RECREATIONAL FLOTATION DEVICE

Inventor: Lee Ann Miller, Indianapolis, IN
(US)

Appl. No.: 13/230,180

Filed: Sep. 12, 2011

Related U.S. Application Data

Provisional application No. 61/403,175, filed on Sep. 13, 2010.

Publication Classification

Int. Cl.
B63B 35/73 (2006.01)

U.S. Cl. ............................................ 441/130; 441/129

ABSTRACT

A recreational flotation device can comprise a closed container formed from a water-permeable material and containing a plurality of discrete floatable elements so the container is deformed and deformable by a user in the water to provide selection and variation in the manner in which a user’s body can be supported above and under the water’s surface. Articles that pose environmental disposal problems can be used as discrete floatable elements.
FIG. 4
RECREATIONAL FLOTATION DEVICE

[0001] This patent application is entitled to and claims the benefit of Provisional Patent Application No. 61/403,175 filed Sep. 13, 2010.

FIELD OF THE INVENTION

[0002] This patent application relates to recreational flotation devices, and more particularly, to recreational devices for use by a human to enhance the recreational enjoyment of water by providing the human user with the ability of selectable flotation of his body, permitting, for example, the user to have selectable parts of his body supported while immersed in the water while other selectable parts of his body are supported above the water surface. The invention can also provide an improvement in the environment by reuse of materials and products that are formed from non-degradable materials and products.

BACKGROUND OF THE INVENTION

[0003] There are many devices available for recreational use while swimming or otherwise recreating in water. A number of flotation devices are designed primarily for functional use to prevent drowning, although some such devices may be used in recreational enjoyment of water. Such devices include life vests, life buoys and the like. Flotation devices that are designed primarily for recreational use of water, for example, at a swimming pool or at the beach, include devices that provide flotation support in the water, but do not permit a user to vary the manner in which the flotation device supports their body. Such devices include plastic foam or wood kick boards used primarily to support the upper body of a user while moving his/her body through the water by kicking their legs, and include long strips of plastic foam that can provide limited local support to a part of a user's body. Such recreational devices can also include inflatable supports, like blow-up rafts that can support a user's body generally above the water's surface, and inner tubes which can support the body of a user generally above the water's surface or can support the upper portions of one or more users' bodies above the water's surface, and inflatable life buoys in the shape of swans, ducks and other animals for use by children. Such inflatable supports, however, require inflation and are subject to punctures that impose risks of drowning by a non-swimming user.

[0004] These existing flotation devices are incapable of selectable deformation and adjustment in use in the water, provide only the limited support of a user's body dictated by the designs of the devices and restrict an adult users enjoyment of the water.

BRIEF SUMMARY OF THE INVENTION

[0005] The invention comprises a recreational flotation device comprising a closed container formed from a water-permeable material and containing a plurality of discrete floatable elements so the container is deformed and deformable by a user in the water to provide selection and variation in the manner in which a user's body can be supported above and under the water's surface. The water-permeable container can be formed in any selected size and shape from any water-permeable fabric, mesh, webbing or netting of synthetic or natural fibers, and the discrete floatable elements can be any elements that float in water, including non-degradable elements that pose environmental disposal problems, and that can be retained within the water-permeable container.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0006] FIG. 1 is an illustration of one exemplary embodiment of my invention as viewed from above while lying on a flat surface;

[0007] FIG. 2 is an illustration of the exemplary embodiment of FIG. 1 as viewed from the side while lying on a flat surface;

[0008] FIG. 3 is an illustration of another exemplary embodiment of my invention with a different shape as viewed from above while lying on a flat surface, the side view of the FIG. 3 embodiment having an appearance substantially like that of FIG. 2;

[0009] FIG. 4 is an illustration of another exemplary embodiment of the invention, with parts like the embodiment of FIGS. 1 and 2 but with an added attachment together of the central portions of the upper and lower panels of the container, as viewed from above while lying on a flat surface;

[0010] FIG. 5 is a cross-sectional view of the exemplary embodiment of FIG. 4, taken at a plane through line 5-5 of FIG. 4 to show the effect of the added attachment on the distribution of the discrete floatable elements within the device;

[0011] FIG. 6 is an illustration of a further exemplary embodiment of the invention, including a plurality of joined container sections that are foldable at their junctions; and

[0012] FIG. 7 is an of an embodiment of the invention adapted to use non-degradable plastic water bottles as discrete floatable elements.

DETAILED DESCRIPTION OF THE INVENTION

[0013] FIG. 1 and FIG. 2 depict one exemplary embodiment of the invention providing flotation support for a user. As shown in FIGS. 1 and 2, the device includes an upper panel 11a of flexible mesh, or netting and a lower panel 11b of flexible mesh or netting that are joined around their peripheries to form a container 11 that permits water to flow freely through the panels 11a and 11b and within its interior, that is, the resulting container is water-permeable. As further shown in FIGS. 1 and 2, the container formed by the joined water-permeable panels 11a and 11b loosely contains a plurality of discrete floatable elements 12 that are free to move, or be moved, within the container. In the device illustrated by FIGS. 1 and 2 the plurality of discrete floatable elements 12 can be any elements that are less dense than water and float in water and can provide flotation support for a user's body. The example illustrated in FIGS. 1 and 2 includes hollow plastic balls that preclude water from their interiors and therefore float and can provide flotation support for a user's body. Because the panels 11a and 11b are formed from flexible mesh or netting, and because the plurality of discrete floatable elements 12 are loosely contained within the container formed by the joined panels 11a and 11b, the container can be deformed in the water and its plurality of discrete floatable elements can be relocated within the container by a user to provide a selected degree of flotation to different parts of his body.

[0014] The exemplary embodiment of FIGS. 1 and 2 is illustrated as a rectangular raft-like device 10, which can be, for example, about three feet wide and five feet long with its container formed from properly sized panels 11a, 11b of
flexible mesh, or netting, formed from strands of natural or synthetic fibers, with diameters, for example, of about \( \frac{1}{32} \) to about \( \frac{1}{16} \) of an inch, fastened in the mesh, or netting, to provide rectangular openings, preferably square, haying, for example, two inches on each side of the opening. Such a device can be combined with hollow spherical balls 12 formed from an inexpensive plastic resin, such as polypropylene or expanded polystyrene, with a diameter selected to be too large to permit the balls to pass through the openings of the mesh, or netting but small enough to permit their relocation within the container 11 without undue mutual interference during deformation of the container 11 by a user. With 2 inch by 2 inch square openings, for example, the balls can have a diameter of 2.625 inches in this exemplary embodiment. To avoid the spherical balls from escaping through the openings in the mesh or netting of the container, their diameters must not only be larger than the dimensions of the rectangular openings, but enough larger to interfere with strands forming the openings in the flexible mesh or netting of the container when the strands of the openings are deformed by the surfaces of the balls into a circular shape. The total length of the strands forming a rectangular opening is the sum of the lengths of each of its sides and the length of the circumference of a sphere is \( 3.1416 \) times its diameter. For example, for the embodiment of the invention described above, the strands forming the square openings whose sides are each two inches long have a total length of 8 inches \((4\times2=8)\) so spherical balls must have a circumference greater than 8 inches so that if the strands forming the square openings are deformed into a circular shape they will block the spherical balls from passage through the deformed opening. In mathematical terms, 3.1416 \( \text{ball diameter} \times \text{total length of the sides of the opening.} \)

The number of discrete floatable elements to be placed within a container formed by the flexible water-permeable panels depends on the degree of flotation desired and the natural buoyancy of the human user. Materials less dense than water float in water. The density of a human body is about 61 pounds per cubic foot to about 67 pounds per cubic foot, and the density of water is about 62.4 pounds per cubic foot. Human bodies almost float in water, and some may. Accordingly, the recreational flotation device of the invention will not require a great number of discrete floatation elements to permit a user to achieve flotation of selected parts of his body. The density of a cubic inch of water is 62.4/1728, or about 0.036 pounds per cubic inch. A sphere has a volume of \( \frac{4}{3}\pi r^3 \) the cube of its diameter, and a sphere having a diameter of 2.625 inches will therefore have a volume of 9.47 cubic inches and displace 0.34 pounds of water. Thus, three such balls will provide over one pound of flotation. If desired, an edge where the upper and lower panels are joined may be provided with a section of detachable fasteners, or an opening in one of the panels that can be closed by a flap and detachable fasteners, can be provided to allow the adjustment in the number of discrete flotation elements in the container.

In use the exemplary embodiment of my invention illustrated in FIGS. 1 and 2 can provide a water hammock in which the discrete floatable elements 12 (for example, hollow balls) can be displaced by the user from the central area of the container 11 to the ends and sides of the container 11 so that the user's body can rest on the container 11 with the head and feet elevated and supported out of the water by the balls that were relocated to the ends and sides of the container by the user while the user's midsection is supported below the water's surface and below the user's head and feet, as in a hammock. In addition, a user can arrange the floatable elements 12 within the container 11 and/or the container 11 can be folded by a user to provide variable flotation of his body parts in the water.

The invention is not limited to a rectangular shape like that of FIGS. 1 and 2, which was described as one exemplary embodiment of the invention. The container can be shaped with joined lobes, or variously-shaped panels, to permit variation in the support of a user's body, and the area where the lobes, or variously-shaped panels, are joined can be narrowed so the container can be more easily folded at their junction. FIG. 3 illustrates another exemplary embodiment of the invention with the container 16 formed with panels shaped as two joined circular lobes 16a, 16b and carrying a plurality of discrete floatation elements, spherical balls as shown. While the FIG. 3 embodiment includes only two lobes 16a, 16b, a container of the invention can be formed with any selected number of projecting lobes or panels.

In addition, in the invention a container can be provided with localized fastening between the upper and lower panels to preclude the floatable elements from selected parts of the container. FIGS. 4 and 5 illustrate, as an example of such an embodiment of the invention, a container such as that illustrated in FIGS. 1 and 2 and described above, but adapted to provide a water hammock by attaching the upper and lower panels, 19a, 19b, of the container 19 together in their central portions to preclude floatable elements from the central portion 19c of the container so a user's body will be supported hammock-like in the water as described above. Rather than permanently attaching the upper and lower panels together (for example, by sewing) to locally preclude floatable elements from selected areas of a container, the panels of the container may be provided with variously located fasteners, such as snaps, Velcro and the like, to allow a user a selectable variation of the container in use.

FIG. 6 illustrates still another embodiment of the invention. In the embodiment of FIG. 6, a plurality of container panels 21, 22, 23, 24 are joined to be foldable at their junctions 26, 27, 28. In the FIG. 6 embodiment, container panel 21 includes a non-container inner panel portion 21a, which does not include any flotation elements, and an edge container portion 21b, which does include flotation elements. Container panels 22 and 23 are foldably joined to panel 21 at the left and right sides of panel 21 as viewed in FIG. 6, and container panel 24 is foldably joined to panel 21 at the back of panel 21. The FIG. 6 embodiment of the invention can serve as a water chair if a user sits on panel 21. The embodiment can support the body of a user with the user's head above the water surface because of the buoyancy of container panels 22, 23, 24 and the container portion 21b of panel 21, and panels 22, 23, and 24 will float upright and serve like the back and arms of a chair.

FIG. 7 illustrates a still further embodiment of the invention that includes empty plastic water bottles 31 as the discrete floatation elements. Preferred plastic water bottles are the plentiful 500 ml water containers formed by thin, soft and pliable plastic with a diameters of about 2 \( \frac{1}{2} \) inches and a lengths of about 7 inches, preferably capped. The approximate volume of such a bottle is 34.4 cubic inches and displaces approximately 1.24 pounds of water. The closed container 32 can be adapted to carry the number of empty water bottles needed to provide the desired selectable support of a
As illustrated in FIG. 7, the upper and lower side panels of the closed container 32 can be attached together to form sleeves 32a into which capped empty plastic water bottles 31 can be inserted, and the sleeves 32a can be formed to run in different directions to facilitate bending of the closed container 32 in its support of a user. The FIG. 7 embodiment shown, which is adapted to provide hammock-like support of a user lying on its upper surface, includes a plurality of sleeves 32a running in the long direction of the closed container 32 to facilitate its deformation by a user in the water to lift and provide hammock-like support for the sides of a centrally located user, and a plurality of sleeves 32a at the ends of the closed container running at right angles to the long direction of the closed container 32 to provide pillow-like support for the user's head, although only one end of the closed container 32 includes water bottles.

Selection of the Flexible Water-Permeable Material

The flexible water permeable material from which the container for the floatable device can be formed may be a woven fabric sheet, such as a cotton sheet, which has the advantage of permitting any size floatable elements to be used without concern about their escape for the container, or any commercially available flexible mesh, or webbing, or netting comprised of strands of plastic, such as polyethylene, polypropylene, nylon, polyester, polycarbonate and the like, or natural fibers, like cotton, jute and the like, and forming openings with open areas preferably about ¼ square inch to about 4 square inches. Sources of such mesh, webbing and netting can be found by use of the internet, for example, sources identified on the internet include hhf.biz, American Home and Habitat, Inc., 14396 Highway 1458, Sealy, Tex. 77474 and JoAnn Fabrics.com.

Selection of the Discrete Floatable Elements

The discrete floatable elements can be any elements that float in water and can be contained within a container formed from a flexible water-permeable material selected for the container. Hollow plastic balls are one example of such floatable elements. Sources of floating plastic balls can be identified on the internet, such sources being CIC Ball Company of Hatfield, Pa. and excel plastics of Byron Center, Mich. and Universal Foam Products, Hunt Valley, Md. Other floatable elements can also be used, such as plastic foam balls, plastic foam packing materials (such as the “peanuts” commonly used to fill empty space in packing containers) and other floatable elements. Products that are formed from non-degradable plastic materials, such as polystyrene foam and plastic water bottles pose environmental disposal problems. For example, polystyrene foam is used in many forms as packing materials, including the small forms frequently referred to as “peanuts”, and presents a disposal problem because the polystyrene will not biodegrade. In addition, clear plastic bottles containing water are sold by the millions for water consumption and later discarded. These non-degradable plastic products and others can be used as floatable elements in the invention.

Those skilled in the art will recognize that there are many embodiments of the invention other than those illustrated and described above which are covered by the following claims.

What is claimed is:

1. A recreational flotation device, comprising a closed container formed from a flexible water-permeable material, and a plurality of discrete, floatable elements carried within the closed container, said closed container and its plurality of discrete floatable elements being deformable by a user to provide a selectable floating support for the user's body.

2. The recreational flotation device of claim 1 wherein the flexible water-permeable material comprises a mesh or a netting.

3. The recreational flotation device of claim 2 wherein the mesh or netting is comprised of a selected one of a group of fiber-like plastics including polyethylene, polypropylene, polystyrene, polycarbonate, nylon and the like.

4. The recreational flotation device of claim 3 wherein the mesh or netting is comprised of a selected one of a group of fiber-like plastics including polyethylene, polypropylene, polystyrene, polycarbonate, nylon and the like.

5. The recreational flotation device of claim 1 wherein the mesh or netting is formed from a natural fiber.

6. The recreational flotation device of claim 1 wherein the flexible water-permeable material is a fabric formed from a natural fiber.

7. The recreational flotation device of claim 2 wherein the mesh or netting comprises uniformly-shaped openings having open areas of from 0.25 square inch to 4.0 square inches.

8. The recreational flotation device of claim 1 wherein the discrete floatable elements comprise floatable elements formed from a material with a density less than water.

9. The recreational flotation device of claim 8 wherein the discrete floatable elements are formed from polystyrene foam.

10. The recreational flotation device of claim 1 wherein the discrete floatable elements are hollow and water impermeable.

11. The recreational flotation device of claim 10 wherein the discrete floatable elements comprise empty plastic water bottles.

12. The recreational flotation device of claim 1 wherein the closed container includes at least two side panels and at least one attachment between the side panels of the closed container to exclude the discrete floatable elements from at least one interior portion of the closed container.

13. The recreational flotation device of claim 12 wherein the attachment is centrally and longitudinally located adjacent the center of the closed container to exclude the discrete floatable elements from the center and longitudinal portion of the closed container to provide hammock-like support of a human body in the water.

14. The recreational flotation device of claim 12 wherein the attachment is located to facilitate a human user in folding the closed container into a different shape.

15. The recreational flotation device of claim 12 wherein the attachment can be effected and removed by a user while in the water.

16. The recreational flotation device of claim 12 wherein the attachment comprises a plurality of detachable fasteners for fastening more than one portion of the two side panels together.

17. The recreational flotation device of claim 1 wherein the container has a rectangular shape in its major dimension.

18. The recreational flotation device of claim 1 wherein the container has a cloud-like form with plural lobes.

19. The recreational flotation device of claim 1 wherein the container is formed from a plurality of container panels joined at their edges to provide a plurality of container portions.

20. The recreational flotation device of claim 19 wherein the container can be folded to provide chair-like support of a user while partially immersed in water.