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(54) **DOMED INFLATABLE POOL COVER**

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(57) **ABSTRACT**

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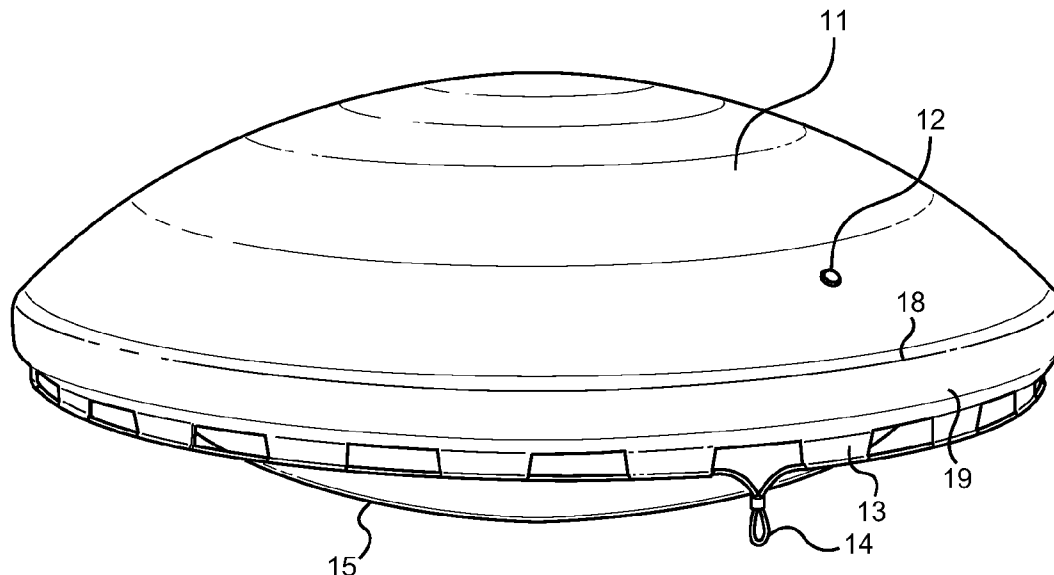
An inflatable pool cover for protecting a swimming pool from falling objects and settling airborne debris. The pool cover has a flexible top layer secured to a flexible, bowl-shaped lower portion. Air is inserted between the top layer and lower portion via an air valve. When the device is inflated the layers swell, resulting in a convex dome. The top layer extends outward from its connection to the lower portion and into a plurality of skirt flaps with reinforced loops or channels. A securing strap is threaded through the reinforced loops and has a cinch means for tightening or loosening the strap. Once the pool cover is in position in a swimming pool, air is inserted and the securing strap is cinched tightly around the sidewalls of the pool. Debris or falling objects that land on the cover will roll off the domed top layer and onto the ground.

Related U.S. Application Data

(60) Provisional application No. 61/470,835, filed on Apr. 1, 2011.

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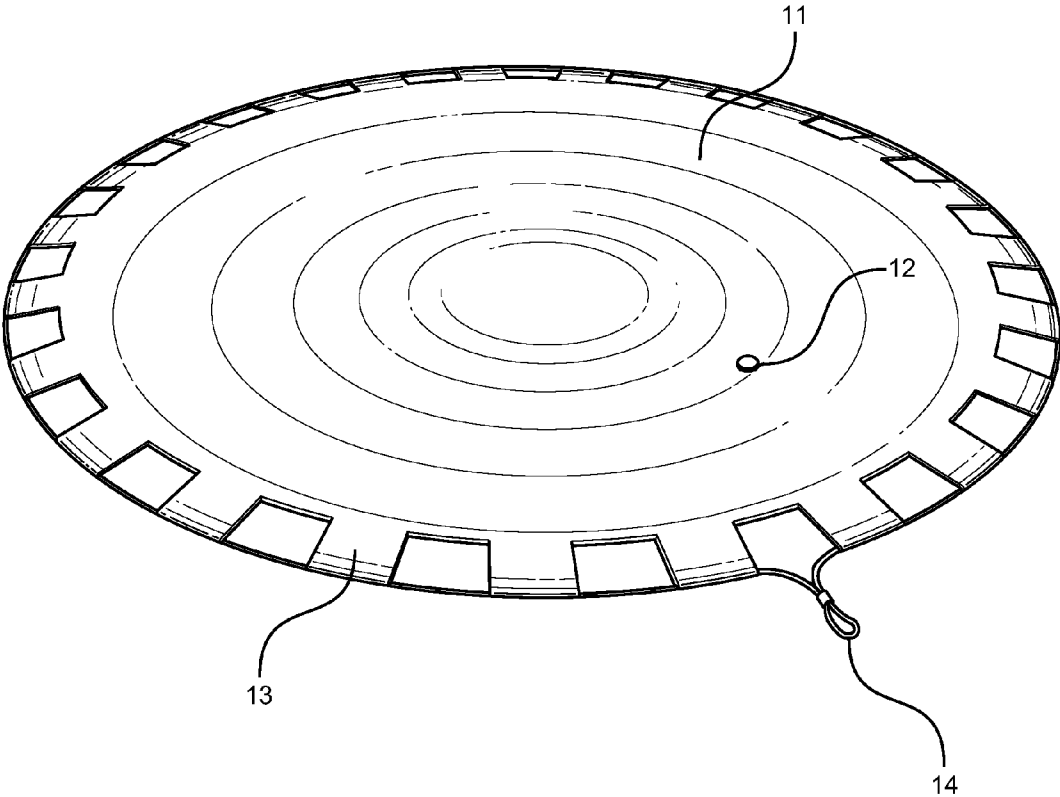


FIG. 1

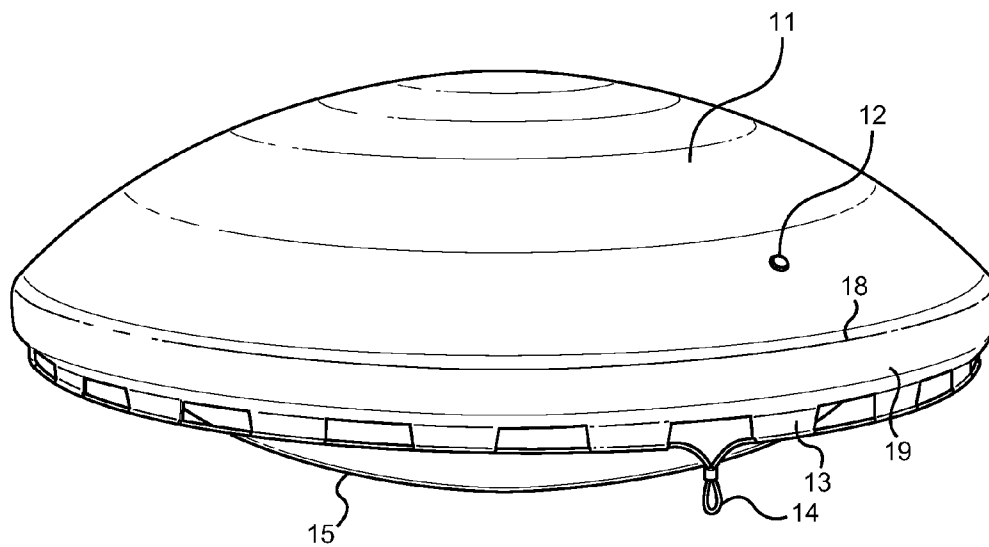


FIG. 2

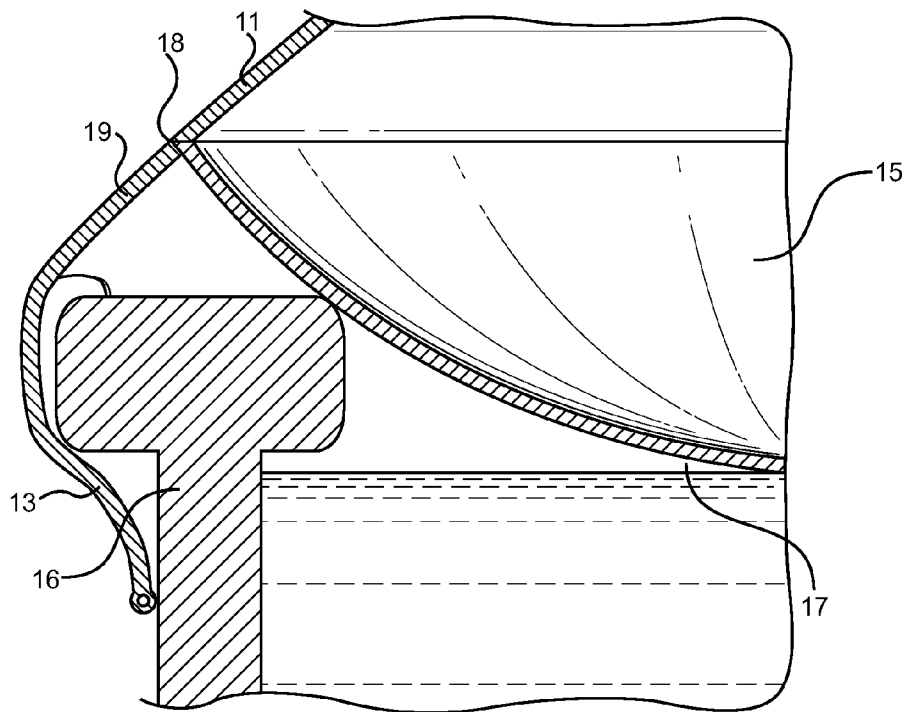


FIG. 3

DOMED INFLATABLE POOL COVER

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 61/470,835 filed on Apr. 1, 2011, entitled “Inflatable Pool Cover.”

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a swimming pool maintenance accessory. More specifically, it relates to an inflatable pool cover for keeping airborne dirt and debris out of a swimming pool during an off-season when the pool is not in use and preventing debris from accumulating on the pool cover surface, wherein the weight of the debris can rupture the cover, increase maintenance and inhibit the ability of the user to remove the cover thereafter.

[0004] Owners of swimming pools must perform regular maintenance and upkeep to maintain their pool in good working condition. Among the more common maintenance tasks are: chemical treatment of water, scooping of leaves and debris, scrubbing the walls to remove dirt and cleaning filters of dirt and debris. During the summer and warmer months, pool owners perform these tasks on a regular basis or employ a pool maintenance company to handle the tasks. In the off-season in colder climates, the swimming pool is not be used. This makes weekly maintenance seem cumbersome and inconvenient. To reduce the volume of dirt and debris that collects in the pool water during these months, pool owners often place off-season pool covers over the water. These pool covers range from simple tarps to more sophisticated covers having automated, retractable hard covers.

[0005] Some pool owners prefer inflatable pool covers because of the associated ease of installation and storage. These pool covers are made of a flexible cloth-like material that covers the upper portion of a pool. Air is inserted under the cover and the resultant air pressure creates a dome shape over the pool. Settling airborne objects roll off the curved side of the pool cover, thus preventing them from falling into the pool water or collecting on an otherwise flat pool cover. A drawback to inflatable pool covers is that heavy objects falling on the cover can deform the underlying air pocket. This deformation can cause depressions in the pool cover where debris can gather or puncture the pool cover, resulting in deflation. Once the pool cover has deflated, it sinks under the surface of the pool water, allowing dirt and debris to fall into the water. An inflatable pool cover is needed that continues to prevent objects and dirt from entering pool water even if the cover is deflated.

[0006] 2. Description of the Prior Art

[0007] The prior art contains a variety of inflatable pool covers that provide protection from leaves, debris, snow and other environmental elements. These devices have familiar design elements for the purpose of protecting a swimming pool from debris, however they are not adapted for the task of providing continued protection to the pool even if the top of the cover is torn or pierced.

[0008] Some above-ground pool covers have a convex shape that is maintained by a pocket of air underneath the cover. Bonneau, U.S. Pat. No. 4,825,479 discloses an inflatable swimming pool cover having a skirt portion that extends downward along the interior of the sides of an above ground

pool. When air is injected underneath the skirt, the cover inflates, covering the pool with a dome shape. Air holes disposed along the side of the skirt allow air to flow into the device and out of the device as needed to maintain the convex shape of the cover. A plurality of securing tethers is affixed to the upper portion of the cover. These securing tethers extend over the side of the pool walls and removably secure thereto via hooks. Similarly, Shuff, U.S. Pat. No. 4,109,325 discloses an inflatable pool cover having a skirt that extends downward into the water of a pool. Ballast elements are secured along the bottom edge of the skirt to hold the pool cover in position within the pool water. The pool cover can be inflated by using an air pump to form a pocket of air underneath the cover. Once the pool cover is inflated the ballast elements hold the bottom edge of the cover skirt underneath the surface of the pool water thus preventing air from escaping out of the air pocket. Neither Bonneau nor Shuff discloses inflatable chambers having a bottom layer that extends over the walls of a pool to help the device maintain a protective cover even if the top layer is perforated or damaged. The present invention provides a flexible bottom layer shaped like a bowl and extends over the edges of a pool wall thereby offering continued protection to the pool in the event that the top cover is punctured.

[0009] Other types of inflatable pool covers include an enclosed chamber that is inflated to form a defined shape. When the chamber is inflated it fills the space between the top surface of the pool cover and the lower surface of the cover. This design is superior to covers that rely on an air pocket between the water and cover, because objects falling on those covers can create depressions in the cover that may gather debris, precipitation and other environmental elements. Over time the build up of such elements can weigh the cover down and deform the convex shape. Chambered pool covers overcome this disadvantage by providing constant, confined air pressure, thereby reducing the likelihood that the cover will deform. Herd et al, U.S. Patent Application Publication No. 2007/0271692 discloses one such chambered pool cover. The pool cover has a top layer sealed near the edges, to a bottom layer. These top and bottom layers define an inflatable interior chamber. The chamber is inflated via an air valve disposed on the side of the device. Once air is inserted and the pool cover is inflated it forms a dome-like structure having a relatively flat bottom and a convex top. A small flap is secured at the edge of the top layer and has eyelet holes spaced along its length so that hooks may be attached. The hooks are used to secure the pool cover to the walls of a pool.

[0010] Another such device is the cover for a circular above ground pools disclosed by Baumann, U.S. Pat. No. 6,286,157. The swimming pool cover of Baumann comprises an upper layer and a lower layer that form an inner cavity. The upper layer is equal in circumference to the lower layer creating a generally symmetrical air cavity. A circular skirt is secured along the seam joining the upper and lower layers, and extends to the wall of the pool. Secured to the perimeter of the skirt is a drape portion, which hangs down the exterior of the pool wall. The draped portion of the device can be secured to the sides of the pool by ratcheting a fastening buckle connected to a nylon rope that extends around the edge of the drape portion. Once the device is secured, it can be inflated through an air valve disposed on the top upper layer. The inflated device has opposing, convex upper and lower layers. A disadvantage of the Baumann device is that the air cavity does not extend beyond the pool walls and covers only

a portion of the pool surface. The skirt is a separate, single layer piece of material that extends between the air cavity and the pool walls. Baumann therefore suffers from the same drawback as the single-layer, non-chambered devices in that the skirt can become deformed or punctured by airborne debris resulting in the debris entering pool water. The present invention solves this problem by providing a bi-layered device that extends past the wall of a pool, thereby covering the entire pool surface. Furthermore the device of Baumann is only suitable for above ground circular pools whereas the present invention may be used with in-ground pools of varying shape. Neither Herd nor Baumann disclose a flexible, bowl-shaped lower portion that prevents debris from entering a pool even if the top layer of the cover is punctured and the air escapes.

[0011] The devices disclosed by the prior art do not provide adequate pool protection if the cover is deflated. The current invention relates to an inflatable pool cover device for protecting a pool from leaves and other debris even if the top layer of the cover is torn or punctured. It substantially diverges in elements from the prior art, consequently it is clear that there is a need in the art for an improvement to the known types of inflatable pool covers. In this regard the instant invention substantially fulfills these needs.

SUMMARY OF THE INVENTION

[0012] In view of the foregoing disadvantages inherent in the known types of inflatable pool covers now present in the prior art, the present invention provides a new inflatable pool cover having a flexible lower portion that covers the entire area of a pool surface, wherein the same can be utilized for providing convenience for the user when protecting a pool from elemental debris, even if the pool cover becomes deflated.

[0013] The inflatable pool cover of the present invention includes a flexible top layer, a flexible bottom layer and a securing strap. The top layer is secured to a bowl-shaped bottom so that the edges of the top layer overhang the periphery of the bowl, creating a skirt. The outer edge of the skirt has a plurality of reinforced, closed loops extending around the perimeter thereof. A securing strap is threaded through the loops and is tightened by a cinching means. This cinching means is used to secure the inflated pool cover into position above a pool surface. The device is inflated via an air valve disposed along the top layer, connectable to an air compressor or similar inflation means. When air is forced into the device, the top layer inflates and expands away from the lower portion, creating two outwardly convex surfaces.

[0014] The structure of the present invention will be appreciated by users that live in environments with significant leaf debris or harsh winters, because the pool cover will not cease to protect the pool if punctured. As discussed above, the prior art suffers from the common setback that they provide inadequate coverage of a pool surface and will not protect the pool from debris if punctured. The present invention solves this problem by providing an expansive, flexible bowl-shaped lower portion. This lower portion rests on the surface of the pool water and extends outwardly over each edge of the pool. The fact that the lower portion rests on both the pool wall and the surface of the water allows the device to be compressed thereagainst of air within the chamber, which makes the top layer taut. Because of the outward pressure, when debris falls on the pool cover it is unlikely to create depressions in the top layer where the debris could settle and collect. Objects that

fall on the inflated pool cover are deflected and roll down along the surface of the top layer and onto the ground. If the inflated top layer is torn or punctured, it will collapse onto the lower portion, which will then continue to catch any falling debris. The lower portion will continue to provide protection to the underlying pool despite the deflation of the inner chamber. In this way, the cover will not sink into the water if deflated, and will revert to a standard, flat pool covering.

[0015] It is therefore an object of the present invention to provide a new and improved inflatable pool cover device that has all of the advantages of the prior art and none of the disadvantages.

[0016] Another object of the present invention is to provide an inflatable pool cover that provides a dome-shaped, inflatable upper surface that prevents falling objects from entering a swimming pool or accumulating on the cover upper surface.

[0017] Another object of the present invention is to provide an inflatable pool cover having a flexible, bowl-shaped lower portion that can capture any leaves, snow or other environmental elements that may fall into a pool, the lower surface extending upwardly over the edges of the pool boundary from the water surface.

[0018] Yet another object of the present invention is to provide an inflatable pool cover having a taut upper surface, such that when inflated objects falling thereon are deflected onto the ground below.

[0019] Still another object of the present invention is to provide continued protection to a swimming pool even if the pool cover is deflated, wherein the pool cover lower portion is adapted to rest on the surface of the water and act as a cover even when the device is not inflated.

[0020] A further object of the present invention is to provide an inflatable swimming pool cover having resilient and durable construction, and one that may be conveniently rolled into a stowed position for seasonal storage.

[0021] Other objects, features and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0022] Although the characteristic features of this invention will be particularly pointed out in the claims, the invention itself and manner in which it may be made and used may be better understood after a review of the following description, taken in connection with the accompanying drawings wherein like numeral annotations are provided throughout.

[0023] FIG. 1 shows a perspective view of the top layer of the inflatable swimming pool cover.

[0024] FIG. 2 shows a perspective view of the inflatable swimming pool cover when inflated.

[0025] FIG. 3 shows a cross-sectional view of the inflatable swimming pool cover installed and cinched against the edge of the pool.

DETAILED DESCRIPTION OF THE INVENTION

[0026] Reference is made herein to the attached drawings. Like reference numerals are used throughout the drawings to depict like or similar elements of the inflatable pool cover device. For the purposes of presenting a brief and clear description of the present invention, the preferred embodiment will be discussed as used for preventing falling debris and other environmental elements from entering a swimming

pool. The figures are intended for representative purposes only and should not be considered to be limiting in any respect.

[0027] Referring now to FIG. 1, there is shown an overhead perspective view of the deflated pool cover of the present invention. The top layer **11** of the inflatable swimming pool cover lies flat when not inflated and has an overall geometric shape that follows the contour of the pool to be covered. This top layer extends across the top of a swimming pool and forms a protective barrier between the pool water and environmental debris. An air valve **12** extends through the top layer to allow the insertion of air into an inner chamber of the device. Around the outside edge of the top layer there are a number of skirt flaps **13**. These skirt flaps have reinforced, closed loops through which a securing strap **14** is threaded or tethered through. A cinching means is secured to a section of the securing strap such that it can be tightened or loosened. When the pool cover is installed onto a swimming pool, the skirt flaps **13** hang over the sidewalls of a pool and are secured against the pool outer surface when a user tightens the securing strap **14** via the cinching means, tightening each strap against the pool outer surface and securing a bottom surface of the device against the water surface and pool periphery. The air valve may be located anywhere along the top layer **11** surface, but is preferably along the perimeter for improved access while inflating. In an embodiment of the skirt flaps, the individual flaps of the present cover are replaced by a continuous channel which is cinched into place via the securing strap **14**.

[0028] Referring now to FIG. 2, there is shown a perspective view of the inflatable pool cover in an inflated state. The lower portion is a flexible layer that forms an upstanding bowl **15** shape when inflated, and having raised apexing sidewalls moving radially outward from the center. The flexible top layer **11** is joined with the lower portion forming an upper surface, a lower surface and an inner chamber therebetween. The connection between upper and lower surfaces is adapted to be above the raised edges of the pool, wherein the lower bowl shape is supported by the water and completely covers the surface thereof. The lower surface extends upwardly when inflated to its connecting line **18** with the upper surface, wherein this connection is positioned above the pool walls. In the event of decompression or puncture of the cover, the lower surface continues to cover the water surface and catch debris. During installation air is inserted within the inner chamber through the air valve **12** disposed on the top layer. In an inflated state, the top layer forms a convex dome over the bowl-shaped lower portion, while the skirt flaps and securing strap **14** hang down over the side of the same.

[0029] Turning now to FIG. 3 there is shown a cross-sectional view of the device installed in a swimming pool. The bowl-shaped lower portion **15** sits on or just below the surface of the pool water **17**, depending upon the compression placed thereon by the securing strap on the upper surface **11**. To provide the best protection, the lower portion should be sized so that its upper edge extends beyond the perimeter of pool sidewalls **16**, which allows the top layer **11** diameter to be greater than that of the pool such that the top layer completely covers the pool. The outer edge elements **19** of the top layer that form skirt flaps **13** hang over the sidewall of the pool and are tightened to restrict the movement of the pool cover. It is not desired to limit the present disclose to having a greater diameter than the pool, but rather it is desired to disclose a

preferred embodiment thereof wherein the device has been shown to be effective for its disclosed purpose in this configuration.

[0030] In an alternative embodiment, the pool cover has fixed to pool stanchions, tethered ground spikes or weights that can be removably secured to the pool cover and act as a securing means therefor. The securing means attach through the reinforced loops of the skirt flaps, and then attach to the stanchions, weights, or stakes that are driven into the ground beside the pool. This secures the pool cover to the ground around the pool and is an effective solution for in-ground pools that do not have exposed sidewalls or above ground pools that are elevated above the ground surface. This configuration is also preferred in windy climates wherein the cover may be further secured to the ground stakes while deployed. If pool stanchions are utilized, tethered hooks or cleats are affixed to the pool stanchions via a cinch cable.

[0031] In use an individual places the pool cover onto the surface of the pool water so that the bowl-shaped lower portion sits on the surface of the water. The top layer and skirt flaps are then unfolded and draped over the sidewalls of the pool. An air valve protruding from the top layer is opened and an air pump is used to fill the inner chamber of the device with air. Once the top layer of the pool cover is inflated, forming a taut convex dome, the air valve is resealed. The user then pulls the securing strap to tighten it and cinches the strap in place. This strap will prevent the pool cover from being displaced by wind or jostling. The inflatable pool cover acts as a barrier between the pool and any falling objects or airborne debris, and further prevents collection of debris thereon.

[0032] The present invention is an inflatable pool cover providing a flexible top layer and a flexible bowl-shaped lower portion that covers the surface of a pool. Dirt and debris are repelled by the taut surface of the inflated top layer, and fall onto the ground rather than falling into the swimming pool. If the top layer is punctured it will deflate, collapsing onto the lower portion. The lower portion then becomes the protective portion of the pool cover by capturing any falling objects or precipitation. In a final embodiment, the inflatable portion may comprise a top layer having an enclosed bladder, which is connected to and supported by the lower portion bowl shape. In the preferred embodiment, the upper portion is sealed against the lower portion to provide an air tight enclosure for pressurization and inflation.

[0033] It is therefore submitted that the instant invention has been shown and described in what is considered to be the most practical and preferred embodiments. It is recognized, however, that departures may be made within the scope of the invention and that obvious modifications will occur to a person skilled in the art. With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0034] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and

accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

I claim:

- 1) An inflatable pool cover, comprising:
 - a flexible top layer adapted to extend over the entire area of a pool surface and having outer edge elements forming a plurality of skirt flaps disposed along its perimeter;
 - a flexible lower portion being secured to said top layer at a connecting line adapted to be placed above the edge of a pool, the layers forming an airtight, inflatable inner chamber;
 - an air valve extending through said top layer;
 - a securing means removably connecting said skirt flaps.
- 2) The device of claim 1, wherein said skirt flaps comprise reinforced, closed loops through which said securing means is attached.
- 3) The device of claim 1, wherein said skirt flaps form a channel through which said securing means is attached.
- 4) The device of claim 1, wherein said lower portion is adapted to extend beyond the upper edge of a pool wall when air is inserted between said upper and lower layers.
- 5) The device of claim 1, wherein said lower portion is bowl shaped.
- 6) The device of claim 1, wherein said securing means is a cable having a cinching means.
- 7) The device of claim 1, wherein said securing means is a plurality of tethered hooks or cleats that are affixed to pool stanchions via a cinch cable.
- 8) The device of claim 1, wherein said securing means is a plurality of tethered ground stakes.
- 9) The device of claim 1, wherein said securing means is a plurality of tethered weights.

- 10) An inflatable pool cover, comprising:
 - a flexible top layer adapted to extend over the entire area of a pool surface and having outer edge elements forming a plurality of skirt flaps disposed along its perimeter,
 - a flexible, bowl-shaped lower portion secured to said top layer at a connecting line adapted to be placed above the edge of a pool;
 - said bladder forming an air-tight, inflatable inner chamber;
 - an air valve extending into said inner chamber;
 - a securing means removably secured to said skirt flaps.
- 11) The device of claim 10, wherein said skirt flaps comprise reinforced, closed loops through which said securing means is attached.
- 12) The device of claim 10, wherein said skirt flaps form a channel through which said securing means is attached.
- 13) The device of claim 10, wherein said lower portion is adapted to extend beyond the upper edge of a pool wall when air is inserted between said upper and lower layers.
- 14) The device of claim 10, wherein said lower portion is bowl shaped.
- 15) The device of claim 10, wherein said securing means is a cable having a cinching means.
- 16) The device of claim 10, wherein said securing means is a plurality of tethered hooks or cleats that are affixed to pool stanchions via a cinch cable.
- 17) The device of claim 10, wherein said securing means is a plurality of tethered ground stakes.
- 18) The device of claim 10, wherein said securing means is a plurality of tethered weights.

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