further comprising a plug that can be inserted into the aperture to seal the apertured closure, the plug being associated with the cap by way of a hinge element fastened to the aperture closure.

26. A container and closure combination according to any one of claims 1 - 25, wherein the container is operably filled with one of a fluid; a spirit; a sauce; a gel; a powder; a cream; a grease; an oil; an ointment in respect of purposes for cleaning; for manufacturing (for production processes); for horticulture and agriculture; for lubrication and/or protection; for medicine; for human and animal consumption.

27. A container and closure combination according to any one of claims 1 - 23, wherein the combination further comprises a dispensing device which enable a liquid, a spirit, a sauce, a gel, a powder, a cream, a grease, an oil, or an ointment to be dispensed by virtue of a siphoning action or a vacuum.

28. A container and closure combinat on according to any one of claims 1 - 24, wherein the container is operably filled with a comestible product and wherein the combination further comprises a straw to enable a fluid, a spirit, a sauce, a gel, a powder, a cream, a grease, an oil, or an ointment to be dispensed by virtue of a siphoning action or a vacuum.

29. A container and closure combination according to any one of claims 1 - 24, wherein the valve of the closure comprises an n-flap duckbill valve, wherein the tube for ~~insertion~~ comprises n-elements of Lamé –elliptical sections, whereby to assist in any sealing in use as between tube and valve.

30. A tube extension element having ~~comprises~~ n-elements of Lamé –elliptical sections, operable in a container and closure combination of claim 29.

31. A closure for use in a combination according to one of claims 1 – 29.

32. A closure for use in a combination according to any one of claims 1 – 29, wherein the apertured closure is provided with a further element operable to provide strain relief for a tube, to assist in enabling a central placement of a tube upon introduction.

industrial bulk containers (IBCs). These containers must be stored in accordance with appropriate legislation.

Containers of oil, chemicals or other potentially polluting materials can pollute surface water and groundwater. Pollution can be caused by spills from several sources, such as the incorrect storage and handling of containers; accidental leaks; vandalism and theft; overfilling or failure of storage structures; run-off from fires and contaminated firewater; incorrect or damaged drainage systems. These are all potential hazards. Additionally, there are many substances that aren't harmful to humans but that will cause pollution if they're spilt, for example liquid food and drinks, detergents and paper sludges. For example, in England and Wales, oil storage is regulated by the Control of Pollution (Oil Storage) (England) Regulations 2001, (OSR England). Oils covered by these regulations include petrol, diesel, vegetable, synthetic and mineral oils. The regulations apply to most industrial, commercial and institutional sites storing oil outside in containers over 200 litres, including drums and IBCs and to domestic premises storing more than 3500 litres.

In the field of containers for food and drink, similar issues can occur in the control of dispensing of fluids, pastes, creams, emulsions and powders. The dispensing of condiments is one issue – tomato ketchup, salad dressings, mayonnaise etc. Restaurants and the like will wish to buy in bulk and have dispensing means that allows correct dispensing to be enabled and reduce levels of pilfering. Similarly, sports drinks can be consumed with a straw – but for the container which non-sealingly allows a straw or tube to be inserted the drink cannot be consumed without spillage unless special care is taken.

Thus, known container and dispenser systems do not necessarily provide security and none are adapted to the acceptance of "universal" tube vacuum dispensing devices and/or are complex to utilise. Caps and similar closure systems for containers in production and in use to date, are designed to re-open after being attached with respect to a container. US2011303670 (Baker R.J.) relates to a security screw cap for forming the secure closure for fitting to a container to secure the container against unauthorised access and to containers having such caps.

Object of the Invention

The present invention seeks to provide a solution to the problems addressed above. The present invention seeks to provide a container closure that readily adapts to dispensing requirements, which can readily and easily be manufactured, at low cost.

Statement of Invention

In accordance with a general aspect of the invention, there is provided a cap for fitment to a container, wherein the cap becomes irreversibly attached to such a container and has an aperture for the insertion of a tube whereby controlled delivery of a fluid from the container can be enabled. The apertured cap preferably comprises one of a screw-cap, a push-fit cap, having detent or glue applied thereto, for a male or female opening associated with the container. In such an arrangement, the cap can be manually attached or fitted in a no-wear or low wear mechanised process. It will be appreciated that in the attachment of some types of closure, expensive machinery is required to fasten, for example metal flanges to containers, which machines typically require re-tooling after wear, arising from the creation of welds or rolled flanges to connect the two parts together in a sealing relationship.

In accordance with a specific aspect of the invention, there is provided a container and closure combination, for the containment of fluids and extraction therefrom by way of an extraction tube, the container comprising a closed volume with an opening, the closure being configured to close the opening of the container, wherein the closure is provided with an aperture and wherein the closure, upon fitment, cannot be removed from the container opening, the aperture of the closure being defined by a unitary elastic valve member permitting unidirectional flow of fluid through the aperture; wherein the valve can operate, interchangeably, between: a first, closed condition, to prevent a free flow of fluid from the container; and, a second, operational condition, with the extraction tube sealingly engaged within the valve, to permit an extraction and dispensing of fluid from the container through the tube. By having a unitary, elastic valve member, the valve can conveniently be manufactured with the closure in a simple manufacturing process e.g. in what is known as a two – shot process, whereby the inner valve is manufactured from an elastic plastics material, with the outer surround/container engagement portion being manufactured from a more rigid plastics material.

The present invention can comprise not only the container and closure with aperture but also a tube. For example, the invention may comprise a sports drink with the apertured closure together with a tube. The tube can function as a straw, whereby a drink such as a sports drink can conveniently be consumed, the cap preventing tainting of the drink replacement thereof, which could be useful in

CLAIMS:

1. A container and closure combination, for the containment of fluids and extraction therefrom by way of an extraction tube, the container comprising a closed volume with an opening, the closure being configured to close the opening of the container, wherein the closure is provided with an aperture and wherein the closure, upon fitment to the container opening, cannot be removed therefrom, the aperture of the closure comprising a unitary elastic uni-directional valve member;

wherein the valve can operate in:

a first, closed condition, to prevent a flow of fluid from the container; and,

a second, operational condition, with an extraction tube sealingly engaged with respect to the valve, to permit an extraction and dispensing of fluid from the container through the tube.

2. A container and closure combination according to claim 1, wherein the opening of the container is of circular cross-section.

3. A container and closure combination according to claim 1 or 2, wherein the opening comprises one of a simple aperture within a wall of the container; an upstanding duct from an exterior surface of the container (male opening); and a duct depending from an exterior surface of the container (female opening).

4. A container and closure combination according to any one of claims 1 - 3, wherein the container and closure are fastened, upon fitment by mutually engaging screw-threads.

5. A container and closure combination according to any one of claims 1 – 3, wherein the container and closure are fastened by means of self-tapping screw-thread fasteners.

6. A container and closure combination according to claim 1 - 3, wherein the container and closure are fastened by co-operating detent means.

7. A container and closure combination according to claim 1, wherein the container and closure are fastened by mutually engaging non-return bayonet fastening elements.

further comprising a plug that can be inserted into the aperture to seal the apertured closure, the plug being associated with the cap by way of a hinge element fastened to the aperture closure.

26. A container and closure combination according to any one of claims 1 - 25, wherein the container is operably filled with one of a fluid; a spirit; a sauce; a gel; a powder; a cream; a grease; an oil; an ointment in respect of purposes for cleaning; for manufacturing (for production processes); for horticulture and agriculture; for lubrication and/or protection; for medicine; for human and animal consumption.

27. A container and closure combination according to any one of claims 1 - 23, wherein the combination further comprises a dispensing device which enable a liquid, a spirit, a sauce, a gel, a powder, a cream, a grease, an oil, or an ointment to be dispensed by virtue of a siphoning action or a vacuum.

28. A container and closure combination according to any one of claims 1 - 24, wherein the container is operably filled with a comestible product and wherein the combination further comprises a straw to enable a fluid, a spirit, a sauce, a gel, a powder, a cream, a grease, an oil, or an ointment to be dispensed by virtue of a siphoning action or a vacuum.

29. A container and closure combination according to any one of claims 1 - 24, wherein the valve of the closure comprises an n-flap duckbill valve, wherein the tube for extraction comprises n-elements of Lamé –elliptical sections, whereby to assist in any sealing in use as between tube and valve.

30. A tube extension element having n-elements of Lamé –elliptical sections, operable in a container and closure combination of claim 29.

31. A closure for use in a combination according to one of claims 1 – 29.

32. A closure for use in a combination according to any one of claims 1 – 29, wherein the apertured closure is provided with a further element operable to provide strain relief for a tube, to assist in enabling a central placement of a tube upon introduction.