Aug. 21, 1962 H. A. TOULMIN, JR 3,049,736

SWIMMING AID

Filed June 3, 1959

Fig. 1

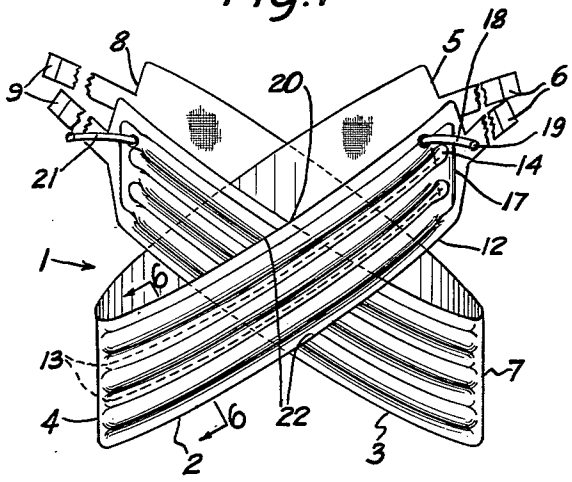


Fig. 2

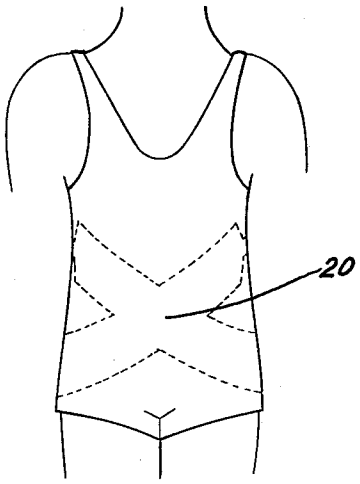


Fig. 5

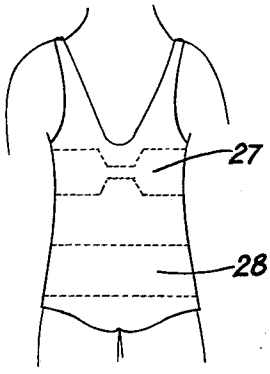


Fig. 3

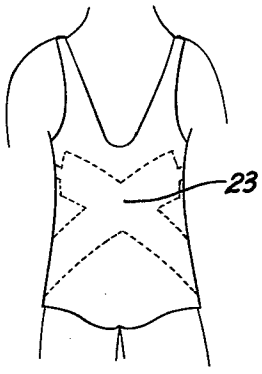


Fig. 4

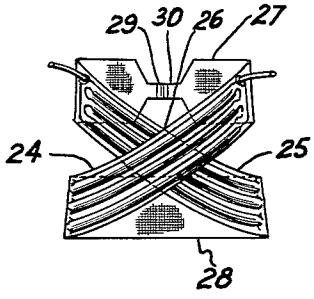


Fig. 6

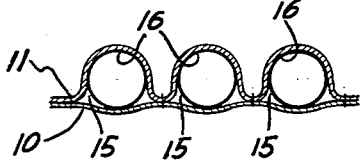
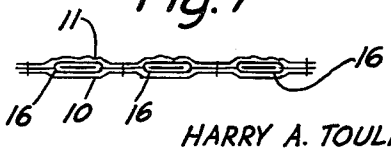


Fig. 7



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3,049,736

SWIMMING AID

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The present invention relates to a life preserver, more particularly, to a life preserver which is particularly adapted for use by swimmers and which can be comfortably worn under the swimming suit.

Many forms of life preservers intended for use as swimming aids have been devised. Such life preservers however, have invariably encumbered the swimmer since they were bulky, awkward, and usually restricted the freedom of movement of the swimmer. Furthermore, the size of such life preservers made them readily visible, and hence many people who would benefit by using such life preservers refused to wear them in public because of embarrassment. Further, such life preservers were for the sole purpose of providing buoyancy to the swimmer, and little, if any, thought was given to constructing life preservers in such a manner as to provide support to various parts of the body.

The present invention is directed to a life preserver for swimmers which overcomes all of the disadvantages enumerated above. The life preserver of this invention is particularly intended as an aid for swimmers, since it is so constructed that it may readily be worn under the swimming suit and is not visible when positioned on the body of the swimmer under the swimming suit. The life preserver may be readily inflated by the swimmer with one or two breaths. The life preserver has very little bulk and is so constructed that it does not unduly distend the swimming suit. These qualities enable the life preserver to be worn by all swimmers, including beginners, swimmers who have a fear of water, and by good swimmers when participating in long distance races or when swimming in deep water for any period of time. The life preserver is easily put on and taken off, and is so constructed that when positioned on the body of the swimmer it lends considerable support to the abdomen, posterior, and base of the spine. When the preserver is being removed, it is readily deflated by the pressure of the water when a plug which is provided in the inflating tube is removed.

Thus, the article of this invention, which may be termed a life preserver, essentially performs three functions:

(1) Acts as a truss to give support to various parts of the body;

(2) Acts as a girdle so as to compress the softer parts of the body into a more pleasing form;

(3) Acts as a life preserver by providing buoyancy to the body so as to float the body in water.

The wearing of this inflatable life preserver in the water will greatly facilitate swimming by compressing the softer, fleshy parts of the body. It is well known that swimming becomes more difficult for those whose build is such that their body comprises protruding fleshy parts such as the abdomen and posterior regions. The compression of these parts of the body so as to be firm will thus facilitate the movement of the body through the water and will bring increased pleasure to the wearer while in the water.

In addition, the compression of the parts of the body will mold the figure into a more pleasing form. The life preserver occupies such a relatively small volume that even when it is worn slightly inflated out of the water, the presence of the life preserver will not be noticed but it will provide support to parts of the body and will mold the figure to a more pleasing appearance.

It is therefore the principal object of this invention to provide an article for wearing under the bathing suit so as to give support to and compress various parts of the

body and to provide buoyancy for the body when the wearer is in the water.

It is another object of this invention to provide a novel and improved life preserver which is particularly adapted for use in swimming and which gives support to various parts of the body.

It is still another object of this invention to provide a life preserver which may be comfortably worn by the swimmer under the swimming suit but which is not visible.

It is a further object of this invention to provide a life preserver intended as an aid in swimming and which can be readily inflated and deflated.

It is an additional object of this invention to provide a life preserver which can be worn by all swimmers without any embarrassment but which can be worn with full confidence in that the weight of the swimmer will be supported in the water by the preserver.

The life preserver of this invention essentially comprises a belt-like member diagonally arranged on the body for supporting parts of the body, floating the body in water, and compressing fleshy parts of the body so as to facilitate body movements in the water. These three functions are all interrelated. The belt-like member is formed of adjacent walls of porous cloth. These walls are so fastened to each other as to form a plurality of chambers. A plurality of separate but interconnected air cells are positioned in the chambers between said walls. The diagonal members are so constructed as to encircle the body of the swimmer in such a way as to lend support to and compress various parts of the body while also providing buoyancy for the body in the water. Several modifications of the life preserver are disclosed herein.

The foregoing objects and advantages of this invention will be more apparent upon reference to the accompanying description when taken in conjunction with the following drawings, wherein:

FIGURE 1 is a front elevational view in perspective, showing the life preserver when it is not in use;

FIGURE 2 is a front view showing the life preserver in position on the body of a swimmer;

FIGURE 3 is a rear view showing the life preserver in position;

FIGURE 4 is a front elevational view of a modification of the life preserver shown in FIGURE 1;

FIGURE 5 is a view of the modified life preserver of FIGURE 4 as it appears on the back of a swimmer;

FIGURE 6 is a sectional view taken along the line 6—6 of FIGURE 1; and

FIGURE 7 is a sectional view similar to that of FIGURE 6 but showing the air cells in the deflated position.

With reference to the drawings, wherein like reference symbols indicate the same parts throughout the various views, in FIGURE 1 there is illustrated the life preserver of this invention and indicated as **1**. The life preserver **1** comprises a pair of bands **2** and **3** which diagonally encircle the body. The band **2** has a lower end **4** which is positioned over the hip of the swimmer and has an upper end **5** which is separated and has detachable connector elements **6** located on the ends thereof.

The band **3** is similarly constructed and comprises a lower end **7** which is positioned over the other hip of the swimmer and an upper end **8** which is also separated and has connectors **9** on the separated ends thereof.

The band **2** comprises two walls or plies **10** and **11** of a porous material. The ply **10**, which is next to the body, comprises a durable washable cambric, and the ply **11**, which is on the outside, is formed of a colored washable silk. The two plies are connected to each other either by stitching or by being woven together. The front portion of the band **2**, indicated at **1**, has a plurality of lines of longitudinal stitching **13** extending from the lower end

4 to a point 14 terminating short of the upper end 5. These lines of stitching form a plurality of chambers 15 between the walls of the front portion of the band.

Positioned in the chambers are a plurality of air cells 16 made of a stretchable material such as rubber, which are separate but which are interconnected at 17 above the end points 14 of the stitching. A tube 18 is connected to the cells 16 and extends outwardly at one edge of the front portion of the band 2 to form a valve stem. A plug 19 is provided as a closure member for the valve stem.

The band 3 is constructed similar to the band 2 as described above.

The air cells 16 of each of the bands may be so constructed that the cross section of the cells at the intersection 20 of the bands is less than the cross section of the remainder of the air cells. Thus, the intersecting air cells at the point of intersection 20 will not form an undue bulge when the life preserver is in position and has been inflated. With this construction an additional tube 21 must be provided for the air cells 16 of the band 3.

The air cells of the bands 2 and 3 may be so formed that the air cells in the band 2 are as described above but the air cells in the band 3 are each made in two portions with their inner ends, as indicated at 22, communicating with the cells in the band 2. With this construction, all of the air cells in the body-encircling bands will be in communication with each other and a single tube would be necessary for inflating the life preserver.

When the life jacket is in position upon a swimmer as can be seen in FIGURES 2 and 3, the various portions of the life preserver provide diagonal support for the several parts of the swimmer's body both in front and in back. The diagonal portions on the front of the wearer are removed from those on the back of the wearer so as to form diagonal trusses to support the body per se, while the inflation supports the body as a whole. The lower ends of the encircling bands are positioned over the hips of the swimmer and will compress the hips on the sides and rear thereof. The cross-over point 20 of the front portions of the encircling bands will support the abdomen. The cross-over point of the back portions of the encircling bands, indicated at 23, will give support to the base of the spine. In addition, the lower portions of the rear portions of the encircling bands will tend to compress the posterior. Thus, the life preserver, when in position upon a swimmer's body, not only will afford buoyancy to the swimmer when he is in the water but will tend to hold his body in a natural and pleasing position while the swimmer is wearing this life preserver.

It is to be noted that the front portions of the encircling bands are sufficiently below the chest so as to not interfere with the breathing of the swimmer. Further, the upper ends of the encircling bands do not interfere in any way with the movements of the swimmer's arms.

Proceeding next to FIGURES 4 and 5, there is illustrated a modification of this invention wherein the life preserver is formed of a continuous band of material which is positioned upon the swimmer's body so that the front portions of the band 24 and 25 intersect at 26 and the rear portions of the band 27 and 28 extend horizontally across the swimmer's back. The modification in FIGURES 4 and 5 is constructed similar to the life preserver 1 shown in FIGURE 1 and has two walls of porous cloth attached together to form chambers in which are positioned separate but interconnected air cells.

As shown in FIGURE 5, the rear portion 28 extends horizontally across the posterior so as to form a support therefor. The upper portion 27 is separated and has detachable connector elements 29 and 30, such as a buckle or clasp, fastened to each of the ends, respectively.

FIGURE 6 is a sectional view of the bands of the life preserver 1 and shows the air cells between the walls of the band when the cells have been inflated.

In FIGURE 7 the same cells are shown when they are deflated. The air cells in each of the modifications of this invention appear in the same manner as shown in FIGURES 6 and 7, in their inflated and deflated positions, respectively.

Before leaving the water, the swimmer removes the plug from the tube, and the pressure of the water on the life preserver will deflate the same. Thus, when the swimmer emerges from the water, the deflated life preserver will not be apparent underneath his swimming suit.

Since the life preserver of this invention may be readily inflated by one or two breaths of the swimmer, it is not necessary that the swimmer inflate the life preserver before entering the water. Thus, the wearing of the life preserver is not visible to other persons, and the presence of the life preserver on the swimmer's body will cause him no embarrassment whatsover. Upon entering the water, the swimmer withdraws the tube from underneath his swimming suit and with one or two breaths inflates the life preserver. This will provide sufficient buoyancy to give the swimmer support in the water. Thus, beginners can quickly learn to swim because they can concentrate fully on the various movements of the arms and legs in swimming and on respiration. They need give no thought whatsoever to staying afloat in the water. The life preserver is so constructed that it is comfortable to the wearer and does not hinder any movements required in swimming or other activities in the water. Thus, the life preserver may be used in long distance swimming, in water activities such as water polo, and in boating.

The life preserver can be folded into a compact package. It weighs about four ounces and hence can be easily carried.

Thus, the life preserver of this invention is not only a comfortable aid to increase the joy of swimming, but in addition comprises a controllable body support and also serves to support certain portions of the body so as to improve the appearance of the swimmer's figure and to form the body into a controlled shape for successful swimming.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions, and accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

What I claim is:

1. An inflatable life preserver for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, and means for retaining said crossed members at the front of the swimmer.

2. An inflatable life preserver for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, the said members being of such length so as to extend across substantially the front of the body of the swimmer, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, and means for retaining said crossed members at the front of the swimmer.

3. An inflatable life preserver for swimmers for dis-

position underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, the said members being of such length so as to extend across substantially the front of the body of the swimmer, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, said inflatable air cells extending longitudinally of said members throughout the length thereof, and means for retaining said crossed members at the front of the swimmer.

4. An inflatable life preserver for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, and belt elements connecting the ends of said crossed members and extending across the back of the swimmer to retain the life preserver thereon.

5. An inflatable life preserver for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, and belt disposed elements connecting the upper ends of said crossed members so as to extend diagonally across the back of the swimmer to retain the life preserver thereon.

6. An inflatable life preserver particularly adapted for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls made from a material which is porous to air, the walls of each of said members being fastened together longitudinally thereof to form a plurality of longitudinally extending chambers, a plurality of separate but interconnected inflatable air cells in the longitudinally extending chambers of said crossed members, the walls of said cells being

stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, and means for retaining said crossed members at the front of the swimmer.

7. An inflatable life preserver for swimmers for disposition underneath a bathing suit and comprising a pair of diagonally crossed flexible members adapted to encircle the body of the swimmer for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, each of said members consisting of a relatively wide flexible band comprising a pair of walls formed from a porous material, a plurality of separate but interconnected inflatable air cells in each of said members, the walls of said cells being stretchable and interconnected, a tube communicating with said cells and comprising a valve stem with closure means therefor, the air cells of each of said crossed members communicating with the air cells of the adjacent crossed member, and means for retaining said life preserver on the body of the swimmer.

8. An inflatable life preserver particularly adapted for swimmers for disposition underneath a bathing suit and comprising a pair of relatively wide bands of flexible material having a detachable section for opening and closing each of said bands, said bands having walls which are porous and permeable to air and adapted for arrangement beneath the arms and over the hips below the waistline with cross-over points at the front and back thereof, a plurality of separate but interconnected air cells mounted between said walls, said air cells being inflatable to expand toward the outside of said life preserver, and means for retaining said life preserver on the body of the swimmer, and tubular means including a valve communicating with said air cells through which air is admitted to inflate the same.

9. An inflatable life preserver particularly adapted for swimmers for disposition underneath a bathing suit and comprising a pair of intersecting inflatable bands of flexible material for arrangement diagonally crossed and encircling the body of a swimmer with the intersection in front of the body supporting the abdomen, the fronts of said bands comprising walls attached together to form a plurality of inflatable chambers, a plurality of separate but interconnected air cells positioned in said chambers, the walls of said cells being stretchable and interconnected, and a tubular means communicating with said cells and comprising a valve stem with closure means therefor, said tubular means being attached to said life preserver for inflating said air cells.

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