



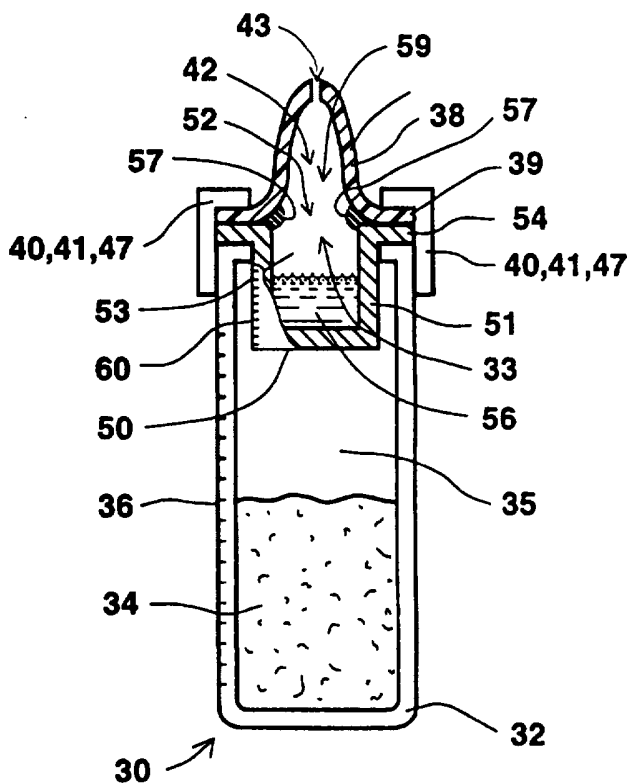
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<p>(21) International Application Number: PCT/US97/00062 (22) International Filing Date: 7 January 1997 (07.01.97) (30) Priority Data: 08/585,125 11 January 1996 (11.01.96) US (71) Applicant (for TJ only): FRIEDMAN, Mark, M. [US/IL]; Alharizi I, 43406 Raanana (IL). (71)(72) Applicant and Inventor: LAHAT, Chaim [IL/IL]; Har Argaman 953-3, P.O. Box 479, 71908 Maccabim (IL). (74) Common Representative: FRIEDMAN, Mark, M.; Samueloff Building, Haomanim Street 7, 67897 Tel Aviv (IL).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i></p>

(54) Title: MEDICATION APPLICATOR FOR BABY BOTTLE

(57) Abstract

A baby bottle (10) supplemented with a removable medication applicator (50) and an independent medication applicator both provide an easy-to-use and efficient means for oral application of a liquid medication to a baby.



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MEDICATION APPLICATOR FOR BABY BOTTLE

FIELD AND BACKGROUND OF THE INVENTION

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The present invention relates in general to a medication applicator to medicate a baby. More particularly, the present invention relates to a baby bottle supplemented with a removable medication applicator and to an independent medication applicator both provide an easy to use and efficient means for oral application of a liquid medication to a baby.

Babies, due to their sensitive nature, are frequently sick and are to be administered with medications by their guardians, typically their parents. Since babies are not capable of swallowing medications formed as tablets or capsules, alternative ways for medication application are used to medicate babies. These include oral application of liquid medications and rectal application of suppositories. For obvious reasons oral application of a liquid medication is preferred, however, some babies refuse to be orally medicated. For these reasons the pharmaceutical industry have produces liquid medications having favorable tastes such as various fruit tastes, etc.

Oral application of a liquid medication typically involves pouring the medication into a teaspoon and applying the liquid contained in the teaspoon into the mouth of the baby. This however, especially if the baby refuses to be thus

medicated, results in spillage of at least some of the liquid medication. As a result, the amount of medication applied is lesser and uncertain.

Most babies love to be fed and therefore love their baby bottle by which they are fed liquid substances. Thus, an efficient way to medicate babies would be to include the liquid medication in a baby bottle. However, the container of a baby
5 bottle is too big and therefore inappropriate for this purpose.

There is thus a widely recognized need for, and it would be highly advantageous to have, a baby bottle which includes a removable medication applicator and a medication applicator both enable easier and precise oral
10 administration of a baby with a liquid medication, which administration of liquid medication is accompanied by lesser resistance of the baby to be medicated.

15

SUMMARY OF THE INVENTION

According to the present invention there is provided a medication applicator and a baby bottle for oral application of a liquid medication to a baby, the baby bottle is supplemented with a removable medication applicator.

20 According to further features in preferred embodiments of the invention described below, the baby bottle comprising (a) a container having a first volume and a first opening; (b) a nipple having a second opening and at least one hole; (c) a removable medication applicator including a chamber having a second volume and a third opening, the second volume being smaller than the first volume, the
25 second volume being for accommodating the liquid medication; and (d) means for securing the removable medication applicator and the nipple onto the first opening of the container, such that the second volume is in communication via the second and third openings with the at least one hole.

According to still further features in the described preferred embodiments the means for securing the removable medication applicator and the nipple onto the opening of the container is a ring having a fourth opening.

According to still further features in the described preferred embodiments the ring is a threaded screw-ring and the container is threaded accordingly.

According to still further features in the described preferred embodiments the removable medication applicator further includes a wide upper rim, the upper rim is secured by the means.

According to still further features in the described preferred embodiments the container is made of a transparent material and includes a scale.

According to still further features in the described preferred embodiments the removable medication applicator is made of a transparent material and includes a scale.

According to still further features in the described preferred embodiments the removable medication applicator is made of a material selected from the group consisting of plastic and silicone.

According to still further features in the described preferred embodiments the removable medication applicator is made of an elastic material.

According to still further features in the described preferred embodiments the removable medication applicator is made of a transparent and elastic material and includes a scale.

According to still further features in the described preferred embodiments provided is a removable medication applicator to be implemented in a first opening of a container of a baby bottle and to be secured thereat together with a nipple by securing means, the container having a first volume, the removable medication applicator comprising a chamber having a second volume and a second opening to, the second volume being smaller than the first volume, the chamber serves for accommodating a liquid medication.

According to still further features in the described preferred embodiments the removable medication applicator further comprising a wide upper rim to be secured by the securing means.

5 According to still further features in the described preferred embodiments the securing means is a ring having a second opening.

According to still further features in the described preferred embodiments the ring is a threaded screw-ring and the container is threaded accordingly.

According to still further features in the described preferred embodiments the container is made of a transparent material and includes a scale.

10 According to still further features in the described preferred embodiments the removable medication applicator is made of a transparent material and includes a scale.

According to still further features in the described preferred embodiments the removable medication applicator is made of a material selected from the group consisting of plastic and silicone.

15 According to still further features in the described preferred embodiments the removable medication applicator is made of an elastic material.

According to still further features in the described preferred embodiments the removable medication applicator is made of a transparent and elastic material and includes a scale.

20 According to still further features in the described preferred embodiments provided is a medication applicator for application of a liquid medication to a baby, the medication applicator comprising (a) a housing having a cavity, the cavity forming a first opening in the housing, the cavity being for accommodating the liquid medication; (b) a nipple having a second opening and at least one hole; and (c) means for securing the nipple onto the first opening of the housing, such that the cavity is in communication via the first and second openings with the at least one hole.

According to still further features in the described preferred embodiments the medication applicator further comprising a fitting engaging the cavity, the fitting being for accommodating the liquid medication.

5 The present invention successfully addresses the shortcomings of the presently known configurations by providing a baby bottle supplemented with a removable medication applicator and a medication applicator enabling easy to use and efficient means of orally administration to a baby precise amounts of liquid medications, minimizing the resistance of the baby to be medicated.

10

BRIEF DESCRIPTION OF THE DRAWINGS

15 The invention herein described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 is a longitudinal cross section through a prior art baby bottle;

FIG. 2 is a longitudinal cross section through a baby bottle including a removable medication applicator according to the present invention;

20 FIG. 3 is a perspective view of the removable medication applicator according to the present invention;

FIG. 4 is a longitudinal cross section through a medication applicator according to the present invention; and

25 FIG. 5 is a longitudinal cross section through a medication applicator supplemented with a removable fitting to accommodate a liquid medication, according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is of a medication applicator and of a baby bottle supplemented with a removable medication applicator, both can be used to orally medicate a baby with a liquid medication.

For purposes of better understanding the present invention, as illustrated in Figures 2-5 of the drawings, reference is first made to the construction and operation of a conventional baby bottle (i.e., prior art) as illustrated in Figure 1.

Thus, a conventional baby bottle **10** typically includes a container **12** having a first opening **13** to contain a content **14** such as food in a liquid state (e.g., infant formula) or a drink (e.g., water). Container **12** is typically made of a transparent material (e.g., plastic) to enable monitoring of container's **12** content **14** while the baby is fed. Preferably, container **12** is further equipped with a scale **16** to indicate the volume of content **14** contained in container **12**.

Bottle **10** further includes a nipple **18**. Nipple **18** is typically made of an elastic material such as rubber or silicone formed to imitate the anatomy of a woman's breast and includes at least one hole **21** and a second opening **27** through which content **14** is sucked by the baby. Nipple **18** is typically formed having an extended lower rim **19**.

Bottle **10** further includes a screw-ring **20** to secure nipple **18** via lower rim **19** onto first opening **13** of container **12**. Screw-ring **20** includes a third opening to enable free flow of content **14** from container **12** to nipple **18**. Screw-ring **20** and the region of container **12** in contact with screw-ring **20** are typically threaded to enable (i) a tight securing of nipple **18** onto opening **13** of container **12**; and, (ii) an easy assemble/disassemble of nipple **18** and container **12** for placing content **14** in container **12** and for washing the various parts of baby bottle **10** between uses.

Referring now to Figures 2 and 3. Figure 2 illustrates a baby bottle, referred to hereinbelow as bottle **30**, supplemented with a removable medication applicator, referred to hereinbelow as applicator **50**, suitable for application of a

liquid medication to a baby according to the teachings of the present invention, whereas Figure 3 illustrates removable medication applicator **50** itself, when disassembled from bottle **30**.

Thus, similar to bottle **10**, bottle **30** includes a container **32** having a first
5 volume **35** and a first opening **33** to contain a content **34** such as food in a liquid
state (e.g., materna) or a drink (e.g., water). Similar to container **12**, container **32**
is typically made of a transparent material (e.g., plastic) to enable monitoring of
container's **32** content **34** while the baby is fed. Preferably, container **32** is
equipped with a scale **36** to indicate the volume of content **34** contained in
10 container **32**. Still similar to bottle **10**, bottle **30** further includes a nipple **38**.
Nipple **38** is typically made of an elastic material such as rubber or silicone formed
to imitate the anatomy of a woman's breast and includes at least one hole **43** and a
second opening **59** through which content **34** is sucked by the baby. Similar to
nipple **18**, nipple **38** preferably includes an extended lower rim **39**.

15 In contrast to bottle **10**, bottle **30** further includes a removable medication
applicator **50**. Removable medication applicator **50** is formed as a chamber **51**
having a third opening **52** and preferably a wide upper rim **54**. Removable
medication applicator **50** forms a second volume **53** to accommodate a liquid
medication **56**. As best seen in Figure 2, second volume **53** of chamber **51** is
20 smaller than first volume **35** of container **32** and is therefore suitable to contain
liquid medication **56** typically applied in small amounts (e.g., 2-10 ml, depending
on age and type of medication) as compared with content **34** (e.g., 50-200 ml),
rendering container **32** inherently too big to serve as a medication applicator.
According to a preferred embodiment removable medication applicator **50** is made
25 of a reusable and washable material such as plastic, silicone, etc.

Bottle **30** further includes means **41** to secure nipple **38** and removable
medication applicator onto first opening **33** of container **32**. Means **41** is
preferably in the form of a ring **40** which is similar to screw-ring **20** of bottle **10**
and includes a fourth opening **42**. In contrast to screw-ring **20** of bottle **10**, means

41 (e.g., ring 40) of bottle 30 has a dual function. The first function of means 41 is to secure nipple 38 via rim 39 onto opening 33 of container 32 when bottle 30 is used to feed the baby, wherein removable medication applicator 50 is not implemented thereat. The second function of means 41 is to secure nipple 38 via rim 39 and simultaneously secure removable medication applicator 50 via rim 54 onto opening 33 of container 32 when bottle 30 is used to medicate the baby, wherein removable medication applicator 50 is implemented in bottle 30 and, practically closing first opening 33 of container 32.

Ring 40 is preferably a screw-ring 47. Screw-ring 47 and the region of container 32 in contact with screw-ring 47 are typically threaded to enable (i) a tight securing of either nipple 38 or both nipple 38 and removable medication applicator 50 onto opening 33 of container 32; and, (ii) an easy assemble/disassemble of nipple 38 or both nipple 38 and applicator 50 and container 32 for placing content 34 or liquid medication 56 in container 32 or chamber 51, respectively and for washing the various parts of baby bottle 30 between various uses. Yet other securing means such as suitable clips, snaps, etc., may similarly serve these enablements.

Since the volume of liquid medication given to a baby at a given time is relatively small it is important (i) to ensure that the volume of chamber 51 suits its purpose; and (ii) to ensure that liquid medication 56 will not accumulate between lower rim 39 of nipple 38 and upper rim 54 of removable medication applicator 50. To this end, (i) removable medication applicator 50 may be further equipped with an upturned lip 57 surrounding opening 52, as best seen in Figure 3 and, (ii) opening 52 is formed similar in size (e.g., diameter) to opening 59 of nipple 38.

In a preferred embodiment removable medication applicator 50 is made of a transparent material (e.g., transparent plastic, silicone, etc.) and includes a scale 60. Applicator's 50 transparency and scale 60 serve to monitor the amount of liquid medication 56 contained in chamber 51 of applicator 50. In yet another preferred embodiment applicator 50 is made of an elastic material. According to

this embodiment a pressure applied from the outside onto container 32 by the hand of a treater, provided that container 50 itself is mildly elastic will force liquid medication 56 through hole(s) 43 of nipple 38 into the baby's mouth. This embodiment is advantageous in cases where the baby is too weak to suck himself, yet still capable of swallowing liquid medication 56.

The operation of bottle 30 is as follows. At times where the baby is not in need of a medication, bottle 30 is operated as bottle 10 of the prior art and removable medication applicator 50 is stored awaiting use. However, if the baby is to be administered a medication, a desired liquid medication is selected and poured into chamber 51 of removable medication applicator 50. Removable medication applicator 50 and nipple 38 are then tightly secured onto first opening 33 of container 32 via means 41 and the liquid medication is applied into the baby's mouth either by suction applied by the baby itself or by application of external pressure onto container 32 as described above. In all cases, after use bottle 30 is preferably disassembled and washed to await further use.

The baby bottle of the present invention has major advantages over the prior art approach since using a removable medication applicator implemented in a conventional baby bottle enables an easy to use and efficient means for oral administration of a baby with precise amounts of liquid medications, minimizing the resistance of the baby to be thus medicated.

With reference now to Figure 4, according to another embodiment of the present invention provided is a medication applicator 70. Medication applicator 70 is preferably formed similar to a conventional baby bottle and is suitable for application of a liquid medication to a baby according to the teachings of the present invention. Medication applicator 70 includes a housing 72 in which a medication cavity 74 is formed. Housing 74 is preferably hollow rendering medication applicator 70 lighter although housing 74 may alternatively be substancefull. The formation of medication cavity 74 is such that (i) a first opening 75 is formed in the upper part of housing 72; and (ii) a wide rim 77

surrounds opening 75. Medication cavity 74 is suitable to contain a liquid medication 76. In a preferred embodiment housing 72 is made of a transparent material and cavity 74 is quipped with a scale 79 to monitor the amount of liquid medication 76 contained in cavity 74. Medication applicator 70 further includes
5 elements similar to those found in conventional baby bottles such as baby bottle 10 of Figure 1. Thus, medication applicator 70 includes a nipple 78. Nipple 78 is typically made of an elastic material such as rubber or silicone, etc., formed to imitate the anatomy of a woman's breast and includes at least one hole 80 and a second opening 89 through which liquid medication 76 is sucked by the baby.
10 Similar to nipples 18 and 38, nipple 78 preferably includes an extended lower rim 80.

Medication applicator 70 further includes means 81 to secure nipple 78 to first opening 75 formed in housing 72. Means 81 is preferably in the form of a ring 82 which is similar to screw-ring 20 of bottle 10 and includes a second
15 opening 83. Means 81 (e.g., ring 82) of medication applicator 70 functions to secure nipple 78 via rim 80 onto opening 75 of housing 72 when medication applicator 70 is used to medicate the baby.

Ring 82 is preferably a screw-ring 84. Screw-ring 84 and the region of housing 72 in contact with screw-ring 84 are typically threaded to enable (i) a tight
20 securing of nipple 78 onto opening 75 of housing 70; and, (ii) an easy assemble disassemble of nipple 78 for placing liquid medication 76 in cavity 74 of housing 72 and, for washing the various parts of medication applicator 70 between various uses. Yet other securing means such as suitable clips, snaps, etc., may similarly serve these enablements.

25 Since the volume of liquid medication given to a baby at a given time is relatively small it is important (i) to ensure that the volume of cavity 74 suits its purpose; and (ii) to ensure that liquid medication will not accumulate between lower rim 80 of nipple 78 and rim 77 of medication applicator 70. To this end (i)

housing 72 may be further equipped with a lip 90 surrounding opening 75 and, (ii) opening 75 is formed similar in size (e.g., diameter) to opening 89 of nipple 78.

In yet another preferred embodiment housing 72 is made of an elastic material. According to this embodiment a pressure applied from the outside onto housing 72 by the hand of a treater will force liquid medication through hole(s) 80 of nipple 78 into the baby's mouth. This embodiment is advantageous in cases where the baby is too weak to suck himself, yet still capable of swallowing a liquid medication.

The operation of medication applicator 70 is as follows. When the baby is to be administered a medication, a desired liquid medication is selected and poured into cavity 74 of housing 72. Medication applicator 70 and nipple 78 are then tightly secured via means 41 and the liquid medication is applied into the baby's mouth either by suction applied by the baby itself or by application of external pressure onto housing 72 as described above. In all cases, after use medication applicator 70 is preferably disassembled and washed to await further use.

In a similar embodiment, as shown in Figure 5, cavity 74 is not directly used to accommodate a liquid medication, instead, a removable fitting 92, fitting to cavity 74 and having the preferred features of cavity 74 and/or of removable medication applicator 51 of bottle 30 (Figure 2) as described above is used to accommodate the liquid medication.

The medication applicator of the present invention enables an easy to use and efficient means for oral administration of a baby with precise amounts of liquid medications, minimizing the resistance of the baby to be thus medicated.

While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications and other applications of the invention may be made.

WHAT IS CLAIMED IS:

1. A baby bottle for application of a liquid medication to a baby, the baby bottle comprising:
 - (a) a container having a first volume and a first opening;
 - (b) a nipple having a second opening and at least one hole;
 - (c) a removable medication applicator including a chamber having a second volume and a third opening, said second volume being smaller than said first volume, said second volume being for accommodating the liquid medication; and
 - (d) means for securing said removable medication applicator and said nipple onto said first opening of said container, such that said second volume is in communication via said second and third openings with said at least one hole of said nipple, such that when said second volume is in communication with said at least one hole of said nipple, communication of said first volume with said at least one hole of said nipple is avoided.
2. A baby bottle as in claim 1, wherein said means for securing said removable medication applicator and said nipple onto said opening of said container is a ring having a fourth opening.
3. A baby bottle as in claim 2, wherein said ring is a threaded screw-ring and said container is threaded accordingly, such as to permit screwing said ring on top of said container.
4. A baby bottle as in claim 1, wherein said removable medication applicator further includes a wide upper rim surrounding said third opening, said

upper rim being secured by said means for securing said removable medication applicator.

5. A baby bottle as in claim 1, wherein said container is made of a transparent material and includes a scale.

6. A baby bottle as in claim 1, wherein said removable medication applicator is made of a transparent material and includes a scale.

7. A baby bottle as in claim 1, wherein said removable medication applicator is made of a material selected from the group consisting of plastic and silicone.

8. A baby bottle as in claim 1, wherein said removable medication applicator is made of an elastic material.

9. A baby bottle as in claim 1, wherein said removable medication applicator is made of a transparent and elastic material and includes a scale.

10. A removable medication applicator to be implemented in a first opening of a container of a baby bottle and to be secured thereat together with a nipple by securing means, the container having a first volume, the removable medication applicator comprising a chamber having a second volume and a second opening, said second volume being smaller than the first volume, said chamber serves for accommodating a liquid medication, when the medication applicator is implemented in the first opening of the container, the first opening is sealed.

11. A removable medication applicator as in claim 10, further comprising a wide upper rim surrounding said second opening, to be secured by said securing means.
12. A removable medication applicator as in claim 10, wherein the securing means is a ring having a second opening.
13. A removable medication applicator as in claim 12, wherein said ring is a threaded screw-ring.
14. A removable medication applicator as in claim 10, wherein the container is made of a transparent material and includes a scale.
15. A removable medication applicator as in claim 10, wherein the removable medication applicator is made of a transparent material and includes a scale.
16. A removable medication applicator as in claim 10, wherein the removable medication applicator is made of a material selected from the group consisting of plastic and silicone.
17. A removable medication applicator as in claim 10, wherein the removable medication applicator is made of an elastic material.
18. A removable medication applicator as in claim 10, wherein said removable medication applicator is made of a transparent and elastic material and includes a scale.

FIG. 1 (Prior art)

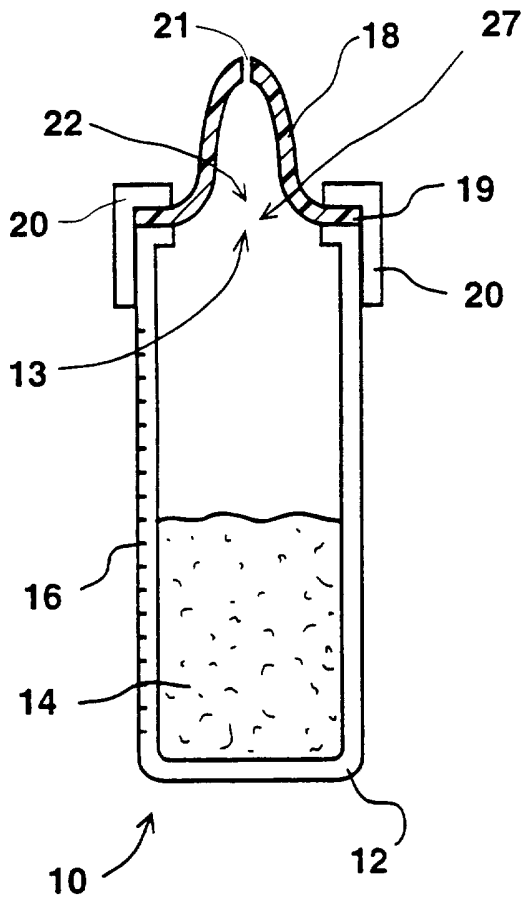


FIG. 2

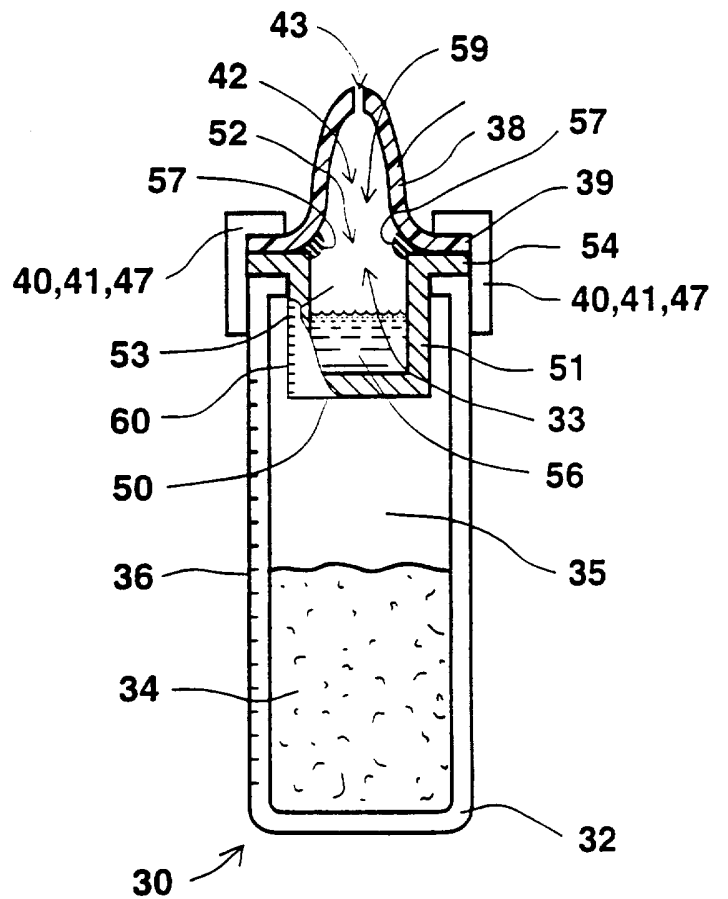


FIG. 3

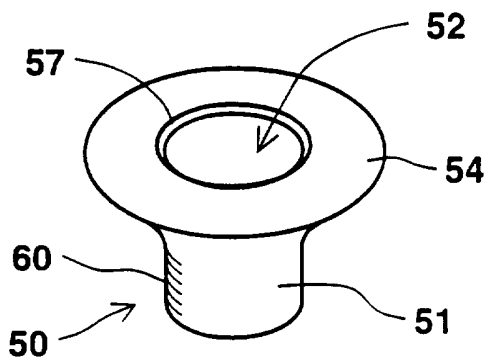


FIG.4

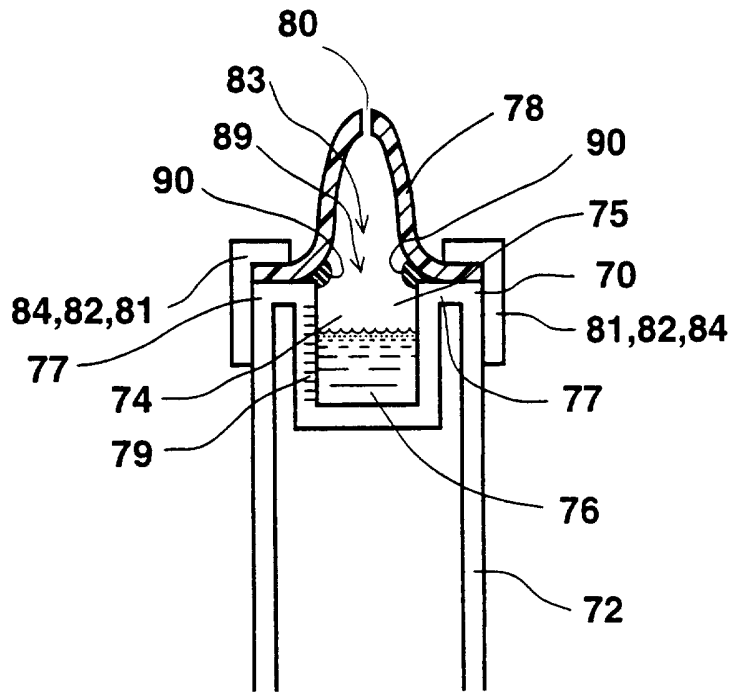
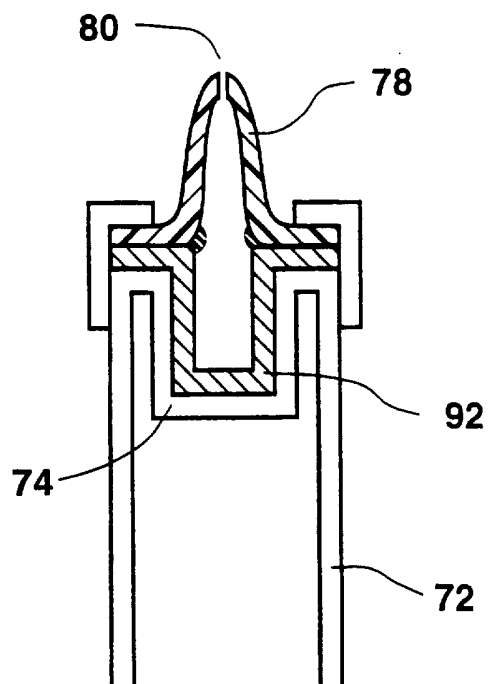


FIG.5



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/00062

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A61J 7/00

US CL :604/77

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 215/11.1, 11.3; 604/27, 73, 77, 79, 212, 217; 606/234-236

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,915,242 A (MARTE) 10 April 1990, col. 2, lines 20-58.	1-18

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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