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(71) Applicant *(for all designated States except US)*: ERIKSSON, Peter [SE/CA]; 54 Sai Crescent, Ottawa, Ontario K1G 5N8 (CA).

(71)(72) Applicants and Inventors: O'REILLY, Wilfred, John [GB/GB]; 112 Chestwood Drive, Warmley, Sutton Coldfield, West Midlands B76 8XY (GB). ALLEN, Michael [GB/GB]; The Warren, 15 Cherryholt Lane, East Bridgford, Nottingham NG13 8LJ (GB).

(74) Agents: PHENIX, Donald, F. et al.; Fetherstonhaugh and Co., 900-55 Metcalfe Street, P.O. Box 2999, Station D, Ottawa, Ontario K1P 5Y6 (CA).

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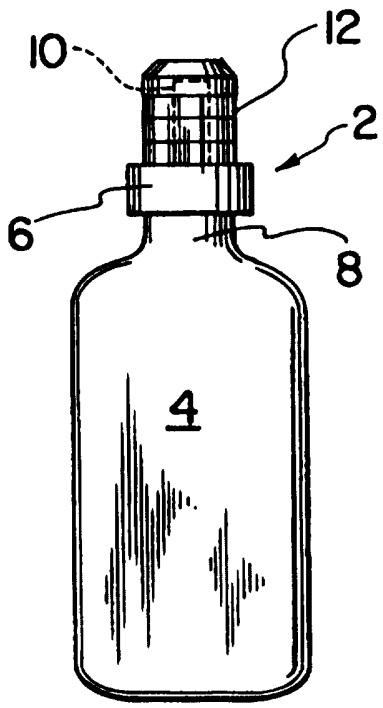
(54) Title: CONTAINER PROVIDED WITH LOCKING MEANS

(57) Abstract

In a beverage container (2) used principally by athletes the container is equipped with a combination lock comprising a set of tumblers (20, 22, 24) located in the cap (12) fitting over the neck of the bottle. The cap, once locked, prevents tampering with the contents of the bottle by persons other than the person knowledgeable of the lock combination. The container may additionally, or in the alternative, contain a one-way valve (62) in the neck of the bottle which allows liquids to flow out while preventing liquids from entering the bottle.



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CONTAINER PROVIDED WITH LOCKING MEANS

This invention relates to containers. It is particularly, but not exclusively, concerned with containers for liquids. It may apply to containers for drinks.

Drinks containers are used by people involved in sporting activities. With the emergence of strict controls on the substances which may be consumed by athletes, there is concern that athletes should be able to be sure that the substances which they consume are free of any proscribed additives.

According to a first aspect of the invention we provide a container comprising locking means adapted to restrict access to the interior of the container in which the locking means is adapted to be released by lock release means.

Preferably the container is a container for a fluid. Preferably the fluid is a liquid. Most preferably the liquid is a drink.

Preferably the container is portable. Preferably the container is adapted to be hand-held.

Preferably the container comprises an access point. The access point enables a user of the container to gain access to contents of the container. The access point may be provided at an upper end of the container. The access point may be an opening through which the contents of the container may pass. The access point may be an aperture or a spout.

The container may comprise a body. The body may be resilient. The body may be adapted to be compressed when force is applied, for example by squeezing the body.

Squeezing of the body may force contents of the container out of the container.

Preferably the container comprises a cap or a cover which is adapted to fit onto the body.

Preferably the locking means is adapted to cover or to lock onto the access point. The locking means may be adapted to lock onto the body.

The locking means may comprise one or more locking surfaces. The locking surfaces may be provided on the cap or the cover. The locking surfaces may be moveable with respect to the cap or the cover.

One or more engagement surfaces may be provided to engage with the locking surfaces. The engagement surfaces may be provided on the body. The engagement surfaces may be substantially immovable with respect to the body. Alternatively, locking means may be provided on the body and the engagement surfaces may be provided on the cover or the cap for the body.

Preferably the locking means is a combination lock. Alternatively the locking means may be a key operated lock, for example a lock adapted to be unlocked by a mechanical key.

Preferably the lock release means is a combination sequence. Alternatively the lock release means may be a key, mechanical or otherwise.

Preferably the cap is provided to cover the access point. Preferably the locking means is provided in the cap. The cap may be adapted to fit directly onto the access point. Alternatively the cap may fit over an end of the container surrounding the access point.

Preferably the cap comprises one or more tumblers. The tumbler or tumblers may be annular. The tumbler or tumblers may be threaded on a central member. The tumbler or tumblers may be adapted to rotate around the central member. If a plurality of tumblers are provided they may be adapted to move independently. A plurality of tumblers may be disposed along the central member adjacent one another.

According to a second aspect of the invention we provide a method of restricting access to the interior of a container comprising the step of providing the container with locking means which is adapted to be released by lock release means.

The method may relate to containers for fluids. It may relate to containers for liquids. Most preferably it relates to containers for drinks.

According to a third aspect of the invention we provide a container having flow restricting means which are adapted to allow the contents of the container to flow out but substantially prevent external agents to flow or pass into the container.

Preferably the container comprises an outlet. Preferably the flow restricting means are provided in the outlet.

Preferably the flow restriction means is a valve. Most preferably the flow restriction means is an one-way valve.

The outlet of the container may comprise an aperture or a spout. The flow restricting means may be provided in the aperture or spout.

The container may comprise a removable cover to allow access to the interior of the container. The cover may be provided with locking means.

The locking means may be a combination lock. Alternatively it may be a key releasable lock. The cover may be adapted to lock onto the container. The locking means may be releasable with lock release means. The lock release means may be a combination sequence or a key.

According to a fourth aspect of the invention we provide a method of restricting access to the interior of a container comprising the step of providing the container with flow restricting means which allows the contents of the container to flow out but substantially prevents external agents to flow or pass into the container.

Embodiments of the invention, by way of example only, are shown in the accompanying Figures in which:

Figure 1 shows a container according to the invention;

Figure 2 shows a cap for the embodiment of the container of Figure 1;

Figure 3 shows a cross-section along line 3-3 of the cap of Figure 2;

Figure 4 shows a spout for the container of Figure 1;

Figure 5 shows another embodiment of a spout for the container of Figure 1;

Figure 6 shows another embodiment of a container according to the invention;

Figure 7 shows yet another embodiment of a container according to the invention;

Figure 8 shows detail of the container of Figure 6; and

Figure 9 shows yet a still further embodiment of

a container according to the invention.

Figure 1 shows a drinks container 2 comprising a body 4 and a collar 6 attached to a neck region 8 of the body 4. A spout 10 extends from the collar and is integrally moulded thereto. A cap 12 engages with the collar 6 or the spout 10.

The body 4 is injection moulded from a food grade plastic. Suitable plastics are PTFE and Delvil. The grade of plastic and thickness of the walls of the body are chosen to enable a user to push the walls of the body inwardly to force liquid out of the spout 10 to be consumed by the user.

The collar 6 is a snap-fit engagement on the neck region 8 of the body 4. The collar 6 may be removed from the body 4 to enable the body to be filled or re-filled with liquid. In an alternative embodiment, the body 4 and collar 6 may be integrally moulded to prevent access to the interior of the body by removal of the collar 6 from the neck region 8.

The cap 12 is shown in greater detail in Figure 2. The cap 12 comprises a barrel 14 integrally moulded to a head 16 at a head end 17 of the barrel 14. The barrel 14 has a slot 18 cut along its length which runs from the head end 17 of the barrel 14 to an outer end 19 of the barrel 14.

Aligned along the barrel 14 are three annular tumblers 20, 22 and 24 disposed next to one another. A keyway 26 is cut into each of the tumblers 20, 22 and 24.

When the collar is adapted to be removed from the body by the user latch means, or retention means, may be provided between the collar and the user having an

operative, latching, configuration when the cap 12 is locked onto the collar, and an inoperative, unlatched position when the cap is unlatched. The locking of the cap activates the latch or retention means to prevent the collar from being removed from the body.

A cross-section through the cap 12 shown in Figure 3 shows the detail of the cap more clearly. The tumblers are held onto the barrel 14 against longitudinal movement by a lip 28. The lip extends completely around the outer end 19 of the barrel and holds an upper surface of tumbler 20.

Each tumbler comprises a rim or outer edge 30. Flanges 32 and 34 extend inwardly from an upper and a lower end of the rim thus forming a C-shape in cross-section.

The spout 10 is provided with a series of lugs or engagement surfaces which extend perpendicularly to the axis of the spout 10. Alternative embodiments of the spout are shown in Figures 4 and 5. In Figure 4 three lugs 35 are fixed to the side of the spout 10 and located one above another. In Figure 5, a fin 37 is fixed to the side of the spout. Slots 39 and 41 are cut into the fin 37 along the length of the fin 37 to form lugs 43.

When the tumblers are aligned such that the keyways 26 form one complete keyway passing through all of the tumblers, the cap 12 may be put on the spout 10 and the lugs 35 or 43 slide through the aligned keyways 26. Each lug 35 or 43 locates in the C-shaped region in each tumbler. The lugs 35 or 43 are shown in broken line outline in Figure 3. If one or more of the tumblers 20, 22 and 24 are then rotated randomly around the barrel 14, one or more of the keyways 26 rotates away from its respective lug and the cap 12 becomes locked onto the

spout 10 of the container. In Figure 3, the keyway of tumbler 20 is aligned with its respective lug. The other keyways 26 of tumblers 22 and 24 are aligned out of the plane of the Figure.

Markings on the outside of the tumblers 20, 22 and 24 enable a user to rotate the tumblers to correspond to a particular combination to enable a user to unlock the cap 12 from the container. Thus only the user, or a person with knowledge of the combination, may gain access to the contents of the container 2.

Figure 6 shows another embodiment for a container according to the invention. The container 40 is of a more conventional type having a removable collar 42 and spout 44 except that it is provided with a cover 46. The container has a body 48.

The cover is of a combination lock type like cap 12 shown in Figures 1 to 3. The cover also has three tumblers 45, 47 and 49. In this embodiment the tumblers 45, 47 and 49 are adapted to engage on engagement surfaces provided on the body 48 of the container 40.

This container has advantages over that of Figures 1 to 3. Since the tumblers of the embodiment of Figure 6 are of a much greater diameter than those of the embodiment of Figures 1 to 3, they are easier to move and adjust. Being of larger diameter, a greater number of combinations may be available than of the previous embodiment. A large cover is much easier to handle and harder to lose than a small cap. Furthermore the collar 42 may be a conventional snap fit onto the body 48 without compromising the security of the container 40.

Figure 7 shows yet another embodiment of a container 50 according to the invention. The container 50

comprises a body 52 having a neck 54 to which a collar 56 is attached by a snap fit. A spout 58 extends from the collar 56.

Greater detail of the spout 58 is shown in Figure 8. At an upper end 60 of the spout a one-way valve means 62 is provided. This means that liquid can be squeezed out of the container 60 but other substances (liquid or solid) may not be added to the container 50. Vent means may be provided in the container 50 to allow air to enter the container 60 to replace liquid or gas which is removed therefrom.

A refinement of this embodiment is shown in Figure 8. If, in the embodiment of Figure 6, a snap fit collar and neck arrangement is employed, the container 50 of Figure 7 may be opened relatively easily. In Figure 8 a container 70 is provided with a combination type collar 72 (similar to the combination cap 12 of Figures 1 to 3). The collar engages on lugs or other engagement means on the neck 74 of the body 76 of the container 70. A user must know the combination before the collar may be removed. A valve in the spout 78 prevents addition of substances through the spout.

In any of the foregoing embodiments, in which a collar is attached to a body of a container, a tamper evident collar may be provided to indicate if the collar and body have been separated. This may provide a cheaper container than one provided with complicated locking systems. Tamper evident means may be attached to the collar each time the collar is attached to the body thus allowing a container to be reused.

The invention is concerned with securing containers for drinks such that a user must have means to release a locking mechanism before access may be gained to

the interior of a container. Alternatively, it may be considered to be providing closure means to such a container such that outward flow of liquids or solids is permitted but inward flow of liquids or solids is substantially prevented. These measures may make it more difficult for a third party to tamper with an athlete's drinks bottle, or at least give the athlete a degree of peace of mind.

CLAIMS:

1. A beverage container comprising a locking means;
said locking means being adapted to restrict access to the interior of the container;
said container further comprising a lock release means.

2. A container as claimed in claim 1 wherein said locking means is a combination lock and said lock release means is a combination sequence;
said locking means being located adjacent an access point on said container.

3. A container as claimed in claim 2 wherein said locking means is provided in a container cap;
said cap being adapted to fit over a neck of the container surrounding said access point.

4. A container as claimed in claim 3 wherein said cap comprises at least one tumbler;
said tumbler being threaded on a central member.

5. A method of restricting access to the interior of a beverage container comprising the step of providing the container with locking means which is adapted to be released by lock release means.

6. A beverage container as claimed in claim 1 comprising a flow restricting means in an outlet;
said flow restricting means being adapted to permit the contents of said container to flow out while restricting external agents from flowing into said container.

7. A container as claimed in claim 6 wherein said flow restricting means is a one-way valve.

8. A method of restricting access to the interior of a container comprising the step of providing the container with flow restricting means;

said flow restricting means being a one-way valve;

said valve allowing the contents of said container to flow out while preventing external agents to flow into said container.

9. A container as claimed in claim 1 wherein said locking means is a key releasable lock and said lock release means is a key.

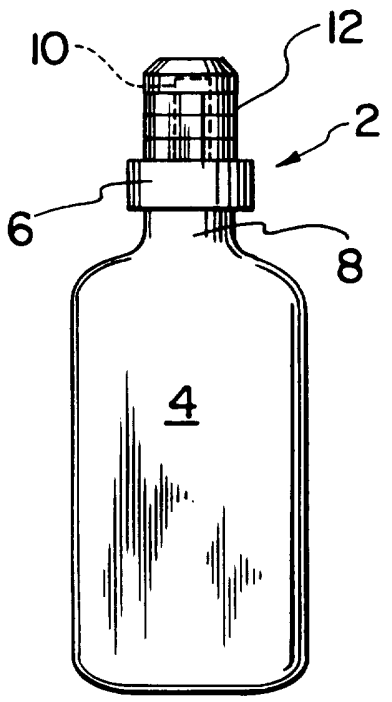

FIG. 1

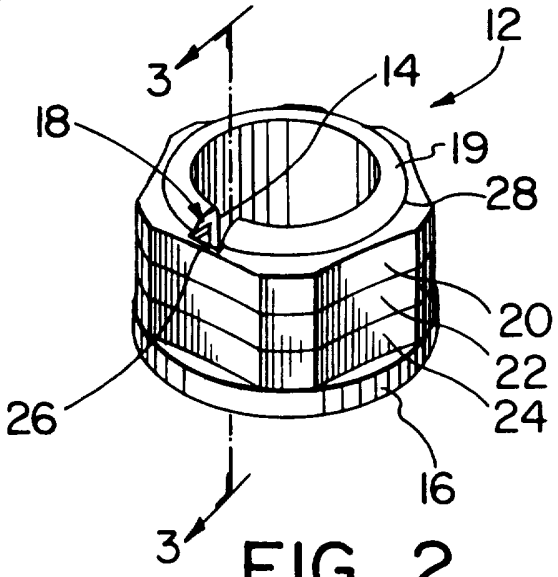

FIG. 2

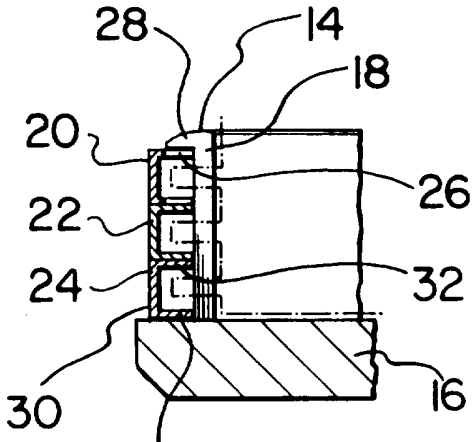

FIG. 3

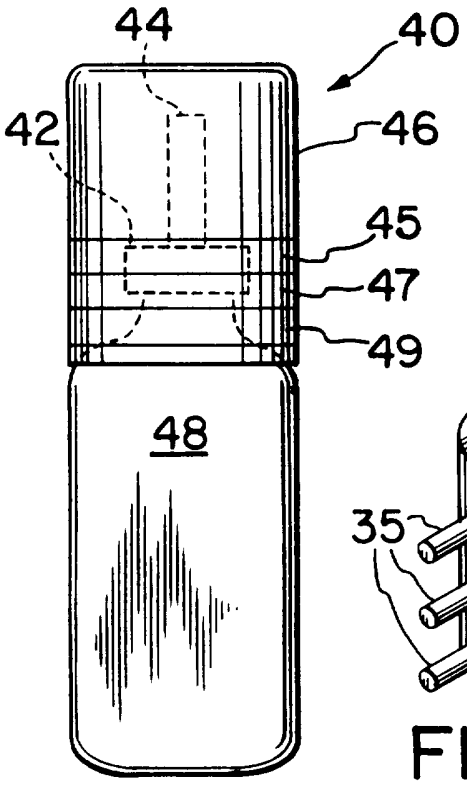

FIG. 6

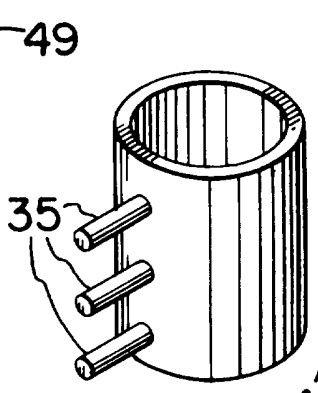

FIG. 4

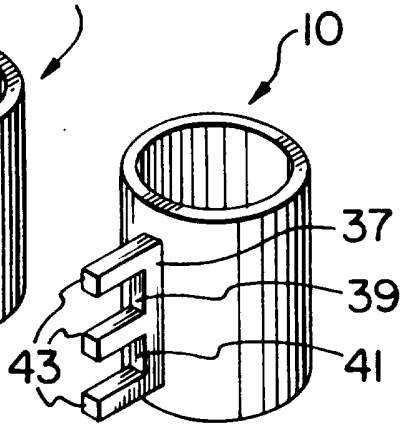

FIG. 5

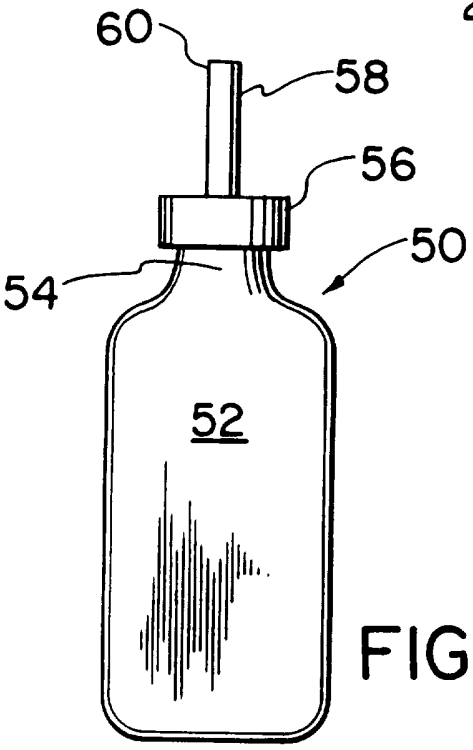

FIG. 7

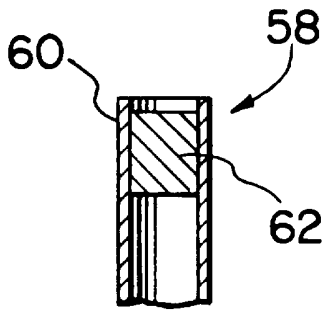

FIG. 8

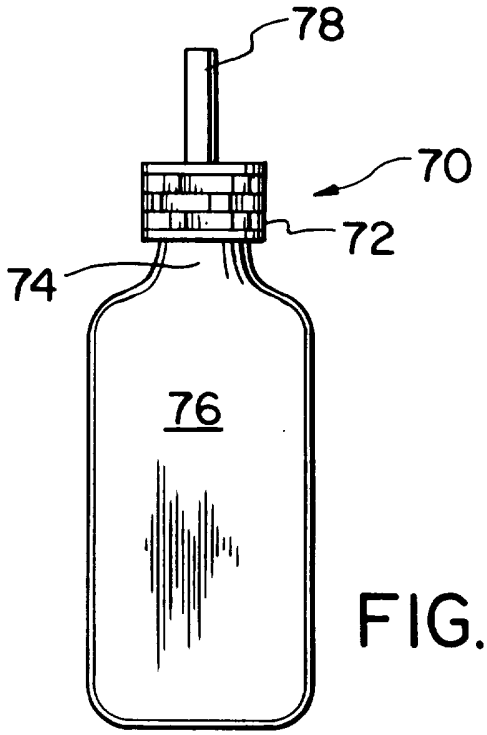

FIG. 9