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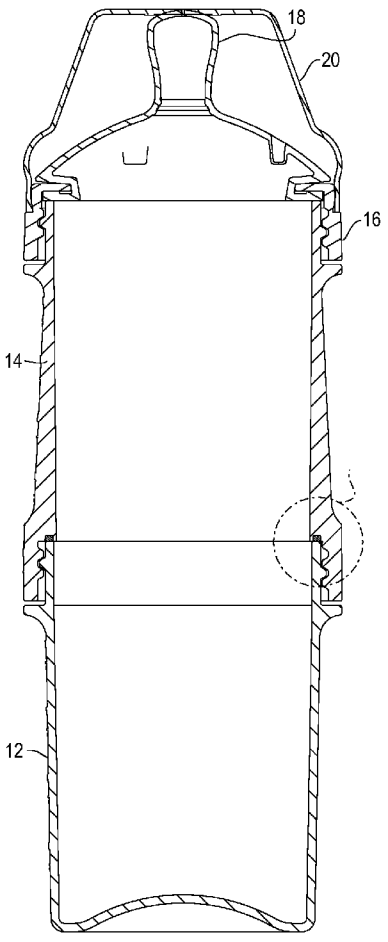
(54) Title: VARIABLE SIZE WASHABLE BABY BOTTLE



(57) Abstract: A baby bottle having a top collar having internal threads with a removable nipple attached to the collar. A bottom or lower section has a top portion with external threads. A removable center section has an open top and an open bottom, the open top having external threads for receiving the internal threads on the top collar and the open bottom having internal threads for receiving the external threads of the lower section. The size of the baby bottle can be changed between two sizes by the insertion or removal of the center section, and the top collar can be received in locking engagement with either the top of the center section or the top of the bottom section.

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TITLE OF THE INVENTION : VARIABLE SIZE WASHABLE BABY BOTTLE

I. CROSS REFERENCE TO RELATED APPLICATION

This application is based on and claims priority of provisional patent application 61662039 filed June 20, 2012 and provisional patent application 61672360 filed July 17, 2012.

II. BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to baby bottles and more particularly to a baby bottle that is separable in the mid section to allow a person to have easy access to the interior of the bottle to properly clean the interior of the bottle. The bottle size can also be varied between a smaller size and a larger size by the removal or addition of a removable center section.

In the past, baby bottles have been made from two pieces. The first piece is the bottle itself, which is generally cylindrical with a closed bottom and cylindrical wall and an open top. The top of the bottle is threaded to receive the second piece, which is a threaded cap which has the nipple secured in the cap. Generally the nipple can be removed from the cap for cleaning. The problem with these conventional bottles is that it is difficult to clean the interior of the bottle when the cap is removed. Because the user's hand (usually an adult) is too large to insert into the bottle, brushes have been the preferred method of scrubbing the interior of the bottle. However, when rice is added to the milk or formula, the resulting liquid is thick and some of it usually hardens along the area where the cylindrical wall joins to the bottom. This hard material is very difficult to remove from the bottom of the bottle and the brush fails to remove the "crusty" deposits. Other types of cleaning apparatus have been tried but these are expensive pieces of machinery and require the person to purchase another piece of equipment to try and clean the bottles.

Another disadvantage of the prior art bottles is that the size and total volume of the baby bottle was fixed and the amount of liquid that the bottle could hold was dependent on the fixed bottle size. As the baby grew, the adult would increase the amount of liquid poured into the bottle but never did the size of the bottle vary. Thus, even if only a small amount of liquid was desired for a newborn, the bottle would still be the dimensions of the fixed bottle size.

This invention allows the user to easily and completely clean the bottle without the need for expensive or additional equipment. The bottle separates in the mid section to allow the user's hand to be inserted into the bottom section of the bottle and scrub the hardened deposits out from the bottom. The removable center section is also easily cleaned as the users hand and fingers can easily access the entire center section that has opposite open ends. Furthermore the invention provides a variable volume bottle in which the center section is removable so that the cap can be screwed onto the top of the center section or the top of the bottom portion, thus creating two different size bottles.

The center section and the bottom section are joined by screwing the two sections together. The cap with the nipple can be attached to either the top of the center section if the center section is used, or attached to the top of the bottom section if the center section is removed. The diameter and threads on the top of the center section are the same as the diameter and threads on the top of the bottom section which allows the cap to be screwed onto either section. The center section can be removed or attached to the bottom section thereby either decreasing or increasing the size of the bottle. This adjustable volume feature allows the smaller bottle to be used when the child is an infant, and by adding the center section, creates the larger bottle which is used as the child grows. However, the user can easily clean the bottle, regardless if the small or larger configuration is selected.

III. OBJECTS AND ADVANTAGES

It is an object of the invention to provide a baby bottle that can be assembled to either of at least two configurations that are different in size. A related object is to provide a baby bottle that has a removable center section that can be removed or inserted to vary the size of the bottle.

Related to this object is to provide a baby bottle that uses the same cap and nipple in either of the two configurations.

Yet another object is to provide a baby bottle that allows the user to easily clean the inside of the bottle with the user's hand by removal of a portion of the baby bottle to allow the user's fingers or hand to be inserted into the bottle to reach the bottom of the bottle.

The advantage of the inventive baby bottle is that it allows the user to vary the size of the bottle to accommodate the growth of the child without the need to purchase two different size bottles, and further provides an easy means for the user to clean the bottle.

IV. BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the fully assembled baby bottle.

Fig. 2 is a front elevation view of the assembled full size baby bottle.

Fig. 3 is a top plan view of the baby bottle.

Fig. 4 is a cross sectional view taken along line 4-4 of Fig. 3.

Fig. 5 is an enlarged view of the threads and gasket between the center section and the bottom section.

Fig. 6 is a perspective view of the bottom or lower section of the baby bottle.

Fig. 7 is a front elevation view of the bottom section of the baby bottle.

Fig. 8 is a top plan view of the baby bottle of Fig 7.

Fig. 9 is a cross sectional view taken along line 9-9 of Fig. 8.

Fig. 10 is a perspective view of the center or removable section.

Fig. 11 is a front elevation view of the center or removable section.

Fig. 12 is perspective view of the bottom or lowermost section of the baby bottle.

Fig. 13 is a front elevation view of the bottom or lowermost section.

Fig. 14 is a perspective view of the cap.

Fig. 15 is elevation view of the cap with the internal threads shown in phantom.

Fig. 16 is a perspective view of the cover.

Fig. 17 is a front elevation view of the cover with portions shown in phantom.

Fig. 18 is an exploded view of an alternate embodiment of a baby bottle similar to the baby bottle of Fig. 1 except with concave side walls.

V. DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning first to Figs. 1 - 4, there is illustrated the inventive baby bottle 10. The bottle 10 is comprised of a bottom or lower section 12 with a floor 13, a center section 14, a nipple locking ring 16, a nipple 18 and a spill proof cover 20. The center section 14 has an open top 17 and open bottom 19. The nipple locking ring 16 receives the nipple 18 in a conventional manner so that the nipple can be received in an opening in the ring 16 and then pushed back out for cleaning. The nipple locking ring 16 also has internal threads 22 that allow the nipple locking ring 16 to be screwed onto an upper portion 24 of the center section 14, by means of complementary external threads 26 on the open top 17 of the center section. As illustrated in Fig. 1, the baby bottle 10 has both the bottom section 12 and center section 14 attached to each other resulting in the bottle 10 being in its largest assembled configuration and capable of holding the largest volume of liquid.

As seen in Fig. 11, the center section 14 also has a lower portion 29 that has internal threads 30. The bottom section 12 is clearly illustrated in Figs. 12 and 13. To attach the center section 14 to the bottom section 12, the bottom section 12 has an upper portion 34 that has external threads 36 that receive the internal threads 30 on the lower portion 29 of the center section 14. A silicon sealing ring 40 (Figs. 5 and 18) can also be provided between the center section 14 and lower section 12 to provide a leak proof seal between the two sections. In this manner the center section 14 is screwed onto the bottom section 12 in a leak proof manner. The fit must be water tight so that liquid in the bottle 10 does not leak from the area where the two sections are joined.

With the center section 14 removed, the bottom section 12 has on open top 42 that is sufficiently large to allow a person's fingers to be inserted into the bottom section 12 and reach the floor 13 to remove all food, liquid and hardened materials from the floor 13.

Figs. 1-4 illustrate several views of the baby bottle 10 when fully assembled. The center section14 is mounted on the bottom section 12. As the center section 14 has an open top 17 and open bottom 19, the bottle 10 is in a configuration where it is able to retain the largest volume of liquid. However, as will be described below, in an alternate assembled configuration, a smaller bottle can be formed.

Figs. 6-9 illustrate an alternate assembly in which a smaller volume bottle 10 is formed. In this configuration the center section 14 is removed from engagement with the nipple locking ring 16 and from engagement with the bottom section 12. This is done by just unscrewing the center section 14 from the lower section 12 and removing the center section14. The nipple ring 16 is unscrewed from the top portion 24 of the center section 14. Then the nipple locking ring 16, with the nipple 18 inserted, is screwed onto the upper portion 34 of the bottom section 12. The diameter and threads 22 of the nipple locking ring 16 are identical to the diameter and threads of the upper portion 24 of the center section 14 and to the diameter and threads 26 on the upper portion 24 of the center section. In this manner the nipple locking ring 16 can be received onto the upper portion 34 of the lower section 12 in locking engagement with a fluid tight seal. In this embodiment, a smaller volume baby bottle is created out of the larger bottle. The cap 20 can be placed over the nipple 18 and nipple ring 16 to protect the nipple 18. By reversing this process, the center section 14 can be added on top of the lower section 12, thus forming the larger size bottle. Thus in one bottle the user has essentially available two different size bottles. In either embodiment the user can easily insert the user's fingers onto the bottom section 12 or the center section 14 for easy and complete cleaning.

Fig. 18 is a first alternate embodiment in which the bottle 10 is similar to the preferred embodiment as seen in Fig. 1. However, the walls of the lower section 12 and center section 14 are slightly concave. In all other respects the two embodiments are identical.

In an second alternate embodiment, the threads 30 and 36 can be reversed so that the threads 30 are external and on the outer surface of the lower portion 29 of the center section 14 and the threads 36 on the upper portion 34 of the bottom section 12 will then be on the internal surface of the bottom section 12. The threads 26 on the upper portion 24 will be reversed so that the threads are internal threads. Similarly the internal threads 22 on the nipple locking ring 16 must be placed on the outside of the locking ring 16 so that it can attach to the now internal threads 26 of the center section 14. The locking ring with the threads on the outside can now also be received by the internal threads 36 on the bottom section 12. In all other respects the alternate embodiment functions the same as the preferred embodiment.

The bottle can be made of plastic or other materials that are suitable for the purpose intended. The nipple locking ring 16 and nipple 18 can be of conventional design so that it is interchangeable with conventional baby bottles. The bottles can further be sterilized in any conventional manner once the hardened contents on the floor 13 of the bottom section 12 are scrubbed out.

Thus there has been provided a variable size baby bottle that fully satisfies the objects set forth above. While the invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications and variations as fall within the spirit and scope of the appended claims.

VI. CLAIMS

What is claimed is:

1. A baby bottle comprising

a top collar having internal threads and receiving in removable engagement a nipple;

a removable center section having a plastic body with an open top and an open bottom, the top having external threads for receiving the internal threads on the top collar; the open bottom having internal threads around the perimeter of the body;

a bottom section having an open top and a closed bottom , the open top of the bottom section having external threads for receiving either the internal threads of the center section or the internal threads of the top collar;

whereby the size of the baby bottle can be changed by the insertion or removal of the center section, and the top collar can be received in locking engagement with either the top of the center section or the top of the bottom section.

2. The baby bottle of claim 1 and further comprising a cover adapted for covering the nipple and having a lower part that engages the top collar in removable engagement to provide a protective cover over the nipple.

3. The baby bottle of claim 1 wherein the removable center section and the bottom section are both cylindrical in shape, having a height and a diameter, the dimensions of the center section defining an first volume and the dimensions of the bottom section defining a second volume.

4. The baby bottle of claim 3 wherein the total volume of the baby bottle can be selected from either of two volumes depending on whether the center section is added or removed from the baby bottle with the top collar attached to either the top of the center section if the center section is added, or the top collar attached to the top of the bottom section if the center section is removed.

5. The baby bottle of claim 3 wherein the dimensions of the bottom section are selected from dimensions that will allow a user's hand to be inserted sufficiently deep into the bottom section to touch the closed bottom for cleaning the bottom section.

6. The baby bottle of claim 1 and further comprising a gasket mounted adjacent to the open bottom and engaging the open top of the bottom section when the center section is attached to the bottom section to provide a water resistant seal.

7. The baby bottle of claim 3 and further comprising a protruding neck portion at the open bottom of the removable center section, the protruding neck portion having the internal threads to receive the external threads of the bottom section whereby the internal diameter of the baby bottle between the bottom section and the center section remains substantially constant where the two sections are connected.

8. The baby bottle of claim 1 wherein the external threads on the top of the removable center section are substantially identical to the external threads on the open top of the bottom section, and the internal threads on the top collar and the internal threads on the open bottom of the center section are substantially identical.

9. A baby bottle comprising:

a lower section having an open top, enclosed walls and an enclosed bottom;

first fastening means on the top of the lower section;

a middle section having an open top and an open bottom, the middle section having second fastening means on the open bottom and third fastening means on the open top;

a top section comprising a top collar with means for receiving in removable engagement a nipple, the top collar further having fourth fastening means for attachment to either the third fastening means on the open top of the middle section or the first fastening means on the top of the lower section;

whereby the volume of the baby bottle can be varied between two sizes depending on whether the middle section is added or is removed.

10. The baby bottle of claim 9 wherein the lower section, middle section and top section are all cylindrical.

11. The baby bottle of claim 10 wherein the first fastening means are external threads on the top of the lower section, the second fastening means are internal threads on the open bottom of the middle section, the third fastening means are external threads on the open top of the middle section, and the fourth fastening means are internal threads on the top collar.

12. The baby bottle of claim 10 wherein the first fastening means are internal threads on the top of the lower section, the second fastening means are external threads on the open bottom of the middle section, the third fastening means are internal threads on the open top of the middle section, and the fourth fastening means are external threads on the top collar.

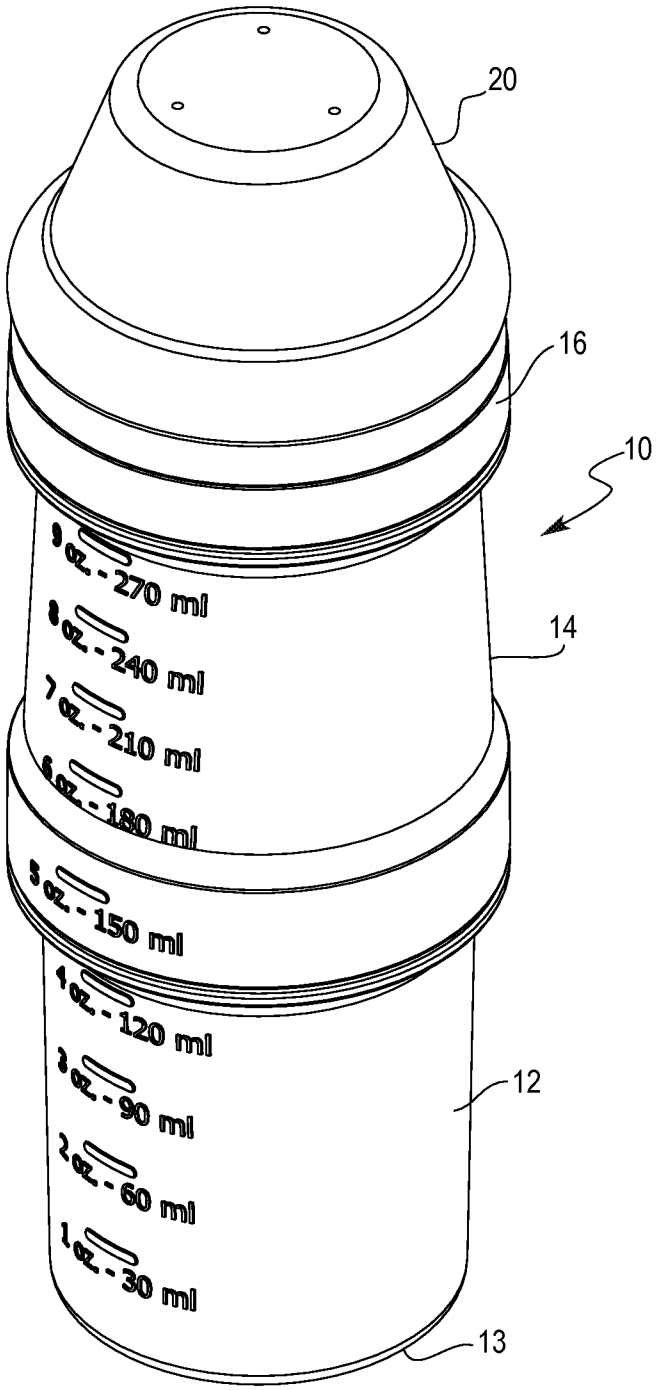
13. The baby bottle of claim 9 wherein the dimensions of the lower section are selected from dimensions that will allow a user's hand to be inserted sufficiently deep into the bottom section to touch the enclosed bottom for cleaning the enclosed bottom of the lower section.

14. The baby bottle of claim 11 wherein the external threads on the top of the removable middle section are substantially identical to the external threads on the open top of the bottom section, and the internal threads on the top collar and the internal threads on the open bottom of the middle section are substantially identical.

15. The baby bottle of claim 9 and further comprising a gasket mounted adjacent to the open bottom of the middle section and engaging the open top of the lower section when the middle section is attached to the lower section to provide a water resistant seal.

16. The baby bottle of claim 11 and further comprising a protruding neck portion at the open bottom of the removable middle section, the protruding neck portion having the internal threads to receive the external threads of the lower section whereby the internal diameter of the baby bottle between the lower section and the middle section remains substantially constant where the two sections are connected.

Fig. 1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9 oz. - 270 ml
8 oz. - 240 ml
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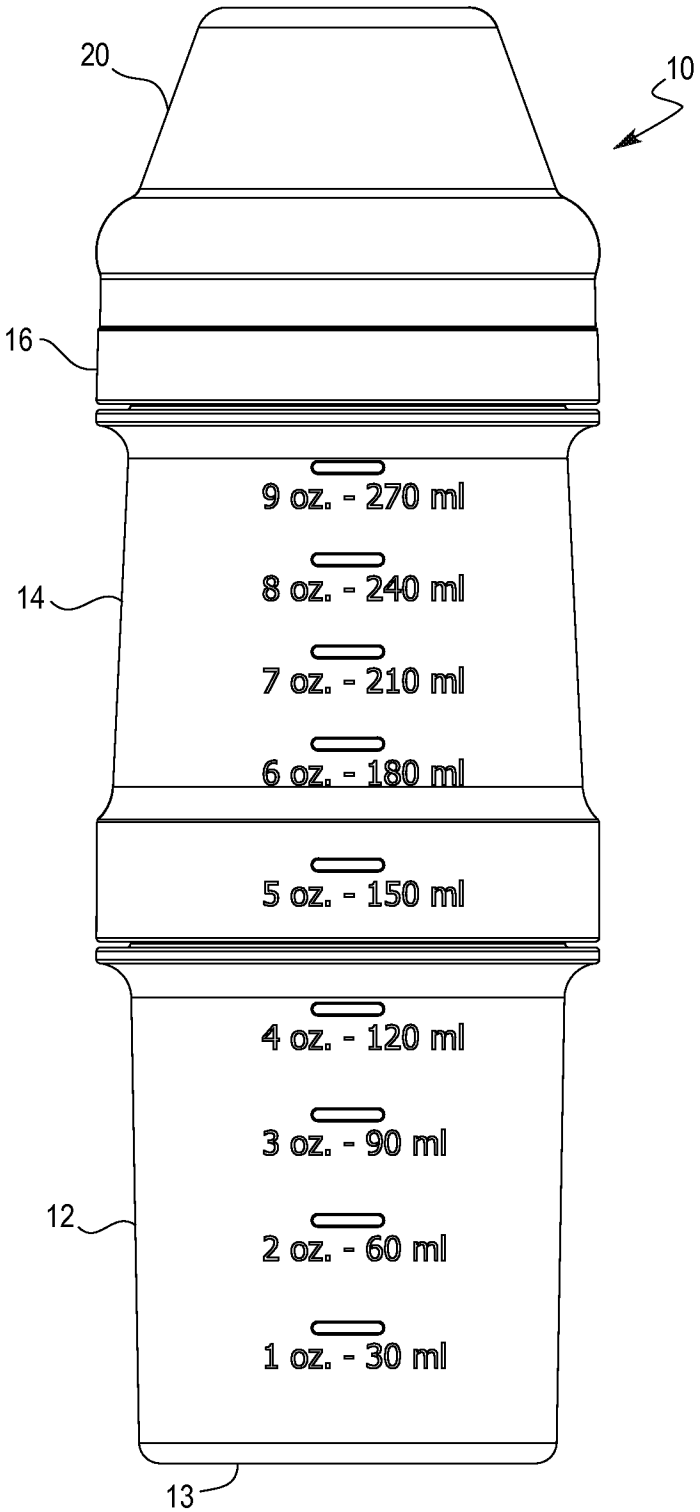
4 oz. - 120 ml
3 oz. - 90 ml
2 oz. - 60 ml
1 oz. - 30 ml

Fig. 2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3 oz. - 90 ml
12
2 oz. - 60 ml
1 oz. - 30 ml
13

Fig. 3

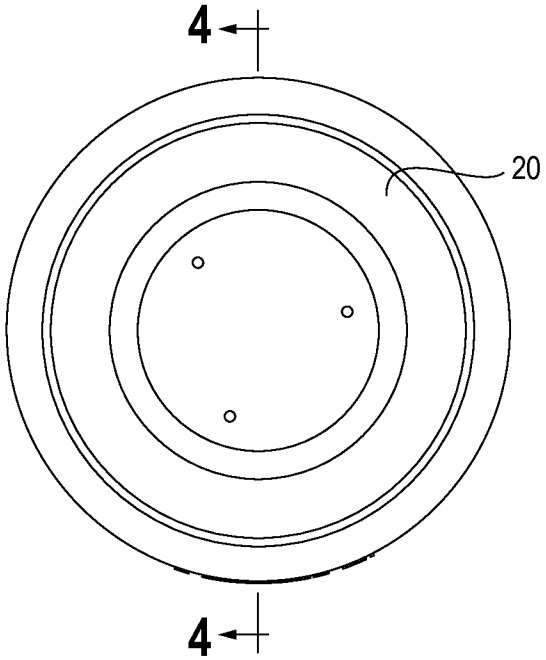


Fig. 4

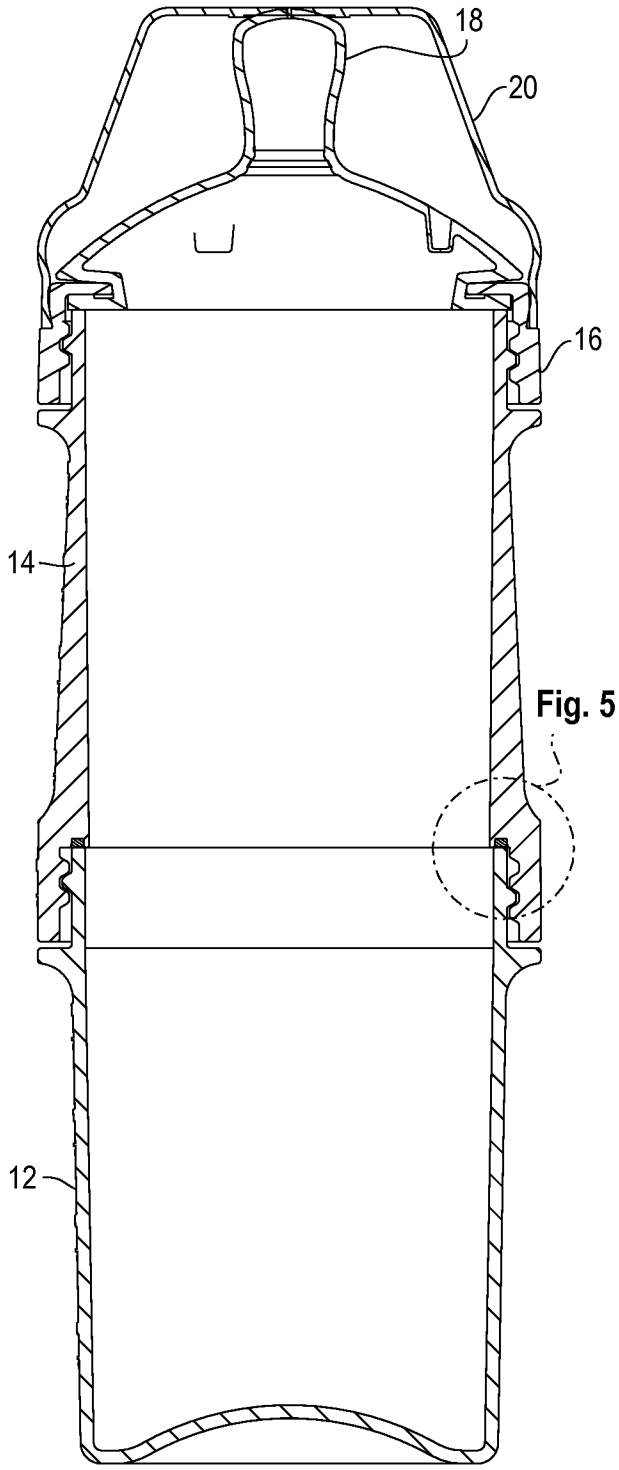


Fig. 5

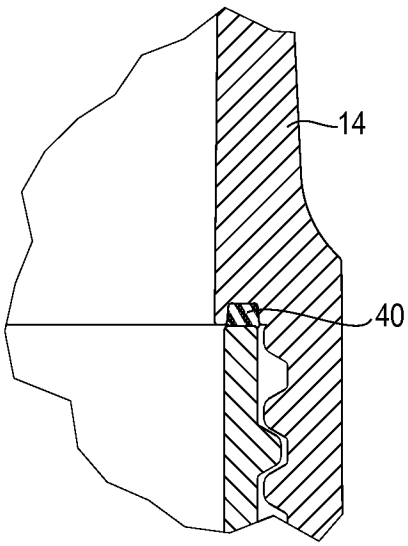
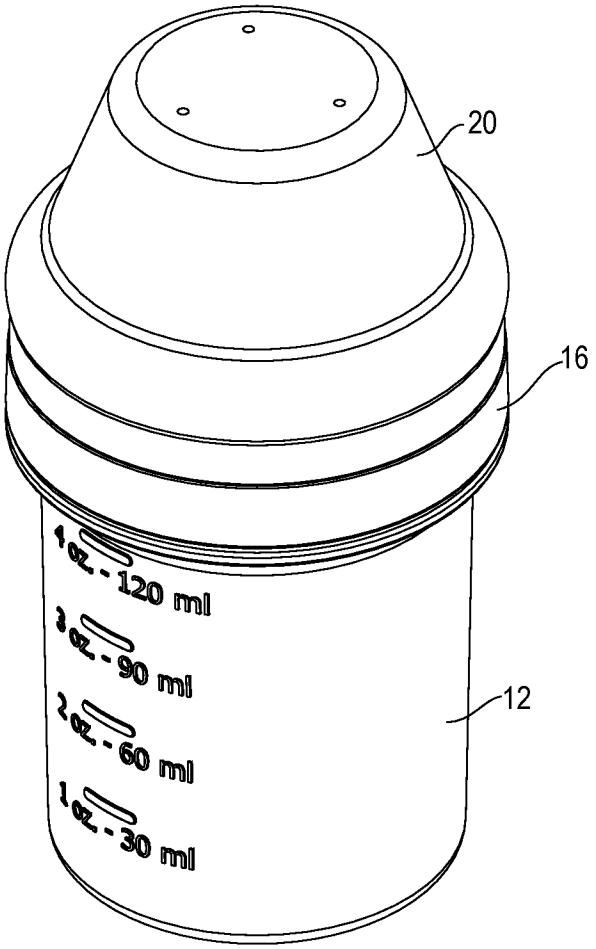


Fig. 6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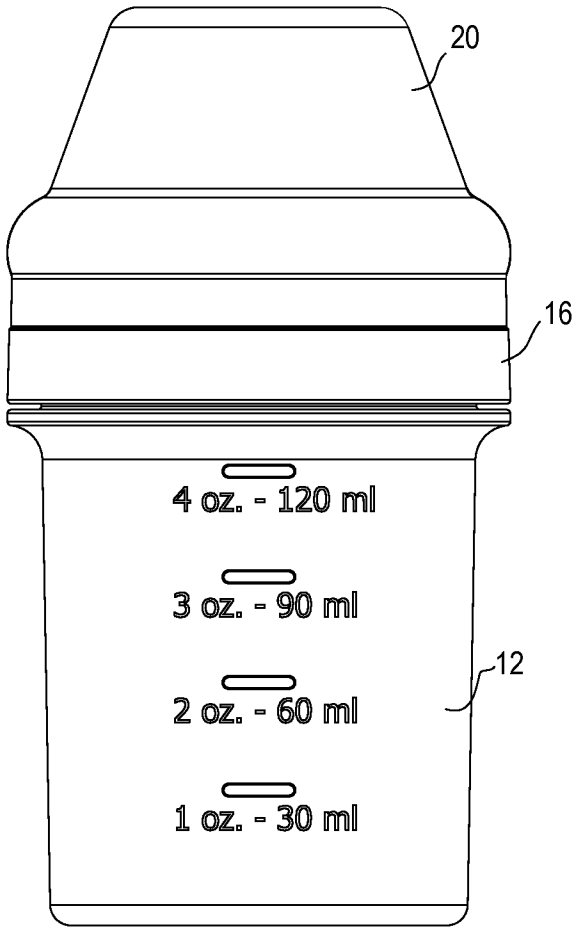
3 oz. - 90 ml
2 oz. - 60 ml
1 oz. - 30 ml
12

Fig. 7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2 oz. - 60 ml
1 oz. - 30 ml
12

Fig. 8

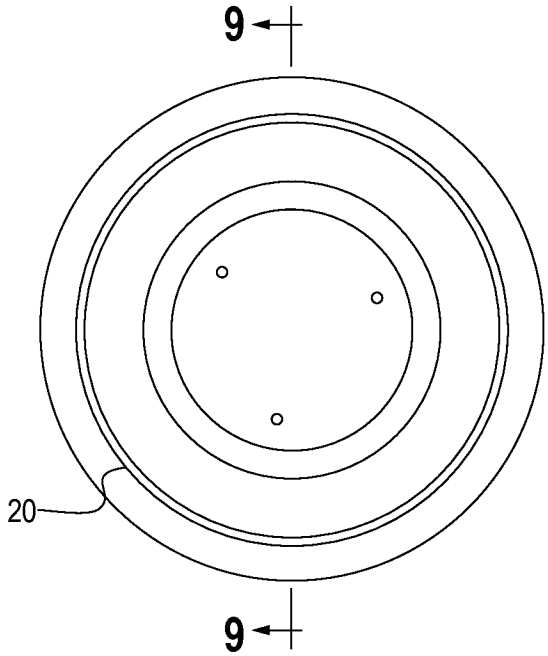


Fig. 9

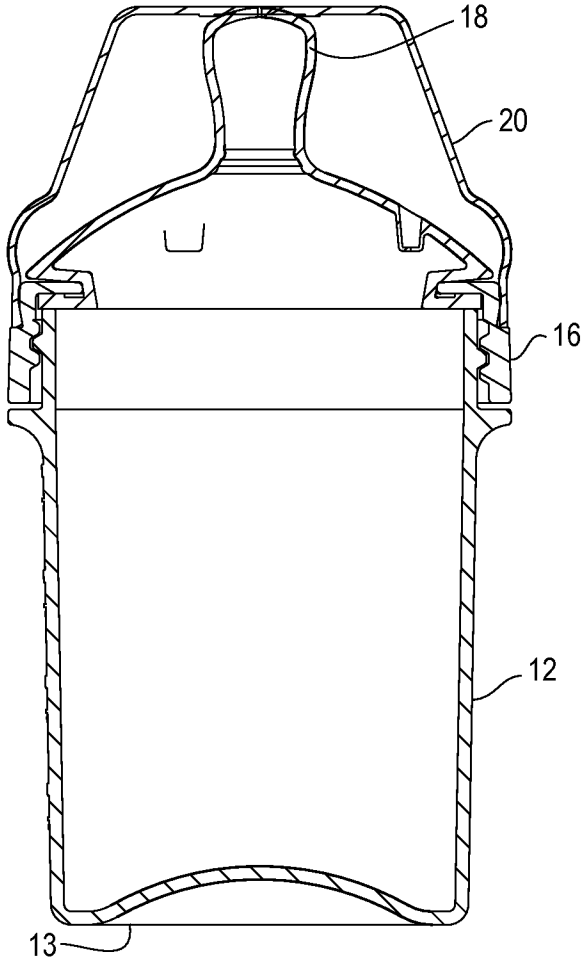
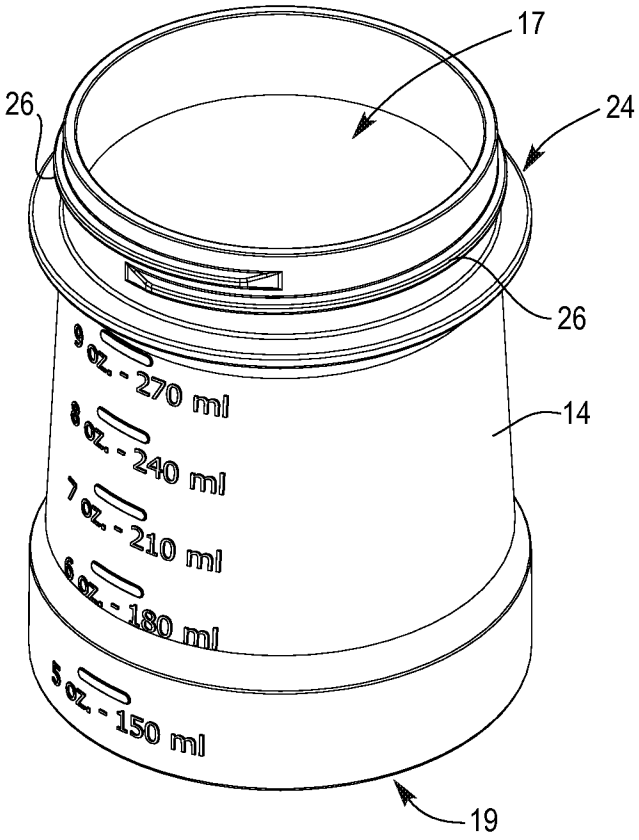


Fig. 10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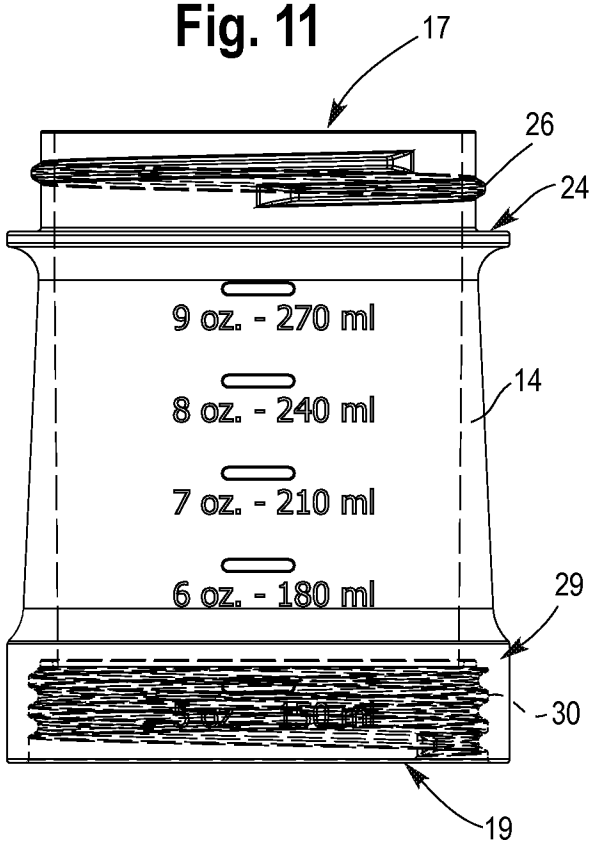
7 oz. - 210 ml
6 oz. - 180 ml
5 oz. - 150 ml
14
19

Fig. 11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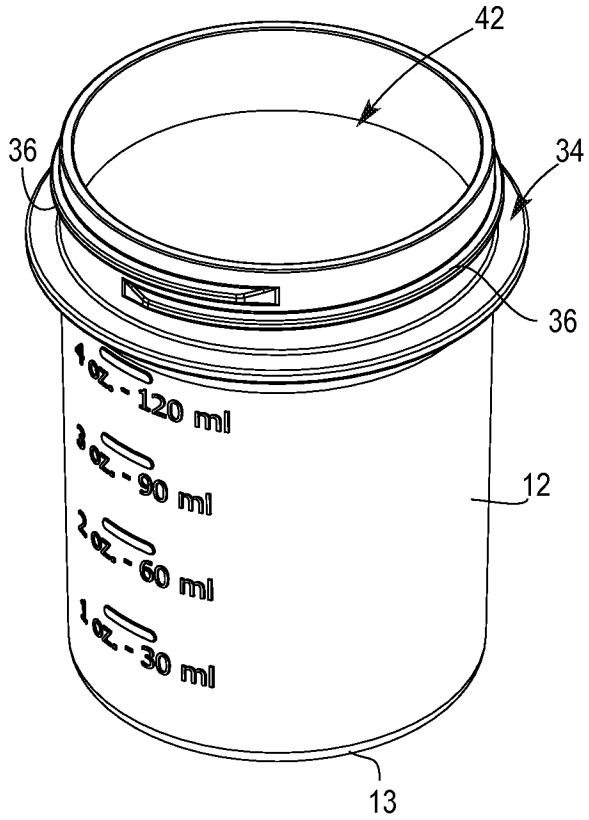
19

Fig. 12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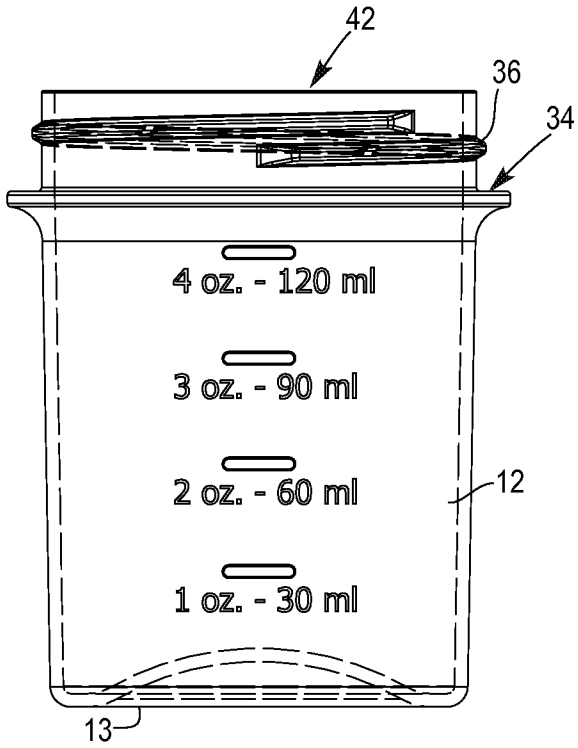
1 oz. - 30 ml
12
13

Fig. 13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2 oz. - 60 ml
1 oz. - 30 ml
12
13

Fig. 14

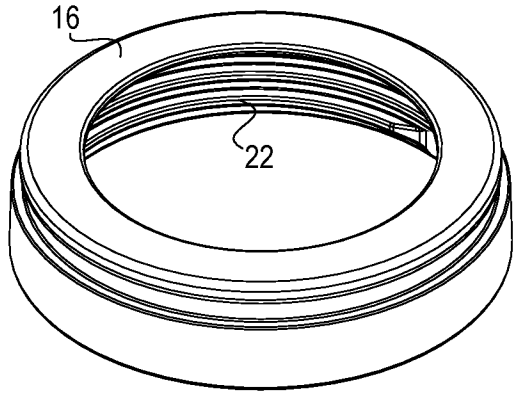

Fig. 15

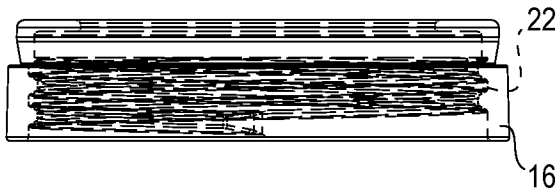

Fig. 16

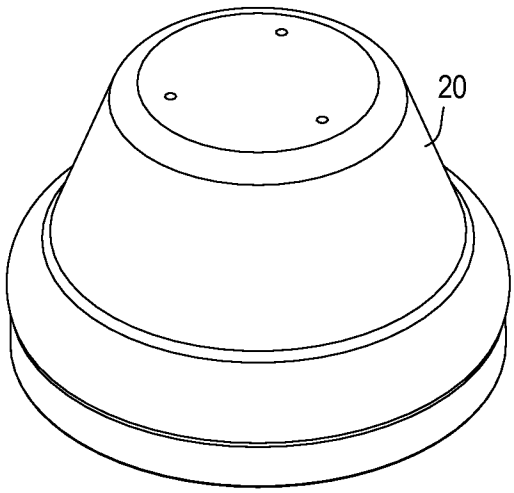

Fig. 17

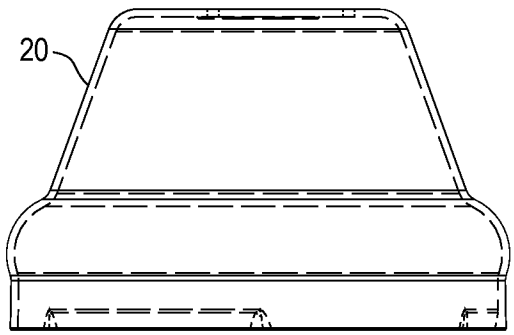

Fig. 18