprise cylindrical-shaped projections that are shaped and sized to be frictionally received in the engagement feature(s). The flow controllers may include holes, slits, hatching, crosses, etc., to provide a desired flow rate for

egress of liquid from the body through the flow controllers into the spout and to the user thereof. Accordingly, the present disclosure provides a sippy cup assembly including a flow control element having at least 3 caregiver selectable flow conditions associated therewith.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is an exploded perspective view of an embodiment of the sippy cup assembly disclosed herein;

[0008] FIG. 2 is an underside perspective view of an embodiment of a lid operable in connection with the sippy cup assembly illustrated in FIG. 1;

[0009] FIG. 3 is a bottom plan view of a flow control element operable in connection with the sippy cup assembly illustrated in FIG. 1;

[0010] FIG. 4 is a cross-section of the flow control element of FIG. 3 taken across line 3-3;

[0011] FIG. 5 is a top plan view of the flow control element of FIG. 3; and

[0012] FIG. 6 is a cross-section of the assembled version of the sippy cup assembly of FIG. 1 taken across line 1-1.

DETAILED DESCRIPTION

[0013] While this disclosure is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be described in detail a preferred embodiment of the disclosure and is not intended to limit the broad aspect of the disclosure to the embodiments illustrated.

[0014] Referring to FIGS. 1-6, there is illustrated a sippy cup assembly 10, of which lid 12 and body 14 are part. As illustrated in FIG. 1, the sippy cup assembly 10 generally comprises a body 14 for retaining a liquid (not shown), a lid 12 enclosing an open end 16 of the body 14. The lid 12 may be releasably coupled to the open end 16 of the body 14, a flow control element 20 being shaped and sized to be frictionally nested within at least one flow control element engagement feature 22 depending from an underside 24 of the lid 12. The body 14 may be formed and/or include a gripping surface 18 on an outer portion thereof to facilitate gripping thereof by a user. In an embodiment consistent with the disclosure, a second engagement feature 26 may depend from an underside of the lid 12. The flow control element 20 may be comprised of elastomeric or non-elastomeric materials. The flow control element 20 is used to slow and/or prevent the spillage of liquid from the body 14 through the lid 12.

[0015] Specifically with regard to the lid 12, the lid 12 includes an outer surface 30, preferably having a spout 32 thereon, and an underside 24 having at least one engagement feature depending 22 therefrom for engaging a flow control element 20. The spout 32 includes at least one, although it may include many, egress openings 34 extending there-through from the outer surface 30 through the underside 24 of the lid 12, the spout 32 defining a corresponding inner cavity to facilitate the flow of a liquid from the container body 14 of the sippy cup assembly 10 to a user thereof. As is known to those having skill in the art, and to counteract the buildup of negative pressure resulting from liquid leaving the spout 32, the lid 12 may further comprise a vent opening 36 formed through the outer surface 30 of lid 12 through to the underside 24 of the lid 12. Specifically, the vent opening 36 allows air ingress from the atmosphere to the sippy cup body 14 when the sippy cup assembly 10 is in use.

[0016] In one embodiment of the present disclosure, as illustrated best in FIG. 2, the underside 24 of the lid 12 may include circumferential flange 40 depending therefrom on which an engagement feature 42, such as threads, may be formed to releasably couple the lid 12 to an open end 16 of the cup body 14. In such an embodiment, the open end 16 of the cup body 14 may preferably include a corresponding engagement feature 44, which cooperates with the circumferential flange 40 engagement feature 42 to allow the lid 12 to be releasably secured to the cup body 14 to create a seal between the lid 12 and the body 14. As discussed above, the lid 12 underside 14 includes at least one flow control element 20 engagement feature 22 depending therefrom shaped and sized to frictionally engage a corresponding feature, such as a flow controller, on the flow control element 20. Consistent herewith, the lid 12 may be composed of any suitable materials but is preferably composed of rigid or semi-rigid material plastic material, such as polypropylene, by a method such as injection molding or blow molding. Of course, other materials and methods may be used as would be known by those of ordinary skill in the art.

[0017] As discussed above, and as shown best in FIGS. 2-5, the underside 24 of the lid 12 includes at least one engagement feature 22 to engage a corresponding engagement feature on the flow control element 20. In connection with an embodiment of the disclosure disclosed herein, the flow control element 20 includes flow controllers 50, 52, 54, 56 thereon. The flow controllers 50, 52, 54, 56 may comprise flow controllers providing a low flow 50, a medium flow 52, a high flow 54 and a no-flow 56 condition. The flow controllers 50, 52, 54, 56 may comprise cylindrical-shaped protrusions that are shaped and sized to be frictionally received in the engagement features 22, 26. Consistent with embodiments of the disclosure, the flow controllers 50, 52, 54, 56 may be circumferentially arranged on a base section 58 of the flow control element 20 and may be formed of an elastomeric material. The flow control element 20 may include a thumb tab 60 for facilitating removal and manipulation of the flow control element 20 by a caregiver. Indicia 51, 53, 55, 57 may be provided on the base section 58 of the flow control element to provide an indication of flow controller flow conditions, i.e. low 51, medium 53, high 55 and no 57 flow.

[0018] The flow controllers 50, 52, 54, 56 may include holes, slits, hatching, crosses, etc., therethrough to provide a desired flow rate for egress of liquid from the body 14 through the flow controllers 50, 52, 54 into the spout 32 and to the user thereof. The shapes, sizes, geometries, etc. for providing a desired flow rate is known in the art and will not be exhaustively disclosed herein. However, for illustrative purposes, a flow controller 50 desired to produce a low flow condition may be provided with three holes therethrough having a diameter of roughly 0.8 mm to 1.2 mm. Correspondingly, a flow controller 52 desired to provide a medium flow condition may be provided with five holes therethrough having similar diameters. Further, a flow controller 54 desired to provide a high flow condition may be provided with 9 holes therethrough having similar diameters. Finally, a flow controller 56 desired to provide a no-flow condition has no holes or apertures therein.

[0019] Accordingly, the present disclosure provides a sippy cup assembly 10 including a flow control element 20 having at least 3 caregiver selectable flow conditions associated therewith. The caregiver can select, for example, a low flow condition by removing the flow control element 20 from the

lid 12 by pulling on the thumb tab 60 and disengaging the flow control element 20 from the engagement feature 22 and, if used, engagement feature 26. The caregiver may then select the low flow controller 50 and press it into the engagement feature 22 and, if present, press flow controller 54 into engagement feature 26. The caregiver may then fill the body 14 of the sippy cup assembly 10 with liquid, attach the lid 12 to the body 14 using the engagement features 42, 44, and provide the sippy cup assembly 10 to the user thereof. Next, when suction is applied to the spout 32 by the user, a negative pressure is created in the spout 32, thereby allowing the flow of liquid to the user. Simultaneously, upon suction, atmospheric air is allowed to ingress via vent opening 36 creating equilibrium within the body 14 with respect to the external atmosphere. In a similar manner, other flow conditions may be selected by the caregiver including, if desired, a no-flow condition.

[0020] Following from the above description it should be apparent to those of ordinary skill in the art that, while the methods and apparatuses herein described constitute exemplary embodiments of the present disclosure, it is understood that the disclosure is not limited to these precise methods and apparatuses and that changes may be made therein without departing from the scope of the disclosure.

What is claimed is:

1. A sippy cup assembly comprising:

a lid having a spout extending from an upper portion thereof, said spout having at least one liquid egress opening therethrough;

a body shaped and sized to hold a liquid therein having an engagement portion thereon for engaging said lid to provide a seal between said lid and said body; and

a flow control element having at least 3 separate flow controllers thereon, each of said flow controllers adapted to be received between said spout egress opening and a liquid in said body, each of said flow controllers adapted to provide a different flow condition for a liquid located in said body leaving said body through said spout egress opening.

2. The sippy cup assembly of claim 1 wherein said flow controllers comprise protrusions extending from said flow control element.

3. The sippy cup assembly of claim 1 wherein said lid includes at least one engagement feature depending from a lower portion of said lid shaped to engage at least a portion of said flow control element.

4. The sippy cup assembly of claim 1 wherein said lid includes at least one engagement feature depending from a lower portion of said lid shaped to engage at least one of said flow controllers.

5. The sippy cup assembly of claim 4 wherein said engagement is between said engagement feature and said flow controller is frictional engagement.

6. The sippy cup assembly of claim 1 wherein at least one of said flow controllers is adapted to provide a no-flow condition.

7. The sippy cup assembly of claim 1 wherein said lid includes a vent opening therein.

8. The sippy cup assembly of claim 1 wherein said flow control element includes a thumb tab protruding from a lower portion thereof.

9. The sippy cup assembly of claim 1 wherein said flow control element includes indicia thereon to provide an indication of flow conditions provided by respective flow controllers located thereon.

10. The sippy cup assembly of claim 2 wherein said protrusions are cylindrical in shape.

11. The sippy cup assembly of claim 1 wherein said at least one of said flow controllers includes at least 3 holes there-through.

12. The sippy cup assembly of claim 11 wherein said holes are between 0.8 mm and 1.2 mm in diameter.

13. The sippy cup assembly of claim 1 wherein said flow control element is entirely composed of an elastic material.

14. The sippy cup assembly of claim 1 wherein said lid includes a circumferential flange having threads thereon shaped to engage corresponding threads located on said body.

15. A sippy cup assembly comprising:

a lid having a spout extending from an upper portion thereof and a circumferential flange having threads thereon, said spout having at least one liquid egress opening therethrough;

a body shaped and sized to hold a liquid therein having an upper portion having threads thereon shaped to engage corresponding threads located on said circumferential flange of said lid to provide a seal between said lid and said body; and

a flow control element having at least 3 separate flow controllers thereon, each of said flow controllers comprising a protrusion extending from an upper portion of said flow control element and adapted to be frictionally received by an engagement feature depending from a lower portion of said lid between said spout egress opening and a liquid in said body, each of said flow controllers adapted to provide a different flow condition for a liquid located in said body leaving said body through said spout egress opening.

16. The sippy cup assembly of claim 15 wherein at least one of said flow controllers is adapted to provide a no-flow condition.

17. The sippy cup assembly of claim 15 wherein said flow control element includes indicia thereon to provide an indication of flow conditions provided by respective flow controllers located thereon.

18. The sippy cup assembly of claim 15 wherein said flow control element includes a thumb tab protruding from a lower portion thereof.

19. The sippy cup assembly of claim 1 wherein said at least one of said flow controllers includes at least 3 holes there-through and wherein said holes are between 0.8 mm and 1.2 mm in diameter.

15. A sippy cup assembly comprising:

a lid having a spout extending from an upper portion thereof, a vent hole therethrough, and a circumferential flange having threads thereon, said spout having at least one liquid egress opening therethrough;

a body shaped and sized to hold a liquid therein having an upper portion having threads thereon shaped to engage corresponding threads located on said circumferential flange of said lid to provide a seal between said lid and said body; and

a flow control element having at least 3 separate flow controllers thereon, each of said flow controllers comprising a protrusion extending from an upper portion of said flow control element and adapted to be frictionally received by an engagement feature depending from a lower portion of said lid between said spout egress opening and a liquid in said body, each of said flow controllers adapted to provide a different flow condition for a liquid located in said body leaving said body through said spout egress opening and one of said controllers adapted to provide a no-flow condition.

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