

RECEPTACLE FOR A CAP CLOSURE

Field of Invention

- 5 A receptacle for a cap closure enables the storage of commodities within a secure environment allowing discretionary choice for opening and resealing. Such independence of containment enables multiple applications.

Background of Invention.

- 10 A growing awareness of the utilisation potential of cap closures for product containers has resulted in applications that look to create and expand market opportunity within all industries. The result is an array of closures that reflect the growing requirements of the consumer market.
- 15 Items of a nature that support or enhance a contained product have also been placed externally or separate from the container or cap structure. The result is an additional unit cost to the primary product. Whilst this application conforms to the logic of form and function, it fails to fully utilise the opportunity that the cap structure of a container provides. However, limited realisation of this opportunity has resulted in the functional application of inventions that seek to
- 20 modify or enhance the contained product. This is achieved through structural means, dispensement or the direct physical application of an additive or supplement. U.S. Pat. No. 4,195,730 reflects such modification of a container cap to allow direct application of an additive or supplement to a liquid contained within a beverage container. However this structure does not allow for selective choice and re-closure of the cap and as with U.S. Pat. No. 6,705,491 and
- 25 U.S. Pat. No. 5,631,918, seeks only to incorporate a specialised cap design to act as a receptacle for compounds that look to enhance the contained beverage product through modification. Selective choice for the securement and re-securement of any article is considered an essential element for any means of storage.
- 30 Further addressing the concerns that determine the acceptable placement of a commodity, within the closure structure of a container, highlights the constraints that must be addressed by any application. The resulting parameters determine that items placed within an associated closure must initially meet the requirements of size, legislative requirement, cost and quality expectations of said partnered primary product. Such application must also apply vice-a-versa.
- 35 Refinement must also recognise the governance of the market requirements that determine the placement and application of commodities associated with the contained product.

Further to this, any cap structure designed to support the placement of a commodity must be cost effective for production. As a result the design must incorporate current technology and construction methodology and should endeavour to encompass current closure applications without modification. However this should not exclude modification of standard components of containment and closure that exist within the industry. In doing so, the modification of existing cap components would provide ease of replication by using known technologies. With the principles of simple replication embodied within the design of a closure structure, the general application of any new proposal must be ensured through the adaptability for different sized and shaped containers.

Also incorporation of security features such as tamper evident technologies need to be considered.

While it is recognised that a modified container cap may provide a promotional opportunity, reflected in U.S. Pat. No. 4,583,651, U.S. Pat. No. 5,361,919, U.S. Pat. No. 6,702, 642 and U.S. Pat. No. 5,088,611, such promotional recognition is achieved through novelty recognition and novelty application only. None recognise the placement opportunity for a commodity and focus instead on novelty value in respect of the closure requirements for a container. An effective system should provide an effective linkage with any product. A closure system may also enable secure commodity containment within a structure that provides a means of collective storage. Such a means of storage supports the release of commodities in series or collections. A cap that provides such collective ability and storage opportunity would provide a chance to extend product promotion beyond the initial point of sale and into areas of passive marketing. Such ability could be undertaken through the employment of cap structures that are able to be interlocked in a formation that creates a receptacle for placement of a commodity. U.S. Pat. 6,702,642 makes provision for the interconnection and stackability of caps that enable multi-variations to be applied as a constructible toy set. However there is no provision for commodity placement.

Ergonomic concerns are also relevant for overcap designs. U.S. Pat. No. 5,813,575 discloses a modified dustcap that incorporates an internally threaded overcap that engages the action of an associated push pull cap for the dispensing of liquid. Whilst performing a functional task that minimises effort, the physical restrictions of many current and potential market groups are not directly addressed.

U.S. Pat. No. 6,681,958 and U.S. Patent 4,364,476 are also example of previous proposals of closures which would not achieve what is intended by the present invention.

5 Whilst this is an area of growth to be explored further, extending the basic principle of a closure as a receptacle for the containment of commodities creates further avenues of opportunity. Such opportunity is not confined to partnerships highlighted within this initial background.

Objects of Invention

10 It is an object of the invention to provide a receptacle which can connect with an existing cap closure. A further or alternative object is to at least provide the public with a useful choice.

Summary of Invention

15 According to one aspect of the present invention a receptacle is adapted to be removably connected or connectable with a container cap closure said receptacle being further adapted to receive a required item.

20 According to a further aspect of the present invention an assembly for a container includes a container cap closure and a receptacle connected or connectable with said closure, said receptacle providing a housing within which an item is able to be accommodated.

Further aspects of the invention which should be considered in all its novel aspects will become apparent from the following description.

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Brief Description of Drawings

FIG. 1: illustrates very diagrammatically one possible embodiment of the present invention;

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FIG.2: shows in an exploded view and very diagrammatically a further possible embodiment of the present invention with the closure system integrated with the neck finish of a beverage container with a transparent upper-cap;

35 **FIG. 3:** shows very diagrammatically a cross sectional view of another possible embodiment;

FIG. 4: shows very diagrammatically a cross sectional view of a further possible embodiment;

5 **FIG. 5:** shows a cut away perspective view of a possible embodiment;

FIG 6: shows a cut away view of another possible embodiment;

10 **FIG. 7:** shows a cut away perspective view of another possible embodiment to illustrate the securement variation of the internal environment created within the cap receptacle by the closure system;

15 **FIG. 8:** shows a cut away perspective view of another possible embodiment to illustrate a variation of fig. 7 where an upper portion of the cap system includes a breakaway component; and

FIG. 9: shows a cut away perspective view of a further embodiment in use with a beverage container

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Description of Preferred Embodiments

The following description of preferred embodiments is merely exemplary in nature, and is in no way intended to limit the invention or its application or uses.

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The present invention generally provides a receptacle, which may be interlocked with similar receptacles, the or each receptacle supporting the placement of a required commodity or item. The receptacle and its associated closure and container may be of any suitable materials. The receptacle(s) enable physical separation of the item from the contained product. Creation of a structure with a separable nature allows for discretionary choice in the opening and resealing of either the container or containment cap, and determines an independence that enables the placement of commodities of designated purpose. This provides opportunity for further generalised application.

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35 The invention can provide secure containment of items or commodities of varied scope. These may include novelty items such as toys, games, puzzles, confectionary, snack items or apparel.

Further to this, written material of a supportive or promotional nature may be included, as may the placement of nutritional supplements.

The invention may also provide placement of those commodities that would provide enhancement of the contained product. These may be determined as those products that provide for; preservation, colour augmentation, changes in sensory perception, viscosity change, gaseous exchange, heating, cooling, chemical composition or molecular arrangement of the product. It is envisioned that the cap system may provide placement for general deployment of those surfactants that may enhance the contained product. It should be recognised that the product held within the container may itself be in a form that would determine its addition to another product as a surfactant. As such the contained product may initially be held in a non aqueous form. The associated cap structure may in turn provide the necessary requirement of promotion, enhancement or informative commodity relating to the use of the contained product.

It is intended that the closure system have general application to integrate with different sized or shaped product containers.

The utilisation potential of cap closures for beverage containers requires that there is a shift from the generally accepted utility application to create and expand market opportunity. One such shift is an embodiment of alternative functionality that generates increased market share. In recognising this application the opportunity of a cap system to place product(s) and/or object(s), deemed as commodities, within a cap structure provides greater opportunity. It is this recognition that is integrated into the cap system herein described.

In first determining an alternative application for a beverage cap **Fig. 1** illustrates the application of the linkage system that is afforded by a connecting or securement means such as a thread **(4)** placed on the exterior surface of the cap **(1)** acting as the receptacle and having a chamber or compartment. The ability to link the cap structures that contain commodity items enable a collectable series of objects to be kept and maintained. Whilst a novelty car is used to illustrate this example, the substitution of this object for another commodity whether branded or otherwise, is easily undertaken at the determined stage of manufacture. Alternatively the use of a non transparent material for the formed receptacle will also allow for placement of those commodities that are required to remain concealed or would otherwise be affected by exposure to light. Whatever the intention, the interlocking allows for commodities to be moved and promoted past the point of sale.

Fig. 2 illustrates an assembly of container cap closure and receptacle on a neck finish of a container and the removal of the lower and upper-cap. The connecting means between the receptacle and the closure may utilise threads. The screwing action to remove the caps in a single piece from the beverage container is shown as **(3)**. Whilst the screwing action required for removal of the upper portion of the cap **(1)** singly is shown as **(2)**. This highlights the determined separation of the promotional novelty from the open beverage container achieved through the use of the specified thread configurations. Such thread configuration provides a linking structure to connect with similar cap closures and cap components. The structures that afford such interlocking are shown as **(4)** on the exterior of the upper most cap **(1)** and as the internal structure shown as **(5)**.

The upper-cap functions to further enhance the primary product. The primary product as determined by the container and associated product of the invention are integrated. The physical association between the invention and the shown container is based on the requirements of a standard neck finish for the product. Shown in **fig. (2)** as **(5)**, a clockwise plastic thread is formed on the internal surface of the upper-cap **(1)**. This in turn is matched on the external surface of a smaller cap **(6)** with a supporting thread **(7)** allowing the union of these two components. The clockwise thread not only provides opportunity for joining the two caps, but creates an action that is contrary to the majority of common screw cap threads. This is necessary as the smaller-cap **(6)** onto which the upper-cap **(1)** is screwed has a standard thread attachment on its internal surface that matches a standardised neck finish. The result of these thread placements allows the removal of both caps from the neck finish of a standard beverage container, without separating the upper and lower caps. This result is based on the assumption that the neck finish thread of the standard bottle is a recognised counter-clockwise action to remove the cap. In doing so it allows the beverage to be opened without releasing the contents of the upper-cap **(1)**. This allows a clear distinction of separation between the primary product and the secondary commodity held within **(1)**. Conversely, should a clockwise screwing action be employed to remove the upper cap **(1)**, the lower cap **(6)** will remain fixed to the neck finish of the container.

Although the threads shown in **fig. 2** as **(5)** and **(7)** have been deemed to unscrew in a clockwise fashion, the substitution of these for a standard counter-clockwise thread, would also be sufficient. However, such an application would limit the execution of separation of the primary and secondary products as previously highlighted.

Further to the threads shown as (5) and (7), these in turn may be substituted in consideration of structures that would afford linking ability between components of the upper (1) and lower cap (6). Said structures may as example be created to reflect annular processes that provide such interlocking ability. In turn the structure shown as (5) would incorporate a reflective engagement with (4), and as such allow the multiplicity of cap connections to be undertaken.

Further to the lower cap (6) and upper cap (1) being removed in a single action, the difficulty in separating the two caps is alleviated by re-screwing the joined caps back onto the neck finish. The clockwise screwing action will cause the upper cap to disengage as the lower cap reaches its lowest extent of movement. This represents the neutral position, in respect to the disengagement of the caps, in which the caps are placed for distribution. In undertaking this action, as previously stated, the contents of the upper cap remain separate from the contents of the primary container within a secure environment.

Further to the function of the over-cap as a receptacle (1), ergonomically it is an improvement in that the increased height allows a hand grip more full in nature to minimise effort and discomfort in removing the cap from a product container.

In securing the upper-cap (1) to enclose the lower cap (6), the upper-cap shall be screwed down to the lowest extent of movement. Tamper evident technologies may provide a mechanism that secures both the upper (1) and/or lower cap (6) to the neck finish or other part of the container.. The leverage action generated by screwing the caps in a clockwise or counter-clockwise action will disengage the tamper evident technology.

Fig. 3 illustrates the employment of the cap system to utilise and enclose an existing closure (8). By example this overcap provides opportunity to apply the cap system to an existing line of standardised beverage containers and the associated closure. Attachment is achieved through the utilisation of the pre-form lip (9) commonly found on a majority of plastic beverage containers. Said attachment is undertaken initially through the employment of tamper evident technologies (10). Though shown as a separable section within the illustration, it will be appreciated that any number of applications of evident securement may be undertaken in the association with the pre-form lip structure. Once released from the encompassed closure, the commodity retained within the cavity of the cap (11) remains secured through the placement of an internal security seal (12) applied in the commodity placement within the cap. Said internal seal is shown in greater detail in **fig. 5** and **fig. 7**. The nature of said internal seal is to provide separation of the retained commodity from the primary beverage product. The seal itself may

be of a nature that is applied through induction, adhesion or methods otherwise employed in the application of seals commonly found within the beverage industry. Once the cap has been removed from the encompassed closure the seal is removed through the employment of a tab mechanism (13) or the like. That allows said seal to be physically removed from its affixed position.

Shown as (14) and (15) in fig 3, these structures afford interlocking between additional caps. The offset nature of the cap system walls enables multiple applications of caps at the point of sale, as well as affording post purchase storage of items such as collectable commodities.

In fig. 4 as with fig 3, the intent of the application is to utilise the known components of existing beverage containers. In the existing closure of a known beverage container (8), tamper evident technology (10) again provides a means of attachment and securement of the cap system to the beverage container. In this instance the securement method is undertaken by employing the closure as the base for attachment. Detachment of the closure system from the existing cap is undertaken by removal of the tamper evident technology. Further to the securement expectations of the cap system, a seal of a nature that would be transparent or otherwise (16) to afford any required promotional aspect, is affixed to close the upper open cavity of the formed receptacle. Such affixation may be applied through induction, adhesion or methods otherwise employed in the application of seals commonly found within the beverage industry. Removal of the seal provides access to the cavity within the cap system and provides physical identification of tampering and disturbance. The seal is removed through the employment of a tab mechanism (13) or the like. That allows said seal to be physically removed from its affixed position.

The interlinking plurality of caps as aforementioned is achieved through the structures shown as (18) and (17). The connective nature of (18), shown on the internal wall of the closure, also allows for the reattachment of the cap system to the beverage closure through the application of downward pressure once the removal of tamper evidence technologies (10) has provided initial release. The displacement to undertake this securement is shown as (28). The downward pressure placed upon closure allows the structure shown as (18) to seat along the underside (29) of the known closure (8).

Fig. 5 extends the application of the closure system to incorporate and utilise known closure technology. Said closure technology shown within this example is a sports cap (20) of a generic design commonly available throughout the world. The illustrated example should be seen as

representative of general application closures that embody vertical ribbing on the exterior surface of the closure to afford enhanced opportunity for consumers to remove said closure from a container. The closure system achieves connection with the generalised closure by utilising these vertical structures that are placed on the exterior surface **(21)** of said closure.

5 The cavity **(11)** can have bottom inter-engaging structures **(22)**. Such mechanism of engagement with a generalised cap closure allows greater attachment when partnered with further tamper evident technologies of any suitable type. Further to the enhancement of attachment afforded by the vertical structures of the generalised closure and the cap system, the interaction and partnered engagement of said structures allows the consumer greater
10 leverage for the removal of the generalised closure that seals the beverage container. Such provision of height is undertaken in conjunction with the closure system to allow a hand grip more full in nature. Similar structures are shown on the exterior surface **(23)** of the closure system. This allows the interconnectivity between additional caps that wish to be adjoined with the primary cap.

15 The securement of a commodity is undertaken within the cavity shown as **(11)**. Placed during the amalgamation of cap system components, the commodity is held in place by an internal seal **(12)** to provide separation of the retained commodity from the primary beverage product. The seal itself, as aforementioned, may be of a nature that is applied through induction,
20 adhesion or methods otherwise employed in the application of seals commonly found within the beverage industry. Once the cap has been removed from the cap closure, the seal is removed through the employment of a tab mechanism **(13)** or the like. That allows said seal to be physically removed from its affixed position.

25 **Fig. 6** is reflective of **fig. 4** but does not retain the requirement of attachment to an existing closure. In this instance the attachment to the container is undertaken directly through threaded means **(19)**. As aforementioned tamper evident technologies are engaged in both the securement of the cap system to the container and for the retention and securement of the placed commodity. A seal of a nature that would be transparent or otherwise **(16)** to afford any
30 required promotional aspect is affixed to close the upper open cavity of the formed receptacle. Such affixation may be applied through induction, adhesion or methods otherwise employed in the application of seals commonly found within the beverage industry. Removal of the seal provides access to the cavity within the closure system and provides physical reflection of tamper disturbance. The seal is removed through the employment of a tab mechanism **(13)** or
35 the like. That allows said seal to be physically removed from its affixed position.

The engagement of additional caps to create multiplicity and interconnectivity is undertaken through engagement of those internal and external structures shown as (19) and (17).

Fig. 7 represents a likewise intent of application to **fig 6**. However, the commodity enclosed within the receptacle of cap system remains secured through the placement of an internal security seal (12) applied as part of the operation in commodity placement within the cap.

Once released from the encompassed closure, the commodity retained within the cavity of the cap (11) remains secured through the placement of an internal security seal (12) applied in the undertaking of commodity placement during the manufacturing process of the cap. The nature of said internal seal is to provide separation of the retained commodity from the contained product. The seal itself may be of a nature that is applied through induction, adhesion or methods otherwise employed in the application of seals commonly found within the beverage industry. Once the closure has been removed from the neck finish of a beverage container, the seal is removed through the employment of a tab mechanism (13) or the like. That allows said seal to be physically removed from its affixed position.

In **fig. 8**, similar to **fig. 7** and **fig. 5**, access to the enclosed receptacle of the closure system is achieved through the removal of the upper cap portion (1). Such removal is achieved through a mechanism shown as (24). Shown as a perforated wall within **fig.8** said disengagement mechanism may also employ such technologies that will afford the separation of the closure system components. Upon removal of the upper section of the closure system, the upper cap may be returned to find temporary fit with an annular arrangement that represents the remnants of attachment (26) on the surface of the lower partnered cap component. The upper cap portion once detached from the body of the closure system also employs the structure (25) to engage with any number of equivalent caps that carry the structure shown as (27).

Shown as (28), the internal seal for **fig. 8** is intended to remain in permanent fixation with the lower section of the cap system. This is in contrast to the previous mechanism of removal highlighted within the preceding embodiments of application. Said seal is applied during the placement of a commodity within the receptacle cavity.

Fig. 9 illustrates applying the cap system of another embodiment to another container and attaching to the annular lip (29) of the shown example of beverage container. The system may have:

tamper evident technology (30);

structure(s) for re-attachment to the beverage container post tamper evident removal
(31);

internal retainment and securement seal (32);

internal cavity (33); and

5 attachment (34) and (31) for a plurality of cap systems to be interlinked

Wherein the foregoing description reference has been made to specific components or integers
with known equivalents, then such equivalents are herein incorporated as if individually set
forth.

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Although the invention has been described by way of example and with reference to possible
embodiments thereof, it will be appreciated that modification and improvements may be made
to the invention without departing from the scope of the invention as defined in the appended
claims.

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CLAIMS:

- 5 1. A receptacle adapted to be removably connected or connectable with a container cap closure, said receptacle being further adapted to receive a required item.
2. A receptacle as claimed in claim 1 having a securement means which enables the receptacle to be removed from the container in use with or without the cap closure.
- 10 3. A receptacle as claimed in claim 1 wherein the securement means includes a threaded portion having thread opposite to that of the container closure.
4. A receptacle as claimed in claim 2 or claim 3 in which the securement means enables a plurality of like receptacles to be connected together above said cap closure.
- 15 5. A receptacle as claimed in claim 1 including a removable sealing means closing off an open end.
6. A receptacle as claimed in claim 5 wherein said sealing means closes off a top end of said receptacle.
- 20 7. An assembly for a container including a container cap closure and a receptacle connected or connectable with said closure, said receptacle providing a housing within which an item is able to be accommodated.
- 25 8. An assembly as claimed in claim 7 wherein said receptacle includes first connecting means to connect with said closure and second connecting means to connect with a further said receptacle so that a plurality of said receptacles can be stacked.
- 30 9. A receptacle substantially as herein described with reference to any one of Figures 1 to 9 of the accompanying drawings.