A crown cap is couplable to a container. The crown cap has a central region and a downwardly extending side wall. At least one score line is in a geometric configuration on the central region of the crown cap. The at least one score line forms a tongue. The tongue is adapted to be bent or hinged downwardly. In this manner a passageway is provided for a liquid. A lever is coupled to the crown cap. A post extends through the lift lever and the central region of the crown cap. A tamper-evident secure band is designed into the side wall of the crown cap. A non-corrosive material is used to form the crown cap, lever and attachment post.
LIFT LEVER CROWN CAP SYSTEM AND METHOD

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] The present invention relates to a lift lever crown cap system and method and more particularly pertains to forming a pour through top opening in a crown cap crimped onto a bottle, such forming of an opening being done in a safe, ecological, convenient and economical manner.

[0003] 2. Description of the Prior Art
[0004] The use of closure systems of known designs and configurations is known in the prior art. More specifically, closure systems of known designs and configurations previously devised and utilized for the purpose of closing containers through known methods and apparatuses are known to consist basically of familiar, expected, and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which has been developed for the fulfillment of countless objectives and requirements.


[0006] While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not describe a lift lever crown cap system that allows for forming a pour through top opening in a crown cap crimped onto a bottle, such forming of an opening being done in a safe, ecological, convenient and economical manner.

[0007] In this respect, the lift lever crown cap system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in doing so provides an apparatus primarily developed for the purpose of forming a pour through top opening in a crown cap crimped onto a bottle, such forming of an opening being done in a safe, ecological, convenient and economical manner. In this regard, the present invention substantially fulfills this need.

SUMMARY OF THE INVENTION

[0008] In view of the foregoing disadvantages inherent in the known types of closure systems of known designs and configurations now present in the prior art, the present invention provides an improved lift lever crown cap system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved lift lever crown cap system and method which has all the advantages of the prior art and none of the disadvantages.

[0009] To attain this, the present invention essentially comprises a lift lever crown cap system. First provided is a bottle for containing a liquid. The bottle has a generally cylindrical body. The bottle has an open top. The open top has a circular lip. The bottle has an axially spaced, outwardly extending projection. The lip is provided above the projection. The lip is provided in a horizontal plane at an elevation above a plane containing the outwardly extending projection. The bottle is fabricated of an essentially non-corrosive material. The non-corrosive material is selected from the class of essentially non-corrosive materials including glass, plastic, coated aluminum, steel and paper.

[0010] A crown cap is provided. The crown cap is sealingly coupled to the bottle. The crown cap has a circular central region. The crown cap has a downwardly extending side wall. The side wall is provided in a frusto-conical configuration. The side wall has an inwardly scrolled lower edge forming a continuous, inwardly extending annular ledge. The central region of the crown cap radially terminates in a downwardly extending V-shaped projection. The crown cap has an upwardly extending, inverted U-shaped projection. The U-shaped projection is provided between the V-shaped projection and the side wall. The crown cap is fabricated of a non-corrosive coated aluminum.

[0011] The crown cap is positioned over the top of the bottle. The inverted U-shaped projection is located above the lip of the bottle. The V-shaped projection is located radially inward of the top of the bottle. The side wall of the crown cap is cramped. The ledge of the crown cap is provided beneath and in continuous contact with the outwardly extending projection of the bottle. In this manner a tamper evident-secure lock band is provided. Further in this manner the body strength of the bottle is increased and evidence of tampering is provided.

[0012] The crown cap is adapted to be inverted prior to being cramped and coupled to the bottle. The space between the V-shaped projection and the side wall forms an annular trough. An adhesive is provided in the trough. The adhesive is a hot melt adhesive chosen from the class of adhesives including liquid flow-in and extrusion sealants. The adhesive is a plastic or rubber, natural or synthetic, or blends thereof. The adhesive is adapted to form a seal between the bottle and the crown cap.

[0013] Further provided is at least one die cut score line. The score line is in a curved configuration on the circular region of the crown cap. The score line or lines form a tongue. The tongue is adapted to be bent or hinged to extend into the bottle. In this manner a passageway is provided for liquid from the bottle to be poured from the bottle. The passageway has an area. The area of the passageway is greater than 50 percent of the area of the central region of the crown cap.

[0014] Provided last is a lift lever. The lift lever is coupled to a generally central region of the crown cap. A post is provided. The crown cap and lift lever and post are fabricated of a non-corrosive coated aluminum or coated steel. The post extends through the lift lever and the central region of the crown cap. The post divides the lift lever into a large portion and a small portion. The large portion is located above the tongue. The small portion is laterally spaced from the tongue. The lift lever has a large portion end. The lift lever has a small portion end. The ends are located above the V-shaped projection. The lift lever is adapted to be pivoted about the post 180 degrees. In this manner the large portion of the lift lever extends radially beyond the cap and the small portion of the lift lever is above the tongue. The large portion is thus adapted to be lifted to lower the small portion. In this manner the score line or lines are fractured and the crown cap is opened for pouring purposes.
There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims attached.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of descriptions and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

It is therefore an object of the present invention to provide a new and improved lift lever crown cap system which has all of the advantages of the prior art closure systems of known designs and configurations and none of the disadvantages.

It is another object of the present invention to provide a new and improved lift lever crown cap system which may be easily and efficiently manufactured and marketed.

It is further object of the present invention to provide a new and improved lift lever crown cap system which is of durable and reliable constructions.

An even further object of the present invention is to provide a new and improved lift lever crown cap system which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such lift lever crown cap system economically available to the buying public.

Even still another object of the present invention is to provide a lift lever crown cap system for forming a pour through top opening in a crown cap crimped onto a bottle, such forming of an opening being done in a safe, ecological, convenient and economical manner.

Lastly, it is an object of the present invention to provide a new and improved lever crown cap system. A crown cap is couplable to a container. The crown cap has a central region and a downwardly extending side wall. At least one score line is in a geometric configuration on the central region of the crown cap. The score line or lines form a tongue. The tongue is adapted to be bent or hinged downwardly. In this manner a passageway is provided for a liquid. A lever is coupled to the crown cap. A post extends through the lever and the central region of the crown cap.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

FIG. 1 is a side view of a lift lever crown cap system constructed in accordance with the principles of the present invention.

FIG. 2 is a plan view of the system taken along line 2-2 of FIG. 1.

FIG. 3 is a side view of the lift lever crown cap system similar to FIG. 1 but in an open configuration.

FIG. 4 is a plan view of the system taken along line 4-4 of FIG. 3.

FIG. 5 is an inverted cross sectional view of the crown cap illustrated in FIG. 1 but prior to crimping onto a bottle.

FIG. 6 is an inverted cross sectional view of the crown cap similar to FIG. 5 but after crimping.

The same reference numerals refer to the same parts throughout the various Figures.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to FIG. 1 thereof, the preferred embodiment of the new and improved lift lever crown cap system embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

The present invention, the lift lever crown cap system 10 is comprised of a plurality of components. Such components in their broadest context include a crown cap, a score line, and a lift lever. Such components are individually configured and correlated with respect to each other so as to attain the desired objective.

First provided is a bottle 14 for containing a liquid. The bottle has a generally cylindrical body. The bottle has an open top 16. The open top has a circular lip 18. The bottle has an axially spaced, outwardly extending projection 20. The lip is provided above the projection. The lip is provided in a horizontal plane at an elevation above a plane containing the outwardly extending projection. The bottle is fabricated of an essentially non-corrosive material. The non-corrosive material is selected from the class of essentially non-corrosive materials including glass, plastic, coated aluminum, steel and paper.

A crown cap 24 is provided. The crown cap is sealingly coupled to the bottle. The crown cap has a circular central region 26. The crown cap has a downwardly extending side wall 28. The side wall is provided in a frusto-conical configuration. The side wall has an inwardly scrolled lower edge 30 forming a continuous, inwardly extending annular ledge 32. The central region of the crown cap radially terminates in a downwardly extending V-shaped projection 34. The crown cap has an upwardly extending, inverted U-shaped projection 36. The U-shaped projection is provided between the V-shaped projection and the side wall. The crown cap is fabricated of a non-corrosive coated aluminum or steel.
The crown cap is positioned over the top of the bottle. The inverted U-shaped projection is located above the lip of the bottle. The V-shaped projection is located radially inward of the top of the bottle. The side wall of the crown cap is crimped. The ledge of the crown cap is provided beneath and in continuous contact with the outwardly extending projection of the bottle. In this manner a tamper-evident secure lock is provided. Further in this manner the body strength of the bottle is increased.

The crown cap is adapted to be inverted prior to being crimped and coupled to the bottle. The space between the V-shaped projection and the side wall forms an annular trough. An adhesive is provided in the trough. The adhesive is chosen from the class of sealing materials including hot melt adhesives, liquid flow-in, extrusion sealants, and flowing linear thermosetting materials. The adhesive is a plastic or rubber, natural or synthetic, or blends thereof. The adhesive is adapted to form a seal between the bottle and the cap.

Further provided is a die cut score line. The score line is in a geometric, preferably curved, configuration on the circular region of the crown cap. The score line forms a tongue. The tongue is adapted to be bent to extend into the bottle. In this manner a passageway is provided for liquid from the bottle to be poured from the bottle. The passageway also has an area. The area of the passageway is greater than 50 percent of the area of the central region of the crown cap.

Provided last is a lift lever. The lift lever is coupled to a generally central region of the crown cap. A post is provided. The crown cap and lift lever and post are fabricated of a non-corrosive coated aluminum. The post extends through the lift lever and the central region of the crown cap. The post divides the lift lever into a large portion and a small portion. The large portion is located above the tongue. The small portion is laterally spaced from the tongue. The lift lever has a large portion end. The lift lever has a small portion end. The ends are located above the V-shaped projection. The lift lever is adapted to be pivoted about the post 180 degrees. In this manner the large portion of the lift lever extends radially beyond the cap and the small portion of the lift lever is above the tongue. The large portion is thus adapted to be lifted to lower the small portion. In this manner the score line is fractured the cap is opened for pouring purposes.

Also provided is a lift lever crown cap fabrication method for forming a pour through top opening in a crown cap crimped onto a bottle.

The first step is providing a crown cap. The crown cap is coupled to a container. The crown cap has a central region. The crown cap has a downwardly extending side wall. The side wall is adapted to be provided with appropriately placed surface dimples and/or scores and/or beads for accommodating the flow of metal while undergoing thescrolling process.

The second step is providing a score line. The score line is in a curved configuration on the central region of the crown cap. The score line forms a tongue. The tongue is adapted to be bent downwardly. In this manner a passageway is provided for a liquid.

The third step is providing a lift lever. The lift lever is coupled to the crown cap. A post is provided. The post extends through the lift lever and the central region of the crown cap.

The fourth step is providing a container. The container has a generally cylindrical body. The container has an open top. The open top has a circular lip. The lip is provided above an axially spaced outwardly extending projection.

The fifth step is crimping the side wall of the crown cap to the container below the outwardly extending projection.

The last step is sealing the central region of the crown cap to the top of the container. The sealing may be by a sealing material chosen from the class of sealing materials including hot melt sealing material, flowing liner thermosetting material and extrusion sealant.

As to the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as being new and desired to be protected by Letters Patent of the United States is as follows:

1. A lift lever crown cap system comprising:
   a crown cap coupleable to a container, the crown cap having a central region and a downwardly extending side wall; at least one score line in a geometric configuration on the central region of the crown cap, at least one score line forming a tongue adapted to be bent downwardly to thereby provide a passageway for a liquid; and
   a lever coupled to the crown cap, a post extending through the lever and the central region of the crown cap.

2. The system as set forth in claim 1 wherein the container is a bottle, the bottle in the form of a generally cylindrical body with an open top, the open top being formed with a circular lip above an axially spaced outwardly extending projection, the lip being in a horizontal plane at an elevation above a plane containing the outwardly extending projection, the bottle being fabricated of a non-corrosive material selected from the class of non-corrosive materials including glass, plastic, coated aluminum and paper.

3. The system as set forth in claim 1 wherein the downwardly extending side wall is in a frusto-conical configuration, the side wall having an inwardly scrolled lower edge forming a continuous, inwardly extending annular ledge.

4. The system as set forth in claim 1 wherein the central region radially terminates in a downwardly extending first projection, the crown cap having an upwardly extending inverted second projection between the first projection and the side wall.

5. The system as set forth in claim 2 wherein the crown cap is positioned over the top of the bottle and wherein the side wall of the crown cap is crimped whereby the ledge of the crown cap is beneath and in contact with the outwardly extending projection of the bottle to form a tamper-evident secure lock for increasing the body strength of the bottle.
6. The system as set forth in claim 5 wherein the crown cap is adapted to be inverted to provide an annular trough, a hot melt adhesive in the trough, the hot melt adhesive being selected from the class of adhesives including liquid flow-in and extrusion sealants, plastic and rubber, natural and synthetic, and blends thereof, the hot melt adhesive adapted to form a seal between the cap and the bottle.

7. The system as set forth in claim 1 wherein the lift lever has a large portion with a large portion end and a small portion with a small portion end, the ends located radially interiorly of the side wall, the lift lever adapted to be pivoted about the post 180 degrees whereby the large portion of the lift lever extends radially beyond the cap and the small portion of the lift lever is above the tongue, the large portion being thus adapted to be lifted to lower the small portion for fracturing the at least one score line and opening the cap for pouring purposes.

8. A lift lever crown cap system for forming a pour through top opening in a crown cap crimped onto a bottle, the system comprising, in combination:

a bottle for containing a liquid, the bottle being formed in a generally cylindrical body with an open top, the open top being formed with a circular lip above an axially spaced, outwardly extending projection, the lip being in a horizontal plane at an elevation above a plane containing the outwardly extending projection, the bottle being fabricated of an essentially non-corrosive material selected from the class of essentially non-corrosive materials including glass, plastic, coated aluminum, steel and paper;

a crown cap sealingly coupled to the bottle, the crown cap having a circular central region and a downwardly extending side wall in a frusto-conical configuration, the side wall having an inwardly scrolled lower edge forming a continuous, inwardly extending annular ledge, the central region of the crown cap radially terminating in a downwardly extending V-shaped projection, the crown cap having an upwardly extending, inverted U-shaped projection between the V-shaped projection and the side wall, the crown cap being fabricated of a non-corrosive coated material chosen from the class of non-corrosive materials including aluminum and steel;

the crown cap being positioned over the top of the bottle with the inverted U-shaped projection located above the lip of the bottle and the V-shaped projection located radially inward of the top of the bottle, the side wall of the crown cap being crimped whereby the ledge of the crown cap is beneath and in continuous contact with the outwardly extending projection of the bottle to form a tamper-secure lock for increasing the body strength of the bottle and providing evidence of tampering;

the crown cap adapted to be inverted prior to being crimped and coupled to the bottle, the space between the V-shaped projection and the side wall forming an annular trough with an adhesive in the trough, a hot melt adhesive in the trough, the hot melt adhesive being selected from the class of adhesives including liquid flow-in and extrusion sealants, plastic and rubber, natural and synthetic, and blends thereof, the adhesive adapted to form a seal between the bottle and the cap; a die cut score line in a curved configuration on the circular region of the crown cap, the score line forming a tongue adapted to be bent to extend into the bottle to thereby provide a passageway for liquid from the bottle to be poured from the bottle, the passageway having an area greater than percent of the area of the central region of the crown cap; and a lift lever coupled to a generally central region of the crown cap, a post extending through the lift lever and the central region of the crown cap, the crown cap and lift lever post being fabricated of a non-corrosive coated material chosen from the class of non-corrosive coated materials including aluminum and steel, the post dividing the lift lever into a large portion located above the tongue and a small portion laterally spaced from the tongue, the lift lever having a large portion end and a small portion end, the ends located above the V-shaped projection, the lift lever adapted to be pivoted about the post 180 degrees whereby the large portion of the lift lever extends radially beyond the cap and the small portion of the lift lever is above the tongue, the large portion being thus adapted to be lifted to lower the small portion for fracturing the at least one score line and opening the cap for pouring purposes.

9. A lift lever crown cap fabrication method comprising:

providing a crown cap coupleable to a container, the crown cap having a central region and a downwardly extending side wall;

providing at least one score line in a curved configuration on the central region of the crown cap, the at least one score line forming a tongue adapted to be bent downwardly to thereby provide a passageway for a liquid;

providing a lift lever coupled to the crown cap, a post extending through the lift lever and the central region of the crown cap;

providing a container formed with a generally cylindrical body with an open top, the open top being formed with a circular lip above an axially spaced outwardly extending projection;

crimping the side wall of the crown cap to the container below the outwardly extending projection; and

sealing the central region of the crown cap to the top of the container.

10. The method as set forth in claim 9 wherein the sealing is by a sealing material chosen from the class of sealing materials including hot melt sealing materials and flowing liner thermosetting material.

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