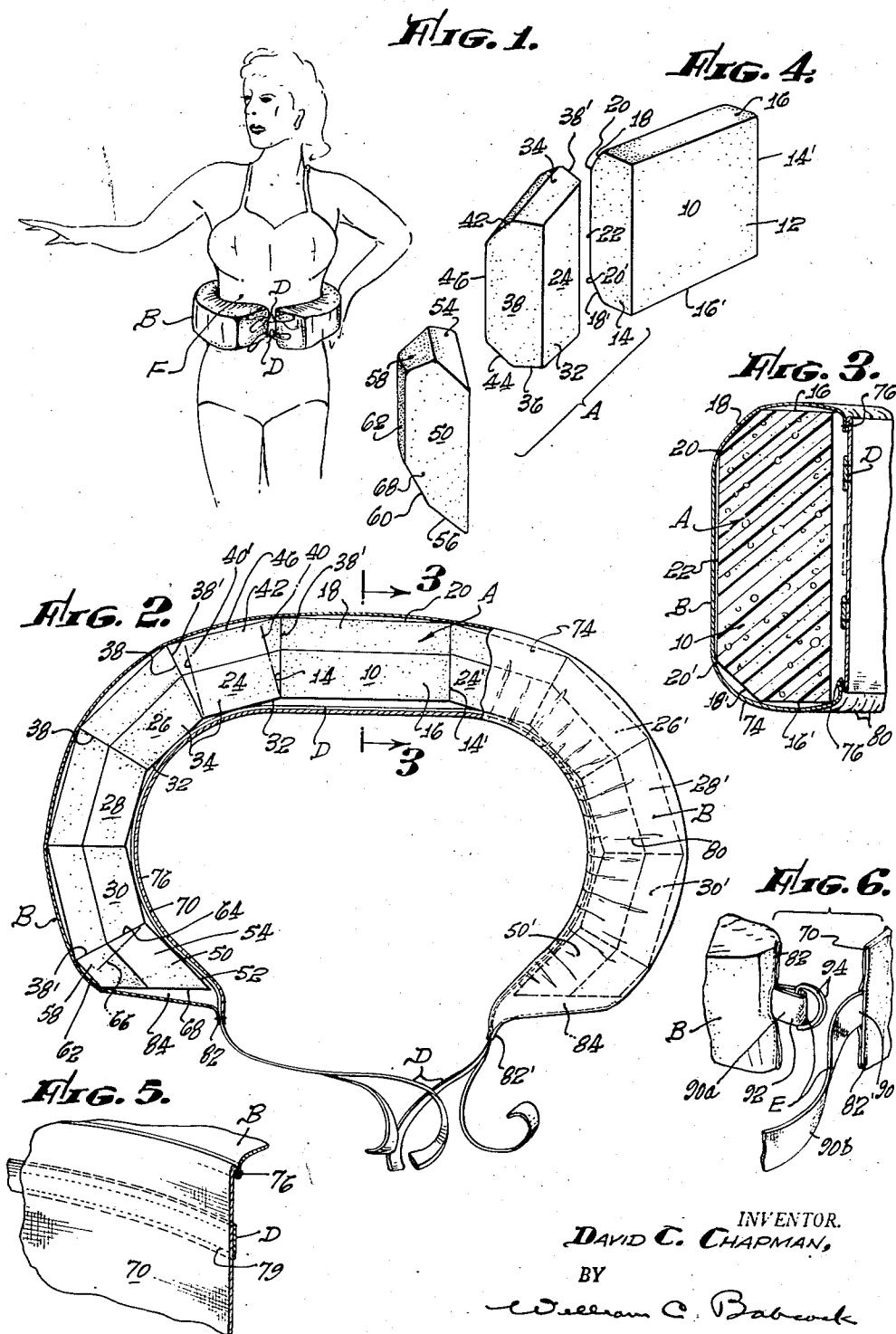


Aug. 13, 1957

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LIFE PRESERVER BELT  
Filed Aug. 6, 1956

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## LIFE PRESERVER BELT

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Application August 6, 1956, Serial No. 602,243

4 Claims. (Cl. 9—17)

The present invention relates generally to the field of swimming accessories, and more particularly to an improved life preserver that is adapted not only for the use of bathers as an aid in swimming, but for other sportsmen as well, such as fishermen and water skiers. This application is a continuation-in-part of my pending application Serial No. 541,740, filed October 20, 1955, now abandoned, entitled Foamed Resinous Plastic and Fabric Life Preserver.

The primary purpose in devising the present invention is to provide an improved life preserver that permits complete freedom of the arms, legs and shoulders, is extremely lightweight, and is capable of supporting a relatively large weight in water.

A major object of the invention is to provide a life preserver that is at all times ready for instant use, will not deflate, will never become waterlogged, and one in which the buoyancy thereof will not be impaired when it has been in use for long periods of time.

Another object of the invention is to furnish a life preserver in which the element of buoyancy is provided by a plurality of low density blocks which are loosely interfitted in a predetermined arrangement within a porous envelope in a manner to permit maximum water displacement thereby and lend flexible adjustability thereto.

Yet another object of the invention is to supply a form-fitting life preserver that is capable of adjustably engaging the human figure with the desired degree of tightness, without placing any appreciable tension on the outwardly disposed portion of the envelope.

A further object of the invention is to provide a life preserver that can be easily put on or removed within a minimum of time, and one that dries quickly and completely without compacting or losing its original shape.

Yet a further object of the invention is to furnish a life preserver that is of such simple construction it requires no detailed instruction as to the use thereof, and one which functions perfectly, even after being subjected to exceedingly rough handling on the part of children.

Another object of the invention is to supply a life preserver of simplified construction that requires little or no maintenance, or any preliminary attention such as inflation.

Still another object of the invention is to supply a life preserver of pre-formed shape that is efficient in use, comfortable to wear, and readily adaptable to the configuration of the wearer.

These and other objects and advantages of the invention will become apparent from the following description of a preferred form thereof when taken in conjunction with the accompanying drawing illustrating that form, in which:

Figure 1 is a perspective view of the invention mounted on a human figure;

Figure 2 is a combined plan and horizontal cross-sectional view of the device;

Figure 3 is a vertical cross-sectional view of the device taken on line 3—3 of Figure 2;

2

Figure 4 is a perspective view of a portion of the buoyant blocks used on one side of the invention which are identical to those blocks used on the opposite side thereof;

Figure 5 is a fragmentary perspective view of a portion of the porous envelope and one of the tie bands associated therewith; and,

Figure 6 is a perspective view of the free end portions of the invention and an alternate form of fastener adapted for use in conjunction therewith.

Referring to Figures 1 and 2 for the general arrangement of the invention, it will be seen that a number of independently movable blocks A formed of a low density material which provides maximum buoyancy are maintained in a substantially C-shaped configuration within the cavity of an envelope B, preferably fabricated from a porous cloth or sheet material. Two tie bands D project outwardly from the free ends of envelope B, or if desired, the alternate fastener E shown in Figure 6 can be utilized in securing the invention about the waist of the wearer F.

Blocks A are fabricated from a low density material such as foamed polystyrene or the like, that has low water absorption characteristics and relatively high compressive strength. For the sake of clarity of description herein each of the blocks A is further identified by a separate numeral. The largest of the blocks A, which may be described as a first buoyant means, is designated generally by the numeral 10 which is substantially rectangular in shape, being defined by a flat, vertical face 12, identical end faces 14 and 14', and identical upper and lower faces 16 and 16', respectively. Faces 16 and 16' develop at their outer edges into longitudinally extending surfaces 18 and 18' respectively, which taper or are bevelled toward one another. The outer longitudinal extremities of surfaces 18 and 18' define the upper and lower edges 20 and 20' of a rectangular area 22 that is parallel to face 12. End faces 14 and 14' are substantially normal to face 12.

Two sets of identical blocks 24, 26, 28 and 30, and 24', 26', 28' and 30', which may be described as a plurality of second buoyant means, are provided, which as can be seen in Figure 2, extend outwardly in sequence from opposite ends of block 10. When these sets of blocks are so disposed they present an oppositely curving configuration. Each of the blocks in these sets are identical structurally and therefore only block 24 will be described in detail herein.

In vertical cross section block 24 is the same as block 10. Block 24 is defined by a flat, vertical face 32, parallel top and bottom faces 34 and 36, and two end faces 38 and 38' that taper or are levelled away from one another as can best be seen in Figure 2. Faces 38 and 38' are preferably disposed at an angle of approximately 15° to two lines 40 and 40' drawn normal to face 32 at opposite ends thereof. Top and bottom faces 34 and 36 are trapezoidal in shape and the outwardly disposed longitudinal extremities thereof develop into tapered or bevelled surfaces 42 and 44 respectively. The outer longitudinal edges of surfaces 42 and 44 define the upper and lower edges of a rectangular area 46 that is parallel to face 32. End 38 of each block 24, 26, 28 and 24', 26', 28' is disposed in an abutting position with face 38' of the adjacent block but is movable relative thereto. When thus arranged, blocks 24, 26, 28, 30 and 24', 26', 28', 30' curve oppositely away from one another and cooperate with block 10 in defining the C-shape which is particularly characteristic of the appearance of the invention.

Two structurally identical blocks 50 and 50', which may be described as a plurality of third buoyant means, are provided, disposed adjacent blocks 30 and 30' (Figure 2). Block 50 has a flat, inwardly disposed face 52, and top and bottom faces 54 and 56, respectively, that

3

project outwardly therefrom. The outer longitudinal extremities of faces 54 and 56 develop into trapezoidal surfaces 58 and 60 that taper or are beveled toward one another. The outer edges of surfaces 58 and 60 define the top and bottom of a rectangular area 62 that is parallel to face 52. One end face 64 of block 50 is disposed at an angle of approximately 15° to a line 66 that is positioned normal to face 52. An elongated opposite end face 68 of block 50 meets face 52 at an acute angle.

Envelope B preferably includes an elongate rectangular strip 70 of porous cloth or sheet material that tends to dry quickly when removed from water, which abuts against faces 10, 32 and 52 of blocks A when they are disposed within the envelope. For reasons that will subsequently be explained, strip 70 is of such length as to extend beyond the faces 52, 52' of blocks 50, 50'. Two vertically spaced tie bands D fabricated from a strong cloth or canvas material are affixed as by stitching 79 to the inner surface of strip 70, which surface is in contact with blocks A, and the free end portions of bands D project beyond the ends of this strip.

Another elongate rectangular piece of cloth or other porous sheet material 74 is provided, the longitudinal edges of which are firmly secured to the corresponding edges of strip 70 by inwardly turned seams 76. It will be particularly noted that when sewn to strip 70, sheet material 74 has gathers or shirring 80 formed therein extending from each side or block 10 almost to the free end portions of the material. The extra fullness provided by shirring 80 permits the cavity formed by the envelope B to loosely hold blocks A in their proper interfitting relationship therein and maintain the desired C-shaped configuration, yet with the external side wall of the envelope being smooth to enhance the overall appearance of the device. The outer end portions of sheet material 74 are stitched to the extremities of strip 70 to form seams 82 and 82', which seams further secure bands D. Due to the length of sheet material 74 and strip 70, spaces 84 and 84' are formed in the interior end portions of the envelope beyond the faces 68 and 68', and these spaces permit flexibility of movement of blocks A relative to one another.

The invention is extremely simple to use. When it is desired to use the device it is simply slipped around the waist of the user F, as shown in Figure 1, and the bands D drawn together to bring strip 70 closely about the user's waist with the desired degree of snugness, after which the free ends of bands D are knotted to retain the invention in an encircling position on the wearer. It will be seen that when the invention is in such an encircling position, the only portions of the device under any tension are the strip 70 and bands D. Thus, the sheet material 74 can be relatively light in weight and low in strength, for the only function thereof is to maintain blocks A in the generally C-shaped configuration previously described.

When the invention is in proper encircling position on the user F, block 10 remains stationary, disposed against the small of the user's back, and blocks 24, 26, 28, 30, 50 and 24', 26', 28', 30' and 50' are normally in end face to end face relationship but may pivot relative to one another at their inwardly disposed abutting end faces. Due to this pivotal block movement, the invention easily, and without strain thereon adapts its shape to comfortably conform to the waist of the particular wearer thereof.

While bands D have been found to be quite satisfactory in service, it may be desired to use the alternate fastener shown in Figure 6. This alternate form of fastener includes a band 90 of strong, flexible material that is sewn or otherwise affixed to the strip 70 to extend the length thereof, with end portions 90a and 90b thereof extending therebeyond. A looped portion 92 formed in the end portion 90a engages two rings 94 of a generally semi-circular shape. End portion 90b is adapted to removably interlock with rings 94 as is common in masculine

4

belt construction, to hold the desired tension on band 90 and strip 70 associated therewith.

The invention has been illustrated as embodying a plurality of buoyant blocks A, which due to their shape, are arranged in a generally C-shaped configuration and maintained in this relationship by means of an envelope B. However, should it be desired, the envelope B may be maintained in substantially the same configuration by a continuous length of resilient buoyant material rather than the individual blocks A. Likewise, the envelope B may be filled with buoyant material of relatively small size which is loosely packed therein to the degree that the envelope normally assumes the position shown in Figure 2, but is capable of being tightened to conform to the waist of the wearer F (Figure 1) without appreciable tension being placed on the envelope.

Although the invention herein shown and described is fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred embodiments thereof and that I do not mean to limit myself to the details of construction herein shown and described other than as defined in the appended claims.

I claim:

1. A life preserver belt adapted to encircle the midsection of a wearer, including: first buoyant means with a horizontal dimension greater than the vertical dimension thereof disposed adjacent the small of said wearer's back, said first buoyant means comprising a block rectangular in horizontal cross section and having a vertical inner face with parallel end faces extending at right angles thereto; a plurality of second independent contiguous buoyant means positioned on opposite ends of said first buoyant means, said second buoyant means comprising blocks that are trapezoidal in horizontal cross section and have a vertical inner face from which bevelled end faces extend divergently; and a plurality of third, independent, contiguous, buoyant means positioned on opposite ends of said second buoyant means, said second and third buoyant means having a substantially uniform, vertical dimension the same as that of said first buoyant means, said third buoyant means comprising blocks that are trapezoidal in horizontal cross section and have a vertical inner face from which bevelled end faces extend convergently; an elongate strip of flexible material adapted to extend around the waist of said wearer, against which strip said first, second and third means abut; means to removably fasten the free end portions of said strip together to adjustably retain said strip on said wearer with the desired degree of tension thereon; and a sheet of flexible material affixed to the longitudinal edges and the end portions of said strip that cooperates therewith to define an elongated envelope having a continuous cavity of such size as to permit all of said buoyant means to be loosely disposed within the confines thereof, whereby said second and third buoyant means may move endwise and pivotally with respect to said first buoyant means and relative to one another to conform to the configuration of said wearer when said belt is mounted thereon, which envelope is also of such transverse cross section that said sheet is not under any appreciable tension nor exerts any appreciable compressive load on said buoyant means when the free ends of said strip are disposed at the minimum distance apart when in use, the end faces of adjacent blocks normally being in face to face contact; each of the outermost end faces extending at an acute angle with respect to the vertical inner face of its respective block, said acute angle being of smaller magnitude than the angle between the other end face on the same block and said last-named vertical inner face to provide ease of securing said free ends together.

2. A life preserver as defined in claim 1 in which said fastening means is at least one band of flexible low-stretch material that is affixed to and extends the length of said strip to project beyond the ends thereof, which free pro-

5

jecting end portions of said band are capable of being removably knotted together.

3. A life preserver as defined in claim 1 in which said fastening means is at least one band of flexible low-stretch material that is affixed to and extends the length of said strip to project beyond the ends thereof, the free first end portion of which is formed into a loop that engages and movably supports two rigid rings that are capable of engaging the second free end portion of said band and interlock same therebetween.

4. A life preserver belt adapted to encircle the mid-section of a wearer, including: a first buoyant block, two opposing ends of which are parallel when said belt is so disposed; a plurality of second buoyant blocks of identical shape that have bevelled ends that diverge from an inner vertical face thereof, said second blocks extending outwardly from said opposing ends of said first block in end-to-end relationship and a plurality of third buoyant blocks of identical shape, but different in shape from said second buoyant blocks, being trapezoidal in horizontal cross section and extending outwardly from said second blocks in end to end relationship therewith to define a generally C-shaped configuration in conjunction with said first block; a flexible sheet material C-shaped envelope in which said first, second, and third blocks are disposed, which envelope has a continuous cavity of such length and transverse cross section that said blocks can move independently therein both endwise and pivotally to conform to the contour of the midsection of a particular wearer without exerting compressive forces on the bevelled

6

ends of said blocks; and means to removably hold said envelope and blocks in said C-shaped configuration when disposed on said mid-section of a wearer; the ends of adjacent blocks normally being in face to face contact; each of the ends of the outermost block extending at an acute angle with respect to the vertical inner face of its respective block, said acute angle being of smaller magnitude than the angle between the other end face on the same block and said last-named inner vertical face to provide ease of access to said means to removably hold said envelope on the mid section of a wearer.

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