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(54) **ADAPTABLE COOLING SLEEVE FOR BEVERAGE CONTAINERS**

(71) Applicant: **Richard King**, Riverbank, CA (US)

(72) Inventor: **Richard King**, Riverbank, CA (US)

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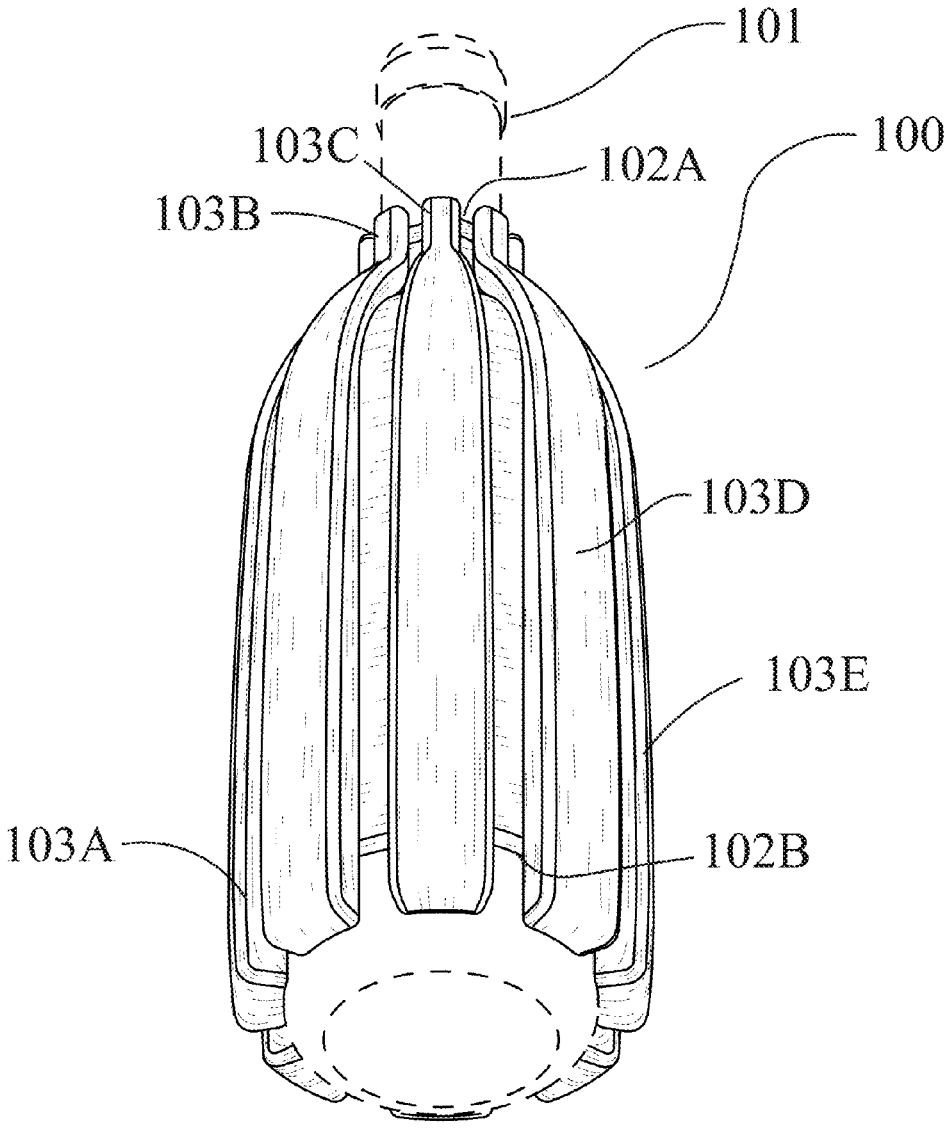
(57) **ABSTRACT**

The present invention relates to an improved adaptable cooling sleeve to maintain or lower the temperature of a beverage. Embodiments of the present invention provide an adaptable cooling sleeve device, hereinafter referred to as the sleeve, having a securing mechanism, a cooling pack that stabilizes the temperature of the beverage container, and an insulating exterior layer. The securing mechanism allows the device to be adjusted to allow the sleeve to accommodate beverage containers of a variety of shapes and sizes. The cooling pack comprises a coolant, such as a liquid or gel, that acts as a temperature stabilizing heat sink for the beverage contents for a period of time. The insulating exterior layer thermally isolates the contents of the beverage and the cooling pack from the atmosphere.



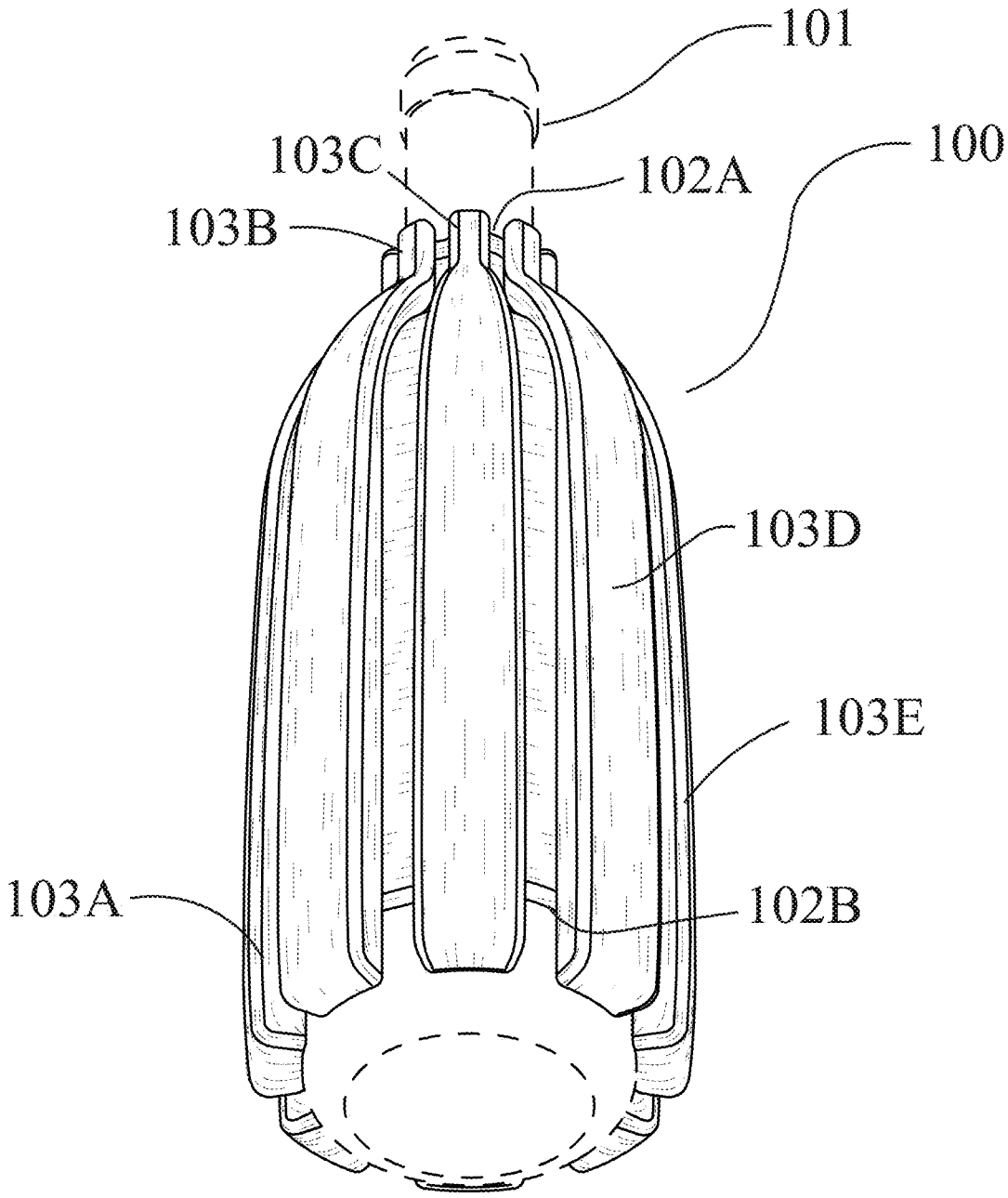


FIG. 1

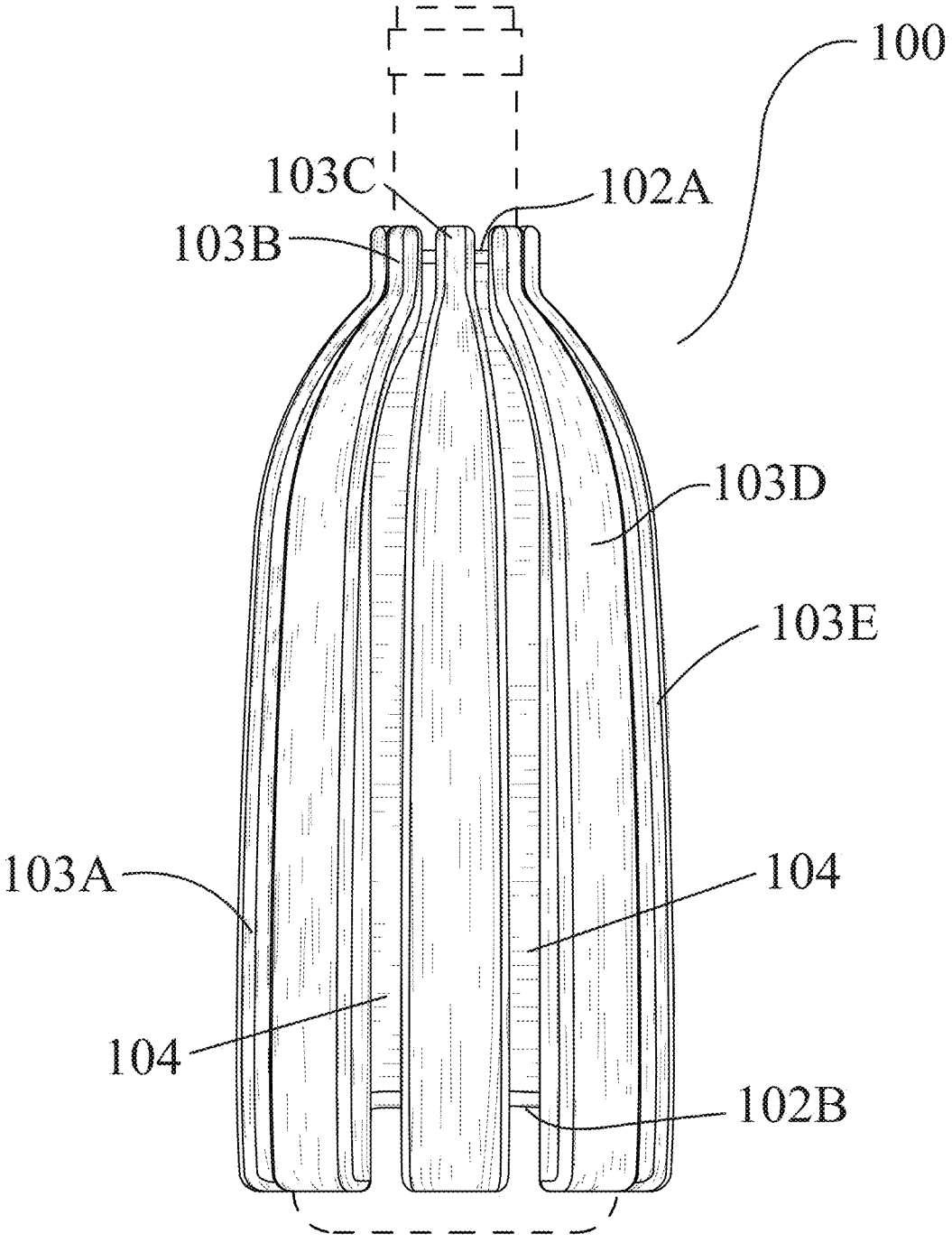


FIG. 2

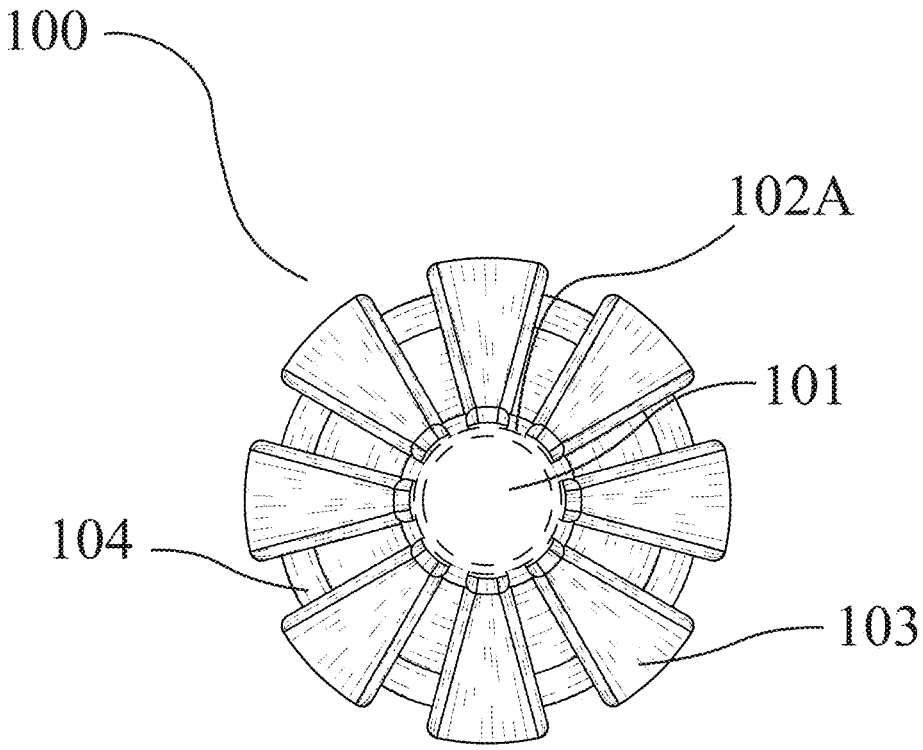


FIG. 3

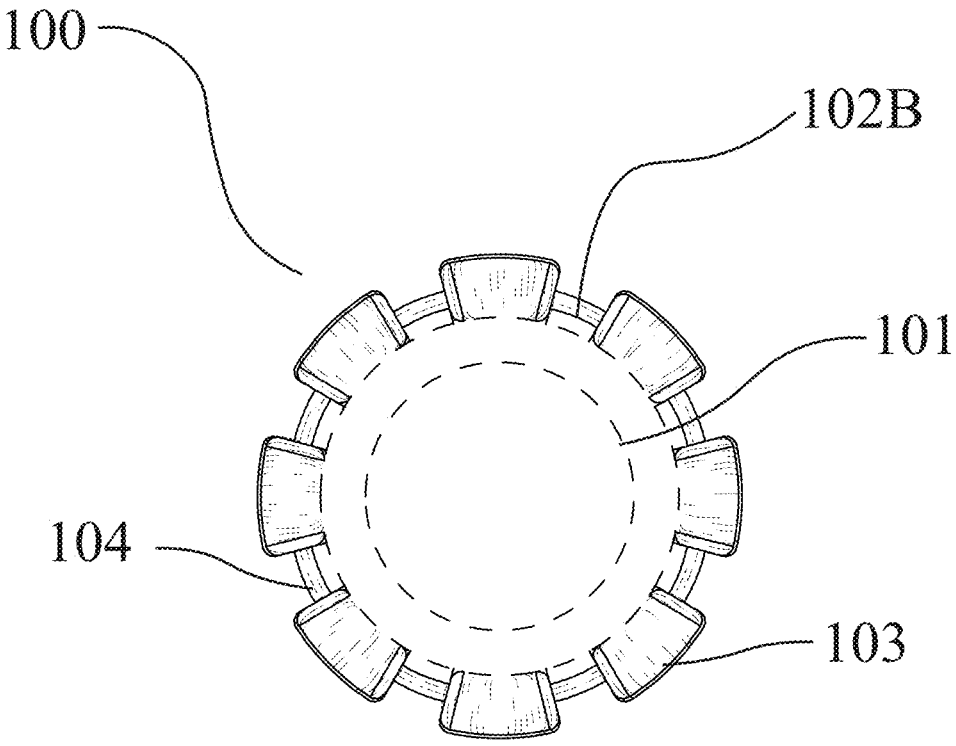


FIG. 4

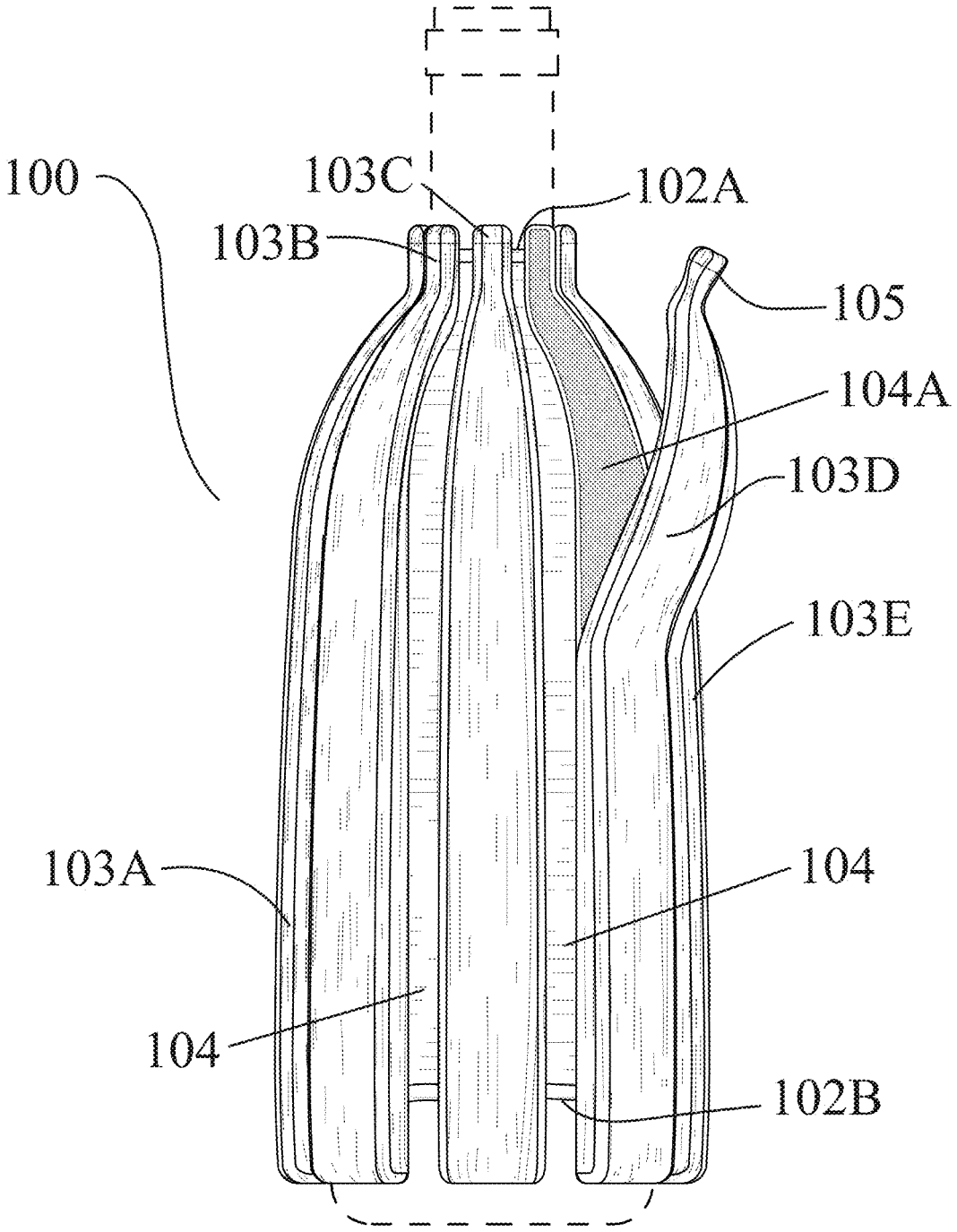


FIG. 5

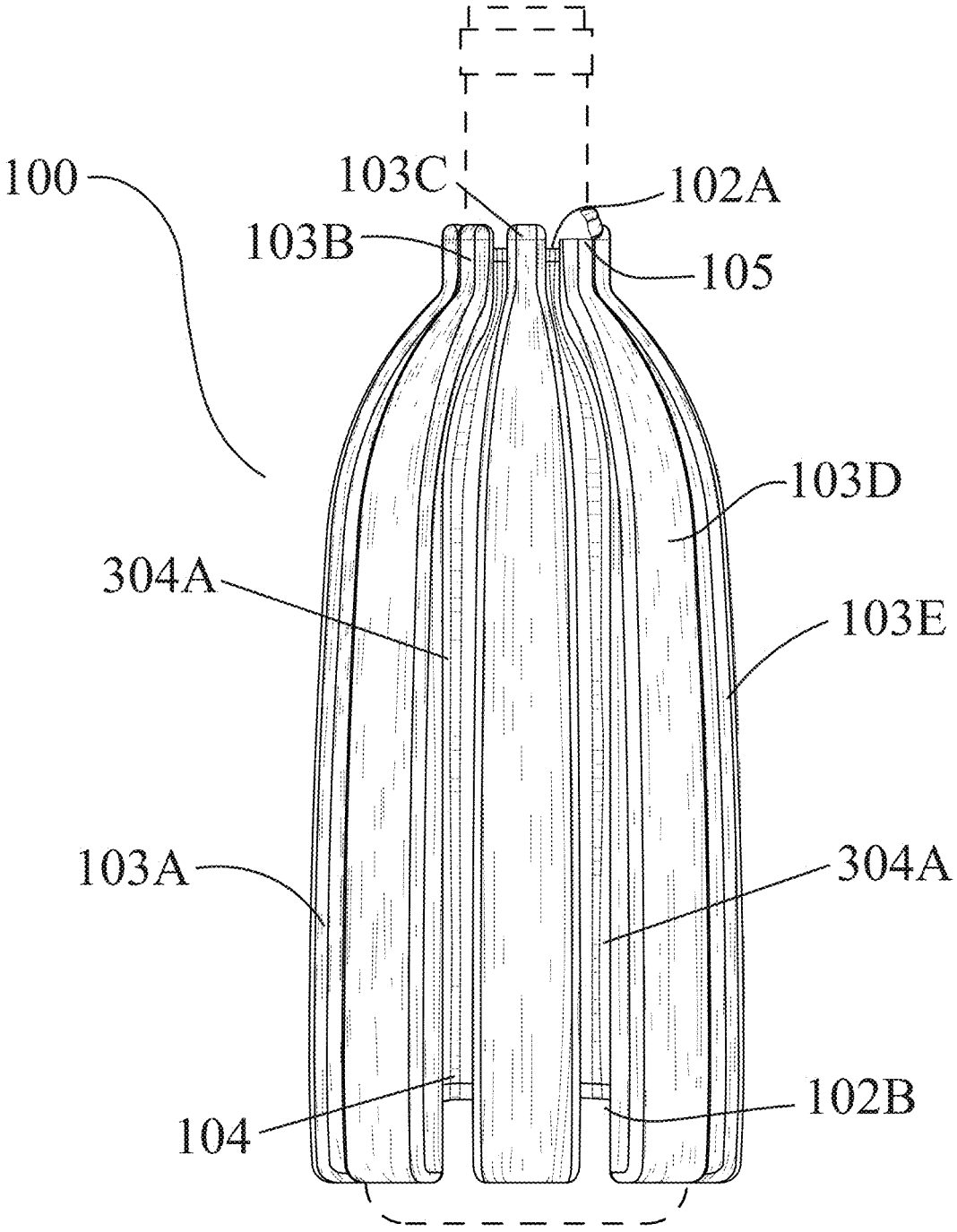


FIG. 6

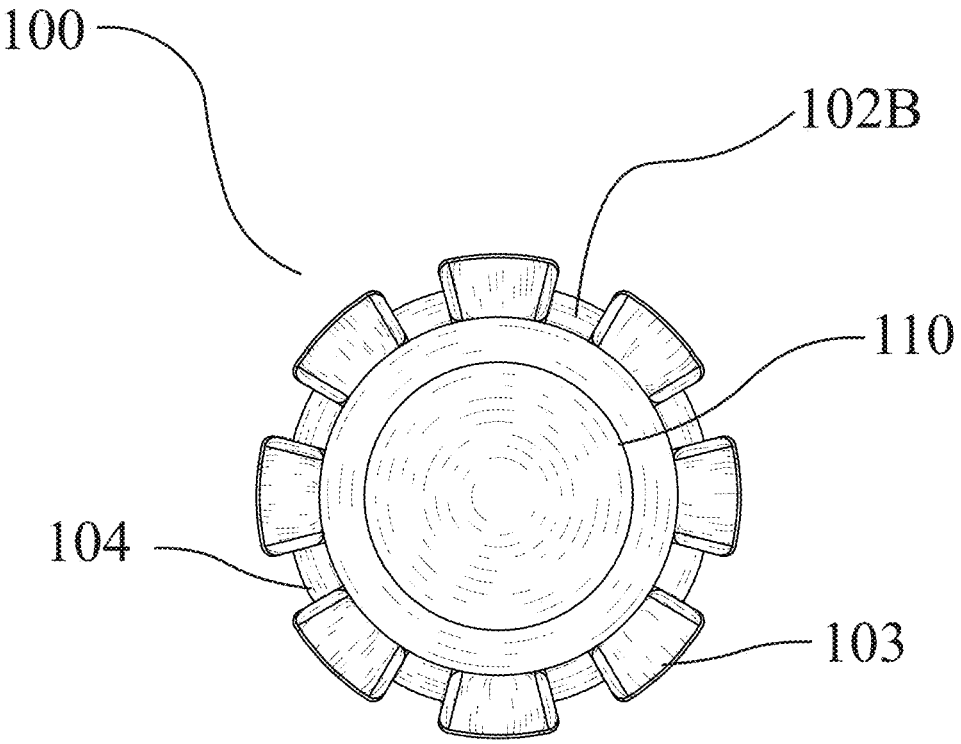


FIG. 7

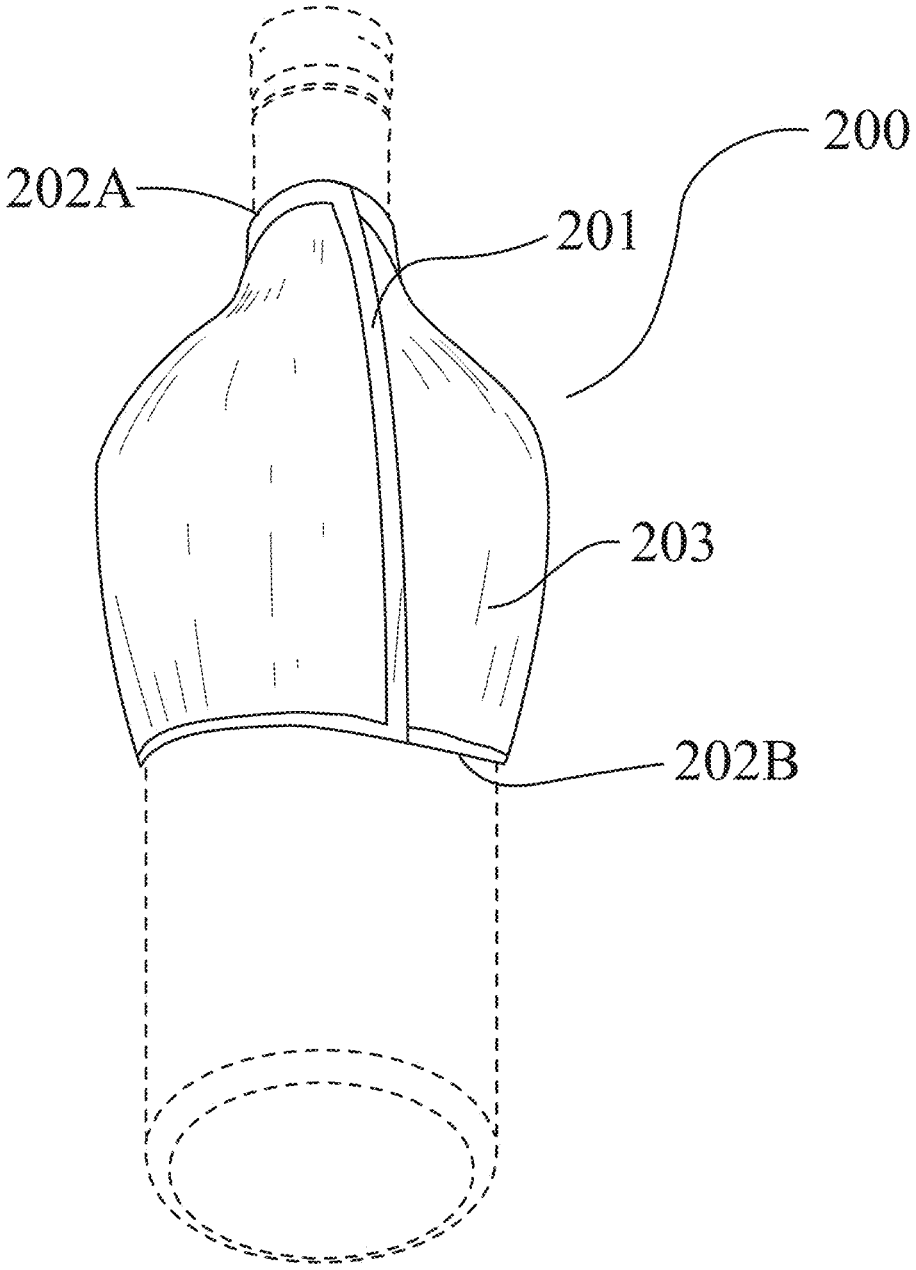


FIG. 8

ADAPTABLE COOLING SLEEVE FOR BEVERAGE CONTAINERS

FIELD OF THE INVENTION

[0001] The present invention relates to a novel device in the area of beverage maintenance. More particularly, embodiments of the present invention pertain to an adaptable cooling sleeve for beverage containers.

DISCUSSION OF THE BACKGROUND

[0002] Most, if not all beverages, have an optimal temperature wherein consumption of the beverage would yield maximum satisfaction. For cold beverages, this temperature is generally reached or maintained by placing the beverage in a cold space, such as a fridge or ice chest, for an extended period of time. However, once the beverage is removed from the cold space for consumption, the temperature of the beverage starts rapidly deviating from the optimal temperature, leading to a beverage that declines in quality over time. While there are products that mitigate this issue, such as insulating sleeves or koozies, they all have a fair share of drawbacks. To begin with, koozies are generally comprised of materials with limited flexibility, such as foam or neoprene, and are fitted to accommodate a particular beverage container by simply sliding the container into the sleeve. This creates a limitation that renders such sleeves impractical since the sleeve is inoperable for any container that deviates too much from the intended container. Furthermore, insulating sleeves do not maintain the optimal temperature of the beverage, but rather reduce the deviation rate from the optimal temperature. While other solutions that do maintain optimal temperature exist, such solutions are not easily adapted for beverages sealed in a separate container. Thus, there remains a need for beverage container sleeve that maintains the optimal beverage temperature and may conform to a variety of beverage container shapes.

SUMMARY OF THE INVENTION

[0003] The present invention relates to an improved adaptable cooling sleeve operable to maintain or lower the temperature of a beverage. Embodiments of the present invention provide an adaptable cooling sleeve device, hereinafter referred to as the sleeve, having a securing mechanism, a cooling pack that lowers or stabilizes the temperature of the beverage container, and an insulating exterior layer. The securing mechanism allows the sleeve to accommodate beverage containers of a variety of shapes and sizes. The cooling pack comprises a coolant, such as a liquid or gel, that acts as a temperature stabilizing heat sink for the beverage contents for a period of time. In some embodiments, the insulating exterior layer may thermally isolate the contents of the beverage and the cooling pack from the atmosphere.

[0004] The securing mechanism may be comprised of elastic material, such as a blend of cotton, spandex, polyester, and/or nylon, that conform to a variety of beverage container shapes and sizes. The securing mechanism of the sleeve may be comprised of a superior opening and an inferior opening that constrict upon the container once the container has been properly placed through these openings. For example, in some embodiments, the securing mechanism has a narrow superior opening and a broad inferior opening operable to accommodate various containers that have portions with varying geometries such as conical, tapering, and cylindrical sections (e.g., wine bottles). As stated earlier, these openings may be comprised of elastic material operable to expand during use to enable the sleeve to accommodate beverage containers that vary in size and shape. In some embodiments, the inferior opening of the sleeve may have a diameter of about 2.5 to about 5 inches, and may be operable to expand to about 3.5 to about 7 inches. In some embodiments, the superior opening of the sleeve may have a diameter of about 0.5 inches to about 2 inches, and may be operable to expand to about 1 to 3 inches. For example, a sleeve for a typical bottle of wine with a diameter of about 3.3 inches may have an inferior opening with a diameter of 3 inches and a superior opening with diameter of about 1 inch (unexpanded) that conforms or expands to the size of the bottle as the bottle is placed therethrough. The height of the device may be about 4 to 12 inches and may vary depending on the range of the containers the sleeve is intended to support.

[0005] In the present invention, the cooling pack may comprise all or most of the interior surface of the sleeve, such that the cooling pack is primarily only in direct contact with the beverage container and the insulating exterior layer. The cooling pack may be comprised of at least one impermeable yet flexible cell containing coolant material for temperature stabilization. In some embodiments the plenum may be comprised of a polymeric shell, such as polyurethane, polyethylene, polypropylene, polycarbonate or a mixture thereof, sufficiently dense or thick enough to maintain impermeability to the coolant contained therein, even during an expansion and/or freezing process.

[0006] In some embodiments, the coolant material may be an ingestible liquid that can be frozen or partially frozen before use, such that the cooling pack serves the dual purpose of cooling a beverage container (e.g., a wine bottle) on which the cooling pack is placed and to provide a pack of cooled or frozen beverage in each of the one or more cells in the cooling pack. The ingestible liquid may be a cooled or frozen beverage that can be ingested directly from the cell or may be mixed with the beverage contained in the beverage container on which the cooling pack is positioned. For example, the beverage container may contain an alcoholic beverage (e.g., spirits) and the one or more cells of the cooling pack may contain a fruit-based beverage mix that compliments the alcoholic beverage and can be mixed therewith. In such embodiments, the one or more cells may have a tearaway poor spout having a tab or other graspable extension to allow a user to open the cell a pre-determined pour spout (e.g., at the superior end of the cell).

[0007] In some embodiments, the one or more cells may be attached to a stretchable polymeric band that interfaces with the beverage container in a removeable manner. The stretchable polymeric band may be made from a polyethylene, polyvinyl chloride, polyvinylidene chloride, or other stretchable polymeric material and may have a shape that is complementary or similar to the shape of the beverage container. The stretchable polymeric band may be placed over the beverage container and may have a close fit, which is facilitated by the stretchable material of the stretchable polymeric sheet. The one or more cells may be removably attached to the stretchable polymeric band by a food-safe adhesive (e.g., epoxy glue, silicone adhesive, etc.). In other examples, each of the one or more cells is tightly attached to stretchable polymeric band on each side thereof by a

polymeric film or sheet having perforations that run along the length of the cell and allow the cell to be torn away and removed from the stretchable polymeric sheet so that the use can open and consume the ingestible liquid without have to remove the cooling pack from the beverage container.

[0008] In other embodiments, the coolant material may be comprised of a refrigerant comprised of a gel, liquid, or a mixture thereof with refrigerant properties. In such embodiments, the gel may be comprised of polyacrylate, diethylene glycol or ethylene glycol while the liquid may simply be water or a solution containing ethylene glycol, diethylene glycol, or propylene glycol. In other embodiments, the coolant material may comprise a plurality of plastic beads that may move freely within the one or more cells. For example, the coolant material may comprise a plurality of polyacrylate beads immersed in water. In some embodiments, the coolant material may comprise a mixture of polymeric material and refrigerant material. For example, the coolant material may be comprised of a plurality of plastic beads containing polyacrylate and immersed in water.

[0009] The mass of coolant material within the one or more cells may be 50 to 700 grams and may be subject to the average volume of the range of beverage containers the sleeve is intended for. For example, the mass of coolant material may be approximately 200 grams to about 300 grams for a standard bottle of wine or about 400 grams to about 600 grams for a magnum size or growler. In some embodiments, the mass of the coolant material may also vary depending on the average consumption time of the beverage. For example, the coolant material may be approximately about 50 grams to about 100 grams for an embodiment of the sleeve intended for 12 oz. beer bottle and 200 grams to about 300 grams for a standard bottle of wine, which are typically consumed over a larger period of time.

[0010] It should be understood that the cooling pack's ability to stabilize the temperature of the beverage to an ideal drinking temperature is subject to the amount of time the cooling pack is exposed to a warmer environment. Simply put, during typical usage, the efficacy of the cooling pack diminishes over time such that the cooling pack serves no practical purpose after being utilized for a prolonged period of time. This means the cooling pack requires a cooling or freezing period, wherein the contents of the cooling pack are exposed to a cold environment, such as a freezer, for an extended period of time between uses. The extended period of time may be subject to the mass of coolant within the cooling pack and/or the period of time the beverage is intended to be consumed in. For example, to maximize the amount of time the cooling pack may stabilize the temperature of a beverage the cooling pack may have to be placed within the freezer for about 5 hours.

[0011] In some embodiments, the cooling pack may be comprised of an array of cells containing coolant separated by the elastic material that comprises the rest of the sleeve. This improves the sleeve's expansion properties and therefore increases the range of the beverage containers the sleeve can conform to. For example, the one or more cells may be connected via flexible strips comprised of elastic material, enabling the sleeve to further expand the openings of the device. The one or more cells may have a tapering shape that narrows at the narrow opening and expands towards the broader of the two openings. For example, the shape of a cell may resemble a spindle, wherein the smaller side of the trapezoid corresponds to the narrower opening and the larger side corresponds to the broader opening. In another embodiment, the sleeve may have a ribbed structure comprised of various folds that increase the range of the expansion for the sleeve and therefore increase the range of beverage containers the sleeve may conform to.

[0012] In another embodiment, the sleeve may have a sheet-like structure and may be shaped such that it may be easily wrapped around the container and secured via a securing mechanism. In such embodiments, once the sleeve is secured via the securing mechanism, the sleeve may comprise a superior opening for a bottleneck or container opening and an inferior opening for the lower portion of the container. In a certain embodiment, the shape of the sleeve may resemble a rectangle or trapezoid with one or more sides replaced with an arc to better conform to the shape of the beverage container. For example, the sleeve may have a rectangular shape to wrap around a cylindrical bottle. In another example, a sleeve intended for a martini glass may have a trapezoidal shape wherein the two horizontal sides are replaced with arcs to better accommodate the stem and glass opening. In another embodiment, the shape of the sleeve may resemble an ellipsoid or spheroid to better adapt to beverage containers with a spherical shape, such as wine glasses.

[0013] In such embodiments, the securing mechanism may be based on zippers, buttons, laces/straps, buckles, hook-and-loop fasteners, magnets, or any suitable attachment mechanism that may secure the sleeve onto the container. For example, the securing mechanism may have zipper elements at each vertical end of the sleeve to close the sleeve and properly secure it onto the beverage container. In another example, the securing mechanism may be magnet based wherein each vertical end of the sleeve contain complimentary magnets that magnetically attach during application, leading to a sleeve that prioritizes ease of use over securement.

[0014] The present invention also comprises a thermally insulating exterior layer to thermally isolate the contents of the cooling pack and beverage container from the atmosphere. This not only impedes the natural flow of heat from a warm atmosphere into the cold beverage but provides an area for the user to grasp the sleeve without having to deal with the discomfort of holding a frigid object. The insulating exterior layer may be comprised of neoprene, ethylene-vinyl acetate, polyester, vinyl, a mixture thereof, or any suitable material that enables the sleeve to expand as needed for the range of intended beverage containers. The insulating exterior layer may further comprise a grip or a protruding pattern/structure that provides grip the enables the user to firmly grasp the sleeve, and by extension the beverage container, during use. For example, the insulating exterior layer may have a wavy or indented protrusion wherein each indent is shaped for receiving a finger or fingertip. In another embodiment, the insulating exterior layer may comprise patches thermally isolating material separated by patches of more elastic material to enable the sleeve to expand even further, and therefore increase the range of beverage containers the sleeve may conform to.

[0015] In the present invention, the insulating exterior layer may envelop all surfaces of the sleeve that aren't intended to be in direct contact with container. For example, the insulating exterior layer may envelop the securing mechanism and the exterior surfaces of the cooling pack. In

some embodiments, the flexible strips that separate each cell of the cooling pack may be enveloped in, comprised of, or similar to the insulative material utilized for the insulating exterior layer. In some embodiments, the cooling pack and/or the insulating exterior layer, may be physically separable. This enables the sleeve to be utilized for its insulative properties while cooling pack may be in storage for a freezing period.

[0016] The foregoing discusses various aspects of the embodiments of the present invention. The following discussion provides exemplary embodiments of the present invention. These embodiments do not limit the scope of the invention and serve to illustrate the invention by example.

[0017] In one aspect, the present invention relates to an adaptable cooling sleeve for beverage containers comprising a cooling pack comprising a plurality of cells each containing a coolant material, the cooling pack being operable to maintain or lower the temperature of a beverage within the beverage container wherein the coolant material comprises an ingestible liquid or gel. The sleeve may also include a securing mechanism operable to secure and conform the adaptable cooling sleeve to a variety of beverage containers. The sleeve may further include an insulating exterior layer operable to thermally insulate the cooling pack and beverage. Each of the plurality of cells may include a tearaway poor spout to allow the user to access the ingestible liquid or gel. Each of the plurality of cells may be removably connected to the securing mechanism. The securing mechanism may comprise stretchable material operable to increase maximum expansion size of the adaptable cooling sleeve to accommodate the shape of variable beverage container sizes. The securing mechanism may have a ribbed structure operable to increase maximum expansion size of the adaptable cooling sleeve. The insulating exterior layer may further comprise a grip to enable a user to comfortably grasp the adaptable cooling sleeve. The securing mechanism may be a stretchable polymeric layer operable to expand to accommodate variable beverage containers of various sizes. The securing mechanism may have two openings for placing the beverage container, including a superior opening operable to secure the adaptable cooling sleeve to the neck of the beverage container, and an inferior opening operable to secure the adaptable cooling sleeve to the body of the beverage container. The securing mechanism may include elastic material operable to conform to a variety of shapes and sizes. The cooling pack may be operable to be removed such that the adaptable cooling sleeve may be reused for its insulative properties. Each of the cells may be removably attached to the elastic layer. Each of the plurality of cells may have a tapering spindle-like shape intended for cylindrical or tapering beverage containers. Each of the plurality of cells may be attached to the elastic layer by a food-safe adhesive. Each of the plurality of cells may be attached to the elastic layer by a perforated film that allows the cells to be pulled off of the stretchable polymeric layer. Each of the plurality of cells may have a tearaway tab for opening the cell to access the ingestible liquid or gel therein.

[0018] In a second aspect, the present invention is an adaptable cooling sleeve for beverage containers comprising, a securing mechanism operable to secure, and conform the adaptable cooling sleeve to a variety of beverage containers, a cooling pack operable to maintain or lower the temperature of a beverage within the beverage container, and an insulating exterior layer operable to thermally insulate the cooling pack and beverage. The cooling pack may further comprise at least one flexible and impermeable cell for storing coolant material. The coolant material may comprise a refrigerant, or gel and/or liquid with refrigerant properties. The coolant material may be contained in a plurality of coolant beads that may be encased in plastic. The one or more cells may also store a mixture of coolant material and coolant beads. The cooling pack may comprise an array of impermeable cells separated by flexible strips comprised of elastic material operable to increase maximum expansion size of the adaptable cooling sleeve. The adaptable cooling sleeve may have a ribbed structure operable to increase maximum expansion size of the adaptable cooling sleeve. The insulating exterior layer may further comprise a grip to enable a user to comfortably grasp the adaptable cooling sleeve. The insulating exterior layer may be comprised of neoprene, ethylene-vinyl acetate, polyester, vinyl, or a mixture thereof. The securing mechanism may be comprised of two openings for placing the beverage container, a superior opening operable to secure the neck of the beverage container to the adaptable cooling sleeve, and an inferior opening operable to secure the body of the beverage container to the adaptable cooling sleeve. The securing mechanism may be comprised of elastic material operable to conform to a variety of shapes and sizes. The cooling pack may also be removable, such that the adaptable cooling sleeve may still be utilized for its insulative properties. The adaptable cooling sleeve may also have sheet-like structure operable to be wrapped around a beverage container and secured via the securing mechanism. The securing mechanism may then be based on zippers, buttons, laces/straps, buckles, hook-and-loop fasteners, or magnets. The adaptable cooling sleeve may have a rectangular shape intended for cylindrical beverage containers. The adaptable cooling sleeve may have a generally rectangular shape with one or more sides replaced with an arc. The adaptable cooling sleeve may have a generally trapezoidal shape with one or more sides replaced with an arc. The adaptable cooling sleeve may have a generally ellipsoid or spheroid shape.

[0019] It is an object of the present invention to provide an adaptable cooling sleeve device which may conform to a range of beverage containers.

[0020] It is also an object of the present invention to provide an adaptable cooling sleeve device which maintains or lowers the temperature of the beverage to an optimal temperature.

[0021] It is also an object of the present invention to provide an adaptable cooling sleeve with a securing mechanism operable to secure and conform the sleeve to beverage containers of various shapes and sizes.

[0022] It is also an object of the present invention to provide an adaptable cooling sleeve with an insulating exterior layer operable to improving beverage maintenance and providing an area for the user to grasp the sleeve without having to deal with the discomfort of holding a frigid object.

[0023] It is also an object of the present invention to provide a cooling pack comprised of an array of cells separated by flexible strips operable to increase expansion size of the cooling pack.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] FIG. **1** provides a perspective view of the front of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0025] FIG. **2** provides a front view of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0026] FIG. **3** provides a top view of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0027] FIG. **4** provides a bottom view of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0028] FIG. **5** provides a perspective view of the front of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0029] FIG. **6** provides a bottom view of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0030] FIG. **7** provides a bottom view of an adaptable cooling sleeve, according to an embodiment of the present invention.

[0031] FIG. **8** provides a bottom view of an adaptable cooling sleeve, according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0032] Reference will now be made in detail to certain embodiments of the invention, examples of which are illustrated in the accompanying drawings. While the invention will be described in reference to these embodiments, it will be understood that they are not intended to limit the invention. To the contrary, the invention is intended to cover alternatives, modifications, and equivalents that are included within the spirit and scope of the invention as defined by the claims. In the following disclosure, specific details are given to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without these specific details.

[0033] The present invention relates to an improved adaptable cooling sleeve operable to maintain or lower the temperature of a beverage. As shown in FIG. **1**, the present invention provides an adaptable cooling sleeve device **100**, having an inner sleeve **102** that provides a tight, frictional fit to the container to secure the device **100**, a cooling layer **103** that stabilizes and/or reduces the temperature of the beverage container **101**, and an insulating layer. In some embodiments, the inner sleeve may comprise an elastic material that allows the device **100** to accommodate beverage containers of a variety of shapes and sizes. The cooling layer **103** comprise a coolant material, such as a liquid or gel, that acts as a temperature stabilizing heat sink for the beverage contents for a period of time. In some embodiments, the sleeve **102** may include an insulating material that thermally isolates the contents of the beverage from the ambient temperature.

[0034] The present invention also comprises an insulating exterior layer to thermally isolate the contents of the cooling pack **103** and beverage container **101** from the atmosphere. This not only impedes the natural flow of heat from a warm atmosphere into the cold beverage but provides an area for the user to grasp the sleeve without having to deal with the discomfort of holding a frigid object. The insulating exterior layer may be comprised of neoprene, ethylene-vinyl acetate, polyester, vinyl, a mixture thereof, or any suitable material that enables the sleeve to expand as needed for the range of intended beverage containers. The insulating exterior layer may further comprise a grip or a protruding pattern/structure that provides grip the enables the user to firmly grasp the sleeve, and by extension the beverage container, during use. For example, the insulating exterior layer may have a wavy or indented protrusion wherein each indent is intended for a finger. In another embodiment, the insulating exterior layer may comprise patches thermally isolating material separated by patches of more elastic material to enable the sleeve to expand even further, and therefore increase the range of beverage containers the sleeve may conform to.

[0035] In the present invention, the insulating exterior layer may envelop all surfaces of the sleeve **100** that aren't intended to be in direct contact with container **101**. For example, the insulating exterior layer may envelop the securing mechanism **102** and the exterior surfaces of the cooling pack **103**. In some embodiments, the flexible strips **104** that separate each cell of the cooling pack may be enveloped in, comprised of, or similar to the insulative material utilized for the insulating exterior layer. In some embodiments, the cooling pack **103** and/or the insulating exterior layer, may be physically separable. This enables the sleeve to be utilized for its insulative properties while cooling pack may be in storage for a freezing period.

[0036] As shown in FIGS. **1-6**, the cooling layer **103** may be comprised of plurality of cells **103**A, **103**B, **103**C, **103**D, **103**E (some additional cells are obscured) containing coolant separated by the elastic material **104** of sleeve, such as the material that comprises the rest of the sleeve. This improves the sleeve's expansion properties and therefore increases the range of the beverage containers to which the sleeve **100** can conform. For example, the flexible bands **104** may be connected to each other in the areas of cells by a thinner layer of stretchable material or a mesh comprised of elastic material to allow heat to be transferred between the cells of the cooling layer **103** and the container **101** (e.g., an attachment pad as discussed further below). The cells themselves may have a tapering shape that narrows at the superior opening **102**A and expands towards the inferior opening **102**B. In some embodiments, the cells may each have a tearaway top portion **105** to allow access to the fluid or gel inside the cells **103**, as shown in FIGS. **5-6**.

[0037] The inner sleeve **102** may be comprised of fabric, foam, and/or other material comprising polyurethane, polyethylene, polypropylene, polycarbonate or a blend thereof, that conform to a variety of beverage container shapes and sizes. As shown in FIG. **1**, the inner sleeve **102** of the sleeve **100** may include a superior opening **102**A and an inferior opening **102**B that constrict upon the container once the beverage container has been properly placed through these openings. For example, in some embodiments, the securing mechanism **102** has a narrow superior opening **102**A and a broad inferior opening **102**B operable to accommodate various containers that have tapering, conical, and/or cylindrical portions, such as the bottle **101**. As stated earlier, these openings may be comprised of elastic material operable to expand during use to enable the sleeve to accommodate beverages that vary in size and shape. In such embodiments, the superior opening **102**A of the sleeve may have a diameter of about 0.5 inches to about 2 inches and may be operable to expand to about 2 to 3 inches. The inferior opening **102**B may have a diameter of about 2.5 to 5 inches and may be operable to expand to about inches **3** to about 7 inches. For example, a sleeve for a typical bottle of wine with a diameter of about 3.3 inches may have an inferior opening **102**B with a diameter of 3 inches and a superior opening **102**A with

diameter of about 1.5 inches (unexpanded) that conforms or expands to the size of the container **101** as the bottle is placed therethrough. The height of the device **100** may be about 4 inches to about 12 inches and may vary depending on the range of the containers the sleeve is intended to support. In some embodiments, the sleeve may comprise a superior opening **102**A for receiving the container and the inferior end may be closed to provide further insulation of the container. As shown in FIG. **7**, an inferior portion **110** of the sleeve **100** may cover the lower portion of the container inserted into the sleeve **100**. The elasticity of the inner sleeve **102** may be sufficient to allow the passage of containers of various shapes (e.g., a Bordeaux bottle shape).

[0038] In the present invention, the cells **103**A, **103**B, **103**C, **103**D, and **103**E may each be attached to a portion of the inner sleeve **102**. The cooling layer **103** (the cells) may be in direct contact with the container **101** at the distal ends of the cells at the superior opening **102**A and/or the inferior opening **102**B. Additionally, the inner sleeve may include thinner attachment areas **104**A (e.g., a mesh material) that enable thermal exchange between the cooling cells of cooling layer **103** and the container **101**. In other embodiments, the inner sleeve **102** may have a consistent thickness and material around its circumference. In further embodiments, the cooling layer **103** may be positioned on the interior side of the inner sleeve **102**, such that the cooling layer **103** may be in direct contact with the container **101**. The cells **103** may be impermeable yet flexible and contain coolant material for temperature stabilization. In some embodiments the cell **103** may be comprised of a film comprising polyurethane, polyethylene, polypropylene, polycarbonate or a mixture thereof, sufficiently dense or thick enough to maintain its impermeable properties, including expansion and/or freezing processes.

[0039] In some embodiments, the one or more cells **103**A, **103**B, **103**C, **103**D, **103**E (some additional cells are obscured in drawing view) may be attached to the stretchable inner sleeve **102** that interfaces with the beverage container in a removeable manner. The inner sleeve **102** may be made from a polyethylene, polyvinyl chloride, polyvinylidene chloride, or other stretchable polymeric fabric, foam, or material and may have a shape that is complementary or similar to the shape of the beverage container **101**. The inner sleeve **102** may be placed over the beverage container **101** and may have a close fit, which is facilitated by the stretchable material of the inner sleeve **102**. As shown in FIG. **5**, the cells **103** may be removably attached to attachment areas **104**A, which may be thin portions of stretchable polymeric band between the thicker flexible bands **104**. The cells **103**A, **103**B, **103**C, **103**D, **103**E, etc. may be attached to the attachment pads **104**A by an adhesive (e.g., a food-safe adhesive, such as epoxy glue, silicone adhesive, etc.).

[0040] As shown in FIG. **6**, in other examples each of the cells **103**A, **103**B, **103**C, **103**D, **103**E may be tightly attached to stretchable polymeric band over the attachment areas **104**A by a film or sheet **304** having perforations **304**A that run between and parallel to the cells and allow the cells to be torn away and removed from the film or sheet **304** so that the user can remove, open, and consume the ingestible liquid without have to remove the cooling pack from the beverage container.

[0041] In some embodiments, the coolant material in the cells **103** may be an ingestible liquid that can be frozen or partially frozen before use, such that the cooling pack serves the dual purpose of cooling a beverage container (e.g., a wine bottle) on which the cooling pack is placed and to provide a pack of cooled or frozen beverage in each of the one or more cells in the cooling pack. The ingestible liquid may be a cooled or frozen beverage that can be ingested directly from the cell or may be mixed with the beverage contained in the beverage container on which the cooling pack is positioned. The ingestible liquid may be accessed by one or more cells may have a tearaway poor spout **105** having a tab or other graspable extension to allow a user to open the cell **103** (e.g., at the superior end of the cell).

[0042] In further embodiments, the coolant material in the cells **103** may be a refrigerant comprised of a gel, liquid, or a mixture thereof with refrigerant properties. In such embodiments, the gel may be comprised of polyacrylate, diethylene glycol or ethylene glycol while the liquid may simply be water or a solution containing ethylene glycol, diethylene glycol, or propylene glycol. In other embodiments, the coolant material may be comprised of polymeric material, similar to that of the cooling pack **103**. For example, the coolant material may comprise a plurality of plastic beads that may move freely within each cell in the cooling layer **103**. For example, the coolant material may comprise a plurality of polyacrylate beads immersed in water. In some embodiments, the coolant material may comprise a mixture of plastic and refrigerant material. For example, the coolant material may be comprised of a plurality of plastic beads containing polyacrylate and immersed in water.

[0043] In the present invention, the mass of coolant material within each cell of the coolant pack **103** may be 50 to 700 grams and may be subject to the average volume of the range of beverage containers the sleeve is intended for. For example, the mass of coolant material may be approximately 200 grams to about 300 grams for a standard bottle of wine or about 400 grams to about 600 grams for a magnum bottle or a growler. In some embodiments, the mass of the coolant material may also vary depending on the average consumption time of the beverage.

[0044] In some embodiments, the sleeve may have a sheet-like structure and be shaped such that it may be easily wrapped around the container and secured via a securing mechanism, as shown in FIG. **8**. In such embodiments, once the sleeve **200** is secured via the securing mechanism **201**, the sleeve may comprise a superior opening **202**A for a bottleneck or container opening and an inferior opening **202**B for the lower portion of the container. In such embodiments, the cooling pack **203** may be comprised within the interior surface of the sleeve. In a certain embodiment, the shape of the sleeve may resemble a rectangle or trapezoid when flat, with one or more sides replaced with an arc to better conform to the shape of the beverage container. For example, the sleeve **200** may have a rectangular shape to wrap around a cylindrical bottle. In another example, a sleeve intended for a glass of martini may have a trapezoidal shape wherein the two horizontal sides are replaced with arcs to better accommodate the stem and glass opening. In another embodiment, the shape of the sleeve may resemble an ellipsoid or spheroid to better adapt to beverage containers with a spherical shape, such as wine glasses. In some embodiments, the sleeve may comprise a superior opening **202**A for a bottleneck or container opening and the inferior end may be closed to provide further insulation of the

container. As shown in FIG. **8**, an inferior portion **210** of the sleeve **200** may cover the lower portion of the container inserted into the sleeve **200**. the lower portion of the container.

[0045] In such embodiments, the securing mechanism **201** may be based on zippers, buttons, laces/straps, buckles, hook-and-loop fasteners, magnets, or any suitable attachment mechanism that may secure the sleeve onto the container. For example, the securing mechanism may have Velcro elements at each vertical end of the sleeve to close the sleeve and properly secure it onto the beverage container. In another example, the securing mechanism may be magnet based wherein each vertical end of the sleeve contain complimentary magnets that magnetically attach during application, leading to a sleeve that prioritizes ease of use over securement.

[0046] It should be understood that the foregoing descriptions of specific embodiments of the present invention have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, and to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

1. An adaptable cooling sleeve for beverage containers comprising:

a. an inner layer operable to secure and conform the adaptable cooling sleeve to a variety of beverage containers, and

b. a cooling pack comprising a plurality of cells each containing a coolant material, said cooling pack being operable to maintain or lower the temperature of a beverage within said beverage container.

2. The device of claim **1**, further comprising an insulating exterior layer operable to thermally insulate said cooling pack and beverage.

3. The device of claim **2**, wherein said coolant material comprises a refrigerant, gel, or liquid with refrigerant properties.

4. The device of claim **3**, wherein said coolant material comprises an ingestible liquid or gel.

5. The device of claim **4**, wherein each of said plurality of cells includes a tearaway poor spout to allow the user to access the ingestible liquid or gel.

6. The device of claim **5**, wherein each of said plurality of cells is removably connected to said inner layer.

7. The device of claim **2**, wherein said inner layer comprises stretchable material operable to increase maximum expansion size of said adaptable cooling sleeve to accommodate the shape of variable beverage container sizes.

8. (canceled)

9. (canceled)

10. The device of claim **7**, wherein said inner layer is a stretchable polymeric layer operable to expand to accommodate variable beverage containers of various sizes.

11. The device of claim **1**, wherein said inner layer includes two openings for placing said beverage container, including:

a. a superior opening operable to secure said adaptable cooling sleeve to the neck of said beverage container, and

b. an inferior opening operable to secure said adaptable cooling sleeve to the body of said beverage container.

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. The device of claim **1**, wherein each of said plurality of cells has a tapering spindle-like shape intended for cylindrical or tapering beverage containers.

17. (canceled)

18. The device of claim **10**, wherein each of said plurality of cells is attached to said stretchable polymeric layer by a perforated film that allows the cells to be pulled off of the stretchable polymeric layer.

19. (canceled)

20. An adaptable cooling sleeve for beverage containers comprising:

a. a cooling pack comprising a plurality of cells each containing a coolant material, said cooling pack being operable to maintain or lower the temperature of a beverage within said beverage container wherein said coolant material comprises an ingestible liquid or gel.

21. The device of claim **20**, further comprising a inner layer operable to secure and conform said adaptable cooling sleeve to a variety of beverage containers.

22. The device of claim **20**, further comprising an insulating exterior layer operable to thermally insulate said cooling pack and beverage.

23. The device of claim **20**, wherein each of said plurality of cells includes a tearaway poor spout to allow the user to access the ingestible liquid or gel.

24. The device of claim **23**, wherein each of said plurality of cells is removably connected to said inner layer.

25. (canceled)

26. (canceled)

27. (canceled)

28. (canceled)

29. The device of claim **21**, wherein said inner layer has two openings for placing said beverage container, including:

a. a superior opening operable to secure said adaptable cooling sleeve to the neck of said beverage container, and

b. an inferior opening operable to secure said adaptable cooling sleeve to the body of said beverage container.

30. The device of claim **26**, wherein said inner layer comprises elastic material operable to conform to a variety of shapes and sizes.

31. The device of claim **20**, wherein said cooling pack is operable to be removed such that said adaptable cooling sleeve is operable to be reused for its insulative properties.

32. The device of claim **30**, wherein each of said cells is removably attached to said elastic layer.

33. The device of claim **24**, wherein each of said plurality of cells has a tapering spindle-like shape intended for cylindrical or tapering beverage containers.

34. (canceled)

35. (canceled)

36. (canceled)

37-52. (canceled)

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