IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA

CIVIL ACTION

CASE NO. 06-61462

CIV-UNGARO-BENAGES

VISION INTERNATIONAL PRODUCTION, INC., a Nevada Corporation and MICHAEL ANDERSON, an individual

MAGISTRATE JUDGE O'SULLIVAN

Plaintiff(s),

v.

LITECO S.R.L., an Italian corporation LORENZO SAULLE, an individual, resident and domicile of Italy and MARCO SAULLE, an individual, resident and domicile of Italy

Defendant (s).
_____/

DEMAND FOR JURY TRIAL

FILED by X D.C.
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CLARENCE MADDOX
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COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs, Vision International Production, Inc., a Nevada Corporation and Michael Anderson, an individual and domicile of California (hereinafter referred to as "Plaintiffs"), by their attorneys alleges as follows:

JURISDICTION AND VENUE

1. This is an action for patent infringement arising under Patent Laws of the United States, 35 U.S.C. §§ 271 and 281-285.

2. This Court has jurisdiction over the subject matter of this Complaint under Title 28 of the United States Code, namely 28 U.S.C. §§ 1331 and 1338 (a).

3. Personal jurisdiction over the Defendants exists, and venue is proper, pursuant to Title 28 of the United States Code, namely 28 U.S.C. §§ 1391 and 1400 (b).

THE PARTIES

4. Plaintiff Vision International Production, Inc. (hereinafter "VIP, Inc.") is a Nevada Corporation having a principal place of business at Arroyo Grande, California. Plaintiff Michael Anderson is a domicile of the State of California.

5. Plaintiffs allege, upon information of belief, that the Defendants Liteco S.R.L., Lorenzo Saulle and Marco Saulle, are foreign aliens and are subject to venue and personal jurisdiction within this District for committing acts of patent infringement in this District.

COUNT I

PATENT INFRINGEMENT

6. Plaintiffs repeat and reallege each of the allegations set forth in paragraphs 1 through 5.

7. On November 11, 2003, the United States Patent and Trademark Office duly and legally issued Letters Patent No. 6,644,471 (the '471 Patent") to the inventor, Plaintiff Michael Anderson. (Exhibit "A"). The '471 Patent discloses a dispensing capsule for a liquid container that includes a plurality of embodiments each showing a rigid plunger for dispensing materials from the capsule. On May 3, 2005, the United States Patent and Trademark Office duly issued U.S. Patent No. 6, 886,686 (the "'686 Patent") (Exhibit "B") to the inventor, Plaintiff Michael Anderson, which was a continuation-in-part of Application No. 10/155,461 filed May 24, 2002 which issued as the '471 Patent. On June 6, 2006, the U.S. Patent and Trademark Office duly issued U.S. Patent No. 7,055,684 (the "'684 Patent") (Exhibit "C") for a dispensing capsule for a liquid container to the inventor,

Plaintiff Michael Anderson, which was a continuation-in-part of the '471 Patent and the '686 Patent. The '684 Patent and the '686 Patent as continuation-in-part patents have filing dates that date back to the '471 Patent filing date. Plaintiff, VIP, Inc. was an assignee and a licensee of inventor Michael Anderson.

8. Defendant, Liteco S.R.L. an Italian corporation was contacted by inventor, Michael Anderson, to perform manufacturing services for the various dispensing capsules. During the negotiations between Anderson and Liteco, Liteco entered into several Confidentiality Agreements not to disclose or use any of Michael Anderson or VIP, Inc.'s technology for the dispensing capsule for the liquid container. The Anderson technology is embodied in the three patents in this law suit.

9. Upon information and belief, Liteco has recently been making and offering for sale in the United States dispensing capsules for liquid containers covered by the '471 Patent, the '686 Patent and the '684 Patent. An advertisement for such dispensing capsules with a liquid container is attached hereto as Exhibit "D".

10. Upon information and belief, Defendant Liteco S.R.L., Lorenzo Saulle, as an officer of Defendant Liteco, and Marco Saulle, another officer of Liteco, have offered for sale and continued to offer for sale in this District and elsewhere in the United States dispensing capsules for liquid containers that are covered by one or more of the patents in suit that are owned by Plaintiff, Michael Anderson and covered by licenses to VIP, Inc.,

11. Liteco S.R.L., Lorenzo Saulle and Marco Saulle are now infringing the '686 Patent and the '471 Patent by using, making, offering for sale, importing within this District and elsewhere in the United States dispensing capsules for liquid containers that embody the claims of the '471 Patent, the '686 Patent and the '684 Patent in violation of 35 U.S.C. § 271 (a).

12. In addition, the Plaintiffs allege that the patent infringment by Liteco, Lorenzo Saulle and Marco Saulles has taken place with the Defendants' knowledge of the '686 Patent and the '471 Patent and is therefore willful.

13. The illegal acts of Liteco S.R.L., Lorenzo Saulle and Marco Saulle have deprived Plaintiffs' of sales which they otherwise would have made and have in other respects injured Plaintiffs and will cause Plaintiffs added injury of loss of profits.

COUNT II

BREACH OF CONFIDENTIALITY AGREEMENT

14. Plaintiffs entered into negotiations in 2002 with the Defendants to manufacture in Italy dispensable capsules invented by Plaintiff, Michael Anderson. At the onset of negotiations the Defendant Liteco and Defendant Marco Saulle entered into several Confidentiality Agreements (Exhibit "E") with the Plaintiffs that the Defendants would not disclose or use any of the Plaintiffs' proprietary information regarding the dispensing capsules and would not sell the capsules to any third parties without the Plaintiffs' permission. Although the negotiations did not result in a specific manufacturing contract between the Plaintiffs and the Defendants, the Defendants' execution of the Confidentiality Agreements remained in effect. Upon information and belief, Lorenzo Saulle took the Plaintiffs' proprietary information that is embodied in Plaintiff, Anderson's '686 Patent and disclosed the information to the Italian Patent Office claiming to be the inventor on or about December of 2003, in breach of the Confidentiality Agreements between the Plaintiffs and the Defendants. The Defendants further in breach of the Confidentiality Agreements used Plaintiffs' proprietary information in breach of the agreement and caused to manufacture Plaintiffs' proprietary dispensing capsules and offered the capsules for sale at several trade shows throughout the world in total breach of Plaintiffs' Confidentiality Agreements.

15. Plaintiffs have been damaged by Defendants' breach of the Confidentiality Agreements from the loss of sales and loss of profits by the Defendants illegal use and disclosure of Plaintiffs' proprietary dispensing capsules.

COUNT III

DECLARATORY JUDGMENT OF PATENT INVALIDITY BASED ON FRAUD ON THE U.S. PATENT OFFICE

16. Plaintiffs repeat and reallege each of the allegations set forth in paragraphs 1 through 15.

17. Defendant, Liteco and Defendant, Lorenzo Saulle in conspiracy with Defendant Marco Saulle filed on behalf of Liteco S.R.L. a patent application in Italy with full knowledge that the technology disclosed was falsely appropriated from the Plaintiff, Michael Anderson. Subsequently, based on the Italian Patent Application and the Patent Cooperation Treaty Rules, the Defendants eventually caused a U.S. Patent Application to be filed that resulted in U.S. Patent No. 7,032,745 that is currently owned by Liteco that is virtually identical in structure and claim language to the device claimed in the '686 Patent owned by Plaintiff, Michael Anderson. Marcos Saulle, Lorenzo Saulle and Liteco did not invent the claimed subject matter of U.S. Patent No. 7,032,745 (Exhibit "F") and therefore the patent under 35 U.S.C § 101 et. seq. is invalid. Under U.S. Patent Law a declaration is required swearing under oath that the person submitting the application, in this case Lorenzo Saulle was in fact the inventor of the claim subject matter which is subject to criminal prosecution under U.S. Law.

18. Plaintiffs request the Court to enter a judgment in this case invalidating Liteco's U.S. Patent No. 7,032,745 because of false inventorship and fraud on the U.S. Patent Office.

COUNT IV

TORTIOUS INTERFERENCE WITH BUSINESS RELATIONSHIPS

19. Plaintiffs repeat and reallege each of the allegations set forth in paragraphs 1 through 18.

20. Plaintiffs have entered into negotiations with several third parties in the United States for the manufacturing and sale of the dispensing capsules that are covered by the three patents in this law suit. On numerous occasions Defendants have actively interfered with advantageous contractual relations resulting in damages of millions of dollars for the Plaintiffs because of the Defendants threatening potential customers of the Plaintiffs from doing business with the Plaintiffs based on the fraudulently obtained U.S. Patent No. 7,032,745 currently owned by Defendant, Liteco.

21. Plaintiffs ask the Court enjoin the Defendants from continuing to interfere with Plaintiffs' advantageous business relationships regarding the dispensing capsules and to stop asserting ownership and inventorship in Plaintiff Michael Anderson's dispensing capsule technology in the U.S. Patent No. 7,032,745.

22. Plaintiffs also ask the Court order the Defendants to pay Plaintiff full damages for all the losses from tortious interference with advantageous business relationships Plaintiffs' have with third parties.

PRAYER FOR RELIEF

The Plaintiffs' request that judgment be entered by this Court in their favor and against Liteco S.R.L., Lorenzo Saulle and Marco Saulle, providing the following relief:

1. That Defendants, Liteco S.R.L., Lorenzo Saulle and Marco Saulle and all persons in active concert or participation with them, be permanently enjoined from manufacturing,

using, offering for sale, selling or importing into the United States any dispensing capsules for a liquid container which infringe the '471 Patent, the '686 Patent or the '684 Patent;

2. That Plaintiffs be awarded their total damages relative to the infringement of the '471 Patent, the '686 Patent and the '684 Patent;

3. That any award be increased for willful infringement of the '471 Patent, the '686 Patent and the '684 Patent as provided by 35 U.S.C. § 284;

4. The finding in this case is exceptional as provided by 35 U.S.C. § 285 for an award of reasonable attorneys' fees in connection with this action;

5. For costs of suit and such other relief as the Court deems just and proper.

Respectfully submitted,

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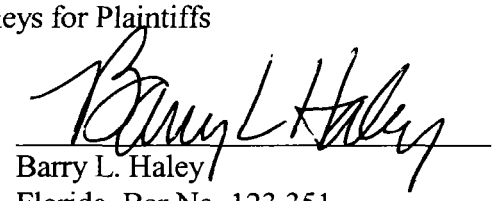
Attorneys for Plaintiffs

By: 

Barry L. Haley
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Exhibit A

US006644471B1

(12) **United States Patent**
Anderson

(10) **Patent No.: US 6,644,471 B1**
(45) **Date of Patent: Nov. 11, 2003**

(54) **DISPENSING CAPSULE FOR A LIQUID CONTAINER**

(76) Inventor: **Michael R. Anderson**, 1355 W. Palmetto Park Rd., No. 129, Boca Raton, FL (US) 33486

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/155,461**

(22) Filed: **May 24, 2002**

(51) **Int. Cl.**[7] **B65D 25/08**
(52) **U.S. Cl.** **206/222**; 206/219
(58) **Field of Search** 206/219–222, 206/568; 215/DIG. 8; 222/80, 83, 129

(56) **References Cited**

U.S. PATENT DOCUMENTS

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6,148,996	A	*	11/2000	Morini	206/222

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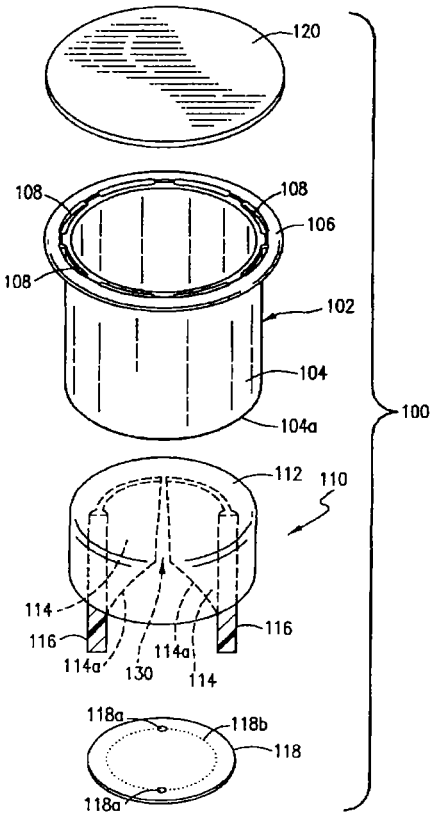
Primary Examiner—Luan K. Bui
(74) *Attorney, Agent, or Firm*—Malin, Haley & DiMaggio, P.A.

(57) **ABSTRACT**

A capsule that is inserted into the neck of a bottle, or within a pull-up liquid dispenser cap, said capsule being a container or receptacle for sealably containing a liquid and/or dry material and a dispenser for releasing the material when desired into the bottle through the orifice previously occupied by the first and second plugs frangibly sealed in a first position and unsealed mechanically by the consumer depressing an elongated shaft releasing the liquid and/or dry materials into the container body in second position. The present invention allows the use of materials that would discolor, degrade or interact with other substances when added to the contents of the bottle, to remain stable and/or inactive until the time of use.

8 Claims, 13 Drawing Sheets



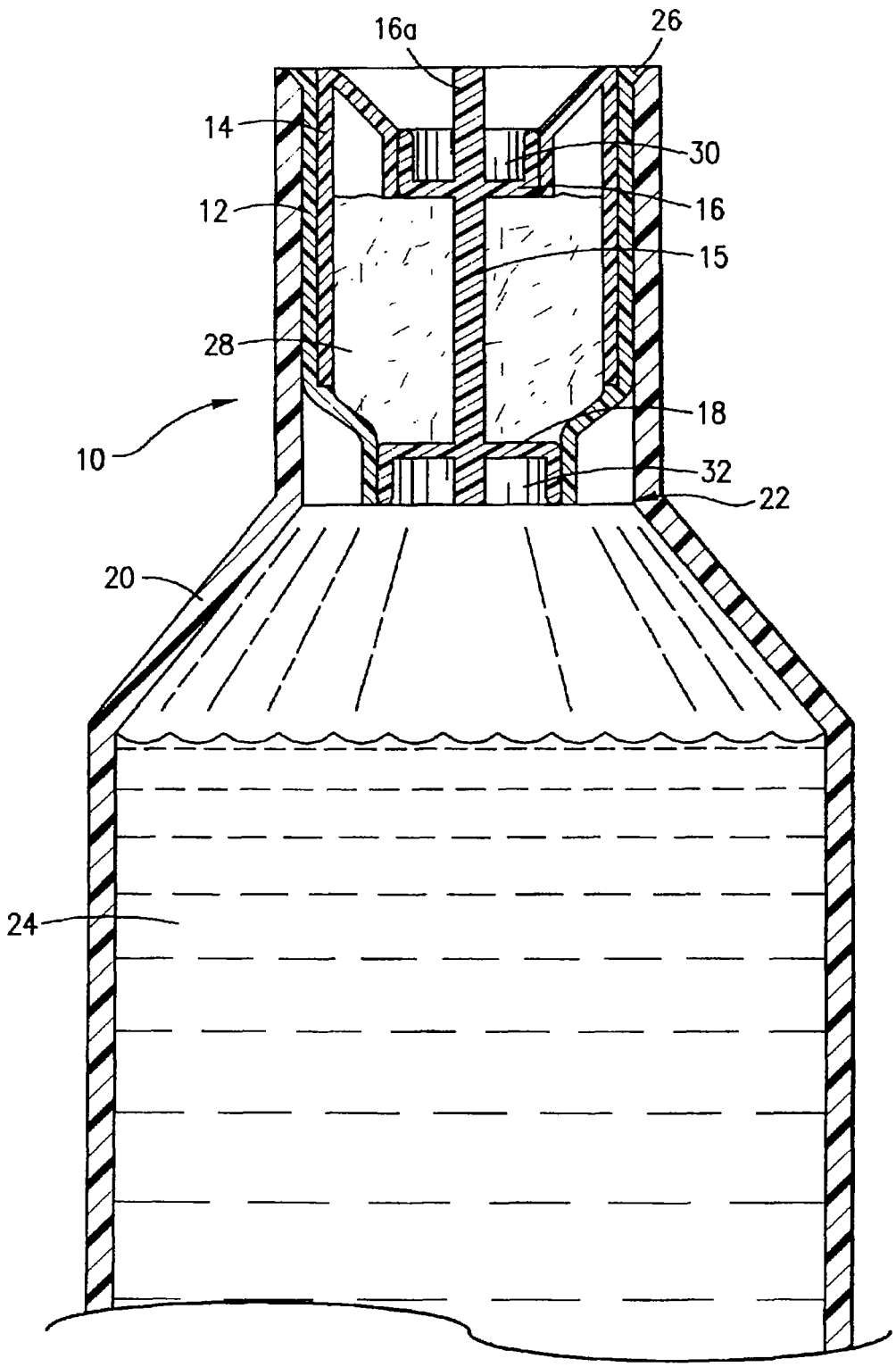


FIG. 1

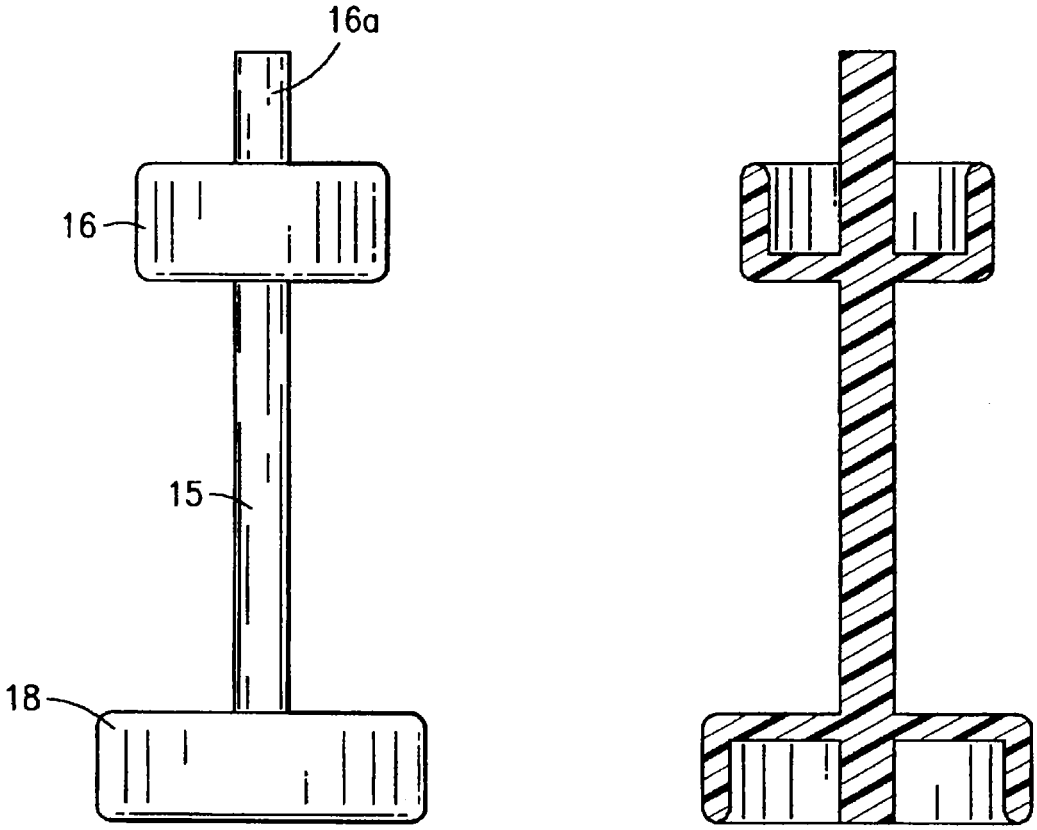


FIG. 2

FIG. 3

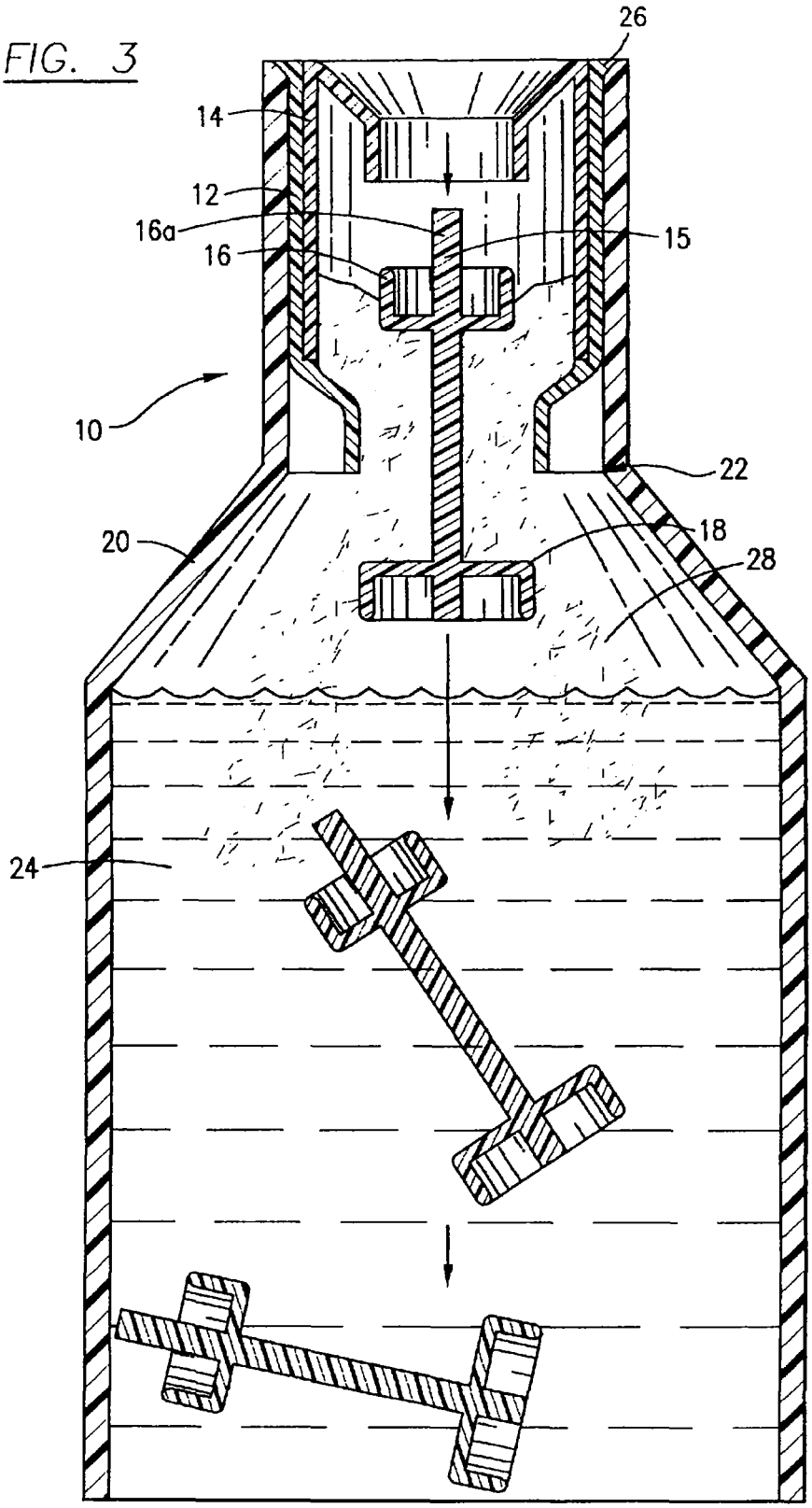


FIG. 4

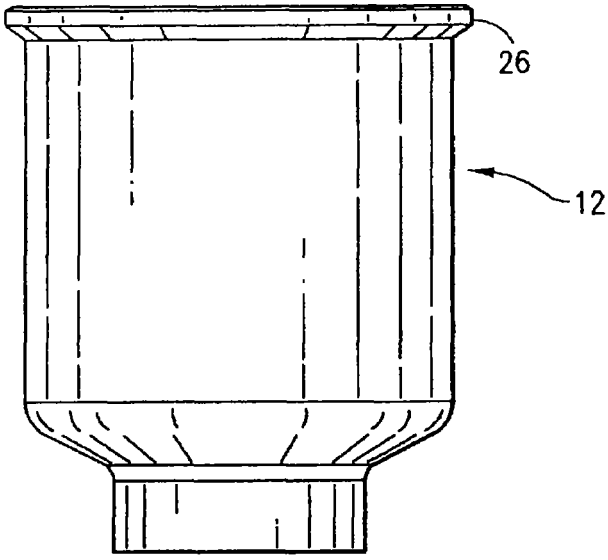


FIG. 5

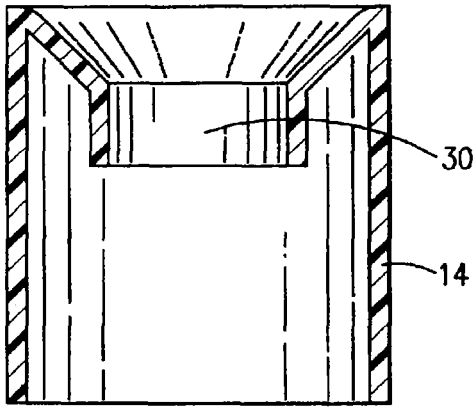
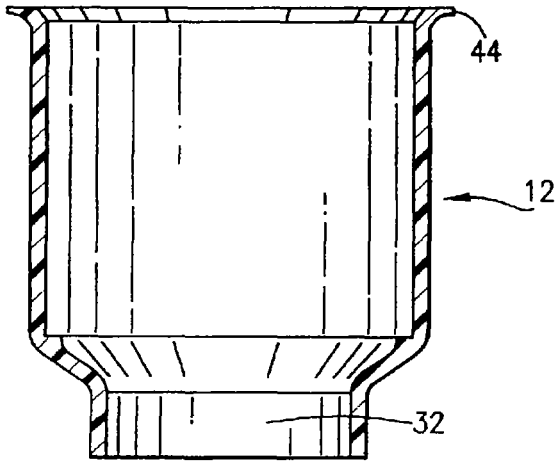


FIG. 6



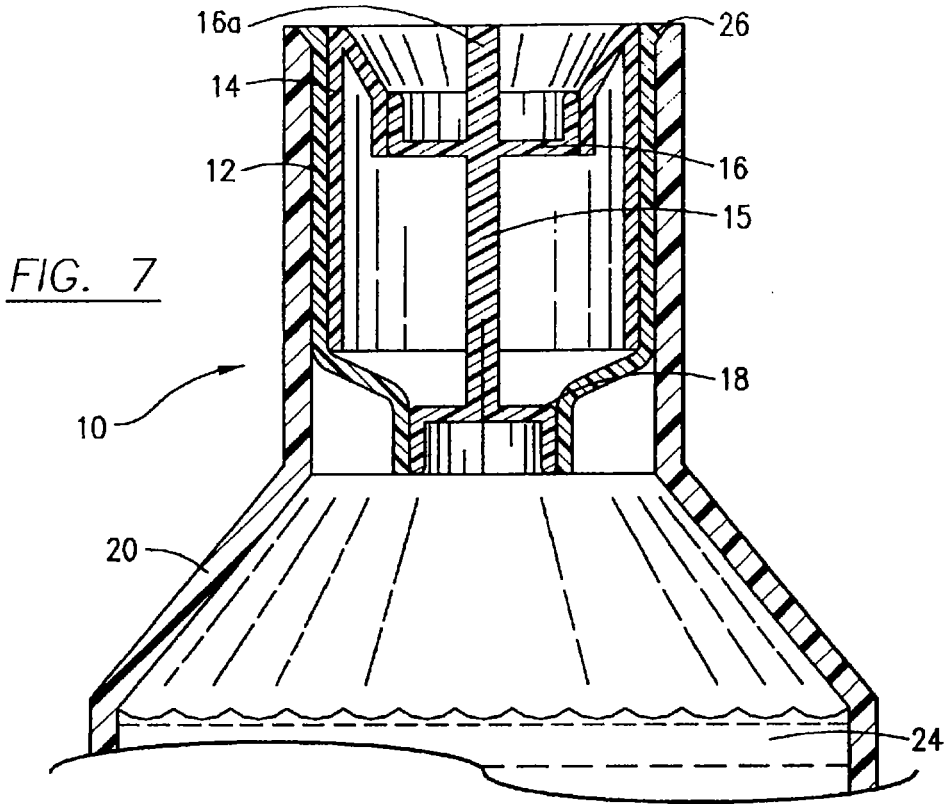


FIG. 7

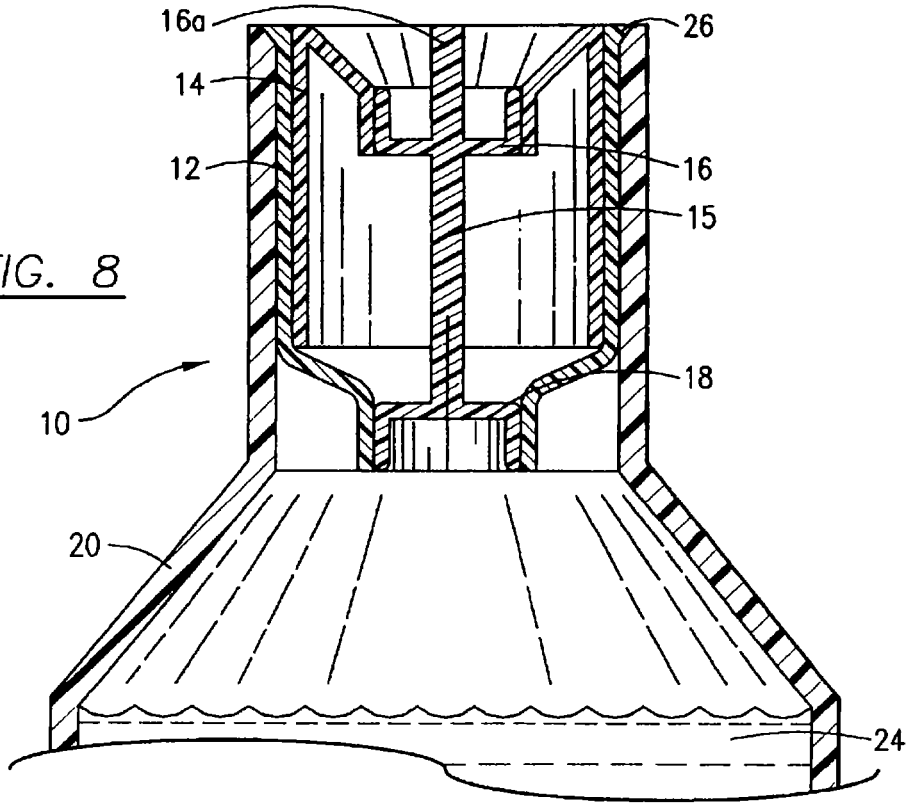
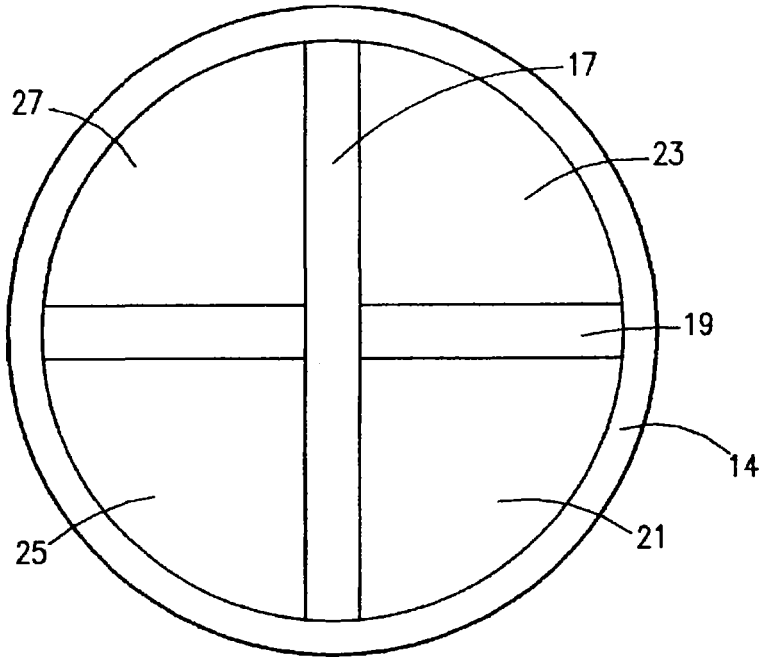


FIG. 8



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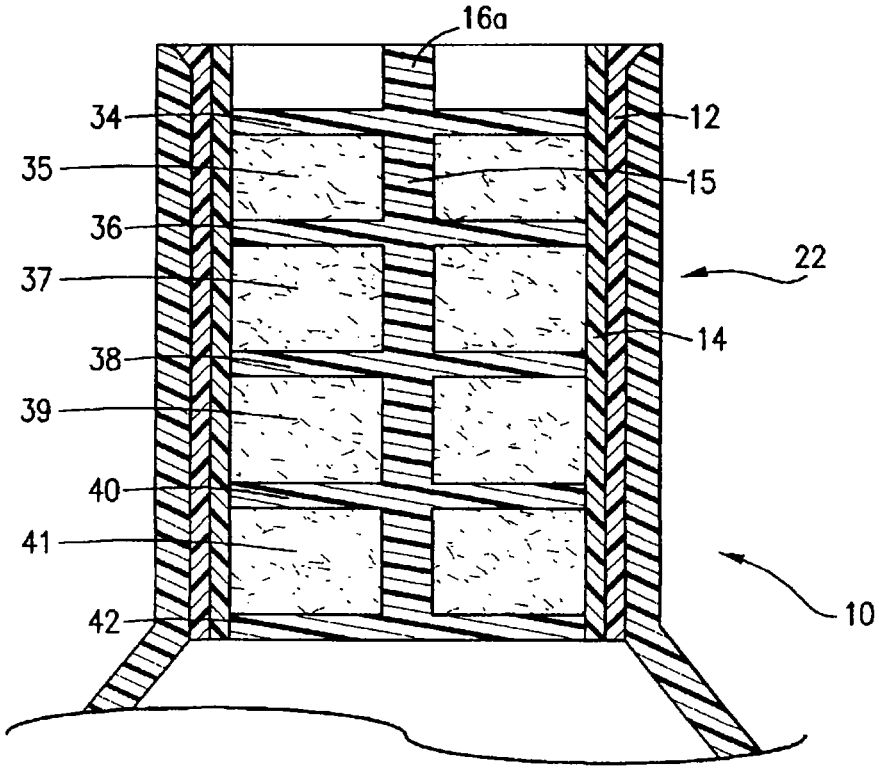

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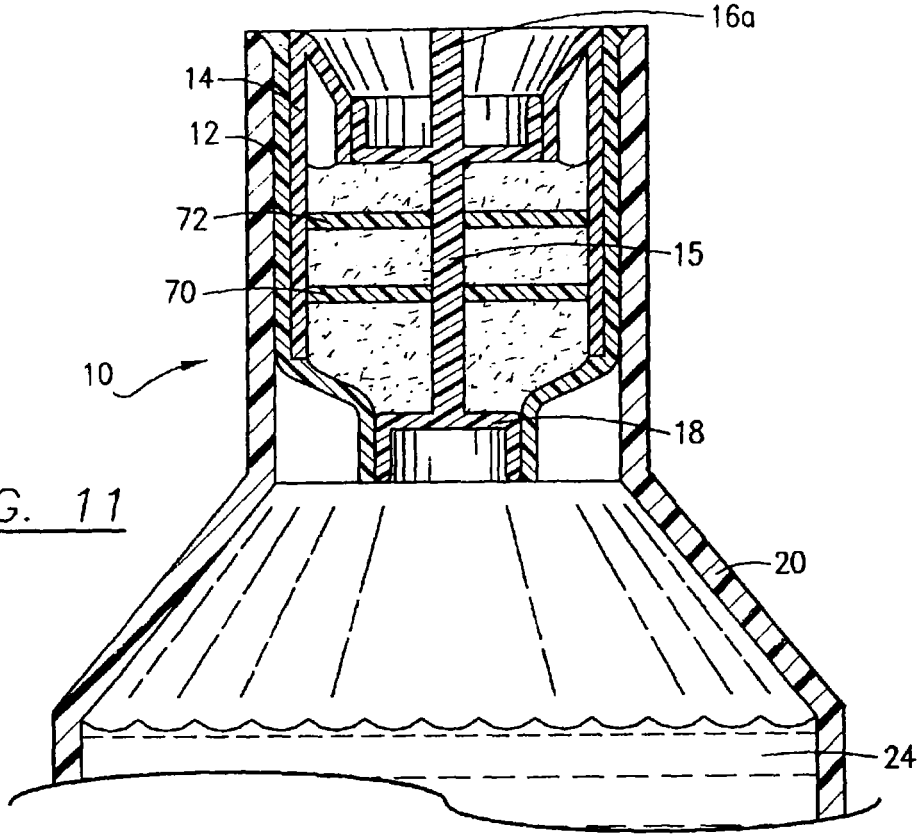


FIG. 11

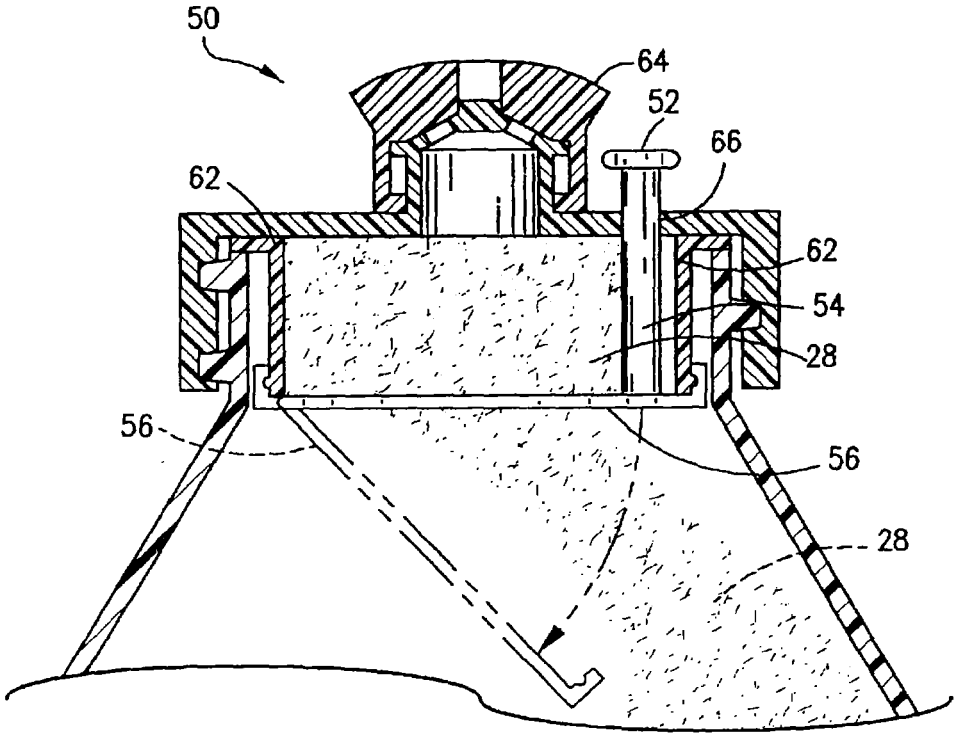


FIG. 14

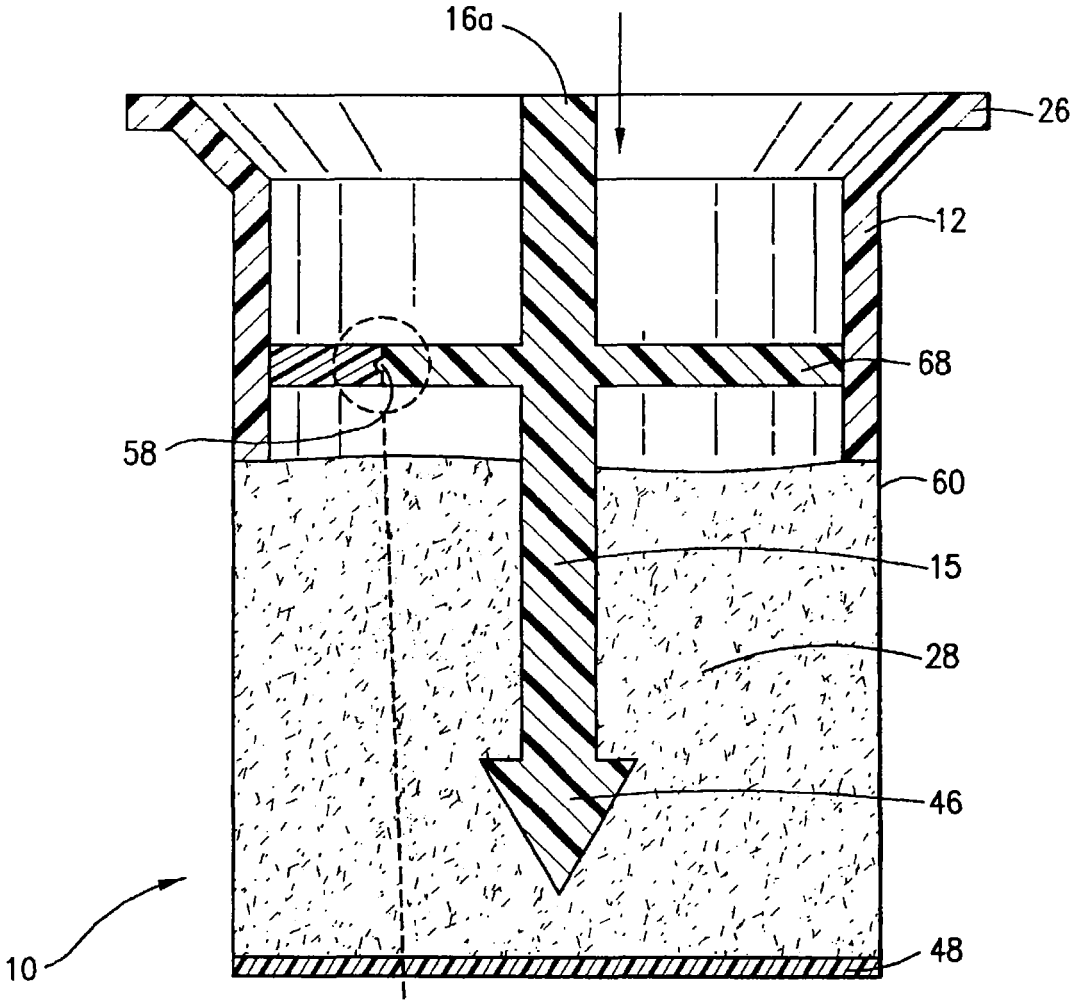
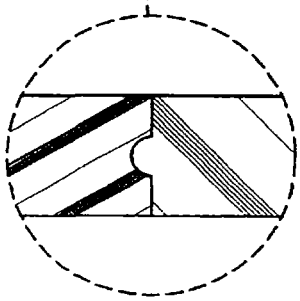


FIG. 12



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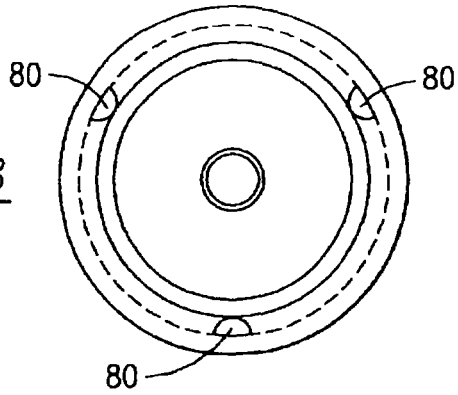
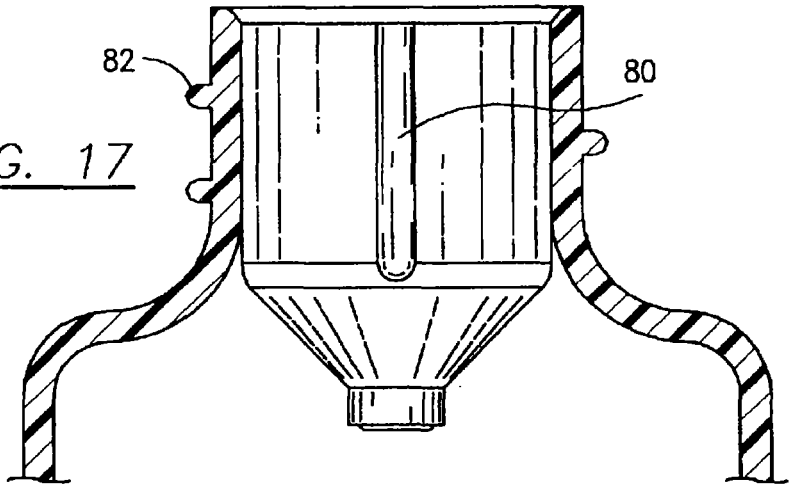


FIG. 18



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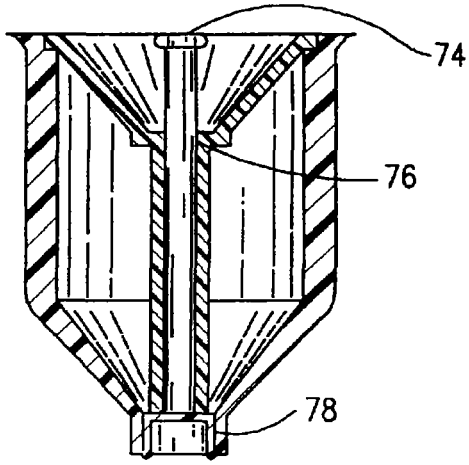

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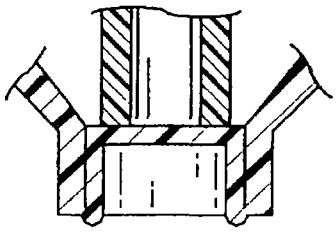

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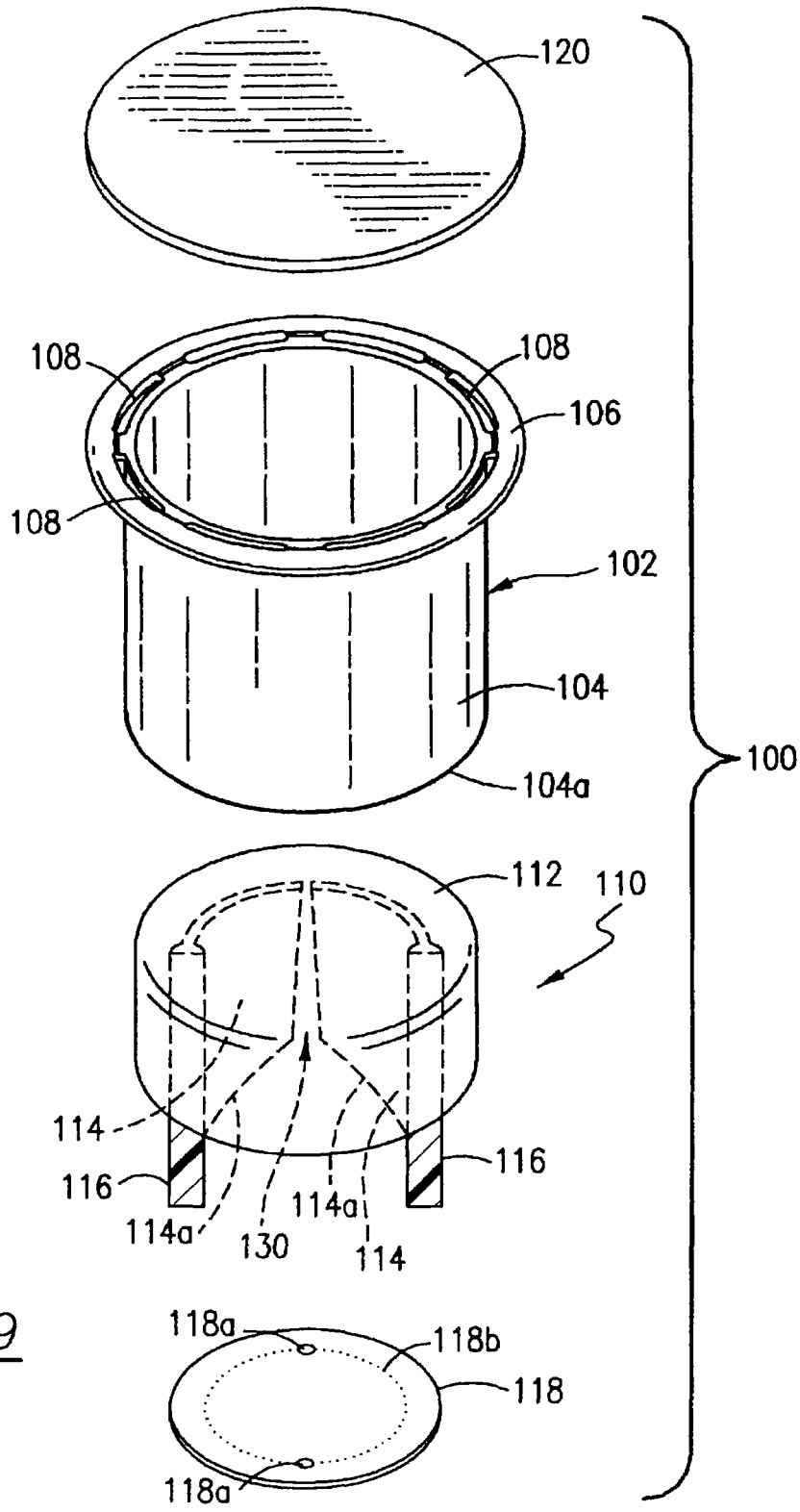
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FIG. 19

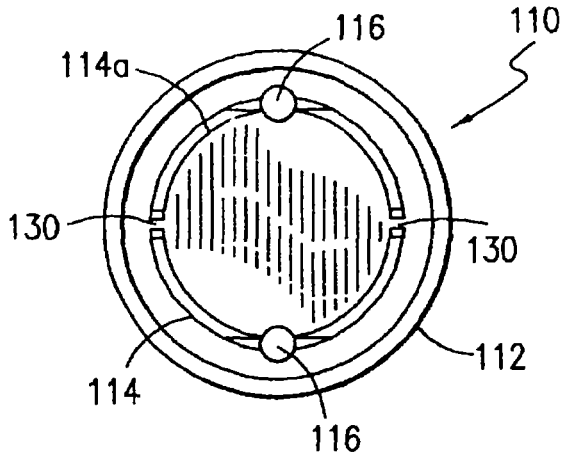


FIG. 20

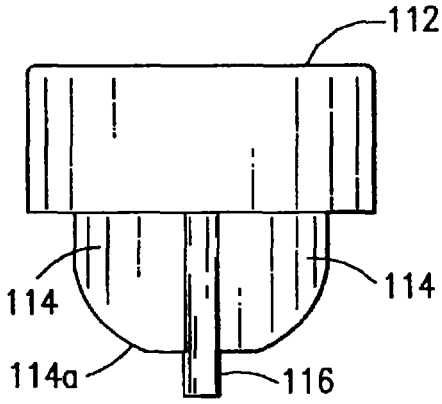
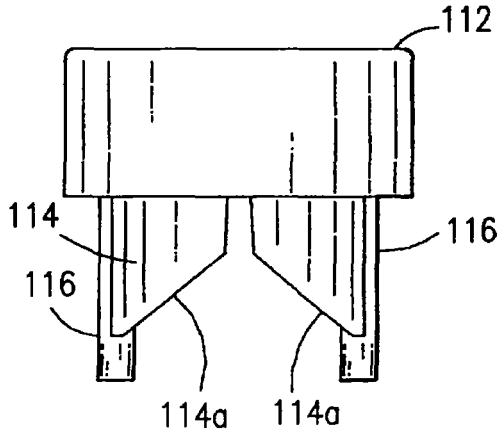


FIG. 21



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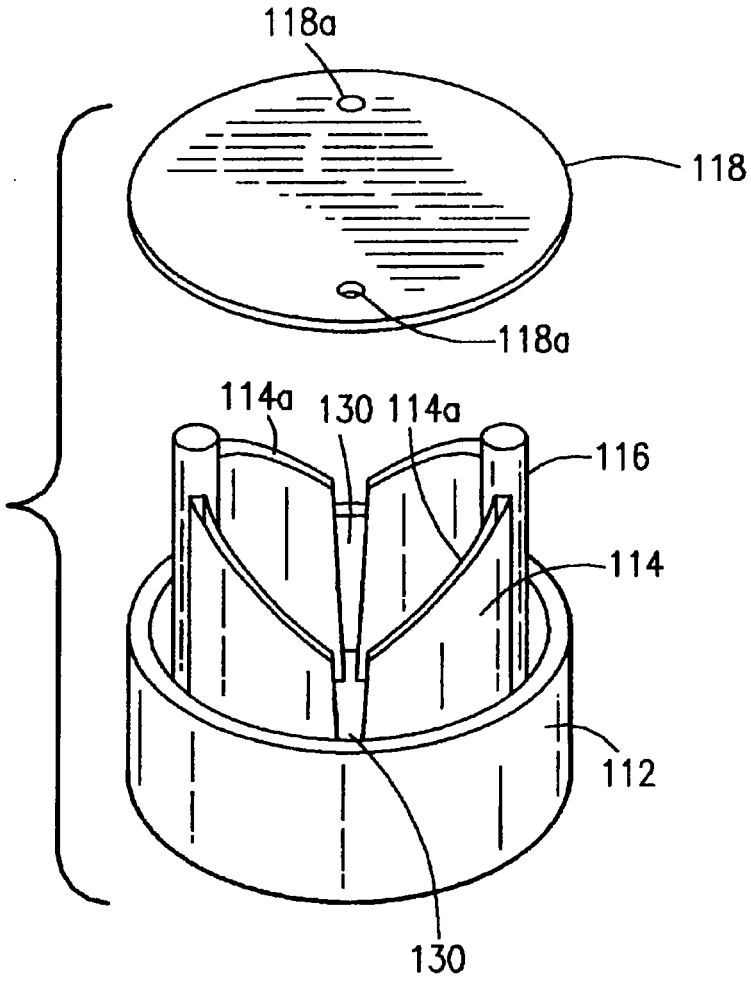

FIG. 23

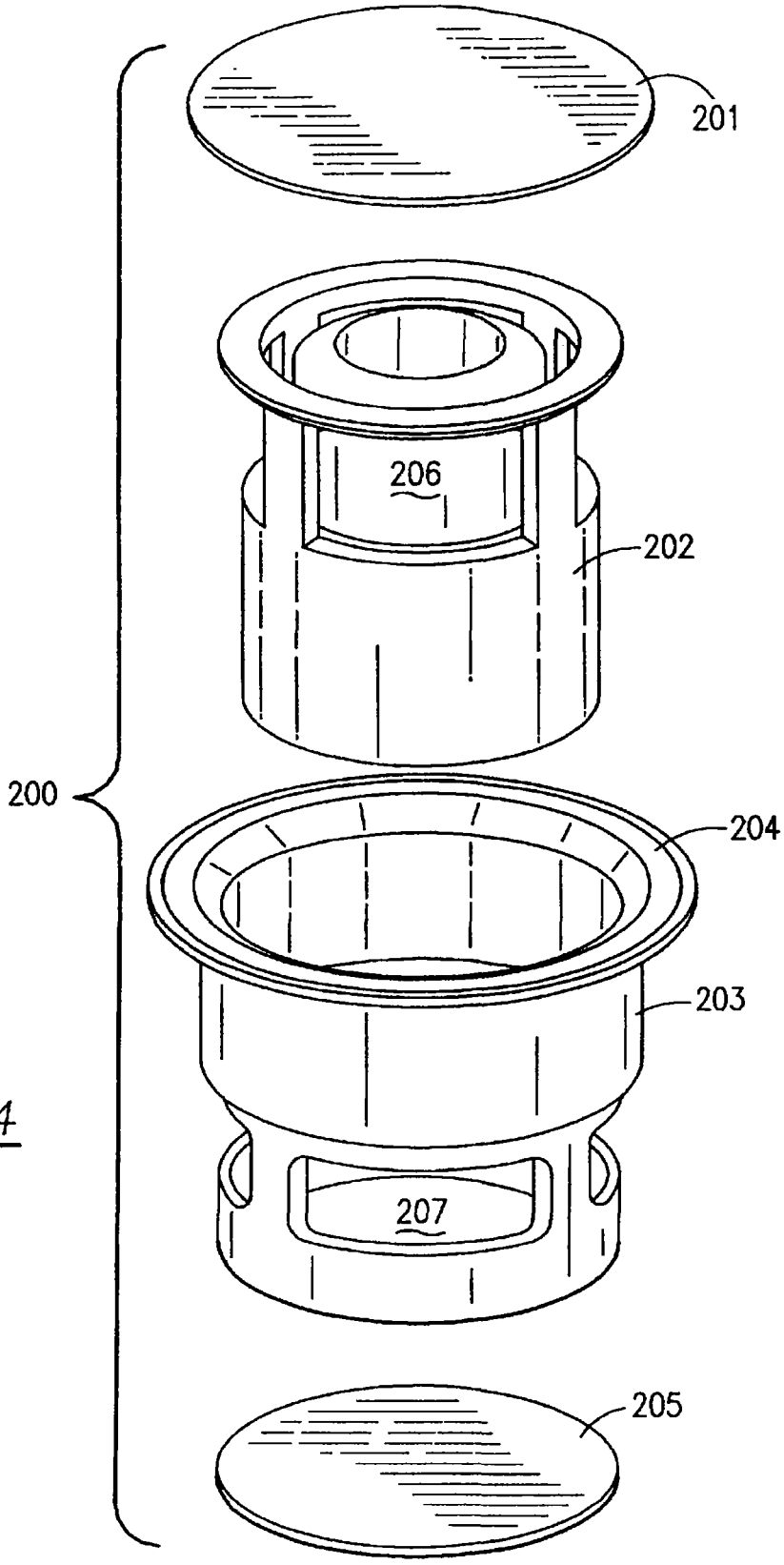

FIG. 24

DISPENSING CAPSULE FOR A LIQUID CONTAINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a liquid and/or dry ingredient dispensing capsule that is inserted into the neck or throat of a bottle or into the cap. The capsule stores liquid and/or dry substances which can be rapidly dispensed into the bottle by manual activation when desired and thereafter readily consumed by the user. The capsule may be pre-mounted in the bottle at the factory after the bottle itself is partially filled with a liquid or used with an existing bottle. A conventional bottle cap is used to seal the bottle contents, including the capsule.

2. Description of the Prior Art

Many foods, drugs, cosmetics, adhesives, polishes, cleansers, dyes and other substances are frequently supplied in liquid, powder or crystal form and do not retain their stability, strength and effectiveness for long after they have been mixed in solution or suspension. This incompatibility after mixing therefore mandates that the product be utilized relatively soon after mixture to prevent deterioration, discoloration, interactions and the like. It is also important that admixtures of various ingredients be done under conditions wherein a measured amount of one ingredient is added to a measured amount of the other chemical to insure that proper results are obtained.

Another concern involves merchandising of certain products, where it is frequently desirable to supply two companion products to the consumer in a single package. Thus, many products are, by their very nature, required to be used by the consumer shortly after their manufacture as they lose certain desirable characteristics with a short period of time, yet the product can be stored for extended periods of time if one ingredient is maintained separate from the other. In such case, the two ingredients may be mixed together to form the desired product shortly before use. In marketing such goods, it obviously is desirable that both ingredients be sold as part of the same package. From an aesthetic as well as a handling standpoint, it is desirable that but a single package be utilized for maintaining such compounds separated.

The use of conventional liquid containers such as plastic bottles for carrying water, juices, power drinks and other desirable liquids for human consumption is quite well known. There are, however, several non-active and active substances such as activated oxygen, vitamins, minerals, herbs, nutrients and flavors that would be desirable to be added to liquids such as water, juices or other beverages to give the consumer added benefits, particularly those useful for the health of the consumer. Many of the substances, however, that provide additional benefits when mixed into another liquid have short shelf lives, discolor, interact or degrade quickly when combined with liquids or other substances. Therefore, many beverages are currently sold without the added beneficial ingredients.

In a practical way of providing such desired results, containers have been provided having two compartments in which two ingredients may be stored separately until it is desired to mix them, at which time it is possible to establish communication between the compartments so that the separated ingredients may move from one compartment to the other.

It is known in the art to provide dispensers containing a concentrate of soluble materials to a fixed quantity of solute, usually water, for dispensing. Thus, the prior art teaches containers for beverages wherein the interior of the container is divided into a compartment having a basic ingredient and a compartment which can be ruptured so as to mix, within the container the basic ingredient and some form of modifier, diluent or flavoring. The basic reason for this prior art container is to provide the mixing action at the time of consumption since prior mixing would have adverse effects. The basic ingredient is often not suitable for consumption by itself and requires mixing with a diluent/modifier prior to consumption.

Prior art intra-container mixing prior to use was disclosed in U.S. Pat. No. 5,370,222 to Steigerwald comprising an open threaded container containing a liquid, a powder containing releasable receptacle sealed with foil which is cut by a cutting mandrel during screwing of the receptacle onto the container. Unlike the present invention, the Steigerwald arrangement situates a powder containing receptacle on top of rather than within the container and utilizes a cutting means rather than a two-part sealed plunger means to confine then discharge the receptacle contents.

U.S. Pat. No. 5,863,126 to Guild discloses a baby bottle fluid mixing system comprising a pre-stored powdered substance confined within a first upper container screw disposed atop a second lower container separated by an internal stemmed disk sealed in a snap fit arrangement at the aperture between the bottles, which descends into the lower bottle after removal from the aperture for use. The present invention discloses a capsule body insertable in but not screwed onto a liquid containing bottle and further comprises two sealable plugs or closures rather than one snap fit plug and a disposable, non-reusable interior mounted capsule versus top threaded reusable upper container for pre-stored dry or liquid.

Another such device for separate storage and subsequent mixing of two products was disclosed in U.S. Pat. No. 5,246,142 to DiPalma which comprised a first ingredient container, a second ingredient dispenser compartment plunger arrangement with a weakened wall region inserted within and separated from the container, a removable container closure connected to the plunger and a plunger projection for engagement which ruptures the weakened wall region to release the second ingredient into the first ingredient container. Unlike the present invention, DiPalma's singular sealing means is the reservoir for the second ingredient and fails to create upon activation an orifice for immediate dispensing of the mixed products.

U.S. Pat. No. 5,692,644 to Gueret discloses a container separately storing, then mixing and dispensing two products in which a first liquid containing bottle is separated by a movable wall from a second reservoir containing powder. Force applied to a cylindrical piston in the direction toward the dispensing orifice of the container cuts the seal between the two reservoirs, thereby facilitating the combination and mixing of the two products within the first reservoir of the container. The Gueret apparatus differs from all embodiments of the present invention in that the piston is an integral portion of the slideable base which is snapably attached to the bottle and when compressed with external manual pressure breaks the seals, pushing the contents up into the bottom portion of the liquid-containing bottle thereby accomplishing the mixing of the two products and simultaneously reducing the exterior dimensions of the bottle. The present invention dispenses the dry product without a piston or slideable base integrated within the bottle nor does the overall size of the bottle change during use.

Another separate storage and dispensing device was disclosed in U.S. Pat. No. 4,638,927 to Morane which com-

prised bottle for liquid having at its neck a leak proof envelope separately storing and enclosing additional product, with a slidable push button perforator in the cap on the bottle neck which opens the envelope to discharge the envelope contents into the liquid in the bottle, thereafter being dispensed through a duct in the cap rather than passing through the perforated center cap area as is the case with the present invention. Morane is also not a two plug system as is the present invention.

The present invention provides a liquid and/or dry ingredients containing capsule that is inserted within the neck or throat of a liquid container, such as a bottle of water, and includes a dispenser. The capsule materials are completely sealed within the capsule body, and remain separated from the liquid in the bottle until the exact moment of usage, which is determined by the consumer by manually dispensing the capsule material (powder or liquid). The capsule can also be conveniently mounted in the throat of the bottle or within/under a standard prior art pull-up liquid dispenser cap without interfering with the sealing of the bottle itself in its normal capping operation. Thus, active ingredients, e.g. activated oxygen, vitamins, herbs, nutrients, or other substances having a short activity life when added to a is particular liquid can now be safely and sealably stored in a capsule until time for use and can be subsequently added to the desired liquid, thereby ensuring that the shelf life and time of activity of the materials are not jeopardized even though they are housed within the liquid container.

The present invention also offers the advantage that it does not require significant modification of bottle caps or existing bottles. In fact, it can be inserted into existing bottles without interfering with the sealability of the conventional bottle and bottle cap.

None of the above prior art taken either alone or in combination, describes, suggests or renders obvious the instant invention as claimed.

SUMMARY OF THE INVENTION

A dispensing capsule for containing a liquid and/or powder materials having substantially a cylindrical liquid impervious body, sized in diameter to fit within the inside diameter of a bottle neck, said capsule having a top circular opening and a bottom circular opening.

The device includes a first disk-shaped plug, sized to sealably fit in said top opening of said capsule body and a second circular disk-shaped plug sized to fit sealably in the bottom opening of said capsule.

The first and second sealable plugs are connected together axially by an elongated shaft that is rigid and has an end portion extending beyond the first and second plugs.

The purpose of the elongated shaft and its extended end portion is to allow the consumer to depress the end of the elongated shaft which, with sufficient force, will cause the plugs which are sealed to the top and bottom openings of the capsule body to be forced away or displaced from the openings of the top and bottom. This will allow any liquid and/or dry contents within the capsule body to be immediately dispensed into the liquid bottle.

In one embodiment, the diameter of the upper disk shaped plug is different from the diameter of the bottom shaped plug. The bottom plug typically will have a larger diameter to allow more liquid or dry contents to be dispensed from the capsule immediately into the bottle and also allows the upper plug to fall through the lower opening into the container. However, the lower plug is larger in diameter than the upper plug so that the entire upper and lower plug and shaft cannot be consumed or retrieved from the bottle, even though the contents of the bottle are empty because the plug will not fit through the upper opening in the capsule body.

In an alternate embodiment, the upper plug diameter could be larger than the lower plug diameter which would prevent the entire plug mechanism from being received into the bottle itself and would allow the plug to be removed by the consumer once the seals are broken and the contents of the capsule emptied into the bottle prior to actually drinking the liquid in the bottle.

In another embodiment, the upper disk shaped plug could be the same diameter as the lower disk shape plug.

Although the plugs have been described as disk-shaped and circular, a variety of different shaped plugs could be used to accomplish the objective of the invention.

To operate the invention, the capsule containing a desired liquid and/or dry ingredients to be dispensed into a liquid in a bottle is inserted into the neck of a bottle containing liquid, typically at the factory, and a conventional bottle cap is added to the bottle. The entire contents of the bottle are then sealed. At the factory, the capsule has been filled with the desired liquid and/or dry ingredients. The plugs are sealed watertight so that the ingredients inside the capsule is contained and cannot drip or fall into the liquid in the bottle once the capsule is inserted in place and so the liquid in the bottle cannot seep into the capsule. At the time the consumer desires to drink the liquid in the bottle, the consumer would remove the bottle cap in the conventional way, and depress the elongated shaft, tearing the first and second plugs away from their seals, creating an opening which allows the contents of the capsule to be dispensed immediately into the liquid in the bottle. As can be seen, the chemical activity life is not effected whatsoever since the consumer is ready to drink the materials in the bottle once mixed. The consumer is then able to pour the mixture from the bottle into a receptacle or may drink directly from the bottle while the plug mechanism stays within the bottle itself or is removed manually by the consumer.

Another embodiment discloses a capsule body which further includes at least a third plug situated and spaced horizontally between said first and second plugs, and further including a means connected to said third plug for disengaging the seal of said third plug and further including said third plug in a first mode sealed to said capsule body. The diameters of all said plugs are preferably equal in diameter, however, the diameters could vary based on the overall shape of said capsule.

Yet another embodiment discloses a capsule, impervious to liquid, for insertion within a prior art pull-up liquid dispenser cap, that contains liquid and/or dry material to be subsequently dispensed into a bottle. The pull-up dispenser cap contains a top opening with a nipple utilized for drinking and a bottom opening larger than the top opening and having a displaceable bottom sealing closure engaging said bottom opening in first position during storage phase which prevents any liquid or dry material from escaping from the capsule body. An elongated plunger located within said cap extends vertically downward and engages and displaces the bottom closure of said capsule body into a second position during utility phase allowing the contents within said capsule body to be dispensed into the bottle when desired.

Another embodiment discloses a capsule, for insertion into a bottleneck, that contains liquid and/or dry materials to be subsequently dispensed into a bottle which includes a first, second, and third plugs. The first plug fits inside said capsule top opening, said second plug fits inside said capsule

bottom opening, said third plug is positioned between the first and second plugs and extends in a planar direction within and horizontally bifurcating said capsule body. The first, second and third plugs in a first mode are sealed to said capsule body preventing any liquid or dry materials from escaping from the capsule body. There is a means connected to said first plug and said second plug for disengaging the seal of said first plug and said second plug which allows the material therein to be dispensed from said capsule body into a bottle when desired. The means for such disengagement may be such as to pierce the second plug. The second closure can also be fitted onto or within said capsule bottom opening. The first closure may be circular and disk shaped and of smaller diameter and of greater thickness than the said second closure which may be membranous or circular and disc shaped. The first closure can snapably fit inside of and seal the top opening of the capsule.

In the preferred embodiment of the invention, the capsule containing a liquid or powder includes a hollow, rigid, preferably plastic cylinder, sized in diameter to fit within the neck of a conventional hand-held liquid container or bottle and including an upper annular lip that projects radially from its central axis. The purpose of the extended peripheral lip is to support the capsule across the top of the bottle neck opening so that the capsule does not fall into the bottle. A secondary purpose of the lip is that the lip includes a plurality of apertures which will allow the liquid in the bottle to be poured out of the neck of the bottle when the capsule has been activated.

The capsule also includes a second element in the form of a plunger that includes a cylinder closed at one end by an end face. Disposed within the plunger cylinder are two separated plunging elements that are semi-circular in cross section and tapered from two central plunger stems. The taper is a smooth contour on both plunger element sides so that on each plunger element there is a central rigid, elongated stem that forms the central rib of the actual plunging element itself. The plunger element walls taper from the stem on each side outwardly and curvedly.

The capsule includes at its base portion a sealed liquid-proof membrane, such as aluminum foil, plastic, or any other type of sealing membrane, that can be unsealed and opened by the activity of the plunger elements. The sealing member is adhesively connected to the base perimeter of the cylindrical housing. The liquid or powder to be dispensed is disposed within the capsule cylindrical housing and within the plunging element. The body of the plunger element has an outside diameter that allows the plunger element to fit snugly inside the container capsule cylindrical housing so that the plunger element can be moved manually relative to the outside housing by depressing the plunger element with the operator's thumb. The capsule base is covered with the sealing member so that whatever material, dry or liquid, contained therein cannot escape until the plunger is depressed, separating the sealing member from the capsule base perimeter, except at two critical points. The capsule also includes a top sealing member, such as aluminum foil, plastic, or the like, that is adhesively attached as a thin, liquid-proof member around the capsule top also so that material cannot escape.

The capsule is inserted in the neck of a bottle. At the time one desires to dispense the powder or liquid contained in the capsule, the cap of the bottle is removed and the top sealing member is physically removed by hand from around the lip of the upper capsule body. Once the upper sealing member has been removed, the user will then depress the plunging element downwardly, which causes the plunging element on both sides to engage the bottom seal and to slowly (against the periphery of each plunging element) separate most of the bottom sealing element from the capsule body along the base, allowing the capsule material to be dispensed into the bottle by gravity. Note that the sealing element continues to be attached to the base of the capsule at two points so that the sealing member does not fall into the liquid. Thus, the sealing element is actually opened in two halves along each side of the capsule base, but remains connected to the capsule base at two points at 180 degrees across from each other.

It is an object of this invention to provide an insertable capsule that includes active ingredients that can be readily dispensed into a liquid container at a desired time, thus not interfering with the shelf life or physical/chemical integrity of the ingredients to be combined.

It is an object of this invention to provide a liquid and/or dry ingredient bearing receptacle that includes a dispenser to allow consumers to dispense the liquid or powder into the liquid bearing bottle at any time, the capsule being housed within the liquid containing bottle in a sealed condition.

Still another object of this invention is to provide for sanitary release of the desired ingredients from the capsule into a liquid-containing bottle at a time selected by the consumer, without pre-mixing.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with particular reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** shows a side elevational cross-sectional view of one embodiment of the invention disposed within the neck of a conventional bottle as would be in use.

FIG. **2** shows a side elevational view of the first and second disk shaped plugs and the elongated shaft used to seal the capsule body in one embodiment of the present invention.

FIG. **3** shows a side elevation, cross sectional view of one embodiment of the capsule, shaft, bottle and plugs at the time of dispensing ingredients from capsule into liquid-containing bottle, including the sequential movement of the plugs and shaft.

FIG. **4** shows a side elevational view of the outer capsule body of the present invention.

FIG. **5** shows a side elevational cross-sectional view of the inner capsule body of the present invention without the first plug.

FIG. **6** shows a side elevational cross sectional view of the outside portion of the outer capsule body of the present invention.

FIG. **7** is a side elevational cross sectional view of an alternate embodiment of the present invention.

FIG. **8** is a side elevational cross sectional view of an alternate embodiment of the present invention.

FIG. **9** is an alternate embodiment of the present invention showing four compartments within the capsule.

FIG. **10** is a side elevational cross-sectional view disclosing vertically partitioned sections of an alternate embodiment of the present invention.

FIG. **11** is a side elevation perspective view showing horizontally partitioned sections of the capsule body of the embodiment of FIG. **1**.

FIG. **12** shows a side elevation cross sectional view of the preferred embodiment.

FIG. **13** shows an exploded side elevation cross sectional view of a snapable means for sealing the plug within the opening in the capsule body as circled "A" in. FIG. **12**.

FIG. **14** shows a side elevation cross sectional view of alternate embodiment of the capsule body molded as part of the prior art pull-up liquid dispenser cap with bottom sealing closure disengaged.

FIG. **15** is a side elevation view in cross-section of an alternate embodiment of the invention.

FIG. **16** is a side elevation of view partially cut away of the bottom portion of the alternate embodiment shown in FIG. **15**.

FIG. **17** is a side elevation view partially in cross-section of the alternate embodiment shown in FIG. **15**.

FIG. **18** is a top plan view of the alternate embodiment shown in FIG. **15**.

FIG. **19** shows an exploded view of an alternative embodiment of the invention that is the preferred embodiment of the invention.

FIG. **20** shows a bottom plan view of the plunging element used in the present invention.

FIG. **21** shows a side elevational view of the plunging element used in the present invention.

FIG. **22** shows a side elevational view rotated **90** degrees from the view shown in FIG. **21** of the plunging element used in the present invention.

FIG. **23** shows a bottom perspective view of the plunging element and capsule base sealing member.

FIG. **24** shows an exploded perspective view of yet another embodiment with vents to permit liquid flow through the capsule.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings and in particular FIG. **1**, the present invention is shown generally at **10** comprised of a first capsule body **12** that constitutes the outer body portion of the present invention which is preferably made of a liquid impervious material, preferably polyvinyl plastic. The outer capsule body **12** is cylindrically shaped and includes a tapered smaller cylindrical bottom opening and a top opening. The outer body **12** has an outside diameter that is typically sized to fit snuggly within the neck of a conventional plastic liquid containing bottle, as an example.

The upper diameter of the opening of the outer capsule body may include a flange chambered wall portion **26** as shown in FIG. **4**. The flange prevents the capsule from sliding into the inside of the bottle itself, and is slightly larger than the opening of the bottle. In some embodiments this could be in conjunction with a tapered or chambered portion of the bottleneck at the top opening that is pre-cut to receive a capsule lip around the upper portion of the outer body.

The inner capsule body **14** is cylindrically shaped and has a large bottom opening and a much smaller top opening that is also circular and tapered conical wall portion at its top edge terminating in a cylindrical opening as shown in FIG. **5**. The first body **12** is sealably attached to the second body **14** with the first body **12** having a groove portion that receives the open base of the second body **14** which can be sealed. The outside diameter of the second body fits snuggly and sealably against the inside diameter of the first capsule body **12**. This sealable fit can be accomplished by constructing the capsule bodies **12** and **14** of a softer, moldable material of rubber or synthetic rubber or by using a strong, space-filling water repellant, plastic adhesive.

The capsule may also consist of more than one section created by partitions **17** and **19** joined by shaft **15**, first plug **16** and second plug **18**, either vertically oriented or horizontally and stackably configured within the capsule so as to accommodate more than one ingredient to be added to the bottle just prior to consumption. FIGS. **9** and **10** reflect these partitioned alternate embodiments. These alternate embodiments can feasibly include 2 to 5 partitioned sections, maybe more, depending on the size of the capsule and bottle on which it is to be used. FIG. **9** discloses shaft **15** widened to the diameter of the capsule to create the longitudal partition to accommodate two ingredients. Although two, three, or four sections can easily be created, FIG. **9** depicts the shaft divided into two full capsule diameter longitudinal partitions at right angles to each other so as to create four quadrants in which liquid or dry ingredients can be factory filled and stored prior to mixing. Three quadrants can also be created in a similar manner by extending shaft **15** in a Y-shaped planar fashion to full diameter of said capsule.

A first disk-shaped plug **16** is sealably mounted within the top opening **30** inside the inner capsule body **14**. The seal can be of a pressure-type, snapable interlocking ring as shown in FIG. **13** or other means by which the plug attains airtight disposition against the capsule wall. The first plug includes a cylindrical walled body that is sized in height to correspond to the height of the opening in the upper end of inside capsule body **14**. The upper plug **16** has an axial elongated shaft **15** disposed and actually unitarily connected there with an extended portion **16***a* sized from the plug body approximately at or below the level of the bottle top opening itself extended with **16***a* shown of such a length. The entire shaft **15** terminates at its bottom and a second larger diameter disk shaped plug **18** that has its outside diameter sized to sealably fit within the bottom opening **32** of the outside capsule body **12** in the same manner as for the top opening plug. Again the height of the disk **18** is sized to correspond to the length of the opening walls cylindrically for a sealable fit with the outside capsule body **12**. As shown in FIG. **1**, liquid and/or dry ingredients **28** would be sealably housed within the capsule inside body **14** and within the first and second plugs **16** and **18** in a sealable condition. The bottle itself **20** and bottleneck **22** cannot receive any of the ingredients housed in the capsule itself, because they are sealed.

The bottle **20** accommodates a liquid component **24**. A mixing of the dry or liquid contents **28** of capsule **12** with the liquid **24** is performed in bottle **20** so as to produce a ready to use solution, mixture, suspension or emulsion. To dispense the mixed contents **28** of capsule **12** the consumer would depress the elongated shaft **15** as shown in FIGS. **2** and **3** using extended portion **16***a*, downwardly ripping away the seal formed by the first plug **16** and the second plug **18** causing the entire shaft and first and second plugs to fall within the container itself while at the same time dispensing the capsule contents **28** therein. The plugs and shaft unit within the container would aid in the physical mixing of the capsule ingredients **28** with the liquid **24** within the bottle **20** as shown in FIG. **3**. Note, when the diameter of the second plug **18** is larger than the diameter of the top opening of the inside capsule wall **14**, the shaft plug mechanism is prevented from being removed from the bottle itself during consumption and thereby prevents the consumer from accidentally receiving the first and second plug. The plug/shaft mechanism can be made of a floatable or lightweight material to avoid blocking the outflow of the fluid when the bottle

is tipped in the drinking or pouring process. The capsule can be made of dark, opaque material to provide limited light (U.V. rays) access of the capsule contents to guard against deterioration from light.

In an alternate embodiment, shown in FIG. **7**, the plug diameters could be reversed in that the lower plug **18** is of smaller diameter and the upper plug **16** is of larger diameter which would prevent the entire plug mechanism from being dispensed within the bottle and allowing it to be physically removed if desired by the consumer after the ingredients in the capsule have been dispensed and mixed. The physical presence of the entire plug mechanism within the liquid aids mixing on agitation.

Another embodiment would provide equal diameters of the lower plug **18** and the upper plug **16** as shown in FIG. **8**.

The upper opening of the outer capsule body **12** includes a lip **44** that engages the top edge of the bottle so that when a cap is screwed on the bottle it would seal and prevent the entire capsule from falling into the bottle without requiring modification of the bottleneck as shown in FIG. **6**.

In operation, the entire capsule **10** or each partitioned section created within capsule **12** would be filled with the desired dry or liquid ingredients to be dispensed and plugs **16** and **18** sealed at the factory. The capsule is then inserted into the neck **22** of bottle **20** containing a liquid **24** and a sealable cap is added to the bottle. The size and shape of the capsule can be modified to accommodate varying amounts of ingredients to be added to the bottle. The bottle with its liquid contents **24** and the capsule could sit for extended periods without ever being activated. When the consumer wishes to drink the contents of the bottle, he would remove the cap of the bottle and depress the elongated shaft using the extended portion **16***a*, ripping away the seals of plug **16** and **18**, and emptying the capsule contents **28** into the bottle. The user can then drink the materials which have been mixed in the bottle. The entire bottle and capsule can be recycled or discarded as desired.

Another embodiment, FIG. **10**, discloses for example, five representative (first through fifth) horizontal planar plugs **34**, **36**, **38**, **40** and **42** creating at least 5 fillable sections of capsule, the diameter of all plugs being equivalent and sized so as to negate the tapering of the outside capsule body and extending the full diameter of the bottleneck **22**. The plugs are unsealed when extended portion **16***a* is depressed manually which releases the contents of all sections of the capsule **12** along with the plugs and shaft into the bottle. The size of capsule and bottle, thickness of plugs, and the number, type and quantity of contents selected will determine the number of horizontal plugs in the desired embodiment. Shaft **15** may be extended in a vertical planar fashion creating partitions **17** and/or **19** as shown in FIG. **9** and extending to the full diameter of the capsule longitudinally bifurcating said capsule into two fillable sections both with the presence of the horizontal plugs as shown in side cross section view in FIG. **10** or without said horizontal plugs as shown in top cross sectional view of FIG. **9**, thereby creating only 4 fillable sections **21**, **23**, **25**, and **27** extending the full longitudinal length of said capsule from said first plug **16** to said second plug **18**.

FIG. **11**, is an alternate embodiment similar to the first embodiment described in FIG. **1** wherein shaft **15** is cylindrical and elongated but not extended in a vertical planar fashion to the full diameter of the capsule. FIG. **11** additionally discloses two (but could contain one or more) unitarily molded horizontal planar extension plugs **70** and **72**, located between said first plug **16** and said second plug **18** and of sufficient thickness to provide water-tight compartments between said plugs **70** and **72**. This embodiment would provide three factory fillable compartments when two plugs **70** and **72**, are situated, four factory fillable compartments when three plugs are situated between plugs **16** and **18**, and so on. The number of additional plugs between plugs **16** and **18** is as in other embodiments primarily dependent upon the size of the capsule and bottle, plug thickness, and the number of different ingredients to be stored in said capsule **12**.

FIG. **12**, the preferred embodiment of the present invention, comprises a capsule body **12** cylindrically shaped and with a top opening sealed by a disk shaped plug **68** in first mode as shown and bottom opening sealed by a membrane **48**, preferably heat welded, to the capsule body, however any means sufficient to create a water tight seal with the capsule can be used. There is a first end, extended portion **16***a* of the elongated shaft **15** and a second end **46**, shaped and sized so as to cut a sufficiently large opening when pushed into contact with and piercing membrane **48** to allow the entire contents to fall quickly into the container without obstruction or blockage. Manual downward pressure should be applied to the extended portion **16***a* sufficient to place the second end **46** into contact with and cutting the membrane **48** to allow the capsule contents **28** to fall into the liquid **24** within the container. The membrane **48** can be made of foil, coated paper, liquid resistant material, or polyvinyl sheet of easily tearable thickness. Shaft **15** in this embodiment should be of such length as to not pierce the membrane seal **48** during normal storage, or with movement during transportation by manufacturer or consumer, but also of sufficient length as to reach and also pierce the membrane **48** covering the bottom opening of capsule **60** when moderate manual pressure is applied to extended portion **16***a* which thereby disengages seal **58** at plug **68**. The disengagement of seal **58** at plug **68** and opening created by the piercing of membrane **48** will enable the subsequently mixed contents **28** of the capsule and liquid **24** in the bottle to flow back through to the consumer in the drinking process. The capsule can also be manually removed by consumer and discarded prior to drinking. An exploded cross sectional side elevation view of the interlocking ring sealing means of plug **68** is shown at FIG. **13**. The container **60** below plug **68** is connected to capsule **12** preferably by a heat sealing means, said container **60** being constructed from materials which are water resistant, light weight, durable and inexpensive such as polyvinyls, reinforced or coated papers, or metal and filled at the factory with the desired liquid and/or dry contents **28** to be added to the bottle **20** prior to use.

FIG. **14** is another alternate embodiment in which a prior art pull-up liquid dispenser cap shown generally at **50** is modified with the improvement comprising receptacle **62** being unitarily molded to or snapably attached under dispenser cap **50** and directly accessible to the nipple **64**. Receptacle **62**, is liquid impervious and constructed with an opening **66** located in the top portion of said receptacle adjacent nipple **64** of a size to accommodate an elongated plunger **54** with first end **52** extending above said top portion of receptacle **62** and shaft **54** extending vertically downward into direct contact with bottom sealing closure **56** of receptacle **62**. Bottom closure **56** can be constructed of durable liquid impervious material, such as polyvinyl or electromeric membrane which will disengage from one side of the receptacle while remaining hingeably or sealably attached at the opposite side of said receptacle thereby preventing

closure **56** from descending into the liquid **24** in bottle **20** yet allowing sufficient area to enable the mixed liquid to flow back from bottle **20** to the consumer through second top opening **74** and nipple **64** in said cap **50** without blockage during normal drinking process. Plunger **54** is sized to fit snuggly and sealably to prevent the dry or liquid contents **28** from seeping out of opening **66**. Plunger **54** is vertically slideable with moderate manual pressure to first end **52** so as to disengage or unseal the bottom closure **56** of capsule **62** allowing contents **28** to fall into the liquid **24** in the bottle.

Referring now to FIG. **15**, an alternate embodiment of the invention is shown which is comprised of a two-piece assembly making the construction easier and less costly. The outer body also includes a molded lower disk portion that seals the unit but has a wall portion that allows the plunger to force open the bottom of the container. A portion of the invention includes a conical insert having a diameter sized to only fit along the top opening of the outside housing. The unit includes the plunger **74** and sealed upper **76** or lower portions **78** which can be broken open by pushing down the plunger.

FIG. **16** shows how the bottom of the plunger is molded as one-piece with the bottom portion of the housing. The weakened wall portion will allow the bottom part of the plunger to rip away from and leave an opening so that the material can be dispensed as above. The operation of this invention is similar to the preferred embodiment but requires fewer pieces for construction.

FIG. **17** shows the entire housing mounted in the bottle cap of our bottle top opening with side view of cap screw threads **82**. The present invention includes slotted side walls **80** providing a space between the invention housing and the inside of the bottle wall. The space allows the fluid or liquid once mixed to be deployed out of the bottle cap neck without removing the capsule.

FIG. **18** shows the top plan view of slotted aide walls **80** through which fluid can pass from the bottle to the consumer without removing the capsule.

Referring now to FIGS. **19**, **20**, **21**, and **22**, the referred embodiment of the invention is shown. Capsule **100** includes a capsule body **102** which is basically a rigid, cylindrical chamber **104** which may be made of plastic that includes an annular lip **106** that has a larger diameter than the hollow cylinder **104**. Lip **106** engages the top of the bottle to keep the entire device from falling into the bottle. However, the outside diameter of the capsule **102** is sized to fit comfortably within the neck of a conventional liquid bottle, or it could be made for different sized bottles by changing the diameter so that the capsule fits snugly in the top of the bottle. A plurality of apertures **108** allow for passage of liquid from within the bottle once the cap has been removed, so that someone can consume the liquid in the bottle which passes through apertures **108** from inside the bottle to outside the bottle with the capsule in place. Alternatively, the capsule could be removed once the materials have been dispensed. The plunger **110** has a top cylindrical portion **112** with an outside diameter that fits snugly within the capsule body **104**. The plunger **110** also includes a pair of plunging elements **114** and a side elongated plunging brace or stem member **116** on each side and a space **130** on each side.

The device includes a thin liquid-proof liquid barrier **118** that is sealed around the base **104***a* of the capsule. Adhesive **118***b* deposited on the thin membrane which can be waterproof plastic or aluminum foil includes an adhesive **118***b* that allows it to fit and be sealed to the bottom edge **104***a* of the capsule housing **104**. A second sealing member **120** is provided for sealing the entire capsule across the top and fits with an adhesive exactly the size of the lip of the capsule.

Referring now to FIGS. **20**, **21**, **22**, and **23**, the plunger is shown having an upper body portion that is cylindrical **112**, the outside diameter of which fits within the capsule body **104** shown in FIG. **19**. The plunging elements **114** are curved and are semi-circular or semi-cylindrical in shape and are also tapered along the bottom in an upward direction along surface **114***a*. As the plunging element is depressed, the surface area **114***a* contacts the lower sealing member **118** and pushes against the sealing member, separating it from the base of the capsule along surface **104***a* without tearing it. Thus, almost the entire sealing member **118** is separated from the bottom of capsule **104** along **104***a* surface area, except for two important areas. Areas **118***a* on the sealing member represent areas that remain fixed to the capsule base **104***a* and do not separate, so that the foil or plastic seal **118** does not fall into the liquid in the bottle. Because of the shape of the plunging elements **114** and the taper along the bottom **114***a* and space **130** on each side, the sealing member can be quickly and safely separated by pushing down on plunger **112** until a point is reached when almost the entire sealing member has been separated, allowing the contents, whether it be powder or liquid, to be dispersed into the bottle. At spaces **130**, the plunging member does not contact the sealing member, allowing areas **118***a* to remain attached to the capsule base.

FIG. **23** shows the plunging element **112** inverted, and the curvature of the plunging elements **114** can be seen along their surfaces that are tapered **114***a*, which contact the sealing member.

Referring back to FIGS. **19** and **23**, the space **130** on each side of the device insures that the plunging element **114** does not contact sealing member **118** at all 180 degrees from each other. The sealing member has an area **118***a* on both sides across from each other that remain sealed to the base surface **104***a* of the capsule body **104**. This means that the sealing member will not fall into the container. Thus, the areas designated **118***a* on sealing member **118** in FIG. **23** would not contact the plunging element surface **114** at all because of space **130** in the plunger on each side. Therefore, the sealing member is not severed or disconnected from the body of the capsule **104** when the plunger has been depressed so that the plunging element **116** starts the removal process of the seal from the capsule body. Rather than tearing it, the tapered portion then smoothly depresses more on the sealing element, causing it to spread apart from the body.

Referring now to FIG. **24**, yet another embodiment of the invention is shown generally at **200** in an exploded view that includes the capsule body **203** having a lip **204** that prevents the capsule body **203**, which is sized to fit into the neck of a bottle, from falling into the bottle. Sealing members **201** and **205** are attached to and sealed at the top and bottom of the capsule. The plunger **202** fits within housing **203** and is depressed downwardly to effectively remove seal **205** to dispense liquid or powder that is in housing **203** and plunger **202**. Plunger **202** has a plurality of vents **206** disposed around its upper portion which allows liquid to pass therethrough. After the seal **201** is removed and the plunger is activated and seal **205** is removed, it is desirous to drink liquid from the bottle or container. Capsule body **203** includes a plurality of vents **207** disposed around its base. When the plunger **202** has been activated by depressing it downwardly, there will come a time when vent **206** in plunger **202** is aligned with vent **207** in capsule body **203**,

which will then allow fluid to flow from inside the bottle through vent **207** through vent **206** out the bottle.

The instant invention has been described herein in what is considered the most practical and preferred embodiment. It is recognized, however, that departures may be made therefrom within the scope of the invention and that obvious modifications will occur to a person skilled in the art.

What is claimed is:

1. A capsule, for insertion within a liquid dispenser, where the capsule contains at least one of a liquid and dry material to be subsequently dispensed into the liquid dispenser comprising:

a capsule body that is impervious to liquid where said capsule body has an hollow cylindrical shape;

said capsule body fitting within a opening of said liquid dispenser;

said capsule body having a top opening and a bottom opening;

said capsule body having an annular lip where the annular lip extends around the top opening and the annular lip has a larger diameter than the capsule body and a plurarity of apertures within the annular lip which allow the passage of fluid from the liquid dispenser;

said capsule body having a displaceable bottom sealing closure engaging said bottom opening in first position during a storage phase which prevents the at least one of liquid and dry material from escaping from within the capsule body; and

an elongated plunger located within said capsule body extending vertically downward engaging and displacing the bottom closure of said capsule body into a second position allowing the at least one of liquid and dry material within said capsule body to be dispensed into the liquid dispenser when desired.

2. The capsule according to claim **1**, where the elongated plunger includes a top cylindrical portion the fits within the capsule body, a pair of plunging elements and at least one elongated pluning brace, where the pair of pluning elements extend vertically downward away from the top cylindrical portion.

3. The capsule according to claim **1**, where a adhesive seals the displaceable bottom sealing closure to the bottom opening.

4. The capsule accorind to claim **1**, where a top sealing member seals the top opening of the capsule body.

5. The capsule accorind to claim **4**, where an adhesive seals the top sealing member to the top opening.

6. The capsule accoriding to claim **2**, where the pair of plunging elements are at least one of curved, semi-circular and semi-cylindirical in shape, and are tapered along the bottom in an upward direction.

7. The capsule according to claim **1**, where a portion of the bottom sealing closure remains fixed to the capsule body while in the second position.

8. The capsule according to claim **7**, where the pair of plunging elements ensure that a portion of the bottom sealing closure remains fixed to the capsule body.

* * * * *

Exhibit B

US006886686B2

(12) **United States Patent**
Anderson

(10) **Patent No.: US 6,886,686 B2**
(45) **Date of Patent: May 3, 2005**

(54) **DISPENSING CAPSULE FOR A LIQUID CONTAINER**

(76) Inventor: **Michael R. Anderson**, 1355 W. Palmetto Park Rd., No. 129, Boca Raton, FL (US) 33486

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/709,062**

(22) Filed: **Apr. 9, 2004**

(65) **Prior Publication Data**

US 2004/0188282 A1 Sep. 30, 2004

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/605,873, filed on Nov. 3, 2003, and a continuation-in-part of application No. 10/155,461, filed on May 24, 2002, now Pat. No. 6,644,471.

(51) **Int. Cl.**[7] **B65D 25/08**
(52) **U.S. Cl.** **206/219**; 206/221
(58) **Field of Search** 206/219–222, 206/568; 215/DIG. 8; 222/80, 83, 129

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5,746,313	A	*	5/1998	Wilson	206/220
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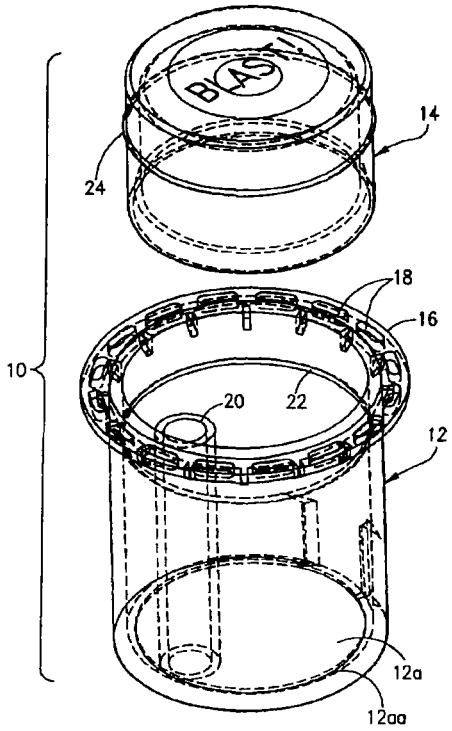
(74) *Attorney, Agent, or Firm*—Malin, Haley & DiMaggio, P.A.

(57) **ABSTRACT**

A two piece sealed capsule that is inserted into a liquid bearing container wall or neck of a bottle, said capsule being a receptacle for sealably containing a liquid and/or dry material and a dispenser for releasing the material when desired into the container. The top of the capsule is depressed manually forcing a plunger tube connected to the bottom of the capsule to rip away the bottom and side portion dispensing the material. The present invention allows the use of materials that would discolor, degrade or interact with other substances when added to the contents of the bottle, to remain stable and/or inactive until the time of use.

5 Claims, 3 Drawing Sheets



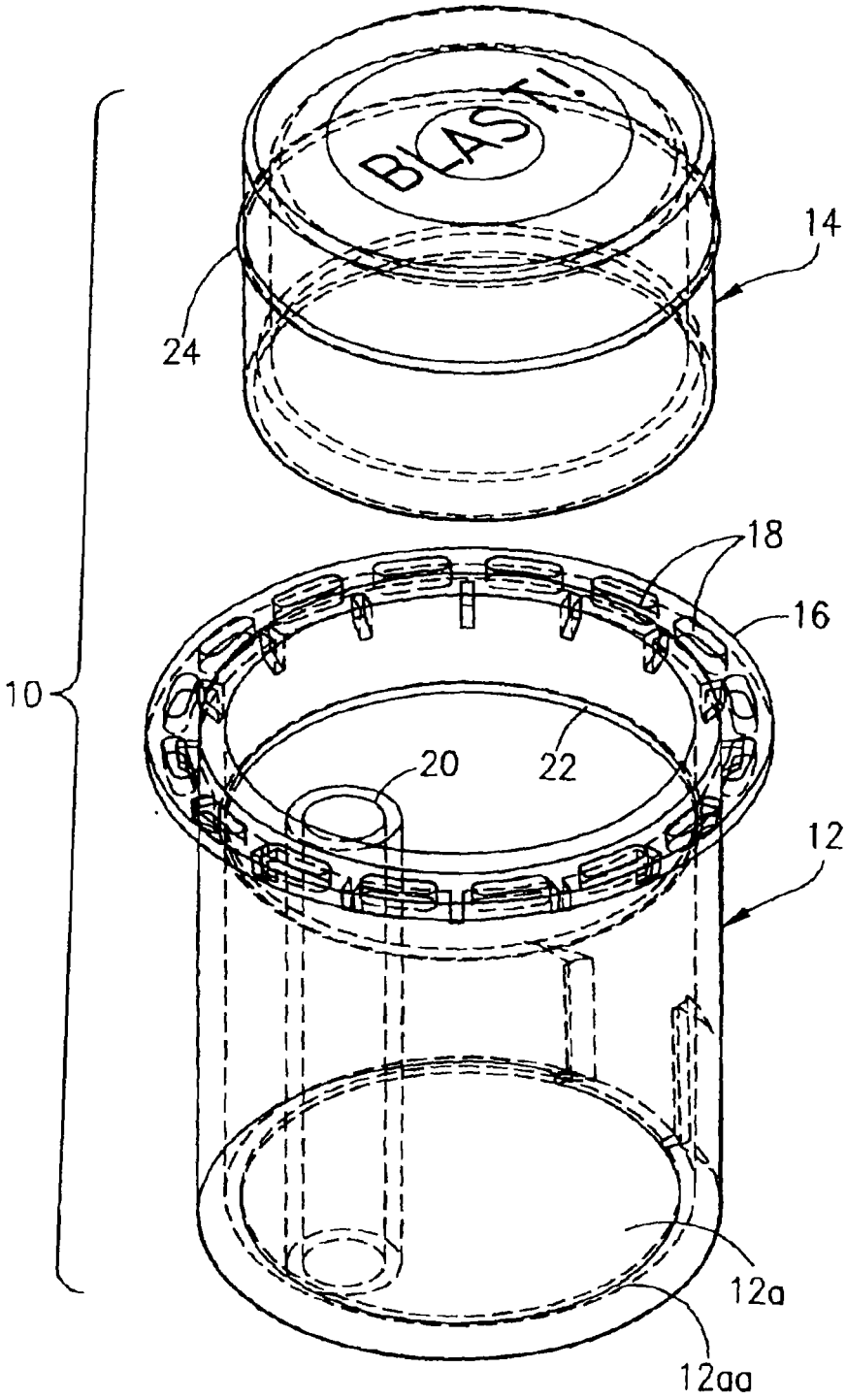


FIG. 1

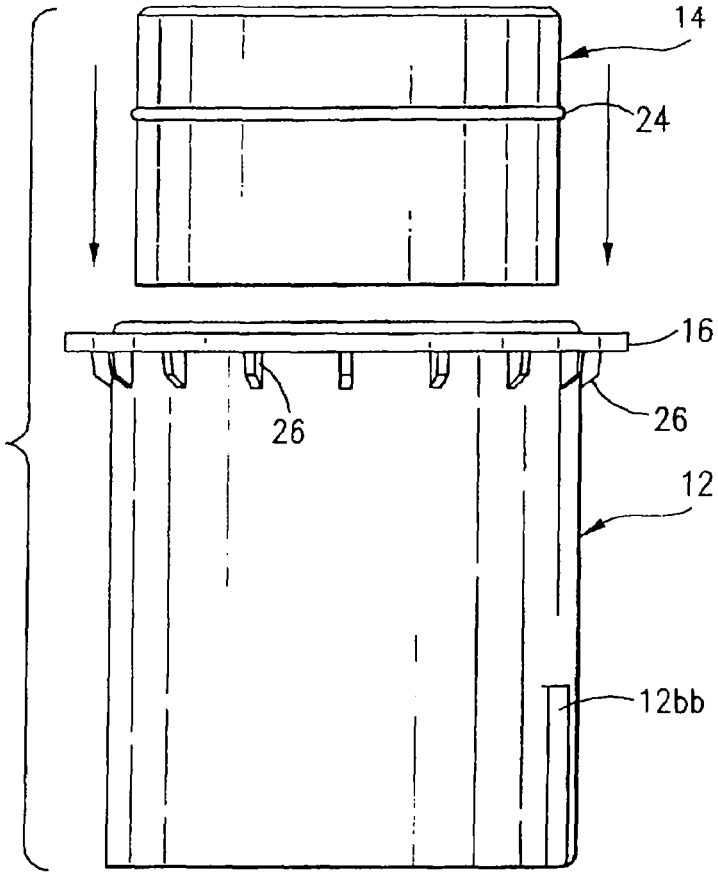


FIG. 2

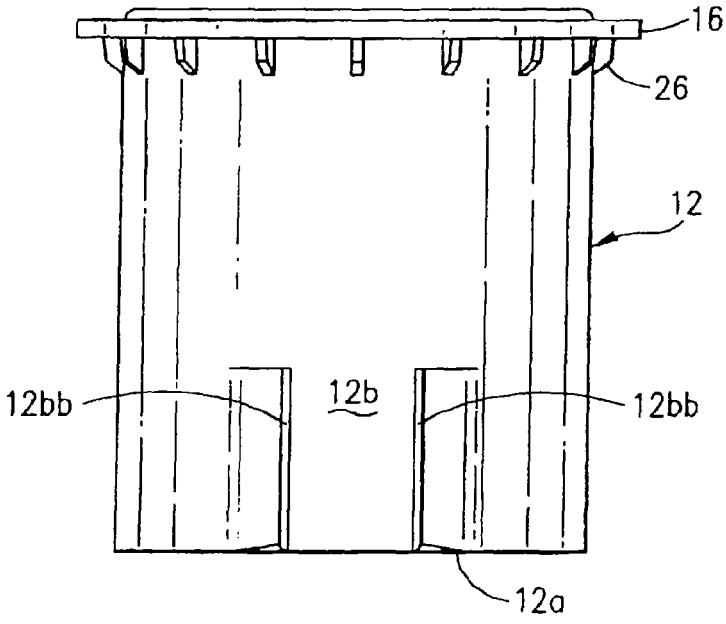


FIG. 3

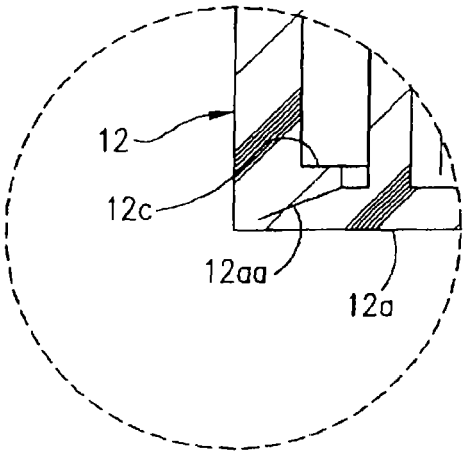
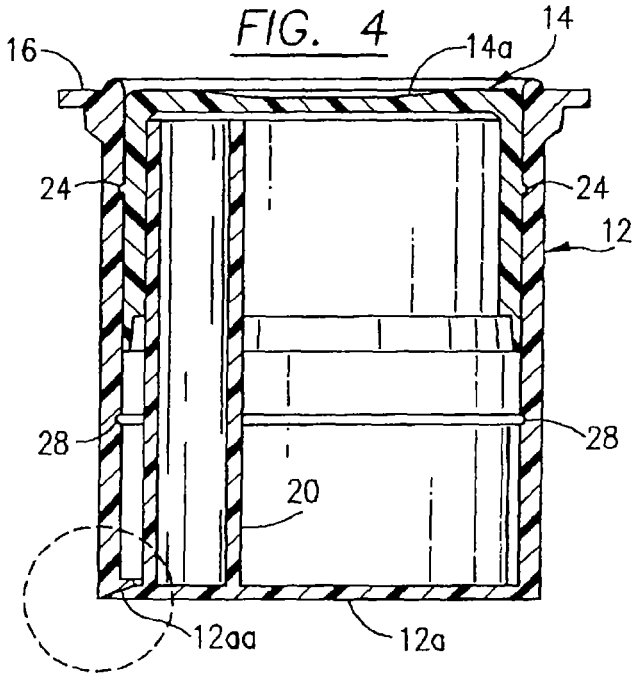


FIG. 4A

FIG. 4



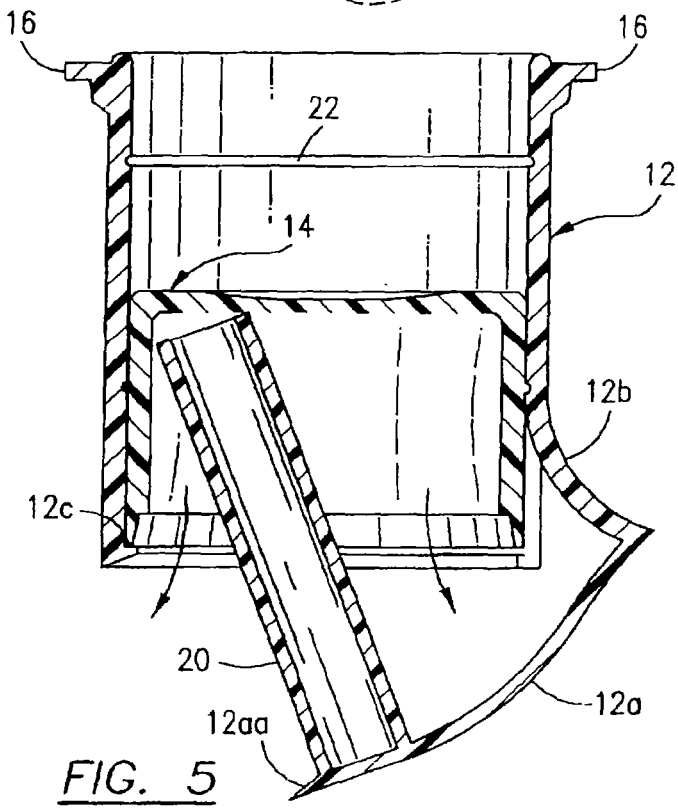


FIG. 5

DISPENSING CAPSULE FOR A LIQUID CONTAINER

This application is a continuation-in-part of U.S. Ser. No. 10/155,461 filed May 24, 2002, U.S. Pat. No. 6,644,471, and U.S. patent application Ser. No. 10/605,873 filed Nov. 3, 2003.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a liquid and/or dry ingredient dispensing capsule that is mounted to the body of a bottle, pack, pouch, carton, can or any other liquid container or inserted into the neck or into the cap. The capsule stores liquid and/or dry substances which can be rapidly dispensed into the container by manual activation when desired and the mixed contents can be thereafter readily consumed by the user.

2. Description of the Prior Art

Many foods, drugs, cosmetics, mouth washes, adhesives, polishes, cleansers, dyes and other substances are compounds or mixtures that are frequently supplied in liquid, powder or crystal form and do not retain their stability, strength and effectiveness for long after the ingredients have been mixed in solution or suspension with a different liquid. This incompatibility after mixing therefore mandates that the product be utilized relatively soon after mixture to obtain full strength benefits or to prevent loss of effective strength, deterioration, discoloration, interactions and reduce effectiveness. It is also important that admixtures of various ingredients be done under conditions wherein a measured amount of one ingredient is added to a measured amount of the other liquid or chemical to insure that proper results are obtained. The process of loss of effectiveness is often termed "shelf life." Once two different chemicals are combined, the process of deterioration often begins.

Another concern involves merchandising of certain products, where it is frequently desirable to supply two companion products to the consumer in a single package. Thus, many products are, by their very nature, required to be used by the consumer shortly after their manufacture and mixture as they lose certain desirable characteristics with a short period of time, yet the product can be stored for extended periods of time if one ingredient is maintained separate from the other. In such case, the two ingredients may be mixed together to form the desired product shortly before use. In marketing such goods, it obviously is desirable that both ingredients be sold as part of the same package. From an aesthetic as well as a handling standpoint, it is desirable that but a single package be utilized for maintaining such compounds separated.

The use of conventional liquid containers such as plastic bottles for carrying water, juices, power drinks and other desirable liquids for human consumption is quite well known. There are, however, several non-active and active substances such as activated oxygen, vitamins, minerals, herbs, nutrients and flavors that would be desirable to be added to liquids such as water, juices or other beverages to give the consumer added benefits, particularly those useful for the health of the consumer. Many of the substances, however, that provide additional benefits when mixed into another liquid have short shelf lives, discolor, interact or degrade quickly when combined with liquids or other substances. Therefore, many beverages are currently sold without the added beneficial ingredients.

It is known in the art to provide dispensers containing a concentrate of soluble materials to a fixed quantity of solute, usually water, for dispensing. Thus, the prior art teaches containers for beverages wherein the interior of the container is divided into a compartment having a basic ingredient and a compartment which can be ruptured so as to mix, within the container the basic ingredient and some form of modifier, diluent or flavoring. The basic reason for this prior art container is to provide the mixing action at the time of consumption since prior mixing would have adverse effects. The basic ingredient is often not suitable for consumption by itself and requires mixing with a diluent/modifier prior to consumption.

Prior art intra-container mixing prior to use was disclosed in U.S. Pat. No. 5,370,222 to Steigerwald comprising an open threaded container containing a liquid, a powder containing releasable receptacle sealed with foil which is cut by a cutting mandrel during screwing of the receptacle onto the container. Unlike the present invention, the Steigerwald arrangement situates a powder containing receptacle on top of rather than within the container and utilizes a cutting means rather than a two-part sealed plunger means to confine then discharge the receptacle contents.

U.S. Pat. No. 5,863,126 to Guild discloses a baby bottle fluid mixing system comprising a pre-stored powdered substance confined within a first upper container screw disposed atop a second lower container separated by an internal stemmed disk sealed in a snap fit arrangement at the aperture between the bottles, which descends into the lower bottle after removal from the aperture for use. The present invention discloses a capsule body insertable in but not screwed onto a liquid containing bottle and further comprises two sealable plugs or closures rather than one snap fit plug and a disposable, non-reusable interior mounted capsule versus top threaded reusable upper container for pre-stored dry or liquid.

Another such device for separate storage and subsequent mixing of two products was disclosed in U.S. Pat. No. 5,246,142 to DiPalma which comprised a first ingredient container, a second ingredient dispenser compartment plunger arrangement with a weakened wall region inserted within and separated from the container, a removable container closure connected to the plunger and a plunger projection for engagement which ruptures the weakened wall region to release the second ingredient into the first ingredient container. Unlike the present invention, DiPalma's singular sealing means is the reservoir for the second ingredient and fails to create upon activation an orifice for immediate dispensing of the mixed products.

U.S. Pat. No. 5,692,644 to Gueret discloses a container separately storing, then mixing and dispensing two products in which a first liquid containing bottle is separated by a movable wall from a second reservoir containing powder. Force applied to a cylindrical piston in the direction toward the dispensing orifice of the container cuts the seal between the two reservoirs, thereby facilitating the combination and mixing of the two products within the first reservoir of the container. The Gueret apparatus differs from all embodiments of the present invention in that the piston is an integral portion of the slideable base which is snapably attached to the bottle and when compressed with external manual pressure breaks the seals, pushing the contents up into the bottom portion of the liquid-containing bottle thereby accomplishing the mixing of the two products and simultaneously reducing the exterior dimensions of the bottle. The present invention dispenses the dry product without a piston or slideable base integrated within the bottle nor does the overall size of the bottle change during use.

Another separate storage and dispensing device was disclosed in U.S. Pat. No. 4,638,927 to Morane which com-

prised a bottle for liquid having at its neck a leak proof envelope separately storing and enclosing additional product, with a slidable push button perforator in the cap on the bottle neck which opens the envelope to discharge the envelope contents into the liquid in the bottle, thereafter being dispensed through a duct in the cap rather than passing through the perforated center cap area as is the case with the present invention. Morane is also not a two plug system as is the present invention.

U.S. Pat. No. 3,156,369 issued to Bowes, et al. on Nov. 10, 1964 shows a bicameral container that includes a bottle cap dispenser. No provision is made to retain the dispenser in the container to allow consumption of the mixed ingredients.

Child safety is a concern with respect to dispensing containers to ensure that the dispensing process does not entail creating small frangible items or pieces of foil or paper that could harm a child.

The cost of manufacturing must always be considered in determining whether or not a containing dispenser is practical in everyday use.

The present invention provides a liquid and/or dry ingredients containing capsule that is mounted in the body wall or inserted into any type liquid container including packs, bags, cans and plastic or glass bottles. With a bottle as an example, the capsule may be mounted typically within the neck or throat of a liquid container having a conventional screw off cap, such as a bottle of water. The capsule includes a manual dispenser. The capsule ingredients are completely sealed within the capsule body, and remain separated from the liquid in the bottle until the exact moment of usage, which is determined by the consumer by manually dispensing the capsule ingredients (powder or liquid). The capsule can also be conveniently mounted in the throat of the bottle or at the bottling factory under a standard liquid dispenser cap without interfering with the sealing of the bottle itself in its normal capping operation. The capsule can be mounted to or within any type of package or carton through the package wall at any location. Thus, active ingredients, e.g. activated oxygen, vitamins, herbs, nutrients or other substances having a short activity life (shelf life) when added to a particular liquid can now be safely and sealably stored in a capsule until time for use and can be subsequently added to the desired liquid, thereby ensuring that the shelf life and time of activity of the materials are not jeopardized even though they are housed within the liquid container. Once activated, the contents of the bottle can be consumed by the user without removing the capsule.

The present invention also offers the advantage that it does not require significant modification of existing liquid containers, packages, cartons, bottle caps or existing bottles. In fact, it can be inserted into existing bottles without interfering with the sealability of the conventional bottle and bottle cap.

The capsule may be added at the factory to a liquid bearing container and pre-mounted in the container at the factory after the container itself is partially filled with a liquid or used with an existing container. A conventional bottle cap is used to seal the bottle contents, including the capsule. The capsule can be sold separately or prepackaged in the beverage container.

None of the above prior art taken either alone or in combination, describes, suggests or renders obvious the instant invention as claimed.

SUMMARY OF INVENTION

An ingredient dispensing capsule mounted or mountable in a container for sealably containing a liquid and/or powder

materials having substantially a cylindrical liquid impervious body of any size or shape but for many cartons, packages and bottle liquid containers, sized in diameter to fit within the inside diameter of a neck or any other location of the bottle, can, carton, pouch, and the like. The capsule is comprised of two interlocking members that form a sealed capsule that is manually activated with a flow-by mounting ring to dispense the bottle contents once activated. Although the cylindrical capsule shape is preferred, any other shaped capsule could be utilized if necessary.

The first member is a cylinder having a sealed closed end and an open end surrounded by an extended annular lip having a plurality of apertures that extend beyond the cylinder wall exterior. The first member inside cylinder wall can have an annular groove below the top opening. The first member is made of a liquid impervious material such as plastic, polypropylene or polyethylene but not limited thereto. Other materials are suitable. However, the first member could also be made of metal, glass or fabric. The sealed bottom end wall of the first member is integrally molded with the cylinder wall as a single piece with the bottom end wall having a thinner annular area near its perimeter to act as a weakened fungible bottom end cap. A vertical plunger tube is molded integrally to the upper surface of the cylinder bottom end wall and is located and offset from the center of the bottom wall to a peripheral edge of the bottom wall.

The second capsule member is a cylinder having an open bottom end and a sealed closed top end. The outside diameter of the second member is less than the inside diameter of the first member, such that the second member fits inside the first member and can be manually pushed as a plunger. The perimeter defining the bottom open end of the second member cylinder formed by the cylinder wall is annular. The second member has an integral molded annular bead or seal that fits in an annular groove inside the first member cylinder wall. The plunger tube extends vertically to almost the top opening of the first member cylinder. The first member cylinder body has a cylindrical wall portion that includes an area of weakening from the bottom wall upwardly on an arc segment of the cylindrical wall approximately half way up the cylindrical wall and about 20 degrees in arc width. In addition, the bottom wall of the first member cylinder has a weakened area around its periphery and is attached as part of the cylindrical wall weakened area to act as one continuous unit of material. When the plunger tube is manually forced downwardly, the bottom wall and part of the cylinder wall separate, dispensing the contents, while remaining attached to the cylinder.

In the preferred embodiment of the invention, the second member sealably fits inside the first member in the unused position, forming a capsule with ingredients stored inside. Since both the first member and the second member are liquid impervious and the second member includes an annular bead near its closed end and the first member has an inside groove near the top of its open end, the first and second members are joined together at the factory after the ingredients which are to be dispensed are first loaded into the first member. The ingredients can be liquid or granular or powder and are placed in the first member at the factory. With the ingredients in place in the first member cylinder, the second member is inserted and fits inside the first member containing the ingredients and is pushed downwardly until the annular bead on the second member engages the first member groove that seals. Thus, the capsule has a closed top and a sealed bottom that act as a unit.

The entire capsule which includes a bottle top opening mounting ring formed by an extended annular lip around the

first member could also be mounted permanently into the wall of a carton, package, flexible container. As an example, a bottle of water can be opened by removing its cap and the capsule inserted in the neck and then the cap sealed tightly thereon. The capsule can also be firmly sealably attached through a carton or flexible liquid package wall in a sealed connection through the wall.

At the time of use, the capsule top can be manually depressed, forcing the second member downwardly manually until the plunger tube engages the second member end wall. The rigid plunger tube is forced downwardly against the first member bottom wall ripping and tearing away portions of the first member or bottom wall and side wall along the lines of weakening causing the contents, liquid or powder, to be quickly dispensed by gravity into the liquid in the bottle, which in this example contains water. The different types of ingredients and uses are extensive. Packages for hair coloring, kitchen foods such as steak and marinate or herbs, automotive products and oral tooth care products are a few examples of a variety of products that may require use of two different liquid or powder chemicals that must be separated until actual use.

Once the ingredients are thoroughly mixed with the liquid in the container, the user can drink directly from the bottle in as much as the liquid will flow out of the bottle neck through the apertures disposed in the outer perimeter lip of the first member. Note that the first member interior wall also includes a flange about a third of the way down from the top that engages the lip of the second inner member preventing the second inner member from being plunged or forced into the bottle of liquid. The plunger tube also prevents the second member from falling into the container.

One of the advantages of the present invention is that it does not require additional thin foil seals at either end. The capsule, once sealed at the factory, is self-contained and can be sold independently and later put into a liquid container, pouch, carton, jug, can or the like or can be added at the factory when the liquid is added to the bottle. The purpose of having a separate container is to extend the shelf lives of the combined ingredients contained within the capsule with the container ingredients. Many ingredients have a short shelf life once added to a liquid such as water or other drink. By having the individual capsules that are completely sealed until the time of use, the active ingredients can be kept separate from the main ingredient such as the liquid in the bottle, carton, package or container.

In an alternate embodiment of the invention, the second member closed end could be modified to have a center hole sealed by a removable foil having adhesive. The first member upper perimeter lip apertures would no longer be necessary to permit the user to pour the mixed ingredients out of the container or drink from the container. Liquid would flow through the hole in the second member once the first member bottom cap is ruptured or through a straw.

In yet another embodiment, the capsule is mounted and sealed in the body of a container or package, not at the opening. The container could be molded so that one segment of the capsule is formed with the container body. No flow-by apertures would be necessary.

In yet another embodiment, the capsule could have two or more compartments formed with dividers to separate different chemicals for dispensing from one capsule.

It is an object of the invention to provide an insertable capsule that includes active ingredients that can be readily dispensed into any type of container housing a second material at a desired time, thus not interfering with the shelf life or physical/chemical integrity of the ingredients to be combined.

It is an object of this invention to provide a liquid and/or dry ingredient bearing receptacle that includes a dispenser to allow consumers to dispense the liquid or powder into the liquid bearing container, pouch, package, carton at any time, the capsule being housed within the liquid containing container in a sealed condition.

Still another object of this invention is to provide for sanitary release of the desired ingredients from a capsule of any size or shape into a liquid-containing package at a time selected by the consumer.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with particular reference to the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** shows an exploded perspective view of the present invention.

FIG. **2** shows an exploded side elevational view of the present invention.

FIG. **3** shows a side elevational view in the direction of the lines of weakening of the invention.

FIG. **4** is a front elevational view in cross section of the invention in a non-activated mode shown without ingredients.

FIG. **4A** is a cutaway view of the bottom wall and cylinder wall intersection in cross section.

FIG. **5** is a front elevational view in cross section as the invention would appear after activation. The opposite side view would be a mirror image thereof.

DETAILED DESCRIPTION

Referring now to the drawings and in particular FIG. **1**, the present invention is shown in FIG. **1** at **10** comprised of a cylindrical water impervious plastic first member **12** having a cylindrical body that includes a sealed bottom **12***a* that is integrally formed with the cylinder **12** through a weakened wall area **12***aa* which defines the perimeter of the bottom of the first member **12**. An annular lip **16** is positioned around the top opening of the cylinder **12** and includes a plurality of apertures **18** disposed around the perimeter that extend beyond the inside wall of the first member cylinder **12**. The interior wall of first member **12** includes an annular groove **22** that receives a bead on the second member **20**. A plunger tube **20** also engages second member **14** preventing second member from falling into the container (not shown).

Referring now to FIG. **2**, the present invention is shown with the second member **14** which is cylindrical having an open bottom above the first member **12** that is used to contain ingredients that will ultimately be dispensed into another container such as a bottle or package. Second member **14** which is in effect the mechanical plunger includes an integrally formed annular bead **24** that extends above the surface of the outside cylinder wall of second member **14**. The purpose of the annular bead **24** is to seal second member **14** inside first member **12** at a predetermined location once the ingredients have been placed in second member **12**. Also note on the outside wall of first member **12**, there is a line of weakening shown represented by line **12***bb* 1on one lower area of the outside wall of first member cylinder **12**.

Also note in FIG. **2**, the extended annular lip **16** includes flow-by apertures and extends outwardly around the open top portion of first member **12**. The purpose of lip **16** is

provide a mount inside a bottle cap neck to support the entire capsule inside a bottle without the capsule **10** falling into the container. The lip **16** also includes a plurality of apertures that allow liquid to flow by the entire outside capsule body through the apertures so that a person can drink out of a container containing a liquid that has been mixed with the ingredients after the device is activated. Further mounting members **26** are radial arms protruding away from the sides of first member **12** disposed around its upper periphery.

Referring now to FIG. **3**, a front elevational view shows the entire area of weakening **12***b* which is substantially rectangular section of the curved cylindrical wall forming the cylindrical body wall for first member **12**. The purpose of the lines of weakening **12***bb* is to provide a substantial area **12***b* in the first member **12** wall that can be torn away and separated from the main body **12** when the plunger rod **20** is activated by depressing the second member **14**.

Referring now to FIGS. **4** and **4**A, the invention is shown in a non-activated disposition. What is not shown in FIG. **4** are the ingredients which would have already been provided to the inside chamber formed by the union of the first member **12** and the second member **14** which are shown in a sealed arrangement. No ingredients are shown in the embodiment in FIG. **4** even though it would normally be filled with ingredients, either powder or liquid.

Referring now to FIG. **4**A, the junction point between the side cylindrical body **12** and the bottom wall **12***a* include a line of weakening **12***aa* all the way around the base or bottom wall **12***a*.

Referring now to FIG. **5**, the invention is shown after it has been activated and the ingredients have been dispensed. It can be readily seen that second member **14** has been depressed downwardly. The second member **14** cannot be pushed any farther because of an annular lip **12***c* above the bottom weakened wall **12***a* having a diameter that is smaller than the outside diameter of second member **14**. More importantly, however, is the position of the plunger tube **20** that is integrally formed with the weakened bottom **12***a*. Because of the lines of weakening **12***a*, when the second member is depressed downwardly, the bottom wall **12***a* is ruptured separating the wall **12***a* from the cylindrical body **12** including a rectangular area **12***b* along its cylindrical wall periphery as shown in FIG. **3**. The construction prevents the bottom wall **12***a*, the plunger tube **20** and the second member **14** from accidentally falling into a container to which the entire capsule has been mounted. In this position, the container (which is not shown in FIG. **5**) can still dispense the combined ingredients through lip **16** which includes apertures allowing the combined liquid in the container to be dispensed through the top of the container or through the neck of the container.

The present invention can also be used not only in a bottle that includes a neck and a screw on cap, but installed permanently in and through the wall of any carton, container, package or bottle. In this disposition, it would not be necessary to have apertures **18** shown in FIG. **1** in the annular lip **16**. If the device is mounted through the body wall of any type of container whether it be a package, a milk carton, or any other type of liquid carton, then the entire capsule **10** would be sealed around the rim **16** to the container wall on the outside. The second member top would be visible and the major portion of the cylindrical body **16** mounted inside the particular container and its contents. In this way, once the second member is depressed and the ingredients in the capsule dispensed, the normal pouring spout of the particular container can be used for dispensing the mixed liquids.

The instant invention has been shown and described herein in what is considered to be the most practical and preferred embodiment. It is recognized, however, that departures may be made therefrom within the scope of the invention and that obvious modifications will occur to a person skilled in the art.

What is claimed is:

1. A capsule that contains liquid and/or dry material to be subsequently dispensed into a container comprising:

a capsule body that is impervious to liquid;

said capsule body, including a first member and a second member, said second member moveable mountable in said first member;

said capsule first member body having a top opening and a sealed closed bottom with lines of weakening and a vertical plunger tube connected thereto;

said second member having a sealed closed top and an open bottom; and

said first and second members in a first mode are sealed forming said capsule body preventing any liquid or dry material from escaping from the capsule body.

2. A capsule as in claim **1**, wherein:

said first member is cylindrical and said second member is cylindrical; and

the inside diameter of said first member being larger than the outside diameter of the said second member.

3. A capsule as in claim **2**, wherein:

said first member side cylindrical wall and said sealed bottom having a joined area of weakened material around its periphery, for rupture by said second member engaging said plunger tube.

4. A capsule as in claim **2**, wherein:

said first member inside wall has a sealing means that engages said second member.

5. A capsule as in claim **1**, wherein:

said second member having a removeable area to form an aperture for inserting a straw.

* * * * *

Exhibit C

US007055684B2

(12) **United States Patent**
Anderson

(10) **Patent No.: US 7,055,684 B2**
(45) **Date of Patent: *Jun. 6, 2006**

(54) **DISPENSING CAPSULE FOR A LIQUID CONTAINER**

(76) Inventor: **Michael R. Anderson**, 1355 W. Palmetto Park Rd., No. 129, Boca Raton, FL (US) 33486

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 76 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **10/709,556**

(22) Filed: **May 13, 2004**

(65) **Prior Publication Data**

US 2004/0195120 A1 Oct. 7, 2004

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/709,062, filed on Apr. 9, 2004, now Pat. No. 6,886,686, and a continuation-in-part of application No. 10/605,873, filed on Nov. 3, 2003, and a continuation-in-part of application No. 10/155,461, filed on May 24, 2002, now Pat. No. 6,644,471.

(51) **Int. Cl.**
B65D 25/08 (2006.01)

(52) **U.S. Cl.** **206/219**; 206/221

(58) **Field of Classification Search** 206/219–222, 206/568; 215/DIG. 8

See application file for complete search history.

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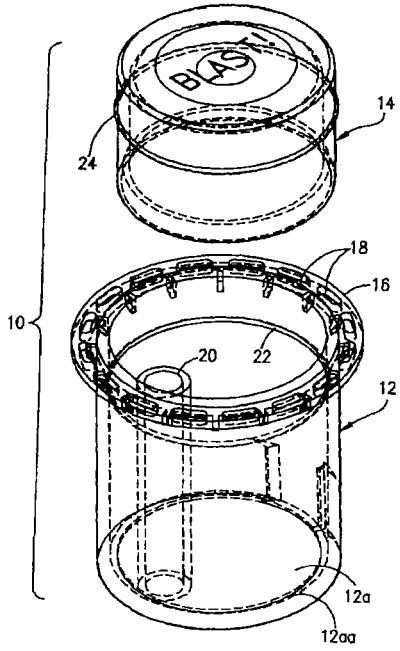
Primary Examiner—Luan K. Bui
(74) *Attorney, Agent, or Firm*—Malin, Haley & DiMaggio, P.A.

(57) **ABSTRACT**

A two piece sealed capsule that is inserted through the wall of a liquid, gel, syrup or powder bearing container said capsule being a receptacle for sealably containing a liquid and/or dry material and a dispenser for releasing the material when desired into the container. The top of the capsule is depressed manually forcing a plunger tube connected to the bottom of the capsule to rip away the bottom and side portion dispensing the material. The present invention allows the use of materials that would discolor, degrade or interact with other substances when added to the contents of the container, to remain stable and/or inactive until the time of use.

16 Claims, 9 Drawing Sheets



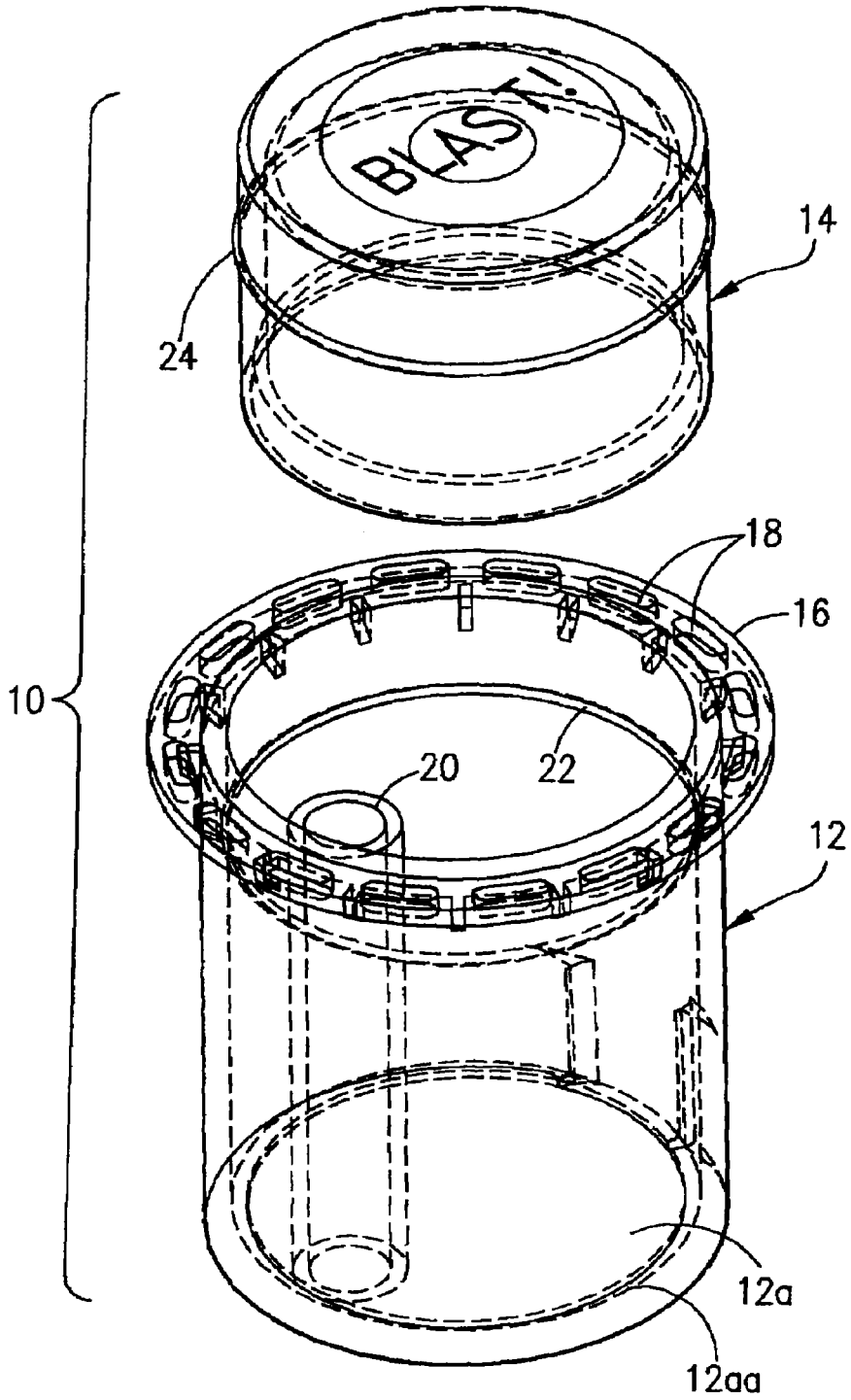


FIG. 1

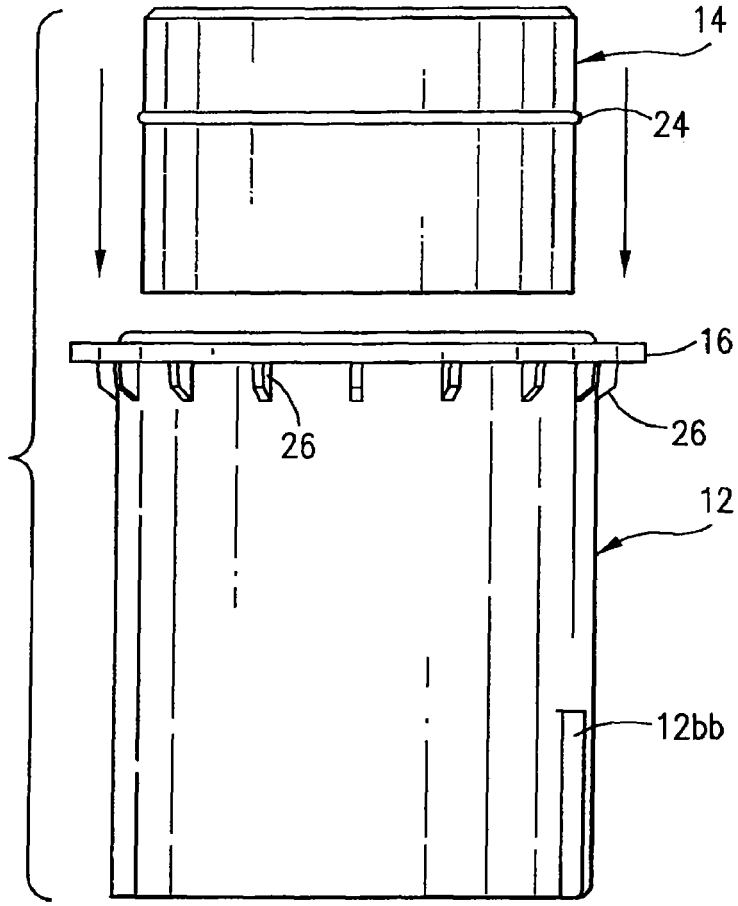


FIG. 2

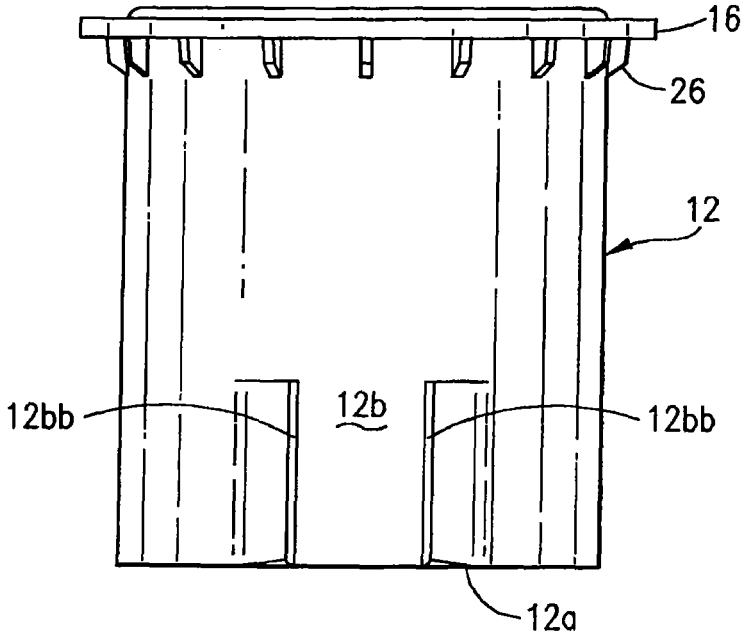


FIG. 3

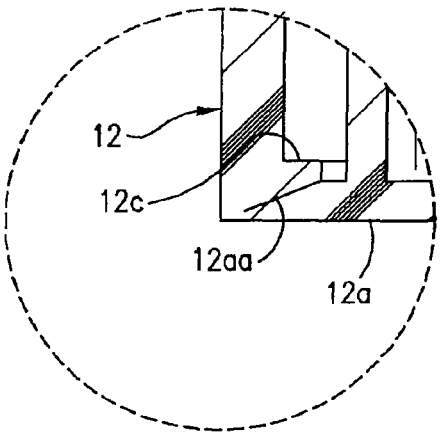
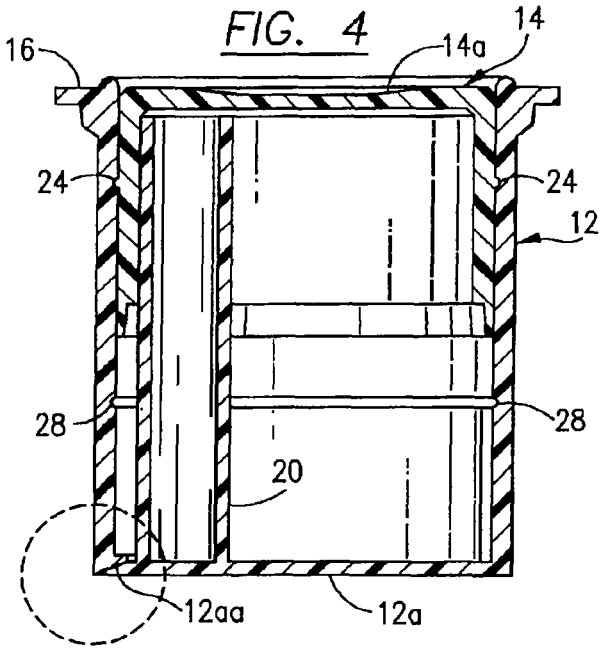


FIG. 4A

FIG. 4



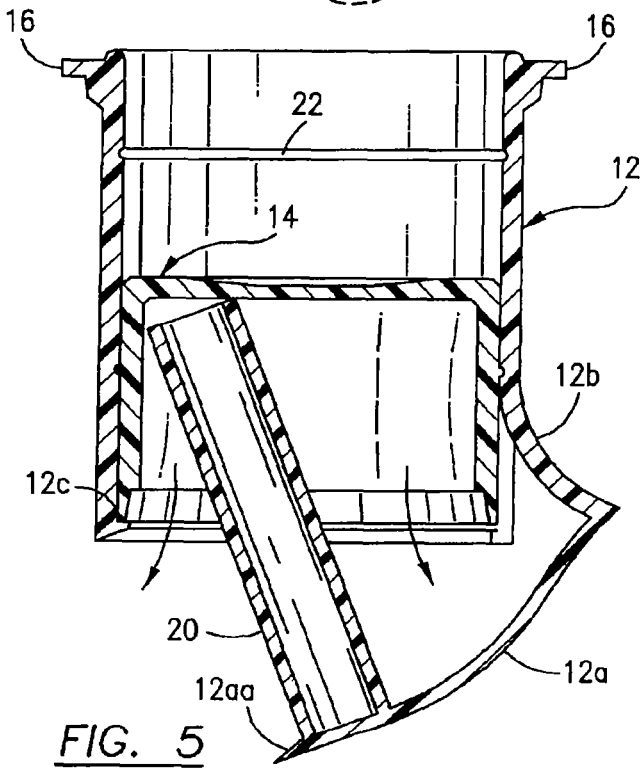


FIG. 5

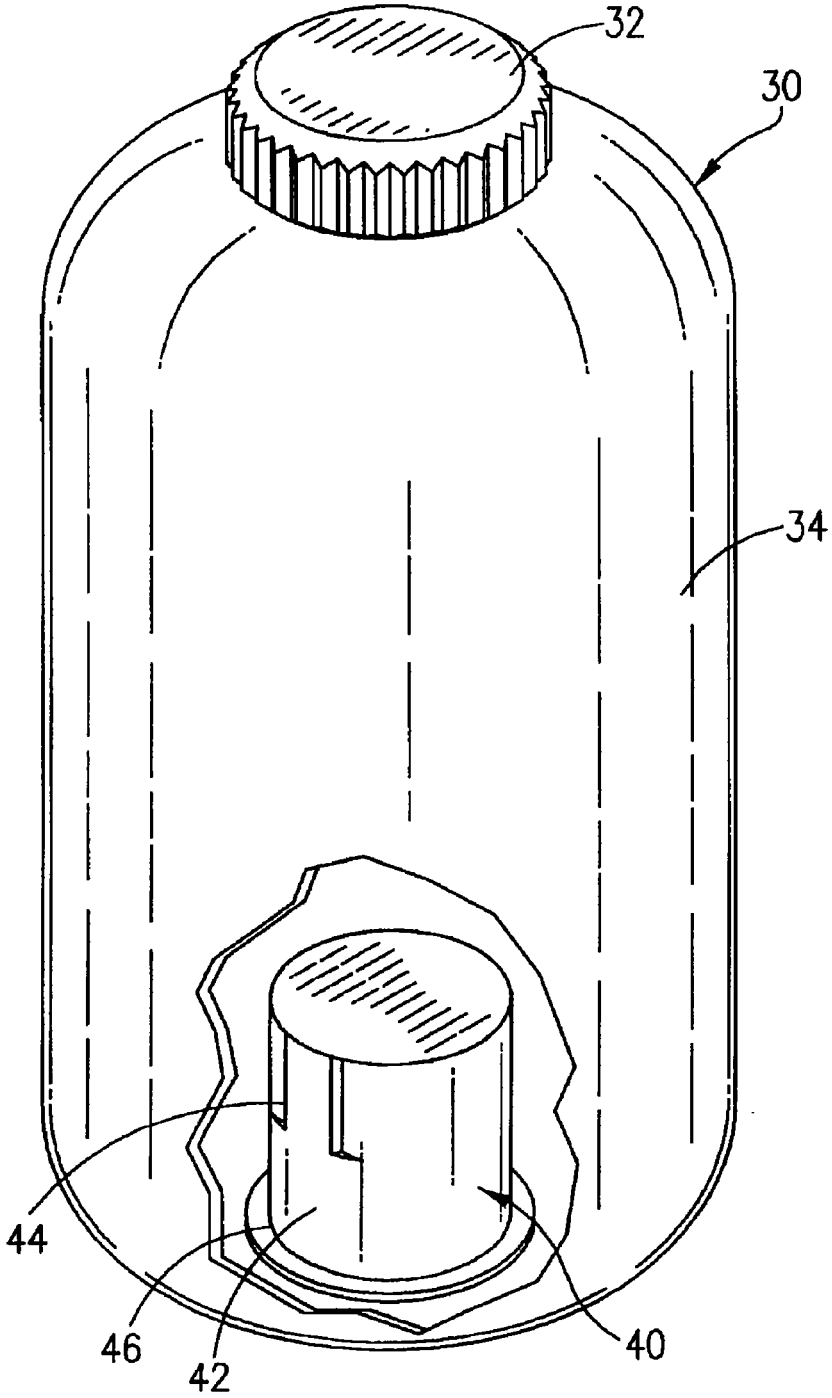


FIG. 6

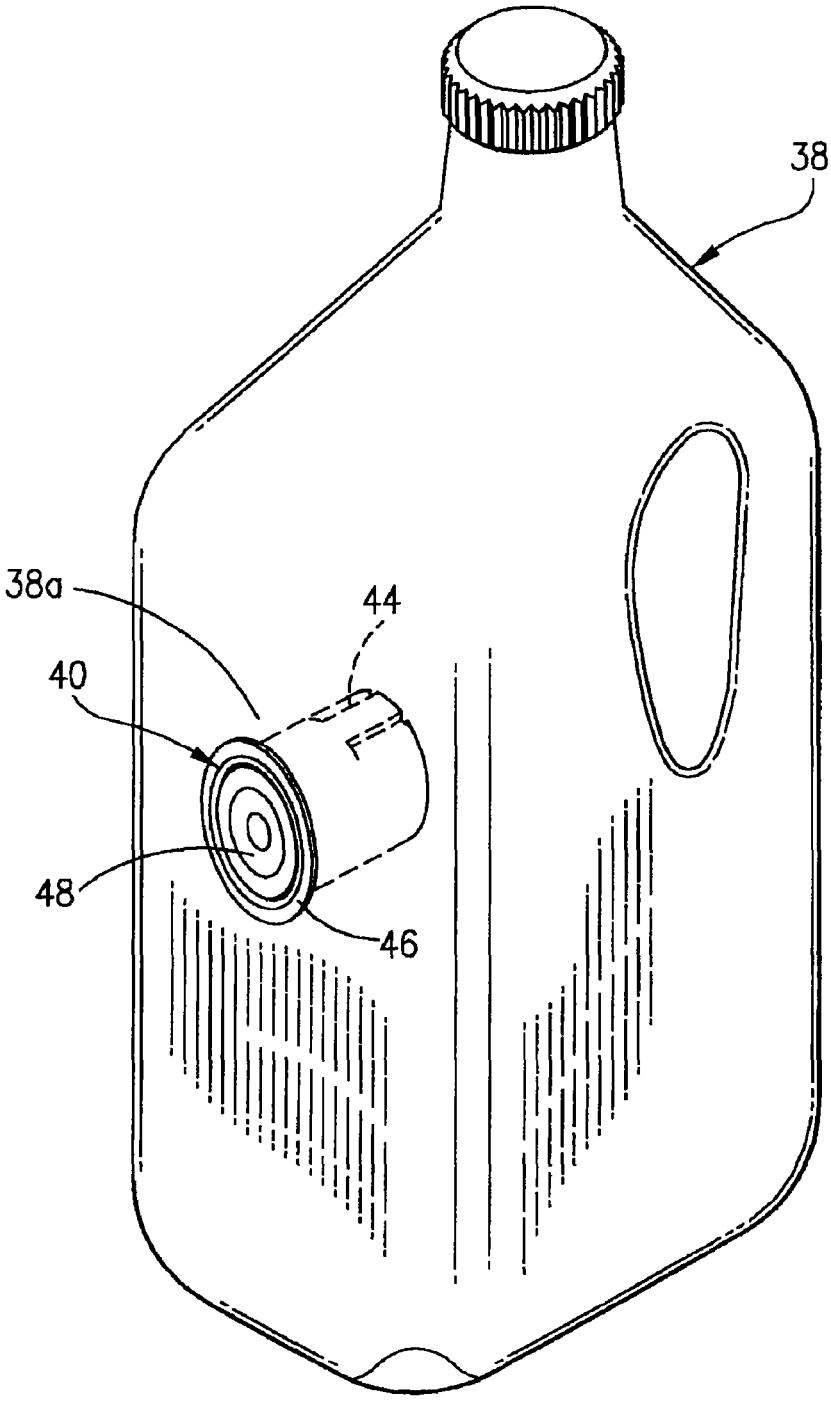


FIG. 7

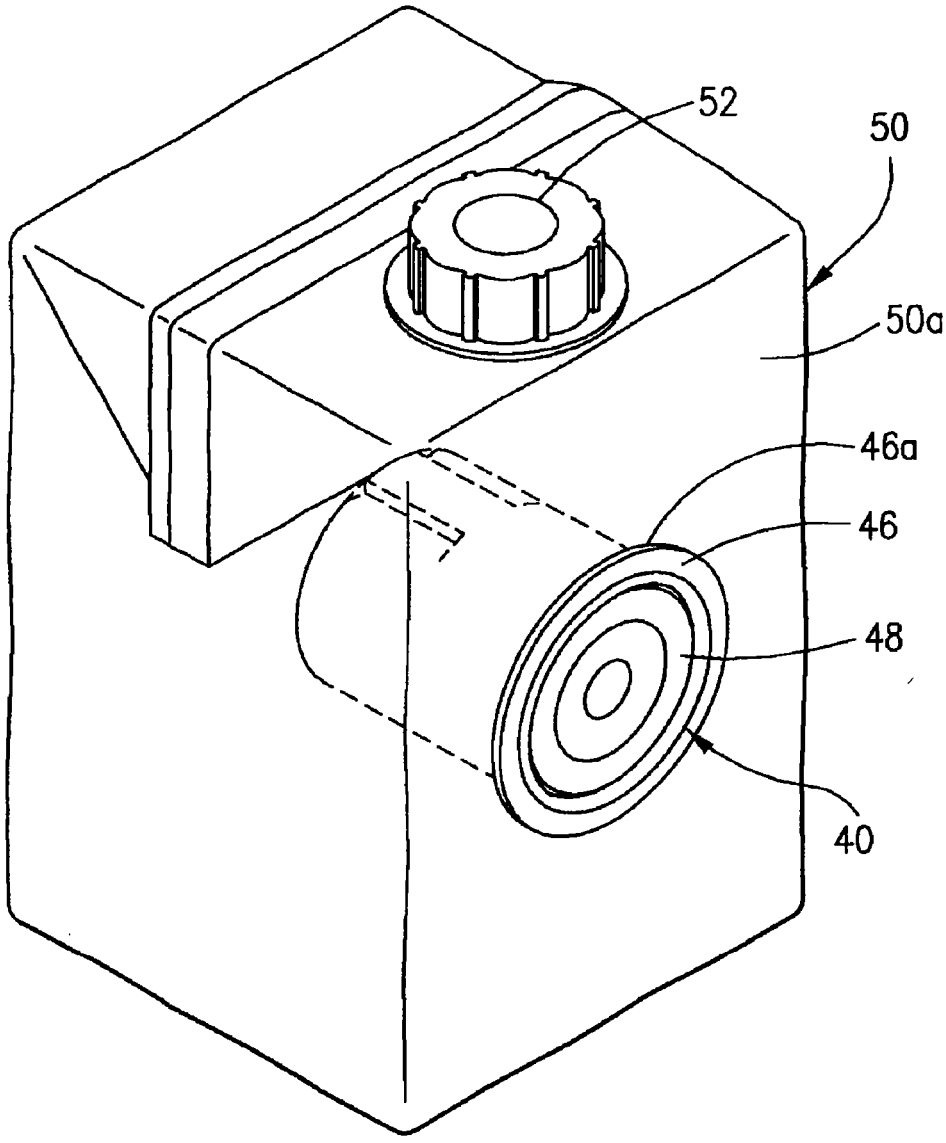


FIG. 8

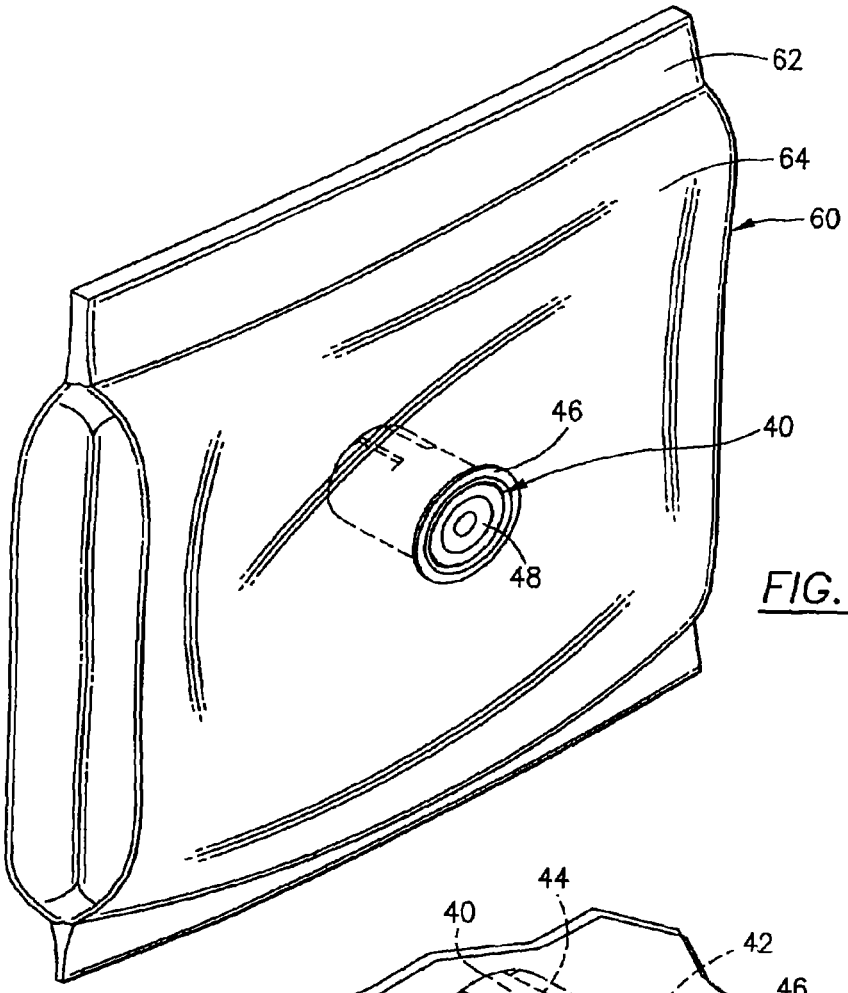


FIG. 9

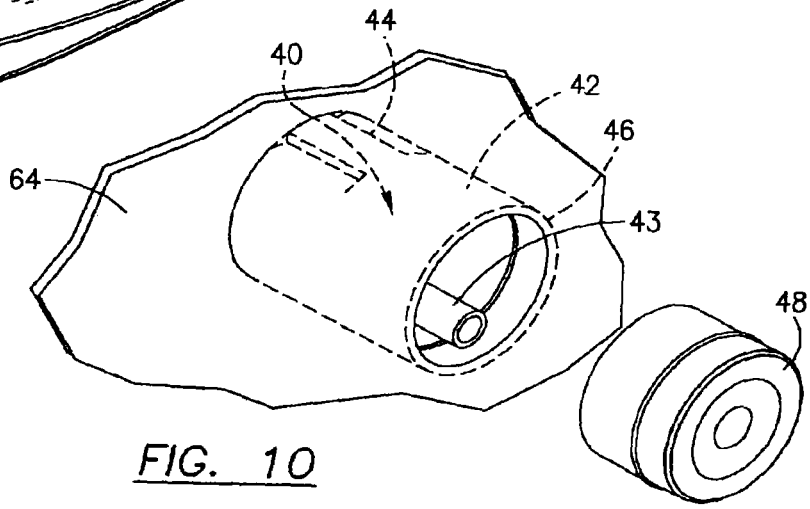


FIG. 10

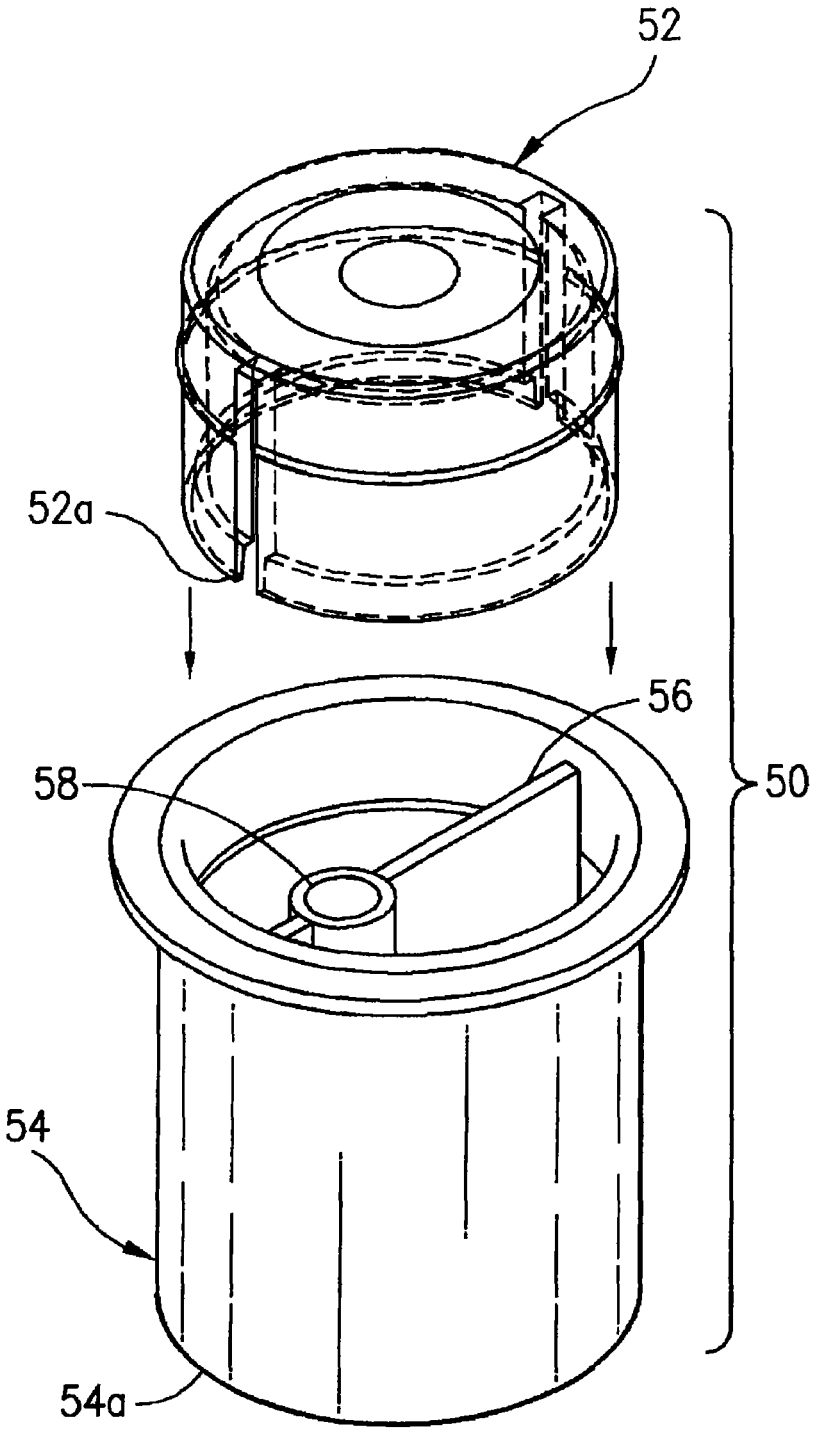


FIG. 11

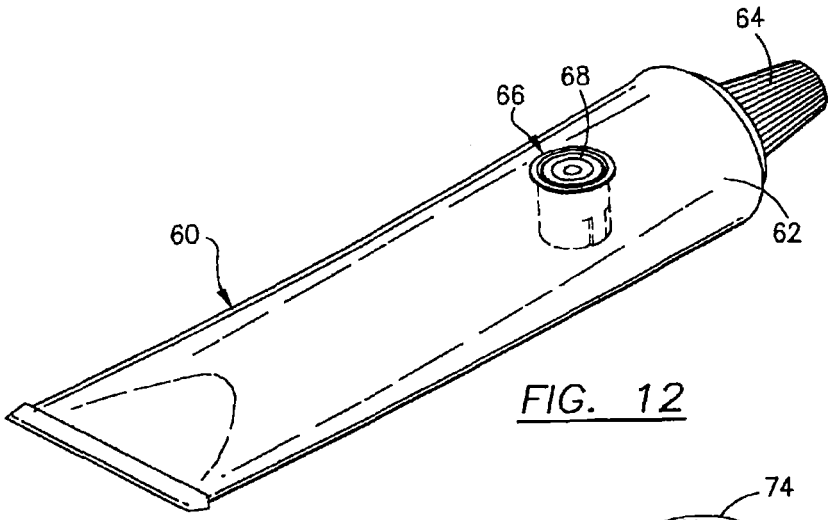


FIG. 12

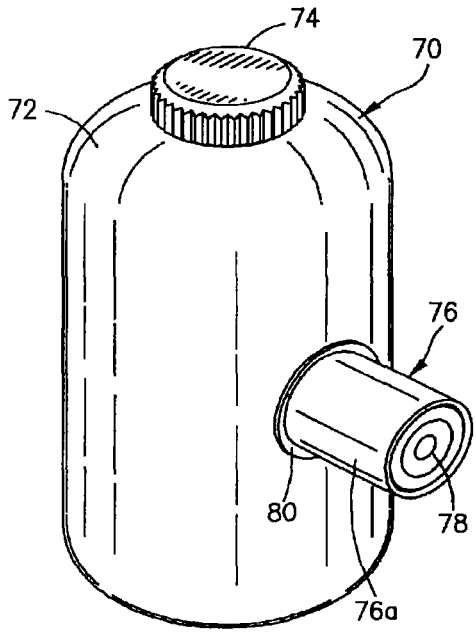


FIG. 13

DISPENSING CAPSULE FOR A LIQUID CONTAINER

This application is a continuation-in-part of U.S. Ser. No. 10/709,062, filed on Apr. 9, 2004, U.S. Pat. No. 6,886,686 and Ser. No. 10/605,873, filed on Nov. 3, 2003 and Ser. No. 10/155,461, filed on May 24, 2002, U.S. Pat. No. 6,644,471.

BACKGROUND OF INVENTION

1. Field of the Invention

This invention relates to a liquid and/or dry ingredient dispensing capsule that is mounted directly to or within the body of a bottle, pack, pouch, carton, tube, can, sealable sandwich bag, or any other liquid or gel container or, alternatively, inserted into the neck or into the cap of the container. The capsule stores liquid and/or dry substances which can be rapidly dispensed into the container by manual activation when desired and the mixed contents can be thereafter readily consumed by the user.

2. Description of the Prior Art

Many foods, drugs, cosmetics, mouth washes, adhesives, polishes, cleansers, dyes and other substances are compounds or mixtures that are frequently supplied in liquid, powder or crystal form and do not retain their stability, strength and effectiveness for long after the ingredients have been mixed in solution or suspension with a different liquid. This incompatibility after mixing therefore mandates that the product be utilized relatively soon after mixture to obtain full strength benefits or to prevent loss of effective strength, deterioration, discoloration, interactions and reduce effectiveness. It is also important that admixtures of various ingredients be done under conditions wherein a measured amount of one ingredient is added to a measured amount of the other liquid or chemical to insure that proper results are obtained. The process of loss of effectiveness is often termed "shelf life." Once two different chemicals are combined, the process of deterioration often begins.

Another concern involves merchandising of certain products, where it is frequently desirable to supply two companion products to the consumer in a single package. Thus, many products are, by their very nature, required to be used by the consumer shortly after their manufacture and mixture as they lose certain desirable characteristics with a short period of time, yet the product can be stored for extended periods of time if one ingredient is maintained separate from the other. In such case, the two ingredients may be mixed together to form the desired product shortly before use. In marketing such goods, it obviously is desirable that both ingredients be sold as part of the same package or added by the consumer. From an aesthetic as well as a handling standpoint, it is desirable that but a single package be utilized for maintaining such compounds separated.

The use of conventional liquid containers such as plastic bottles for carrying water, juices, power drinks and other desirable liquids for human consumption is quite well known. There are, however, several non-active and active substances such as activated oxygen, vitamins, minerals, herbs, nutrients and flavors that would be desirable to be added to liquids such as water, juices or other beverages to give the consumer added benefits, particularly those useful for the health of the consumer. Many of the substances, however, that provide additional benefits when mixed into another liquid have short shelf lives, discolor, interact or degrade quickly when combined with liquids or other substances. Therefore, many beverages are currently sold without the added beneficial ingredients.

Other product containers are known to include cleaning, health, hair care, hair coloring, cosmetic, drugs, pharmaceutical and dental products. These products also often contain active ingredients having a short shelf life. It would be desirable to separate certain active ingredients prior to use in these containers.

Prior art intra-container mixing prior to use was disclosed in U.S. Pat. No. 5,370,222 to Steigerwald comprising an open threaded container containing a liquid, a powder containing releasable receptacle sealed with foil which is cut by a cutting mandrel during screwing of the receptacle onto the container. Unlike the present invention, the Steigerwald arrangement situates a powder containing receptacle on top of rather than within the container and utilizes a cutting means rather than a two-part sealed plunger means to confine then discharge the receptacle contents.

U.S. Pat. No. 5,863,126 to Guild discloses a baby bottle fluid mixing system comprising a pre-stored powdered substance confined within a first upper container screw disposed atop a second lower container separated by an internal stemmed disk sealed in a snap fit arrangement at the aperture between the bottles, which descends into the lower bottle after removal from the aperture for use. The present invention discloses a capsule body insertable in but not screwed onto a liquid containing bottle and further comprises two sealable plugs or closures rather than one snap fit plug and a disposable, non-reusable interior mounted capsule versus top threaded reusable upper container for pre-stored dry or liquid.

Another such device for separate storage and subsequent mixing of two products was disclosed in U.S. Pat. No. 5,246,142 to DiPalma which comprised a first ingredient container, a second ingredient dispenser compartment plunger arrangement with a weakened wall region inserted within and separated from the container, a removable container closure connected to the plunger and a plunger projection for engagement which ruptures the weakened wall region to release the second ingredient into the first ingredient container. Unlike the present invention, DiPalma's singular sealing means is the reservoir for the second ingredient and fails to create upon activation an orifice for immediate dispensing of the mixed products.

U.S. Pat. No. 5,692,644 to Gueret discloses a container separately storing, then mixing and dispensing two products in which a first liquid containing bottle is separated by a movable wall from a second reservoir containing powder. Force applied to a cylindrical piston in the direction toward the dispensing orifice of the container cuts the seal between the two reservoirs, thereby facilitating the combination and mixing of the two products within the first reservoir of the container. The Gueret apparatus differs from all embodiments of the present invention in that the piston is an integral portion of the slideable base which is snapably attached to the bottle and when compressed with external manual pressure breaks the seals, pushing the contents up into the bottom portion of the liquid-containing bottle thereby accomplishing the mixing of the two products and simultaneously reducing the exterior dimensions of the bottle. The present invention dispenses the dry product without a piston or slideable base integrated within the bottle nor does the overall size of the bottle change during use.

Another separate storage and dispensing device was disclosed in U.S. Pat. No. 4,638,927 to Morane which comprised a bottle for liquid having at its neck a leak proof envelope separately storing and enclosing additional product, with a slidable push button perforator in the cap on the bottle neck which opens the envelope to discharge the

envelope contents into the liquid in the bottle, thereafter being dispensed through a duct in the cap rather than passing through the perforated center cap area as is the case with the present invention. Morane is also not a two plug system as is the present invention.

U.S. Pat. No. 3,156,369 issued to Bowes, et al. on Nov. 10, 1964 shows a bicameral container that includes a bottle cap dispenser. No provision is made to retain the dispenser in the container to allow consumption of the mixed ingredients.

Child safety is a concern with respect to dispensing containers to ensure that the dispensing process does not entail creating small frangible items or pieces of foil, paper, plastic, foam or other materials that could harm a child or an adult.

The cost of manufacturing must always be considered in determining whether or not a containing dispenser is practical in everyday use.

The present invention provides a liquid and/or dry ingredients containing capsule that is mounted in the body wall, formed as part of the body wall or inserted into any type liquid container including packs, bags, tubes, spray bottles, cartons, pumps and syringes, cans and plastic or glass bottles. The capsule includes a manual dispenser. The capsule ingredients are completely sealed within the capsule body, and remain separated from the liquid in the container until the exact moment of usage, which is determined by the consumer by manually dispensing the capsule ingredients (powder or liquid). The capsule can also be conveniently mounted or pre-manufactured separately at the factory and added to a container as described herein. The capsule can be mounted to or within any type of package or carton through the package wall at any location. Thus, active ingredients, e.g. activated oxygen, vitamins, herbs, nutrients, drugs, bonding agents or other substances having a short activity life (shelf life) when added to a particular liquid can now be safely and sealably stored in a capsule until time for use and can be subsequently added to the desired liquid, thereby ensuring that the shelf life and time of activity of the materials are not jeopardized even though they are housed within the liquid container. Once activated, the contents of the bottle can be used by the user without removing the capsule. The capsule can be sealably attached to a container wall and protrude on the outside of the container.

The present invention also offers the advantage that it does not require significant modification of existing liquid containers, packages, cartons, bottle caps, tubes or existing bottles. In fact, it can be inserted into existing bottles without interfering with the sealability of the conventional bottle and bottle cap through an aperture in the container wall. The invention could be used in paint cans with concentrate paint colors in the capsule that could be added to white paint. The capsule body can be molded as part of the container wall.

The capsule may be added at the factory to the neck of a liquid bearing container and pre-mounted in the container at the factory after the container itself is partially filled with a liquid or used with an existing container by the consumer. A conventional bottle cap is used to seal the bottle contents, including the capsule. The capsule with its ingredients sealed therein can be sold separately or prepackaged in any type of container.

None of the above prior art taken either alone or in combination, describes, suggests or renders obvious the instant invention as claimed.

SUMMARY OF INVENTION

An ingredient dispensing capsule mounted or mountable in a container for sealably containing a liquid and/or powder materials having substantially a cylindrical or any other shape liquid impervious body of any size or shape but for many cartons, pouches, tubes, sprays, pumps, syringes, packages and bottle liquid containers, sized in diameter to fit either within the inside diameter of a neck, or through the body of a bottle, can, drum, carton, pouch, and the like. The capsule is comprised of two interlocking members that form a sealed capsule that is manually activated to dispense the bottle contents once activated. Although the cylindrical capsule shape is preferred, any other shaped capsule could be utilized if necessary. Liquid or dry ingredients are sealably added to the capsule.

The first member is a cylinder having a sealed closed end and an open end surrounded by an extended annular lip having a plurality of apertures that extend beyond the cylinder wall exterior in one embodiment used in a bottle neck to allow the mixed contents of the bottle to be consumed by drinking out of the bottle. In the preferred embodiment, the first member annular lip does not have flow-by apertures because the capsule is sealably permanently mounted to and in the container wall at the container factory. The capsule is mounted away from the bottle neck and bottle cap opening. The cylindrical member could include a small annular lip that is heat sealed or glued within a circular hole in the container wall. The ingredients are added and the second member mounted and sealed at the bottle factory. Once activated, the mixed ingredients can be poured through the normal bottle cap opening. In an alternate embodiment, the capsule cylindrical first member could be molded as part of the container body.

The first member inside cylinder wall can have an annular groove below the top opening. The first member is made of a liquid impervious material such as plastic, polypropylene and/or polyethylene but not limited thereto. Other materials are suitable. However, the first member could also be made of some other materials. The sealed bottom end wall of the first member is integrally molded with the cylinder wall as a single piece with the bottom end wall having a thinner annular area near its perimeter to act as a weakened fungible bottom end cap. A vertical plunger tube is molded integrally to the upper surface of the first member cylinder bottom end wall and is located and offset from the center of the bottom wall to a peripheral edge of the bottom wall.

The second capsule member (plunger) is a cylinder having an open bottom end and a sealed closed top end. The outside diameter of the second member is less than the inside diameter of the first member, such that the second member fits inside the first member and can be manually pushed as a plunger. The perimeter defining the bottom open end of the second member cylinder formed by the cylinder wall is annular. The second member has an integral molded annular bead or raised seal that fits in an annular groove inside the first member cylinder wall. The plunger tube of the first member extends vertically to almost the top opening of the first member cylinder. The first member cylinder body has a cylindrical wall portion that includes an area of weakening from the bottom wall upwardly on an arc segment of the cylindrical wall approximately half way up the cylindrical wall and about 20 degrees in arc width. In addition, the bottom wall of the first member cylinder has a weakened area around its periphery and is attached as part of the cylindrical wall weakened area to act as one continuous unit of material. When the plunger tube is manually forced

downwardly by depressing eh second member (plunger), the first member bottom wall and part of the cylinder wall separate, dispensing the contents, while remaining attached to the first member cylinder and the container wall.

In the preferred embodiment of the invention, the second member sealably fits inside the first member in the unused position, forming an air tight sealed capsule with ingredients stored inside. Since both the first member and the second member are liquid impervious and the second member includes an annular bead near its closed end and the first member has an inside groove near the top of its open end, the first and second members are joined together at the factory after the ingredients which are to be dispensed are first loaded into the first member. The ingredients can be liquid and/or granular, gels, powder, micro-encapsulation or combinations thereof and are placed in the first member at the factory. With the ingredients in place in the first member cylinder, the second member (plunger) is inserted and fits inside the first member containing the ingredients and is pushed downwardly until the annular bead on the second member engages the first member groove that seals. Thus, the capsule has a closed top (plunger) and a sealed bottom (cylinder) that act as a sealed unit with ingredients.

The entire capsule is mounted and sealed permanently onto, through or into the wall of a carton, bottle, package, or flexible or non-flexible container of any type. The capsule is firmly permanently sealably attached through a carton or flexible liquid package wall in a sealed connection.

At the time of use, the capsule second member (plunger) can be manually depressed, forcing the second member downwardly manually until the plunger tube of the first member engages the second member end wall. The rigid plunger tube is forced by depressing the second member downwardly against the first member bottom wall ripping and tearing away portions of the first member or bottom wall and side wall along the lines of weakening causing the contents to be quickly dispensed by gravity into the liquid in the container.

The different types of ingredients and uses are extensive. Packages for hair coloring, kitchen foods such as steak and marinate or herbs, automotive products, cleaning products, drugs and oral tooth care products are a few examples of a variety of products that may require use of two different liquid or powder chemicals that must be separated until actual use.

Once the ingredients are thoroughly mixed with a liquid in the container, the user can drink or pour directly from the container inasmuch as the capsule is mounted away from the container neck and opening and container cap allowing the mixed ingredients to pour, spray, pump or squeeze freely through the container opening. Note that the first member interior wall also includes a flange about a third of the way down from the top that engages the lip of the second member preventing the second member from being plunged or forced into the container and stopping the mixed ingredients from leaking back out of the container. The plunger tube also prevents the second member from falling into the container.

One of the advantages of the present invention is that it does not require additional thin foil seals at either end. The capsule, once sealed at the factory, is self-contained and can be sold independently and later put into a liquid container, pouch, carton, jug, can or the like or can be added at the factory when the liquid is added to any type of container. The purpose of having a separate containers is to extend the shelf lives of the combined ingredients contained within the capsule with the container ingredients. Many ingredients have a short shelf life once added to a liquid such as water or other drink. By having the individual capsules that are completely sealed until the time of use, the active ingredients can be kept separate from the main ingredient such as the liquid in the bottle, carton, package or container.

In an alternate embodiment of the invention, the second member (plunger) closed end could be modified to have a center hole for use with a drinking straw sealed by a removable cover having adhesive or any other type seal. The first member upper perimeter lip apertures would no longer be necessary to permit the user to pour the mixed ingredients out of the container or drink from the container with a drinking straw. Liquid could flow through the hole in the second member once the first member bottom cap is ruptured or through a straw.

In the preferred embodiment, the capsule is sealably mounted and sealed to the body of a container or package, not inserted at the cap opening. The container could be molded so that one segment of the capsule is formed with the container body. No flow-by annular lip apertures would be necessary. The capsule could also protrude from the container body.

The capsule can be manufactured of any type material or combination of materials.

In yet another embodiment, the capsule could have two or more compartments formed with dividers to separate different chemicals for dispensing from one capsule.

It is an object of the invention to provide an insertable or permanently mounted capsule that includes active or non-active ingredients that can be readily dispensed into any type of container housing a second different ingredient at a desired time, thus not interfering with the shelf life or physical/chemical integrity of the ingredients to be combined.

It is an object of this invention to provide a liquid and/or dry ingredient bearing receptacle that includes a dispenser to allow consumers to dispense the liquid, gel, syrups or powder into the liquid bearing container, pouch, package, carton at any time, the capsule being housed within the liquid containing container in a sealed condition.

Still another object of this invention is to provide for sanitary release of the desired ingredients from a capsule of any size or shape into a liquid-containing package at a time selected by the consumer.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with particular reference to the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** shows an exploded perspective view of the present invention.

FIG. **2** shows an exploded side elevational view of the present invention.

FIG. **3** shows a side elevational view in the direction of the lines of weakening of the invention.

FIG. **4** is a front elevational view in cross section of the invention in a non-activated mode shown without ingredients.

FIG. **4A** is a cutaway view of the bottom wall and cylinder wall intersection in cross section.

FIG. **5** is a front elevational view in cross section as the invention would appear after activation. The opposite side view would be a mirror image thereof.

FIG. **6** is a perspective view of the preferred embodiment of the invention as mounted in the bottom of a bottle.

FIG. **7** is a perspective view of the preferred embodiment of the invention mounted in a plastic milk container.

FIG. **8** is a perspective view of the preferred embodiment of the invention mounted in a paper like liquid container.

FIG. **9** is a perspective view of the preferred embodiment of the invention mounted in a package containing a liquid.

FIG. **10** is a cutaway exploded view of a capsule first member integrally molded in the body of a container and the plunger shown exploded above.

FIG. **11** is an exploded view of a first member of an alternate embodiment that has a capsule with two separate compartments in one capsule.

FIG. **12** is a tube showing the present invention.

FIG. **13** is an alternate embodiment of the invention having a capsule mold or sealably attached and protruding from the container body.

DETAILED DESCRIPTION

Referring now to the drawings and in particular FIG. **1**, the present invention is shown in FIG. **1** at **10** comprised of a cylindrical water impervious plastic first member **12** having a cylindrical body that includes a sealed bottom **12***a* that is integrally formed with the cylinder **12** through a weakened wall area **12***aa* which defines the perimeter of the bottom of the first member **12**. An annular lip **16** is positioned around the top opening of the cylinder **12** and includes a plurality of apertures **18** disposed around the perimeter that extend beyond the inside wall of the first member cylinder **12**. The interior wall of first member **12** includes an annular groove **22** that receives a bead on the second member **20**. A plunger tube **20** also engages second member **14** preventing second member from falling into the container (not shown).

Referring now to FIG. **2**, the present invention is shown with the second member **14** which is cylindrical having an open bottom above the first member **12** that is used to contain ingredients that will ultimately be dispensed into another container such as a bottle or package. Second member **14** which is in effect the mechanical plunger includes an integrally formed annular bead **24** that extends above the surface of the outside cylinder wall of second member **14**. The purpose of the annular bead **24** is to seal second member **14** inside first member **12** at a predetermined location once the ingredients have been placed in second member **12**. Also note on the outside wall of first member **12**, there is a line of weakening shown represented by line **12***bb* on one lower area of the outside wall of first member cylinder **12**.

Also note in FIG. **2**, the extended annular lip **16** includes flow-by apertures and extends outwardly around the open top portion of first member **12**. The purpose of lip **16** is provide a mount inside a bottle cap neck to support the entire capsule inside a bottle without the capsule **10** falling into the container. The lip **16** also includes a plurality of apertures that allow liquid to flow by the entire outside capsule body through the apertures so that a person can drink out of a container containing a liquid that has been mixed with the ingredients after the device is activated. Further mounting members **26** are radial arms protruding away from the sides of first member **12** disposed around its upper periphery.

Referring now to FIG. **3**, a front elevational view shows the entire area of weakening **12***b* which is substantially rectangular section of the curved cylindrical wall forming the cylindrical body wall for first member **12**. The purpose of the lines of weakening **12***bb* is to provide a substantial area **12***b* in the first member **12** wall that can be torn away and separated from the main body **12** when the plunger rod **20** is activated by depressing the second member **14**.

Referring now to FIGS. **4** and **4**A, the invention is shown in a non-activated disposition. What is not shown in FIG. **4** are the ingredients which would have already been provided to the inside chamber formed by the union of the first member **12** and the second member **14** which are shown in a sealed arrangement. No ingredients are shown in the embodiment in FIG. **4** even though it would normally be filled with ingredients, either powder or liquid.

Referring now to FIG. **4**A, the junction point between the side cylindrical body **12** and the bottom wall **12***a* include a line of weakening **12***aa* all the way around the base or bottom wall **12***a*.

Referring now to FIG. **5**, the invention is shown after it has been activated and the ingredients have been dispensed. It can be readily seen that second member **14** has been depressed downwardly. The second member **14** cannot be pushed any farther because of an annular lip **12***c* above the bottom weakened wall **12***a* having a diameter that is smaller than the outside diameter of second member **14**. More importantly, however, is the position of the plunger tube **20** that is integrally formed with the weakened bottom **12***a*. Because of the lines of weakening **12***a*, when the second member is depressed downwardly, the bottom wall **12***a* is ruptured separating the wall **12***a* from the cylindrical body **12** including a rectangular area **12***b* along its cylindrical wall periphery as shown in FIG. **3**. The construction prevents the bottom wall **12***a*, the plunger tube **20** and the second member **14** from accidentally falling into a container to which the entire capsule has been mounted. In this position, the container (which is not shown in FIG. **5**) can still dispense the combined ingredients through lip **16** which includes apertures allowing the combined liquid in the container to be dispensed through the top of the container or through the neck of the container.

Referring now to FIG. **6**, a plastic bottle or container **30** is shown that has a conventional screw on bottle cap **32**. The body **34** of the container **30** can be constructed of plastic or other liquid impervious material. The contents of the container **30** could be a liquid such as water or other type of drink. Mounted in the bottom of the container **30** is capsule **40** containing a powder or liquid to be dispensed into container **30** at the appropriate time. The capsule **40** is heat fused around annular ring **46** which does not have any apertures as shown in the previous embodiments in FIGS. **1** through **5**. The solid annular ring **46** is heat sealed or glued at the factory to the container **30** bottom through an aperture in the bottom. The cylindrical body **42** of capsule **40** could also be molded integrally with the container **30**. The lines of weakening **44** are shown in capsule **40** and work as discussed previously in FIGS. **1** through **5** herein. The capsule top (plunger), not shown in FIG. **6**, can be depressed from the bottom, tearing open the bottom of the capsule **40** and the lines of weakening **44**, dispensing whatever materials are in capsule **40** at the appropriate time. At that time, the entire contents of container **30** including the dispensed material from capsule **40** can be poured out of container **30** through the opening covered by the screw on cap **32**.

Referring now to FIG. **7**, a conventional plastic container such as milk container **38** is shown that has capsule **40** connected through one wall **38***a* of container **38** by heat sealing or gluing annular ring **46** to wall **38***a* through an aperture in the wall. The second member (plunger) **48** is shown that can be manually depressed causing the contents in capsule **40** to be dispensed into the container **38**.

FIG. **8** shows a liquid carton **50** that can hold a variety of liquids. The carton **50** has a conventional screw off top **52** and a cube-like body made from waterproof paper, plastic or other types of materials to constitute a fold up sealed carton **50**. Mounted through one wall **50***a* is capsule **40**. The annular ring or lip **46** is sealably heat sealed or glued or appropriately attached to wall **50***a* of carton **50** at **46***a* through an aperture in wall **50***a*. The capsule second member (plunger) **48** can be depressed, dispensing powder or liquid contents from capsule **40** into carton **50**. The capsule **40** is mounted with the capsule body inside container **50** mounted through a hole in wall **50***a* and sealed or glued to the wall **50***a*. The contents of the capsule **40** is loaded at the factory with liquid or powder and the capsule top (plunger) **48** is sealed to the capsule body.

FIG. **9** shows a flexible liquid impervious pouch **60** that can be plastic, paper or other waterproof or liquid-proof material that is sealed and openable along the top **62**. Sealably mounted in the sidewall **64** is capsule **40** along the annular lip **46** by glue or heat seal. The capsule top (plunger) **48** can be activated to dispense the contents of capsule **40** into the container **60**.

Referring now to FIG. **10**, the capsule **40** is shown mounted in wall **64** by heat sealing along the annular lip **46**. The capsule top (plunger) **48** is shown exploded as a separate element as described in FIG. **1** through **5** herein. The sealing action of the plunger **48** is as described above. Because the pouch in FIG. **9** can be opened along the top edge portion **62**, the materials once dispensed inside pouch **60** can be mixed and dispensed through the top opening **62**. Therefore, if the capsule is mounted in one of the wall of a container body and not used in the conventional neck or opening of the container, there is no need for apertures in the annular lip **46** that were necessary to allow liquid to flow through the neck of a bottle. In the embodiments shown in FIGS. **6** through **9**, the annular lip **46** is solid and is attached permanently. The lip **46** is sealed to prevent liquid from leaking from a container around the capsule cylinder.

Referring now to FIG. **11**, an alternate embodiment of the present invention is shown in which the capsule **50** is comprised of first member **54** and second member (plunger) **52**. The first member **54** is a cylinder that includes an interior wall **56** that is mounted across the inside of the first member **54** diametrically forming a separation wall **56** to separate two separate ingredients that can be inserted into first member **54** at the factory. Thus, two different active ingredients can be contained in the same capsule **54**. The plunger rod **58** can form part of the wall in the molding process and acts as described above. The second member (plunger) **52** includes slotted walls **52***a* diametrically opposed that allow the second member **52** to slide downward for sealing inside the first member **54** at the factory. The second member **52** is a plunger and can be pushed downwardly to tear away the lines of weakening in the bottom **54***a* of the capsule so that both ingredients are dispensed at the same time.

Referring now to FIG. **12**, another alternate embodiment of the invention is shown in which a squeezable tube **60** similar to a toothpaste tube having a tube body **62** made of a resilient or squeezable material includes a removable cap **64**. Sealed through one wall **62** of tube **60** is a capsule **66** that has a second member (plunger) **68** for activating a second material put in capsule **66**. If tube **62** contains toothpaste, capsule **66** could contain whitener that should not be activated until time of use. This would greatly extend the shelf life of toothpaste or any other ingredient that can be placed in a squeezable tube.

FIG. **13** shows yet another alternate embodiment of the invention. A conventional plastic container **72** having a removable cap **74** includes a capsule **76** that is heat sealed or glued through a hole along glue line **80** in the wall **72**. The second member (plunger) **78** can be manually depressed to dispense the ingredients. The first member **76***a* is cylindrical with a bottom wall having lines of weakening as described above with respect to the capsule invention. Thus, the capsule **76** as described in the invention herein is thus physically attached and mounted to a hole in wall **72**. In yet another embodiment, portions of the first member of the capsule **76** could be pre-molded as part of the container **70** including lines of weakening and the plunger rod as described herein.

Thus, as shown, the capsule **40** can be a separately mounted within the neck of a bottle or can be permanently affixed and sealed as part of the wall of any container for dispensing. When placed in the neck of a container opening, the container inside neck wall and the capsule can have snap in grooves and rings to make the capsule unremoveable.

The instant invention has been shown and described herein in what is considered to be the most practical and preferred embodiment. It is recognized, however, that departures may be made therefrom within the scope of the invention and that obvious modifications will occur to a person skilled in the art.

What is claimed is:

1. A capsule connected through a container wall that contains a substance to be subsequently dispensed into a container comprising:

a container for liquids having a container wall;

a capsule body that is impervious to liquid connected through said container wall;

said capsule body, including a first member and a second member, said second member moveable mountable in said first member;

said capsule first member body having a top opening and a sealed closed bottom with lines of weakening and a vertical plunger tube connected thereto;

said second member having a sealed closed top and an open bottom forming a plunger; and

said first and second members in a first mode are sealed together forming said capsule body preventing any liquid or dry material from escaping from the capsule body; and

said second member sized in length to engage said plunger tube when depressed to displace material in said capsule.

2. A capsule as in claim **1**, wherein:

said first member is cylindrical and said second member is cylindrical; and

the inside diameter of said first member being larger than the outside diameter of the said second member.

3. A capsule as in claim **2**, wherein:

said first member side cylindrical wall and said sealed bottom having a joined area of weakened material around its periphery, for rupture by said second member engaging said plunger tube.

4. A capsule as in claim **2**, wherein:

said first member inside wall has a sealing means that engages said second member.

5. A capsule as in claim **1**, wherein:

said second member having a removeable area to form an aperture for inserting a straw.

6. A capsule as in claim **1**, including:

the capsule body having a first member that is integrally molded as part of the container with the container wall.

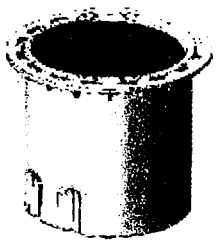
7. A capsule as in claim 6, wherein:
the first member capsule body is integrally molded and protruding outwardly from said container wall.
8. A capsule as in claim 1, wherein:
said container is tubularly shaped and is made from a squeezable material.
9. A capsule as in claim 1, wherein:
said container is shaped like a conventional milk container.
10. A capsule as in claim 1, wherein:
said container is a baby bottle.
11. A capsule connected through a container wall that contains a substance to be subsequently dispensed into a container comprising:
a container for liquids having a container wall;
a capsule body that is impervious to liquid connected through said container wall;
said capsule body including a cylindrical first member and a cylindrical second member with said second member moveably mountable in said first member;
wherein the inside diameter of said first member is larger than the outside diameter of the said second member;
said capsule first member body having a side cylindrical wall, an inside wall, a top opening, and a sealed closed bottom with lines of weakening and a vertical plunger tube connected thereto;
wherein said first member side cylindrical wall and said sealed bottom have a joined area of weakened material around their periphery for rupture by said second member engaging said plunger tube;
wherein said first member inside wall has a sealing means that engages said second member;
said second member having a sealed closed top and an open bottom forming a plunger;
wherein said second member has a removeable area to form an aperture for inserting a straw; and
said first and second members in a first mode are sealed together forming said capsule body preventing any liquid or dry material from escaping from the capsule body; and
said second member sized in length to engage said plunger tube when depressed to displace material in said capsule.
12. The capsule of claim 11, wherein the capsule body has a first member that is integrally molded as part of the container with the container wall.
13. The capsule of claim 12, wherein the first member capsule body is integrally molded with and protrudes outwardly from said container wall.
14. The capsule of claim 11, wherein said container is tubular in shape and is made from a squeezable material.
15. The capsule of claim 11, wherein said container is shaped like a conventional milk container.
16. The capsule of claim 11, wherein said container is a baby bottle.

* * * * *

Exhibit D

Beverage Blast Caps

The Real Way Of Making A Fresh Active Drink.



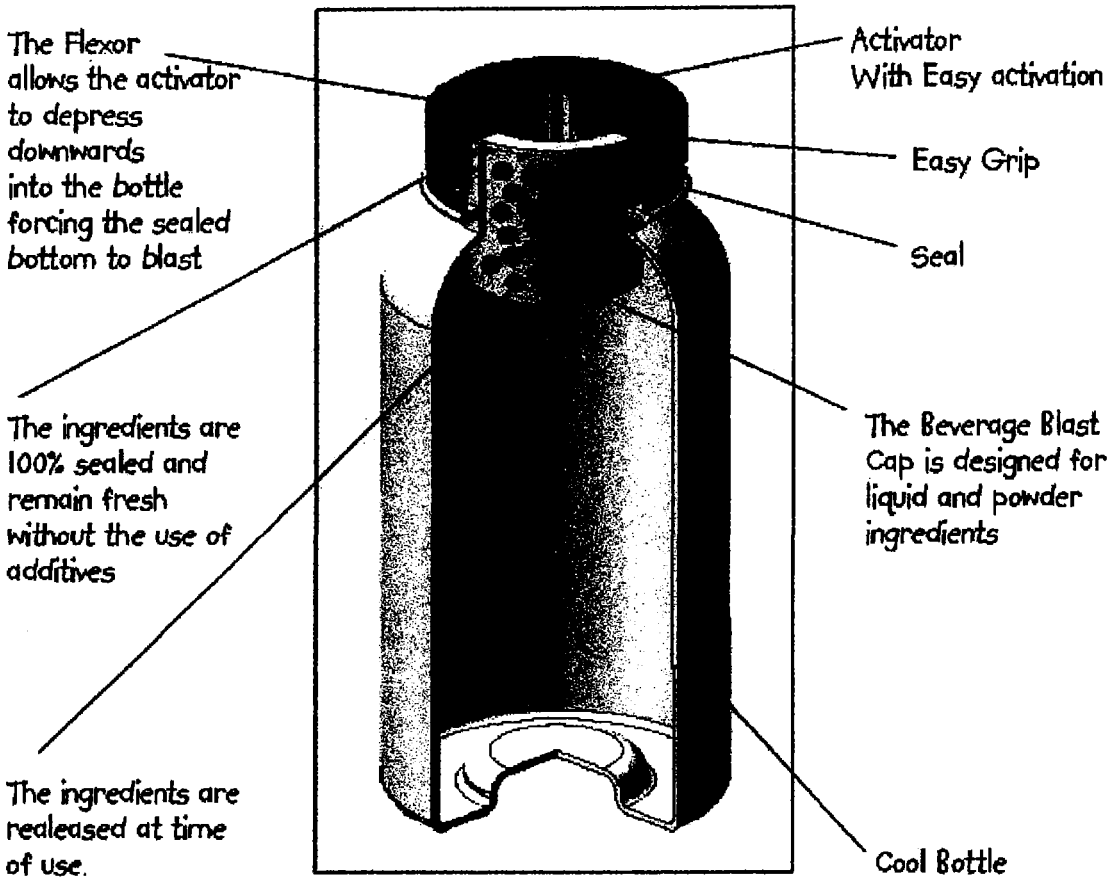
Pendings
facturing

www.liteco.com

Fresh Ingredients.

A Simple Concept

Example Of Liquid Application with Twist Cap Activator

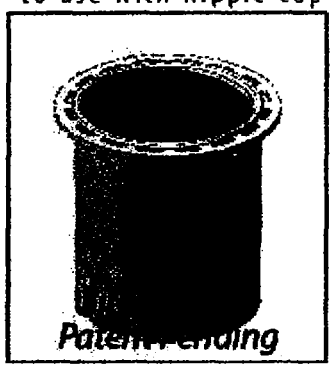


The Beverage Blast Caps Are Designed to Preserve any ingredient in Powder or Liquid Form

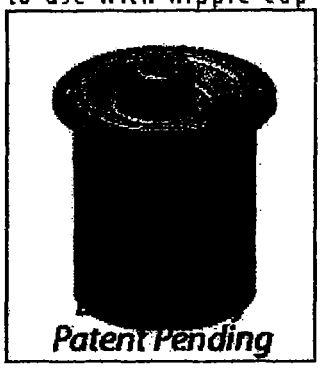
Revolutionary.

Beverage Blast Caps™

Powder Application to use with Nipple Cap



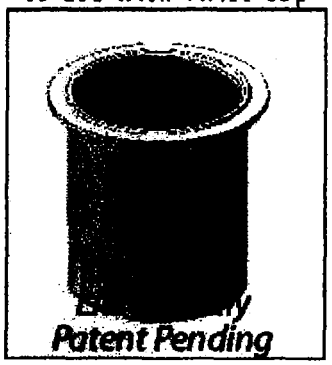
Liquid Application to use with Nipple Cap



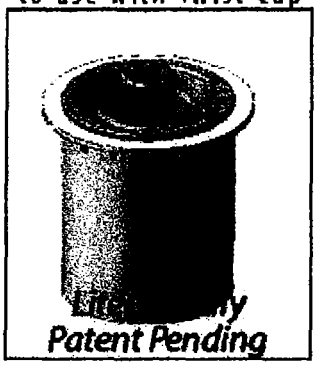
Nipple Cap with Integrated Activator

All Beverage Blast Caps are Child Proof.

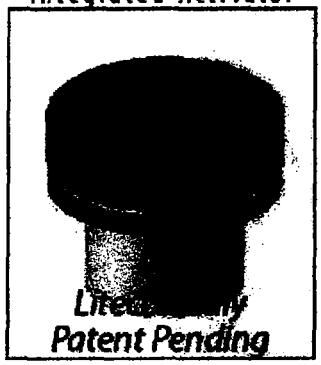
Powder Application to use with Twist Cap



Liquid Application to use with Twist Cap



Twist Cap with Integrated Activator



Beverage Blast Caps™

Exhibit E

This Agreement, made and entered into by and between Vision International Production, Inc.,a Nevada corporation, having a place of business at 1355 West Palmetto Park Road #129,Boc Raton, Florida 33486 (Hereinafter referred to as "Company") and Litecco s.r.l an Italian company having a place of business at Via Vicinale del Lisone N.3 OPERA (Milano) Cap 20090 Italia,(Hereinafter referred to as "Manufacturer").
Subject: Plastic Capsule Industrialization (a beetle insert herein described as the "Blast Cap").

Based on mutual agreements, Manufacturer received and reviewed the technical drawings that Company sent Manufacturer on the patented/and or patent pendings of the Blast Cap syste (43mm). Manufacturer has studied the industrial development that include the following information: Blast Cap system - "price", project development steps procedures, timing, and production capacity per month for the plastic blast cap system.

Manufacturer will provide:
The price for the Blast cap system "mounted(assembled) and boxed": at a cost of 1,8 cents "Euro" The price is quoted in Euro.

The material used will be Polypropylene

The initial cost of the mold will be amortized on the production by Litecco s.r.l(Manufacturer).

In order to start the development & industrialization Litecco s.r.l(Manufacturer) needs pre-payment order for a minimum of 1.8 million pieces.

Litecco s.r.l(Manufacturer)agrees that Manufacturer will develop the Two molds 12 + 12 cavities(48 cavities) exclusively for the Company.

Production Capacity will be 1 Million Blast Caps systems 0 work at full regime with 2 molds.

All 48 Blast Caps system cavities "excluding mold patent support" are patented/and or patent pendings and are owned by Vision International (Company).The Manufacturer will always have the mold(s) kept at the Manufacturer company and will be the only company that will manufacture the molds(Blast Cap) that Manufacturer produces. The

Manufacturer will only supply the Blast Cap technology to Company unless in writing the Company informs Manufacturer it can supply to another company.

Project procedure by Manufacturer

1) Liteco s.r.l (Manufacturer) will supply a prototype production within 10 working days from technical drawing approval.
2) 4 weeks to finish the first 12 + 12 mold(24 cavity). The second mold (24 cavity) will follow right after.
3) Production will start as soon as we get written approval from Company.

This Agreement has been executed on 30 day of January 2003 and is a legal binding Agreement between Company and Manufacturer.

Liteco s.r.l
Via Vicinale del Lisone N 3
OPERA (Milano) CAP 20090
Italia
Marco Saulle

Vision International Production Inc
1355 West Palmetto Park Road #129
Boca Raton, Florida 33486
Mikel Anderson

bio2
INTERNATIONAL INC.
oxygen enhanced products to improve life

BIO2 International, Inc.
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93405
(805) 549-0275/(805) 549-9790
web: www.bio2international.com

CONFIDENTIALITY & NON-DISCLOSURE STATEMENT

Whereas, the undersigned and its agents, attorneys, accountants or advisors may review, examine, inspect, have access to or obtain such information only for the purposes herein described, and to otherwise hold such disclosed information confidential pursuant to the terms of this agreement.

Be it acknowledged, that BIO2 International, Inc. (Company), on behalf of Vision International, Inc., has or shall furnish to the Undersigned certain confidential information, including but not limited to formulations and mechanical designs of proprietary and patented or pantent-pending products, developed by Company or Vision International, Inc., as described herein, and the Company may further allow the Undersigned the right to inspect the business operations of the Company, and/or to interview suppliers, customers, employees or representatives of the Company, at the Company's sole discretion and only on the following conditions:

1. The Undersigned agrees to hold all disclosed confidential or proprietary information or trade secrets ("Information") expressly marked with the word "CONFIDENTIAL", or denoted as confidential is any manner or form, including, but not limited to, financial information, scientific tests and assays, comparative data, future proposed product information and formulations, manufacturing and testing techniques, sales training information, designs of products and manuals, etc. in trust and confidence and agrees that it shall be used only for the contemplated purposes, and shall not be, copied, duplicated, reproduced or used for any other purposes nor disclosed to any other third party without the expressed written consent of an officer of the Company.

2. No copies or abstracts shall be made or retained from or out of <u>any</u> written information supplied by Company to the Undersigned without the prior written permission of an officer of the Company. Upon demand by the Company, all information, including written notes, photographs, Company's samples, or memoranda, shall be returned to the Company immediately at the sole expense of the Undersigned. Further, no reproductions, copies or abstracts may be transferred, copied, downloaded or duplicated by the undersigned, or by any representative, agent or employee of the undersigned, from the Company's web site, without the expressed written consent of an officer of the Company.

3. The disclosed information shall not be disclosed to any employee, consultant or third party unless said party agrees to execute and be bound by the terms of this agreement.

4. It is understood that the Undersigned shall have no obligation to hold confidential any of the following information:
   A. known by the Undersigned prior to receiving any information from the Company;
   B. Known generally within the health, fitness, sports medicine, and holistic medicine industries prior to the date of this agreement;
   C. Information that shall become common knowledge within said industries thereafter as a direct or indirect result of Company's advertising or promotional efforts;
   D. Confidential information which becomes published or otherwise available to the public after receipt by the Undersigned through no act or failure on the part of the Undersigned;

E. Confidential information that the Undersigned can establish by its written records that it possessed on a non-confidential basis prior to the receipt of information marked CONFIDENTIAL or denoted as CONFIDENTIAL in some manner by the Company;
F. Confidential information that the Undersigned can establish was acquired lawfully from a third party free from any restrictions on disclosure and use imposed by said third party after receiving said information from the Company;
G. Confidential information that the Undersigned can confirm by its records was developed by the Undersigned independently of any disclosure made by the Company to the Undersigned;
H. Confidential information required to be disclosed as a result of a judicial order or a governmental administrative order, provided that the Undersigned gives notice to the Company immediately upon receipt of the order in time for the Company to have the opportunity to take all reasonable and timely steps to oppose the order or seek appropriate protective orders on its own.

Said information shall not be deemed protected under this agreement.

5. The Undersigned acknowledges the information disclosed herein may constitute proprietary and trade secrets and in the event of unlawful use, wrongful or negligent disclosure, the Company shall be entitled to injunctive relief as a cumulative and not necessarily successive remedy without the need to post bond.

6. This agreement shall be binding upon and inure to the benefit of the parties, their successors, assigns and personal representatives.

7. Both parties also agree that information given to the other party regarding existing and/or prospective customers, clients, representatives, brokers, sales agents and/or distributors of the other party shall also be deemed confidential and both parties to this agreement agree to hold any and all such information about said prospective customers, clients and/or distributors, etc. of the other party confidential and shall not disclose this information without the expressed written permission of the other party.

8. This Agreement contains the entire Agreement between the parties below relating to the subject matter hereof and shall not be amended or modified except by mutual written agreement by the parties below.

9. This Agreement shall be governed by and construed in accordance with the laws of the State of Nevada.

In the Witness Whereof, I have set my hand this 26th Day of November, 2002, by and between:

For BIOZ International, Inc.

Stephen R. Krauss, Ph.D.
President

For Liteco International, s.r.l.
Via Vincenzo del Lisone, N.3. C.A.P.
20090 Opera (Milano) Italy

Marco Squillo
(011) 390-2-576-03027 PHONE

02/07/2004 16:26 FAX 001

Marco Tamilio
LITECO S.r.l
Via Viciniale del Lisone 3
20090 Opera (MI) ITALY

fax - +39-02-57603355

email: Marco@liteco.com

Re: Liteco S.r.l (Liteco) Relationship with Vision International Production, Inc. (Vision)

Dear Marco,

This letter agreement defines the business and contractual relationship between Vision and Liteco related to Liteco's manufacture of the Blast Cap product for Idesphere and/or other companies:

1) Vision International owns all rights to the Blast Cap, US Patent 6644471. Vision has entered into an agreement with Idesphere, Inc.which allows Idesphere to have manufactured and to sell 5,000,000 units of the Blast Cap in connection with an Idesphere test market of the product utilizing the Reebok brand. Vision has advised Idesphere that Idesphere must make its own arrangements with Liteco for the manufacture of the Blast Cap units.

2) Vision hereby grants to Liteco the right to manufacture 5,000,000 units of the Blast Cap on behalf of Idesphere. Vision's only role in the transaction is as the owner of the Blast Cap technology.

3) Liteco will contract directly with Idesphere to provide empty Blast Caps at 1.5 Euro cents for the 5,000,000 unit test only. Any license to manufacture additional units of the Blast Cap must be the subject of a separate agreement by Vision. Once Liteco has manufactured the 5,000,000 units for Idesphere, it will have no other rights to manufacture or sell the Blast Cap or any similar product without prior and specific written permission from Vision.

4) Liteco will immediately send copies of all correspondence between Idesphere and Liteco to Mikel Anderson and Bruce Stein.

5) Liteco is not authorized to act as an agent in any negotiations for the Blast Cap with Idesphere or other parties without written approval from Vision. Liteco agrees not to produce any product in concept similar to Blast Cap for Idesphere or any other company seeking a similar product. Furthermore, Liteco agrees not to correspond or communicate in any way with any other party regarding the Blast Cap technology or manufacture of the Blast Cap or similar products.

6) Liteco and Vision agree to hold all matters between them confidential.

7) Other agreements between Litco and Vision with respect to the Blast Cup technology will remain in effect except as expressly modified by this agreement.

Vision International Production, Inc.

By: _____

Agreed as of July 1, 2004

Litco S.r.l

By: _____

Litco S.r.l.
Via Volontari del Sangue, 3
20090 OPERA (MI) Tel. (02) 57603027
Fax (02) 57603064

Exhibit F

[redacted]

US007032745B2

(12) **United States Patent**
Saulle

(10) **Patent No.: US 7,032,745 B2**
(45) **Date of Patent: Apr. 25, 2006**

(54) **DOSING CAP FOR POWDERS OR LIQUIDS**

(75) Inventor: **Lorenzo Saulle**, Carpiano (IT)

(73) Assignee: **Liteco S.R.L.**, (IT)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **11/022,642**

(22) Filed: **Dec. 28, 2004**

(65) **Prior Publication Data**

US 2005/0139622 A1 Jun. 30, 2005

(30) **Foreign Application Priority Data**

Dec. 30, 2003 (IT) MI2003A2619

(51) **Int. Cl.**
B65D 25/08 (2006.01)

(52) **U.S. Cl.** **206/219**; 222/83

(58) **Field of Classification Search** 222/83; 206/219
See application file for complete search history.

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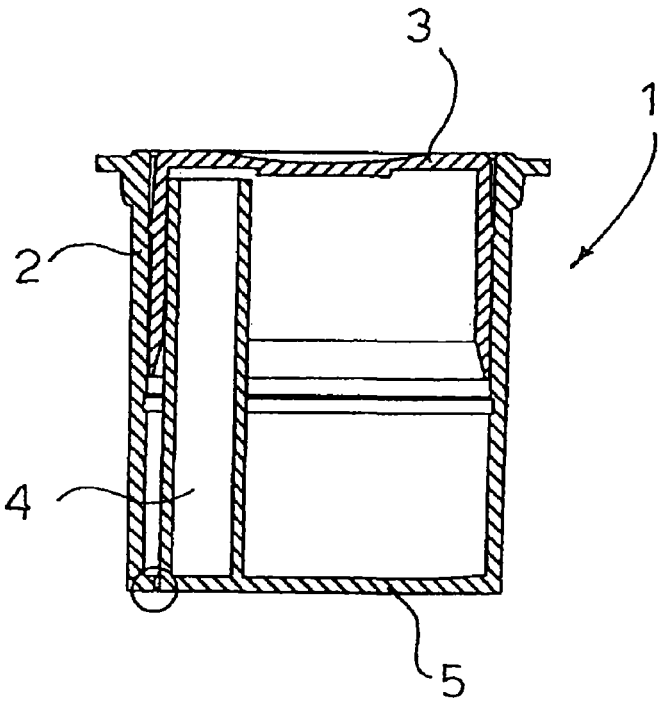
* cited by examiner

Primary Examiner—Philippe Derakshani
(74) *Attorney, Agent, or Firm*—Rothwell, Figg, Ernst & Manbeck, PC

(57) **ABSTRACT**

A dosing cap (**1**) for powders or liquids including an outer body (**2**) designed to be inserted into the neck of the container to which the cap (**1**) is applied and an inner body (**3**) of a substantially cylindrical shape, which contains the powder or liquid, is mobile inside the outer body (**2**), and is designed to break the sealing membrane (**5**) of the dosing cap (**1**) in response to an axial pressure exerted on its top part. Housed in the inner body (**3**) is a body (**4**), preferably cylindrical in shape, which is adjacent to the internal surface of the inner body (**1**) and is designed to break the sealing membrane (**5**) of the dosing cap (**1**) in response to an axial pressure exerted on its top part. Preferably the body (**4**) is fixed to the sealing membrane (**5**) of the dosing cap (**1**).

11 Claims, 2 Drawing Sheets



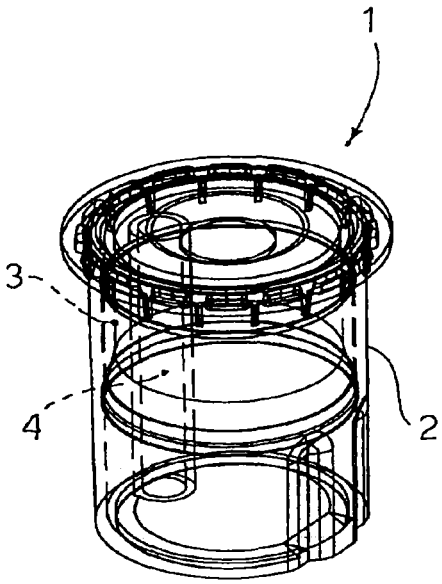


FIG. 1

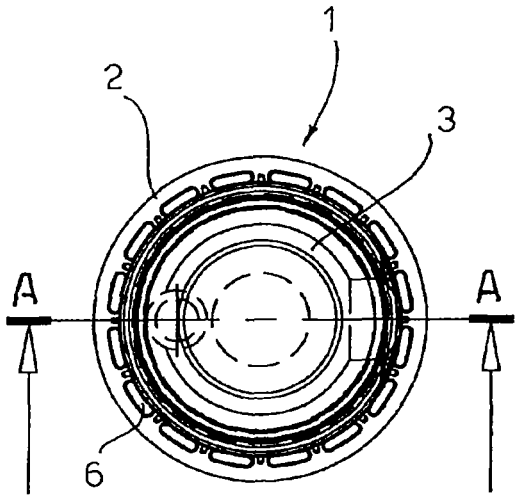


FIG. 2

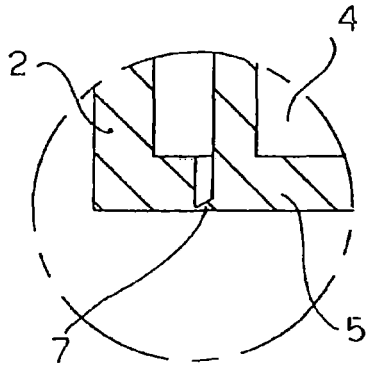


FIG. 4

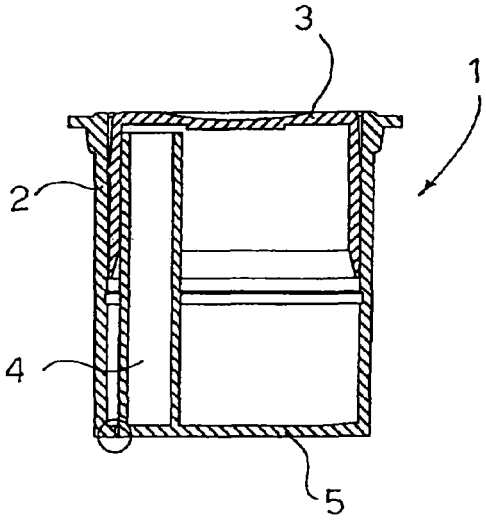
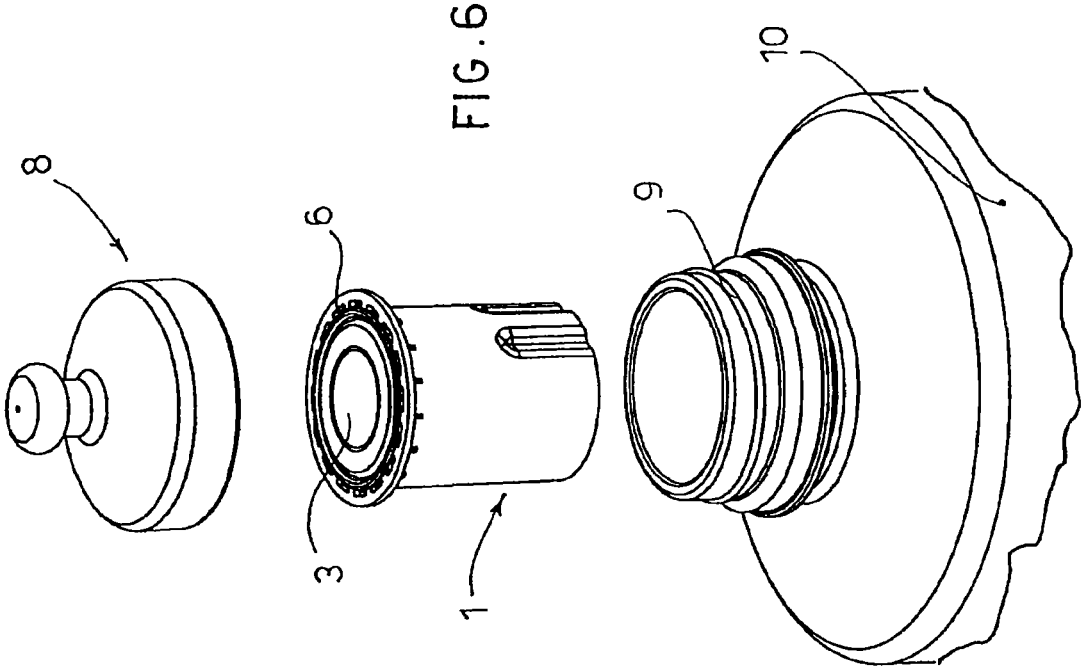


FIG. 3

FIG.6



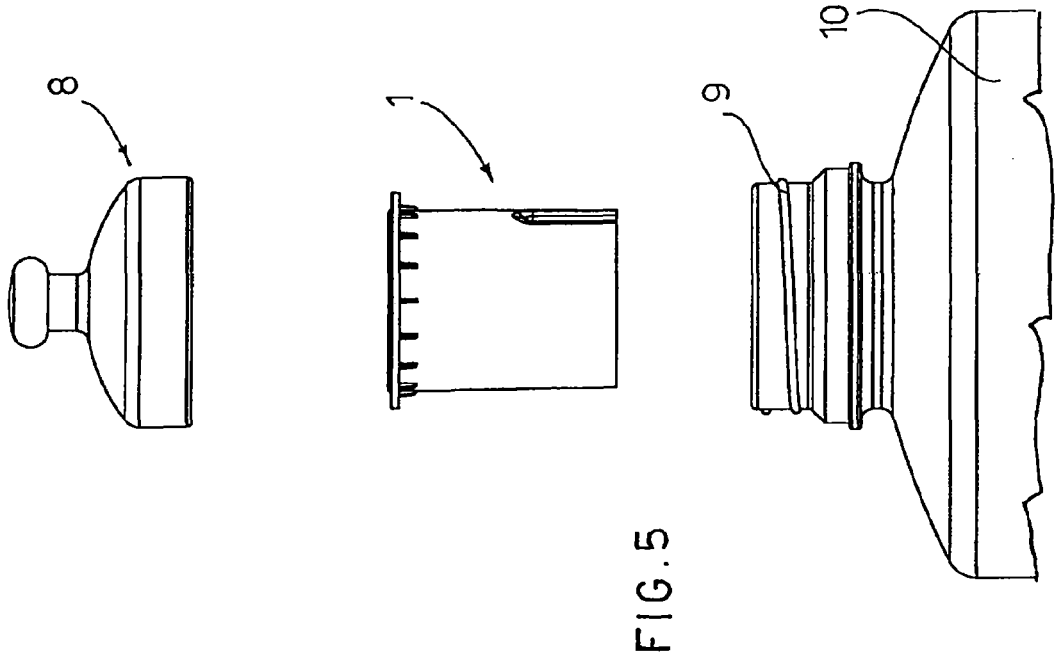


FIG.5

DOSING CAP FOR POWDERS OR LIQUIDS

FIELD OF THE INVENTION

The present invention relates to a dosing cap containing a powder or a liquid to be mixed, exclusively at the moment of its use, with a liquid contained in the container (normally a bottle or a flask) to which the cap is applied.

DESCRIPTION OF THE BACKGROUND ART

The above dosing caps are widely used, in particular in the pharmaceutical sector, for keeping one (more) easily degradable component, contained in the cap, separate from a second (more) stable component, contained in the container, until the moment of use.

With explicit reference to the pharmaceutical field, if an active principle (for example an antibiotic or a vitamin complex) is (more) easily degradable when it is dissolved in the component contained in the flask, it is a common procedure to contain said active principle in the cap in a (more) stable form (for example, in the form of a liquid or powder) and to mix it, at the moment of use, with the component contained in the flask, breaking a membrane that seals the cap.

In known dosing caps, the component contained in the cap is set inside a body having a substantially cylindrical shape, which is mobile within the body of the cap inserted in the neck of the container; by exerting a pressure on the (substantially) cylindrical body, its bottom edge breaks the sealing membrane causing the contents of the cap to drop into the liquid present in the container.

In known dosing caps, the bottom edge of the (substantially) cylindrical body has an inclined profile, like the mouthpiece of a flute, which presents the drawback of breaking off at least part of the sealing membrane of the cap, causing the broken part to drop into the liquid contained in the container.

SUMMARY OF THE INVENTION

The purpose of the present invention is to provide a dosing cap which is free from the aforesaid drawback. Said purpose is achieved according to the invention by providing a dosing cap which presents the characteristics described herein.

Further characteristics of the invention will emerge more clearly from the ensuing detailed description with reference to some embodiments thereof, which are provided purely by way of example and hence are non-limiting; they are illustrated in the annexed plate of drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic illustration of a see-through view of a dosing cap made according to the present invention;

FIG. **2** is a top view of the cap of FIG. **1**;

FIG. **3** shows the cap of FIG. **1** sectioned according to the plane A—A of FIG. **2**;

FIG. **4** is a schematic illustration, at an enlarged scale, of the detail highlighted in FIG. **3**; and

FIGS. **5** and **6** are, respectively, an exploded side view and an exploded perspective view of a possible variant of the cap of FIG. **1**.

DETAILED DESCRIPTION OF THE INVENTION

In the attached figures, corresponding elements will be designated by the same reference numbers.

FIG. **1** is a schematic illustration of a see-through view of a dosing cap made according to the present invention, designated as a whole by 1.

The cap **1** comprises an outer body **2**—designed to be inserted into the neck of the container **10** (FIGS. **5** and **6**) to which the cap **1** is applied—and an inner body **3**, which contains the powder or liquid (omitted in the attached figures for reasons of simplicity of graphic representation) and which is axially mobile within the outer body **2**.

Housed inside the inner body **3** is a body **4** (more clearly visible in the cross-sectional view of FIG. **3**), which is adjacent to the internal surface of the inner body **3** and is designed to break, in response to an axial pressure exerted on the top part of the inner body **3**, the sealing membrane **5** of the dosing cap **1** (FIG. **3**), enabling the powder or liquid contained in the cap **1** to drop into the liquid contained in the container **10**.

In the preferred embodiment described herein, the body **4** is a cylindrical body but, without departing from the scope of the invention, the body **4** may have the cross section deemed in each case to be most advantageous for meeting the specific needs.

On account of the eccentric position of the body **4**, the sealing membrane **5** is not separated completely from the outer body **2**, to which it remains connected in the (strengthened) area diametrally opposite to that on which the body **4** acts: it is thus obtained that at least part of the membrane **5** is prevented from possibly dropping into the container **10** to which the cap **1** is applied.

In the preferred embodiment described herein, the body **4** is fixed to the sealing membrane **5** of the dosing cap **1** but, without departing from the scope of the invention, the body **4** may be fixed to the top part of the inner body **3**. In this latter case, it is advisable to provide means, set within the inner body **3** and adjacent to the sealing membrane **5**, designed to keep the body **4** in position.

Advantageously, the outer body **2**, the sealing membrane **5**, and the body **4** are formed by a single body made of a plastic material.

Advantageously, also the inner body **3** is made of a plastic material.

FIG. **2** shows a view from above of the cap **1**. Visible in FIG. **2** is a plurality of compartments **6** (only one of which is identified by the corresponding reference number for simplicity of graphic representation), made in the internal wall of the outer body **2**—along the periphery of which they are uniformly distributed—and designed to set the inside of the container **10** in communication with the outside environment after breaking of the sealing membrane **5**, enabling the contents of the container **10** to be assumed without having to remove the cap **1**.

FIG. **3** shows the cap **1** sectioned according to the plane A—A of FIG. **2**. Visible in FIG. **3** are the outer body **2**, the inner body **3**, inside which the body **4** and the sealing membrane **5** of the cap **1** are present.

FIG. **4** is a schematic illustration, at an enlarged scale, of the detail highlighted in FIG. **3**, from which it emerges that the single body, which comprises the outer body **2**, the sealing membrane **5**, and the body **4**, has an area of pre-prepared breaking **7** of the sealing membrane **5**, set between the edge of the outer body **2** and that of the body **4**.

FIGS. **5** and **6** show, respectively, an exploded side view and an exploded perspective view of a possible variant of the cap forming the subject of the present invention, which differs from the one illustrated in the previous figures basically on account of the fact that it further comprises a dispensing element **8** which can be applied to the neck of the container **10** on top of the dosing cap **1**.

Preferably, the dispensing element **8** is fixed to a threaded area **9** present on the neck of the container **10**.

Said dispensing element **8** enables the contents of the container **10** to be assumed more easily, said contents coming out of the seats **6** after the membrane **5** has been broken.

The above embodiment of the cap **1** can advantageously be used in combination with a container **10** formed by a drinking bottle or the like: the contents of the cap **1** (for example, an energy beverage or an integrator of mineral salts) are dissolved in the liquid present in the flask **10**, and the liquid thus enriched, coming out from the seats **6** and the dispensing element **8**, can be assumed.

Without departing from the scope of the invention, a person skilled in the art can make to the cap forming the subject of the present invention all the modifications and improvements suggested by his own experience and by the natural evolution of techniques.

What is claimed is:

1. A dosing cap (**1**) for powder or liquid comprising an outer body (**2**)—designed to be inserted into the neck of a container (**10**) to which the cap containing the powder or liquid (**1**) is applied—and an inner body (**3**), which mobile within the outer body (**2**), said cap being characterized in that housed in the inner body (**3**) is a body (**4**), adjacent to the internal surface of the inner body (**3**), designed to break the sealing membrane (**5**) of the dosing cap (**1**) in response to an axial pressure exerted on the top part of the inner body (**3**).

2. The dosing cap (**1**) of claim **1**, wherein the body (**4**) is fixed to the sealing membrane (**5**) of the dosing cap (**1**).

3. The dosing cap (**1**) of claim **1**, wherein the body (**4**) is fixed to the top part of the inner body (**3**).

4. The dosing cap (**1**) of claim **1**, wherein the body (**4**) is a cylindrical body.

5. The dosing cap (**1**) of claim **1**, wherein the outer body (**2**), the body (**4**) and the sealing membrane (**5**) are formed by a single body made of a plastic material.

6. The dosing cap (**1**) of claim **5**, wherein the single body comprising the outer body (**2**), the body (**4**) and the sealing membrane (**5**) has an area of pre-set breaking (**7**) of the sealing membrane (**5**) set between the edge of the outer body (**2**) and that of the body (**4**).

7. The dosing cap (**1**) of claim **1**, wherein also the inner body (**3**) is made of a plastic material.

8. The dosing cap (**1**) of claim **1**, wherein it comprises a plurality of compartments (**6**) made in the internal wall of the outer body (**2**) and designed to set the inside of the container (**10**) in communication with the outside environment after breaking of the sealing membrane (**5**).

9. The dosing cap (**1**) of claim **8**, wherein the compartments (**6**) are uniformly distributed along the periphery of the internal wall of the outer body (**2**).

10. The dosing cap (**1**) of claim **1**, wherein it further comprises a dispensing element (**8**), which can be applied to the neck of the container (**10**) on top of the dosing cap (**1**).

11. The dosing cap (**1**) of claim **10**, wherein the dispensing element (**8**) is fixed to a threaded area (**9**) present on the neck of the container (**10**).

* * * * *

JS 44 (Rev. 11/04)

CIVIL COVER SHEET

06-61462

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

NOTICE: Attorneys MUST Indicate All Re-filed Cases Below.

CIV-UNGARO-BENAGES

I. (a) PLAINTIFFS

VISION INTERNATIONAL, PRODUCTIONS, INC. a Nevada corporation, and MICHAEL ANDERSON, an individual

(b) County of Residence of First Listed Plaintiff _____
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorney's (Firm Name, Address, and Telephone Number)

Barry L. Haley, Malin, Haley & DiMaggio, P.A.
1936 South Andrews Ave.
Fort Lauderdale, FL 33316

DEFENDANTS

LITECO S.R.L., an Italian corporation, LORENZO SAULLE, an individual, resident & domicile of Italy & MARCO SAULLE et al.

County of Residence of First Listed Defendant _____
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT LAND INVOLVED.

Attorneys (If Known)

0:06CV61462 UUB

(d) Check County Where Action Arose: ☐ MIAMI- DADE ☐ MONROE ☑ BROWARD ☐ PALM BEACH ☐ MARTIN ☐ ST. LUCIE ☐ INDIAN RIVER ☐ OKEECHOBEE ☐ HIGHLANDS

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☑ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated *or* Principal Place of Business In This State	☐ 4	☐ 4
Citizen of Another State	☑ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☑ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT	TORTS		FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
☐ 110 Insurance	PERSONAL INJURY	PERSONAL INJURY	☐ 610 Agriculture	☐ 422 Appeal 28 USC 158	☐ 400 State Reapportionment
☐ 120 Marine	☐ 310 Airplane	☐ 362 Personal Injury - Med. Malpractice	☐ 620 Other Food & Drug	☐ 423 Withdrawal 28 USC 157	☐ 410 Antitrust
☐ 130 Miller Act	☐ 315 Airplane Product Liability	☐ 365 Personal Injury - Product Liability	☐ 625 Drug Related Seizure of Property 21 USC 881		☐ 430 Banks and Banking
☐ 140 Negotiable Instrument	☐ 320 Assault, Libel & Slander	☐ 368 Asbestos Personal Injury Product Liability	☐ 630 Liquor Laws	PROPERTY RIGHTS	☐ 450 Commerce
☐ 150 Recovery of Overpayment & Enforcement of Judgment	☐ 330 Federal Employers' Liability	PERSONAL PROPERTY	☐ 640 R.R. & Truck	☐ 820 Copyrights	☐ 460 Deportation
☐ 151 Medicare Act	☐ 340 Marine	☐ 370 Other Fraud	☐ 650 Airline Regs.	☒ 830 Patent	☐ 470 Racketeer Influenced and Corrupt Organizations
☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)	☐ 345 Marine Product Liability	☐ 371 Truth in Lending	☐ 660 Occupational Safety/Health	☐ 840 Trademark	☐ 480 Consumer Credit
☐ 153 Recovery of Overpayment of Veteran's Benefits	☐ 350 Motor Vehicle	☐ 380 Other Personal Property Damage	☐ 690 Other		☐ 490 Cable/Sat TV
☐ 160 Stockholders' Suits	☐ 355 Motor Vehicle Product Liability	☐ 385 Property Damage Product Liability	LABOR	SOCIAL SECURITY	☐ 810 Selective Service
☐ 190 Other Contract	☐ 360 Other Personal Injury		☐ 710 Fair Labor Standards Act	☐ 861 HIA (1395ff)	☐ 850 Securities/Commodities/ Exchange
☐ 195 Contract Product Liability			☐ 720 Labor/Mgmt. Relations	☐ 862 Black Lung (923)	☐ 875 Customer Challenge 12 USC 3410
☐ 196 Franchise			☐ 730 Labor/Mgmt.Reporting & Disclosure Act	☐ 863 DIWC/DIWW (405(g))	☐ 890 Other Statutory Actions
REAL PROPERTY	CIVIL RIGHTS	PRISONER PETITIONS	☐ 740 Railway Labor Act	☐ 864 SSID Title XVI	☐ 891 Agricultural Acts
☐ 210 Land Condemnation	☐ 441 Voting	☐ 510 Motions to Vacate Sentence	☐ 790 Other Labor Litigation	☐ 865 RSI (405(g))	☐ 892 Economic Stabilization Act
☐ 220 Foreclosure	☐ 442 Employment	Habeas Corpus:	☐ 791 Empl. Ret. Inc. Security Act	FEDERAL TAX SUITS	☐ 893 Environmental Matters
☐ 230 Rent Lease & Ejectment	☐ 443 Housing/ Accommodations	☐ 530 General		☐ 870 Taxes (U.S. Plaintiff or Defendant)	☐ 894 Energy Allocation Act
☐ 240 Torts to Land	☐ 444 Welfare	☐ 535 Death Penalty		☐ 871 IRS—Third Party 26 USC 7609	☐ 895 Freedom of Information Act
☐ 245 Tort Product Liability	☐ 445 Amer. w/Disabilities - Employment	☐ 540 Mandamus & Other			☐ 900Appeal of Fee Determination Under Equal Access to Justice
☐ 290 All Other Real Property	☐ 446 Amer. w/Disabilities - Other	☐ 550 Civil Rights			☐ 950 Constitutionality of State Statutes
	☐ 440 Other Civil Rights	☐ 555 Prison Condition			

CLARENCE MADDOX
CLERK, USDC / SDFL-FTL

V. ORIGIN (Place an "X" in One Box Only)

☑ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Re-filed- (see VI below) ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multidistrict Litigation ☐ 7 Appeal to District Judge from Magistrate Judgment

VI. RELATED/RE-FILED CASE(S).

(See instructions second page):

a) Re-filed Case ☐ YES ☑ NO JUDGE _____ DOCKET NUMBER _____

b) Related Cases ☐ YES ☐ NO

VII. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing and Write a Brief Statement of Cause **(Do not cite jurisdictional statutes unless diversity)**:

LENGTH OF TRIAL via 3-5 days estimated (for both sides to try entire case)

VIII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23

DEMAND $

CHECK YES only if demanded in complaint:
JURY DEMAND: ☑ Yes ☐ No

ABOVE INFORMATION IS TRUE & CORRECT TO THE BEST OF MY KNOWLEDGE

SIGNATURE OF ATTORNEY OF RECORD Barry L Haley

DATE September 26, 2006

FOR OFFICE USE ONLY

AMOUNT 350 RECEIPT # 538293 IFP _____

AO 120 (Rev. 2/99)

COMMISSIONER OF PATENTS & TRADEMARKS 2121 CRYSTAL DRIVE SUITE 1100 ARLINGTON, VA 22201	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Southern District of Florida on the following X Patents or ☐ Trademarks:

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
06-61462-CIV-UUA	9/26/06	Southern District of Florida
PLAINTIFF Vision Int'l Production, Inc., et al.		DEFENDANT Liteco S.R.L., et al.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	6,644,471	11/11/03	Michael Anderson
2	6,886,686	5/3/05	Michael Anderson
3	7,055,684	6/6/06	Michael Anderson.
4			
5			

In the above—entitled case, the following patent(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
CLARENCE MADDOX	Lisa I. Streets	9/26/06

Copy 1—Upon initiation of action, mail this copy to Commissioner **Copy 3—Upon termination of action, mail this copy to Commissioner**
Copy 2—Upon filing document adding patent(s), mail this copy to Commissioner **Copy 4—Case file copy**