FRESH PRODUCT DISPENSING SYSTEM

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ABSTRACT

Fresh ingredients stored in a sealed fresh product dispensing system chamber, which are then dispensed into a beverage or other product container for consumption or usage by simply pressing on the top of the fresh product dispensing system. This allows for a natural and fresh product. It also allows for certain types of products to be introduced which otherwise degrade or lose potency, color, flavor and/or nutritional benefits when products are mixed during the manufacturing process as with ready-to-drink beverages. The system also offers for shipment of products in the fresh product dispensing system to be shipped without water or fluid bottles with reduced cost of shipping. The fresh product dispensing system compartment can also be segmented into several compartments allowing for each ingredient to be stored in an individual segregated compartment prior to usage. When the fresh product dispensing system plunger/chamber is pressed down, it exposes the main vessel to a 360 degree cylinder with large openings or ports around its radial surface which can provide a large surface area of exposure, assuring that all dry type ingredients in the plunger/chamber are exposed to the liquid in the main vessel and do not cake or stay in the plunger/chamber.
FIG. 1

INGREDIENT CHAMBER --> 12

BASE WITH TAMPER SEAL --> 14

OPTIONAL PLUNGER CHAMBER STOP --> 20

CAP --> 18
SPORTS CAP

POSITIVE LOCK AND SEAL BASE (SNAP ON SPORTS CAP)

FIG. 2
MOLDED IN TOP 26

FLANGE WITH OPTIONAL LOCKING TEETH ON UNDERSIDE

PORTS 27

INGREDIENTS FILL OPENING 28

FIG. 3
SPORTS CAP

MOLDED SPORTS CAP INTERIOR

FILL OPENING

FLANGE WITH OPTIONAL LOCKING TEETH ON UNDERSIDE

PORTS

OPTIONAL FILL OPENING

BOTTOM WITH SEAL STOP AND OPTIONAL CONICAL WELL

FIG. 4
FIG. 5

CAP
PLUNGER CHAMBER
BASE
BASE SKIRT
FRESH PRODUCT DISPENSING SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from U.S. Provisional Patent Application Ser. No. 60/864,524 filed Nov. 6, 2006.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention
[0003] The present invention relates generally to the field of bottled beverages and more specifically to a dry form dispenser used with a beverage bottle to add a dry ingredient into a liquid just prior to consumption.
[0004] 2. Background Art
[0005] Current bottling and packaging methods require unhealthy preservatives, stabilizers and additives along with the need for the usage of aluminum containers, which keep out harmful ultraviolet light for extended shelf life. The fresh product dispensing system hereof allows the use of low cost polyethylene terephthalate (PET) bottle material without concern of UV light contamination for extended shelf life and allows for the introduction of antioxidants, natural components and essential greens which have short term effects when introduced into fluids.
[0006] The fresh product dispensing system allows forming an enhanced or fortified beverage without going through a hot-fill process. By storing the ingredients in dry form, or just separate form from the liquid, the shelf life is extended. Those active ingredients reside in a powder form, and when dispensed into water, create an instant enhanced beverage that’s interactive and fresh for the consumer.
[0007] The fresh product dispensing system allows beverage companies to use ingredients they normally wouldn’t use due to limited solubility or shelf life. This expansion of ingredient options is critical as competition heats up in the functional beverage market.
[0008] A good example would be a green leaf tea product, which has little granulations of green leaf tea, which are placed in the fresh product dispensing system and released. When mixed in with a liquid and shaken up, one can see those granulations floating. On an immediate-consumption basis, because the consumer perceives that as fresh, they could quite possibly drink that and be okay with it. But, if you made that same product as a ready-to-drink (RTD) product, when you picked it up off the shelf, all of the green tea leaves would be down at the bottom as residue. Consumers are going to see that as old, not fresh, and not really appealing.
[0009] Other solutions which may be open at the bottom of the chamber, rely on gravity to dispense ingredients into liquids (especially dry ingredients), may have water introduced into the pocket-type chamber causing the ingredients to cake and not release fully. These other solutions can be limited in the amount of ingredients to be dispensed and can require lower levels of liquid in the main vessel which can cause other problems.

SUMMARY OF THE INVENTION

[0010] The present invention provides consumers with fresh ingredients stored in a sealed fresh product dispensing system chamber, which are then dispensed into a beverage or other product container for consumption or usage by simply pressing on the top of the fresh product dispensing system. This allows for a natural and fresh product. It also allows for certain types of products to be introduced which otherwise degrade or lose potency, color, flavor and/or nutritional benefits when products are mixed during the manufacturing process as with ready-to-drink beverages. The system also allows for shipment of products in the fresh product dispensing system to be shipped without water or fluid bottles with reduced cost of shipping. The fresh product dispensing system compartment can also be segmented into several compartments allowing for each ingredient to be stored in an individual segregated compartment prior to usage. This is also applicable to dispensing pharmaceutical medication, products or mixes. A seal system of the invention is designed to prevent leakage and contamination of the two products even with higher pressure carbonated liquids.

[0011] When the fresh product dispensing system plunger/chamber is pressed down, it exposes the main vessel to a 360 degree cylinder with large openings or ports around its radial surface which can provide a large surface area of exposure, assuring that all dry type ingredients in the plunger/chamber are exposed to the liquid in the main vessel and do not cake or stay in the plunger/chamber.

[0012] The fresh product dispensing system can be molded from plastic or may be stamped from a metal, depending on application. The system can be designed to mate with many popular containers or vessels with current standard threaded caps or tops and can use a conventional plastic lid or cap. The assembled fresh product dispensing system is then filled with product ingredients and is mated to the main vessel, which may contain a liquid or non-liquid and resemble a common water bottle.

[0013] Just prior to user consumption, the plunger/chamber is pressed down and the product ingredients residing in the fresh product dispensing system plunger/chamber are exposed and released into the lower container (water bottle or other containers) containing other ingredients such as liquids, water, juice or other products. The fresh product ingredients are then mixed with the main vessel contents and the final product is ready for consumption by removing the cap, which can break a tamper evident seal or by opening an optional sports cap.

[0014] The invention could be used in the spirits industry with alcohol in the plunger/chamber and other mixers in the container or main vessel. The invention can be used to dispense water or liquid additives, which enhance water or other beverage.

[0015] The plunger/chamber can be filled either through the top when made with a bottom or from the bottom when made with the top as one piece. A sports cap can be molded or manufactured as part of the plunger chamber and filled either through the top or at the bottom with a bottom installed after filling.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The aforementioned objects and advantages of the present invention, as well as additional objects and advantages thereof, will be more fully understood herein after as a result of a detailed description of a preferred embodiment when taken in conjunction with the following drawings in which:

[0017] FIG. 1 is a conceptual exploded view of a preferred embodiment of the invention;
FIG. 2 is a conceptual view of an optional sports cap;

FIG. 3 is a view of a first alternative ingredient chamber with a fill from the bottom configuration;

FIG. 4 is a view similar to FIG. 3, but with an integrated sports cap;

FIG. 5 is a conceptual view of a top fill configuration of an ingredient chamber with a snap-on cap;

FIG. 6 is a view similar to FIG. 5 with a tamper evident seal;

FIG. 7 is a view similar to FIG. 5 with a snap-on sports cap;

FIG. 8 is a view similar to FIG. 5 with an integrated molded sports cap;

FIG. 9 is a conceptual view of a bottom fill configuration with integrated sports cap;

FIG. 10 is a conceptual view of a bottom fill configuration with a mold cap;

FIG. 11 is a conceptual view of the ingredient chamber of FIG. 6 shown installed on a bottle;

FIG. 12 is a view similar to that of FIG. 11, but with a tamper-evident seal removed;

FIG. 13 is a view similar to that of FIG. 12, but after the plunger has been depressed to release dry ingredient powder from the chamber;

FIG. 14 is a view similar to that of FIG. 13, but with the chamber removed from a bottle after the dry powder ingredients have been released and mixed with a liquid in a bottle;

FIG. 15 is a conceptual view of an ingredient chamber with snap-on sports cap and installed on a bottle;

FIG. 16 is a view of the assembly of FIG. 15 with the tamper seal removed and the chamber depressed to release ingredient into the bottle interior; and

FIGS. 17, 18, 19 and 20 are views of actual inventive embodiments.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the accompanying drawings and initially to FIG. 1, it will be seen that a fresh product dispensing system 10 comprises an ingredient plunger/chamber 12, a base 14, with a tamper proof seal. The plunger/chamber 12 is enclosed by a cap 18. The bottom of the base may receive a stop 20. FIG. 2 illustrates a snap-on sports cap 22 with a positive lock seal base 24. FIG. 3 shows an alternative embodiment 25 of a dispensing system which has a molded in top 26 and a bottom fill seal 28. In FIG. 4, the molded top of FIG. 3 is replaced by a molded sports cap 30 to form another embodiment 35. As shown in FIGS. 3 and 4, a number of open radial ports 27 provide passages for the dry powder ingredients to exit the chamber 12 after the chamber is pushed down to release the powder into a bottle.

FIG. 5 illustrates a substantially assembled fresh product deliver system with a separated snap-on cap. A plunger 32 is positioned to be depressed to lower ports of the chamber through a base skirt where the ingredients may be released. FIG. 6 shows the assembly of FIG. 5 with a tamper evident standoff 34 installed on the plunger. FIG. 7 shows the same configuration as FIG. 6, but with a snap-on sports cap 38 about to be installed after top filling of the chamber with a powder form ingredient. FIG. 8 shows the integral molded sports cap 30 installed.

FIG. 9 shows an inverted bottom-fill-configured chamber 40 with an integrated sports cap. FIG. 10 shows a like version with an integral molded cap 41 and inverted for a bottom fill operation. FIG. 11 illustrates a top-fill configured system with snap-on cap filled with ingredients and installed on a bottle 42. FIG. 12 shows the system of FIG. 11 after removal of a tamper evident standoff and FIG. 13 shows the same system after the plunger has been depressed to release the ingredients into the bottle. FIG. 14 shows the chamber removed from the bottle so that the mixed ingredients and liquid in the bottle can be consumed. FIG. 15 illustrates a bottle-installed configuration of a chamber with a snap-on sports cap and FIG. 16 shows the same after depression of the plunger/chamber (once a tamper evident seal is removed) to release the ingredients into the bottle.

The Fresh Product Dispensing System can be molded from plastic and assembled using a conventional plastic lid or cap, the base can be molded with an interface which can be standard threads as used in current bottle neck interfaces.

The plunger/chamber can have a detent lock at the base of its seal, which would not allow the plunger/chamber to be removed after insertion into the base.

The Fresh Product Dispensing System can be filled with ingredients through the snap-on cap opening.

The Fresh Product Dispensing System can be filled with ingredients through the bottom of the plunger/chamber opening as an option.

The Fresh Product Dispensing System can be filled with ingredients through the top of the plunger/chamber sports cap opening as an option.

The Fresh Product Dispensing System is now screwed onto or attached at the base to the container (water bottle or other containers) containing other ingredients, such as liquids, water, juice, or any dry products.

The Fresh Product Dispensing System option standoff is removed exposing the plunger or optional sports cap.

The plunger is pressed down and the product residing in the Fresh Product Dispensing System plunger/chamber is exposed and released into the lower container (water bottle or other containers) containing other ingredients, such as liquids, water, juice, or any dry products.

The plunger/chamber can have a positive lock after the plunger/chamber is pressed into the main vessel. Once the plunger/chamber is depressed, it cannot be pulled up.

The container is now shaken which mixes the fresh ingredients from the Fresh Product Dispensing System which the ingredients in the lower container.

The cap can now be unscrewed which breaks the tamper evident seal and is removed for consumption.

The tamper evident base can be manufactured without the release serrations as an option if the base is not to be removed.

The Fresh Product Dispenser can stay on the container or vessel when the sports cap is used.

Actual components of two plunger/chambers are shown in FIGS. 17 to 20. FIGS. 17 and 18 illustrate a first assembly ready for threaded engagement with a bottle and comprising a cover 50, lid 52, chamber 54 and base 56. In operation, when it is desired to release the ingredients from the chamber into the bottle, the cover is removed, the adapter is depressed into the upper end of the bottle by exerting a downward force on the lid. After the ingredients are mixed
into the bottled liquid, the base may be removed to consume the mixture. The second assembly of FIGS. 19 and 20 substitutes a stopper 58 and stem 60 for the lid of FIGS. 17 and 18. This sports cap version operates in a similar manner, but is designed to permit consumption via the uncovered stem after the stopper is moved upwardly.

Having thus disclosed various conceptual and actual embodiment of the fresh product dispensing system, it will be perceived that various modifications and additions may be made thereto without deviating from the principal inventive features of the invention. Accordingly, it will be understood that the scope hereof is to be limited only by the appended claims and their legal equivalents.

1 claim:
1. An ingredient dispensing apparatus for attachment to a liquid-containing vessel for subsequent mixing of the ingredient into the liquid and consumption of the resulting mixture; the apparatus comprising:
   a base having a central aperture and being configured for attachment to a bottle having a liquid therein; and
   a plunger/chamber having an interior for receiving a dry powder ingredient for release into and mixing with said liquid, said plunger chamber being received in said central aperture of said base in a first position for sealing said ingredient and being selectively depressible into a second position for release of said ingredient into said liquid.
2. The apparatus recited in claim 1 a removable cap for access to said chamber interior.
3. The apparatus recited in claim 1 further comprising a removable end member for placement of said ingredient into said chamber interior.
4. The apparatus recited in claim 3 wherein said removable end member is a cap located at an uppermost end of said plunger/chamber.
5. The apparatus recited in claim 3 wherein said removable end member is a chamber stop located at a lowermost end of said plunger/chamber.
6. The apparatus recited in claim 1 wherein said plunger/chamber comprises a locking member to prevent removal of said plunger chamber from said base after said ingredient is released into a bottle.
7. The apparatus recited in claim 1 further comprising a tamper evident seal which must first be removed before said plunger chamber may be depressed from said first position into said second position.
8. The apparatus recited in claim 1 further comprising a sports cap positioned on said plunger/chamber for selective consumption of said mixture after release of said ingredient.
9. The apparatus recited in claim 8 wherein said sports cap is attached to said plunger/chamber.
10. The apparatus recited in claim 8 wherein said sports cap is integral to said plunger/chamber.
11. The apparatus recited in claim 1 wherein said plunger/chamber comprises at least one open radial port for releasing said ingredient.
12. In combination a liquid container having an open top for access to the liquid for consuming same and a dry powder ingredient releasing apparatus for attachment to the open top of the container for selectively releasing the ingredient into the liquid for mixing therein prior to consumption of the liquid; the releasing apparatus comprising:
   a base having a central aperture and being configured for attachment to said container; and
   a plunger chamber having an interior for holding said ingredient, said plunger chamber being received in said aperture of said base in a first position for sealing said ingredient separate from said liquid and being selectively translatable into a second position for release of said ingredient into said liquid.
13. The apparatus recited in claim 12 a removable cap for access to said chamber interior.
14. The apparatus recited in claim 12 further comprising a removable end member for placement of said ingredient into said chamber interior.
15. The apparatus recited in claim 14 wherein said removable end member is a cap located at an uppermost end of said plunger/chamber.
16. The apparatus recited in claim 14 wherein said removable end member is a chamber stop located at a lowermost end of said plunger/chamber.
17. The apparatus recited in claim 12 wherein said plunger/chamber comprises a locking member to prevent removal of said plunger chamber from said base after said ingredient is released into a bottle.
18. The apparatus recited in claim 12 further comprising a tamper evident seal which must first be removed before said plunger chamber may be depressed from said first position into said second position.
19. The apparatus recited in claim 12 further comprising a sports cap positioned on said plunger/chamber for selective consumption of said mixture after release of said ingredient.
20. The apparatus recited in claim 19 wherein said sports cap is attached to said plunger/chamber.
21. The apparatus recited in claim 19 wherein said sports cap is integral to said plunger/chamber.
22. The apparatus recited in claim 12 wherein said plunger/chamber comprises at least one open radial port for releasing said ingredient.

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