A recharging cap to maintain the carbonation and freshness of a beverage. The cap may include a gas injection valve and a pressure relief valve. Carbonation may be injected through the gas injection valve. The pressure relief valve may remove any gasses from the beverage container that may have a negative impact on the freshness of the beverage. The pressure relief valve may be activated by an activation component.
RECHARGING CAP FOR BEVERAGE CONTAINER

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of priority of U.S. provisional application No. 61/782,050, filed Mar. 14, 2013, the contents of which are herein incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to a cap that recharges and discharges gasses to preserve freshness and carbonation of a beverage.

[0003] Carbonated beverages lose carbonation when exposed to oxygen and other gases in the atmosphere. Once the beverage is opened by the consumer it begins to lose the necessary carbonation and the taste and mouth feel will begin to degrade, even when a standard cap is reinstalled. Beer, for example, in a growler will go flat overnight and develop off flavors from oxygenation after it is opened, (Oxygen fills the head space). Also, there is no way of purging the head space with a standard cap. The original seal after it was initially filled cannot be replicated or repeated with a standard cap.

[0004] As can be seen, there is a need for a device that helps to prolong the CO2 level of the liquid beverage by purging off the unwanted gases which, as a result, preserves the freshness of the beverage or fluid inside. Also, if the containers are not filled under optimum conditions by the beverage sales establishment and as consequence the beverage is under-carbonated, the present invention may also be used to reintroduce CO2 back into a beverage container and re-carbonate the beverage to the users desired PSI level.

SUMMARY OF THE INVENTION

[0005] In one aspect of the present invention, a beverage preservation mechanism comprises: a cap having a top portion and a bottom portion, wherein the bottom portion is releasably attachable to an open end of a beverage container; a gas injection valve attached to the cap and extending through the top portion of the cap; and a pressure release valve attached to the cap and extending through the top portion of the cap, and an activation component operatively attached to the pressure release valve, wherein when the activation component is activated, air passes through the pressure release valve.

[0006] These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a front elevation view of the present invention in use;

[0008] FIG. 2 is a front elevation view of the present invention;

[0009] FIG. 3 is a cross-sectional view taken along line 3-3 of FIG. 1;

[0010] FIG. 4 is a front elevation view of a second embodiment of the present invention; and

[0011] FIG. 5 is a front elevation view of a third embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0012] The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

[0013] Broadly, an embodiment of the present invention provides a recharging cap to maintain the carbonation and freshness of a beverage. The cap may include a gas injection valve and a pressure relief valve. Carbonation may be injected through the gas injection valve. The pressure relief valve may remove any gasses from the beverage container that may have a negative impact on the freshness of the beverage. The pressure relief valve may be activated by an activation component.

[0014] The present invention may include a specialized top or cap for carbonated beverage containers such as, but not limited to, jugs, growlers, soda bottles and the like. The cap may include a valve to inject CO2 into the container and a pressure relief valve to discharge the air back into the atmosphere. The pressure relief valve may bleed off all of the unwanted gases that remain inside the container. The beverage may maintain the CO2 level longer and the freshness of the carbonated beverage may be retained. In certain embodiments, the valve may automatically discharge for safety reasons at a factory preset level, such as 15 pounds per square inch (PSI). The user may also use the air injection valve to discharge small increments of pressure and attach a standard tire pressure gauge to the air injection valve to check the PSI level of the CO2 inside the container.

[0015] In certain embodiments, the present invention may be used for beer, sparkling wine, soda, or any liquid that in which maintaining carbonation levels is preferred. The present invention may also be used for non carbonated beverages by using another gas such as argon. Non-carbonated beverages may include, wine, juice, and the like.

[0016] Referring now to FIGS. 1 through 5, the present invention may include a recharging cap 10. The cap 10 may have a top portion 12 and a bottom portion 13. The bottom portion 13 may be releasably attachable to an open end of a beverage container 11. The cap 10 may include a gas injection valve 14 extending through the top portion 12 and, in certain embodiments, the bottom portion 13. The gas injection valve 14 extending through the top portion 12 of the cap 10 and, in certain embodiments, the bottom portion 13. The pressure relief valve 16 may vent the unwanted gases, such as oxygen, back into the atmosphere. The present invention may be used to reintroduce CO2 into the beverage container 11 and re-carbonate it to the users desired PSI or carbonation level.

[0017] The pressure relief valve 16 may include an activation component 20. When the activation component 20 is activated, air may pass through the pressure relief valve 16. In certain embodiments, the activation component 20 may be a ring, pin or chain that the user pulls or pushes and discharges the gases back into the atmosphere. Pulling or pushing the activation component 20 may expose a purging orifice 18 in which gas flows from within the beverage container may escape. The pressure relief valve 16 may be a one way valve used to relieve all of the pressure and vent the air back into the atmosphere preserving the freshness of the beverage. The pressure relief valve 16 may also serve as a safety relief...
valve and may automatically discharge at a factory set PSI level, such as about 15 PSI to about 25 PSI, or any desired PSI level.

[0018] In certain embodiments, the present invention may include a gas injection valve 14 that utilizes the American (Schrader) valve design, or another type of one or two way valve, such as a presta or male flare with check valve, ball lock valve, etc. which may be used to introduce CO2 into the container 11. Further, the gas injection valve 14 may also bleed off increments of PSI via the standard Schrader valve design. The gas injection valve 14 may also allow for attachment of standard tire pressure gauges so that PSI may be adjusted in small increments. In certain embodiments, a pressure gauge may be attached to the cap 10 to display the amount of pressure within the beverage container 11.

[0019] The present invention may preserve the carbonation and the flavor of the beverage inside the container. The present invention may further include an inner ring seal 24 to allow the cap 10 to fit snugly on the container 11. The ring seal 24 may be oriented between the bottom portion 13 of the cap 10 and the flange 22 of the beverage container 11.

[0020] A third valve may be added, which may allow for filling the container 11 with liquid after introducing the CO2 and then purging of the unwanted gas to the atmosphere. A barbed fitting may allow for a hose to be hooked up to the top of the growler for filling it from a tap under CO2 counter pressure. The barbed fitting attached to a tube may run to the bottom of the growler, and any bar or establishment could attach a line right to the tap and fill any growler with beer without the beer being exposed to oxygen during the process. This may greatly aid in lengthening the time the growler could be stored prior to initial opening. Further, more CO2 could be injected and thereby the container would be filled under the CO2 counter pressure.

[0021] The present invention may be used with a screw on cap 10 or a pop cap 10 for a growler. As illustrated in FIG. 1, the bottom portion 13 of the cap 10 may be threaded 28 and may screw onto the beverage container threads 26 in order to be releasably attachable. In other embodiments, the present invention may include tabs 34 extending from the top portion 12. In such embodiments, balls 38 may be attached to the beverage container 11 by a neck wire 40 and lever wires 42. The balls 38 may fit around the tabs 34 of the cap and may secure the cap 10 to the beverage container 11. In other embodiments, the ball 38 may extend through an opening on the cap 10 that is perpendicular to the valves 14, 16. A lever wire 50 may thereby secure the cap 10 to the beverage container 11.

[0022] The present invention may be used in the following manner. The cap may attach to beverage container, which may seal the container from the outside atmosphere using the inner seal ring. The standard or main cap may fit on a 64 oz./½ gallon container with a male threaded top that accepts a screw-on-cap. Optional adapters for non threaded types of containers may thread into existing designs and allow for attachment of the device to those such as washer sealed “flip top” or “swing top” 64 oz. and 32 oz. growlers, along with other bottles such as corkscrew 350 ml and 750 ml and other varieties of bottles. The air valve may introduce the CO2 via a hand held injector or CO2 tank and hose, which may also bleed off pressure in small increments. The pressure relief valve may be pulled open by the user, which allows for the air to escape and vent into the atmosphere. The pressure relief valve may also automatically activate at factory set PSI levels to prevent over pressurizing of the container. The container may then go back into the refrigerator and be kept fresh until the user chooses to open it again at a later date. The cap may remain secured to the container until the beverage is to be dispensed for consumption. This process may help retain the CO2 level and the freshness of the beverage.

[0023] A method of making the present invention may include the following. The cap may be custom machined and may attach to a beverage container and thereby seal the container from the outside atmosphere. The cap may include at least two threaded female holes or ports. The cap may screw onto the container, or attach to another adapter such as a cork style or press in cap. The cap may have at least two openings, or ports that are tapped and threaded to accept at least two threaded valves. The air valve may be screwed into one port on the cap. The pressure relief valve may be screwed to another threaded port.

[0024] It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. A beverage preservation mechanism comprising:
   a cap having a top portion and a bottom portion, wherein
   the bottom portion is releasably attachable to an open end of a beverage container;
   a gas injection valve attached to the cap and extending through the top portion of the cap; and
   a pressure release valve attached to the cap and extending through the top portion of the cap,
   and
   an activation component operatively attached to the pressure release valve, wherein when the activation component is activated, air passes through the pressure release valve.

2. The beverage preservation mechanism of claim 1, wherein the gas injection valve is a one or two way valve.

3. The beverage preservation mechanism of claim 2, wherein the gas injection valve is an American valve, a presta valve, a male flare with check valve, or a ball lock valve.

4. The beverage preservation mechanism of claim 1, wherein the bottom portion comprises a threaded portion.

5. The beverage preservation mechanism of claim 1, further comprising at least one tab extending from the top portion of the cap, wherein the at least one tab is formed to secure to at least one bail of a growler.

6. The beverage preservation mechanism of claim 1, wherein an opening runs through the top portion of the cap, wherein the opening is substantially parallel to the pressure release valve, wherein the opening is formed to receive a bail of a growler.

7. The beverage preservation mechanism of claim 1, wherein the pressure release valve automatically activates at a preset PSI level.

8. The beverage preservation mechanism of claim 7, wherein the preset PSI level is about 15 to about 25 PSI.

9. The beverage preservation mechanism of claim 1, further comprising a ring seal oriented between the bottom portion of the cap and a flange of a beverage container.

10. The beverage preservation mechanism of claim 1, wherein the activation component comprises a ring, wherein
    when the ring is either pushed or pulled a purging orifice is activated.
11. The beverage preservation mechanism of claim 1, further comprising a pressure gauge to display the amount of pressure within the beverage container.