Nov. 28, 1944. F. L. BROWN 2,363,639

LIFE PRESERVER

Filed Jan. 1, 1942 2 Sheets-Sheet 1

Fig. 1

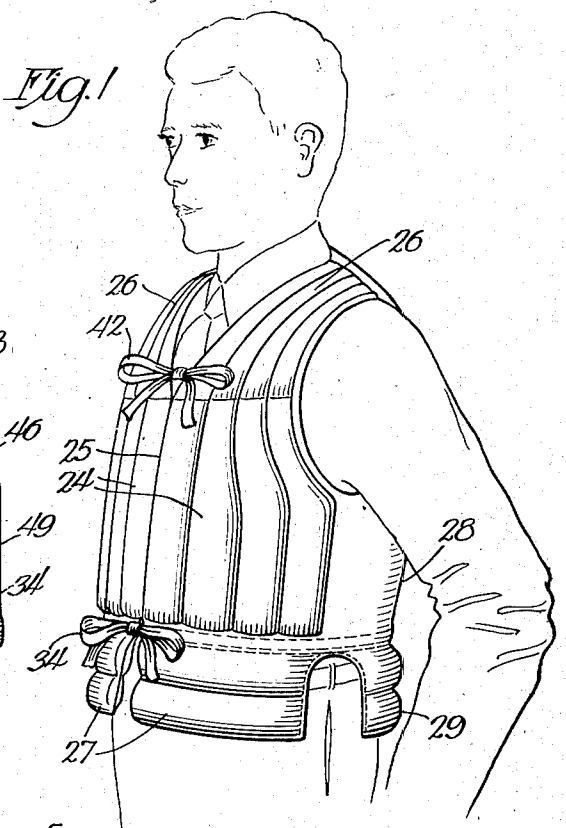
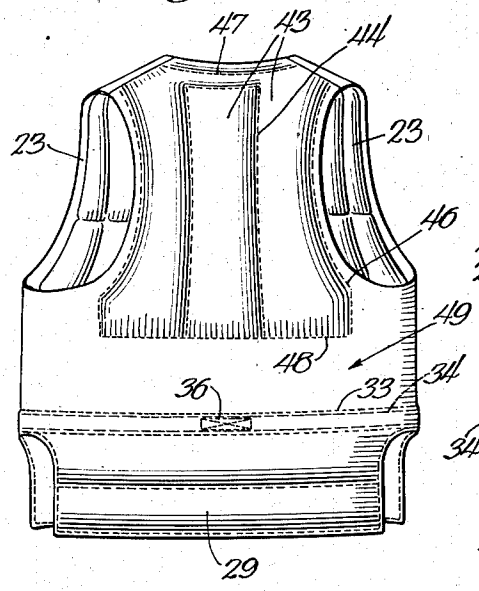


Fig. 2



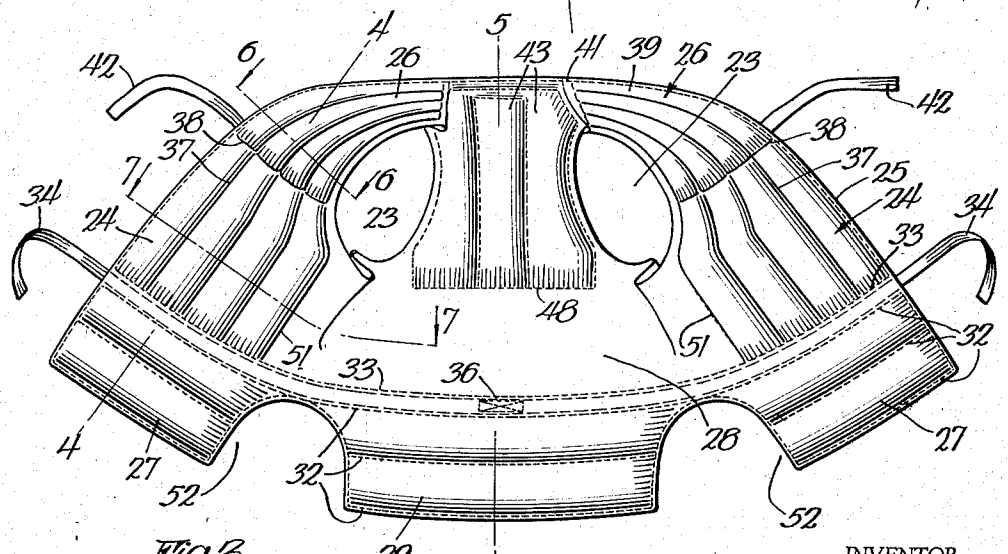


Fig. 3

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Filed Jan. 1, 1942 2 Sheets-Sheet 2

Fig. 8

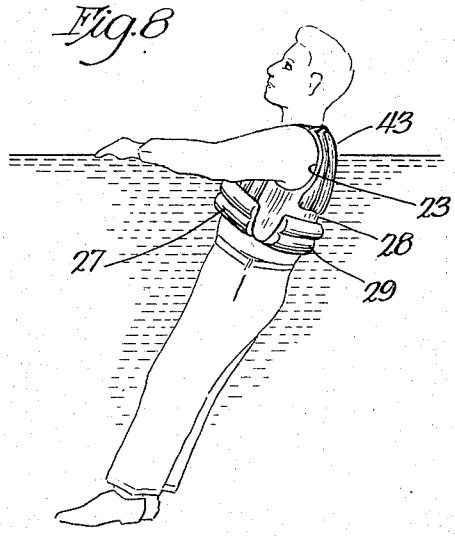


Fig. 4

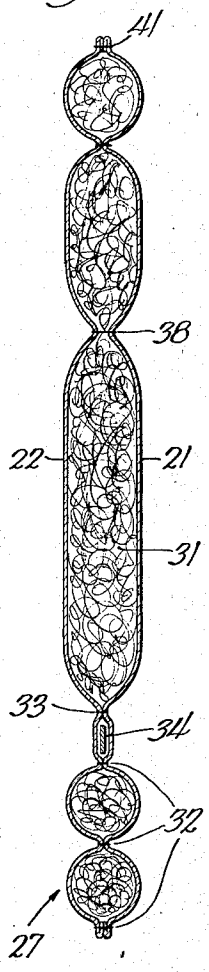


Fig. 5

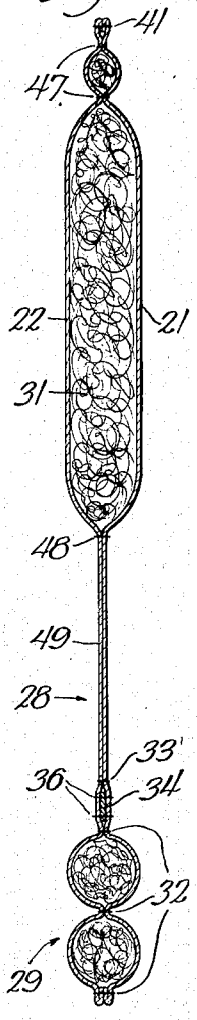


Fig. 6

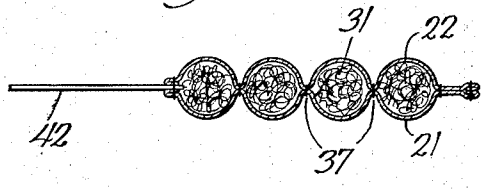
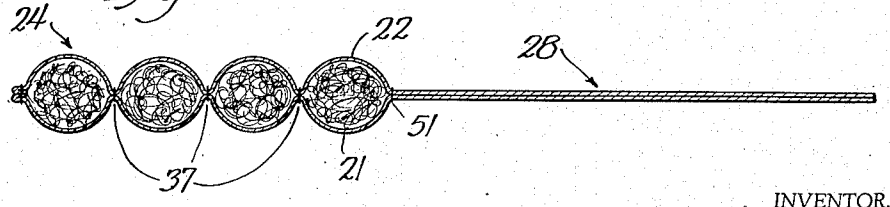


Fig. 7



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Patented Nov. 28, 1944

2,363,639

UNITED STATES PATENT OFFICE

2,363,639

LIFE PRESERVER

Frederick Lee Brown, Greenfield, Ohio, assignor to The American Pad & Textile Company, Greenfield, Ohio, a corporation of Ohio

Application January 1, 1942, Serial No. 425,280

8 Claims. (Cl. 9—20)

My invention relates to life preservers and more particularly to life preservers of the vest or jacket type. Several devices of this general nature are known and are usually intended for continuous wear by persons exposed to the hazard of drowning, but these devices in general proved rather unsatisfactory, particularly in that the construction and disposition of the buoyant material has made these devices uncomfortable to such a degree that the temptation of the wearer to remove the device is great. Furthermore, these devices have also interfered with freedom of action by the wearer, either in or out of the water.

It is an object of my invention to overcome these objectionable features and to provide a life preserver of the vest type constructed and arranged for comfortable wear, which permits access to pockets and other articles of clothing as well as freedom of movement, either in or out of the water.

Another object of the invention is to provide an improved life saving vest which embodies the features just mentioned and is reversible so that the features and operation of the vest is in no way changed or impaired regardless of how the vest is donned.

A further object of the invention is to provide a vest, incorporating the above features, which is of universal size, fitting substantially any person regardless of height or weight so that the vest can be used as a standard item where life preservers may or may not be required.

Further objects of my invention are to provide a life preserving vest having the buoyant material arranged therein in such a manner as to insure that the wearer's head will be supported out of the water when the wearer is relaxed or unconscious and will cushion impact of the wearer with the water, but will also permit the wearer to swim or otherwise move with relative ease.

These and other objects of the invention will become apparent from the following description, the drawings relating thereto, and the claims.

Referring to the drawings:

Fig. 1 is a perspective view illustrating a preferred form of the invention as it appears when fastened in place upon a person;

Fig. 2 is a back view of the vest shown in Fig. 1;

Fig. 3 is a front view of the vest with the front sections opened;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 3;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 3;

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 3;

Fig. 7 is a sectional view taken along the line 7—7 of Fig. 3; and

Fig. 8 is a perspective illustration showing the action of my vest in water.

Referring to the drawings, Figs. 1, 2, 3 and 8 disclose various aspects of my life preserver which is constructed in the form of a vest and is hereinafter referred to as such. The vest is formed of two layers 21 and 22 of suitable flexible covering material such as a closely woven cotton cloth stitched together or otherwise joined around the marginal edges to form an envelope and defining armholes 23.

For convenience of description, the vest may be considered as including two front sections 24 having meeting edges 25, two shoulder sections 26, two front skirts 27, a back section 28, and a back skirt 29, but it is understood that these sections are defined only as areas for descriptive purposes and are not necessarily separate units adapted for assembly.

Each of the above mentioned sections and skirts contain a quantity of kapok 31 distributed according to predetermined thicknesses and confined to the desired position in the upper portions between the inner and outer fabric layers, preferably by quilting, to avoid shifting and bunching. Buoyant material in the skirts 27 and 29 is held in place by transverse rows of stitching 32 forming a plurality of elongated pockets. The upper line of the stitching 32 defining the upper extremities of the skirts, is disposed at substantially waist level or slightly above and cooperating therewith, and parallel thereto, is provided a spaced line of stitching 33 to define a shirr tube, the walls of which are formed of the inner and outer layers of fabric 21 and 22 receiving the draw string 34. The draw string 34 is anchored at the back to prevent removal by stitching or other suitable means, as indicated at 36 substantially in the center of the back section 28. It is important to the proper operation of my vest that this draw string or tape 34 be secured at this point only, for the function of this string is to gather the vest around the torso of the wearer, thereby insuring a snug fit regardless of the waistline of the user.

In confining the buoyant material 31 in the upper front sections 24, vertically extending lines of stitching 37 are employed preferably after a substantial thickness of kapok is in place, and these quilt lines of stitching extend from the line of stitching 33 upwardly to the top of the vest,

preferably past the chest level, which is to be understood as a level approximately midway between the top and bottom of the armholes **23**. A transverse row of stitching **38** extends across the vest at the chest level from the armholes to the edge of the vest to form a quilt line permitting a bending of the vest at this point to accommodate the arm sizes of various wearers and permitting the top of the vest to bend freely into place over the shoulder for comfort. The lines of stitching in the shoulder portions are tailored to curve around the armholes in such manner as to predispose the section to conform to the curvature of the body regardless of which side of the vest is out when it is put on. The line of stitching **38** assists in this regard so that if the vest is worn with one side out for any length of time the tendency to shape that way is lessened and the vest is readily capable of use with the other side out.

Tapes **42** are secured to both edges adjacent the transverse line of stitching **38** between the two layers of fabric **21** and **22** of the vest as by means of the line of stitching that joins the marginal edges of the fabric layers. Thereby, the tape will always be in the same position relative to the body of the wearer regardless of which surface of the vest is outward.

The back section **28** is stuffed with buoyant material **31** which is confined to longitudinally disposed pockets **43** by substantially longitudinal rows of stitching **44**. In this section, the buoyant material extends laterally to the armholes **23** and the marginal rows of stitching **46** are curved to conform to the curvature of the armhole. The pockets **43** extend upwardly substantially to the neck of the vest and are closed by a transverse line of stitching **47**. The upper terminal portions of the side pockets **43**, may, if desired, be closed by the line of stitching **41** which also closes the upper end of the pockets in the shoulder section **26**. It is to be noted that the buoyant material in the back is carried upwardly well towards the neck portion of the vest to furnish as much protection for the back of the neck as is comfortably possible and to provide support for the wearer's head when the vest shifts slightly upward under buoyancy as it is bound to do in water to a controlled limited extent. The lower limits of the pockets **43** are defined by a transverse line of stitching **38** disposed a substantial distance above the line of stitching **33** and somewhat below the lower level of the armholes **23**.

It will be noted that the structure described above leaves a relatively large area, generally designated **49**, in the small of a person's back which contains no buoyant material. This area extends approximately from the waist level, as defined by the draw string, upwardly a substantial distance on the vest and laterally to the edges of the front sections **24**, which edges are defined by lines of stitching **51** extending downwardly beneath the armholes **23** well towards the front of the vest. Thus, the area **49** containing no buoyant material, for one of many reasons to be mentioned, is such that substantially no buoyant material is interposed between the wearer's body and his arm when the arm is hanging naturally at his side. This not only greatly increases the comfort, but also permits free use of the arms and eliminates the possibility of chafing.

The skirt portions **29** and **27** do not abut each other but are severed from each other by notches indicated at **52**. These notches are disposed to come directly over the hips and trouser pockets of the wearer. As thus constructed, the skirt portions **27** and **29** flex independently of each other, and, therefore, the size of the hips of the person wearing the vest is immaterial. Furthermore, these notches as disposed directly beneath the armholes and over the trouser pockets permit the wearer to have access to the pockets while wearing the vest out of the water.

As a further feature of my invention, it will be noted that the skirts **27** and **29** act, upon immersion, to move the center of buoyancy upwardly as shown in Fig. 8, and as more particularly described in my Patent No. 2,331,301, reference to which is hereby made. The buoyancy of the material within these skirts causes them to flex upwardly around the wearer's body. This contributes materially to stabilizing the wearer in the water and greatly decreases the possibility of waves or other similar disturbances accidentally tipping or turning the wearer over in the water, particularly if the wearer was unconscious.

In the foregoing description, it will be noted that considerable attention has been paid to the size and extent of the pockets confining the buoyant material. Although only a few pounds displacement is normally necessary to support a person in the water, it is considered desirable to have within the jacket sufficient buoyant material to support a 16½ pound dead weight after forty-eight hours of immersion. The amount of material required, therefore, will depend on the specific gravity, water absorption and other characteristics of the buoyant material employed.

I prefer to employ kapok, as I have found it to be the most suitable material for this purpose, and a total of 20 ounces of kapok disposed in the manner described is ample to support the desired dead weight. It is essential to the purposes of my invention, however, that the quantity of kapok disposed in the front and shoulder sections of my vest aggregate at least twice the amount disposed in the back section in order that the center of buoyancy will not only be relatively close to the wearer's shoulders, but also nearer the chest side of the wearer, so that as the wearer is floating with the body relaxed in the water, the vest will at all times tend to keep the chest up and to elevate the chest a distance sufficient to insure that the wearer's face, even if he should be unconscious, will not be immersed. Normally the upper portion of the shoulder sections will not be immersed and thereby provides a reserve of buoyancy sufficient to carry the wearer over a wave, rather than partially through it, without the necessity of disposing the center of buoyancy at a dangerously low level.

In this connection it is well to note that the back portions are so constructed and arranged as to cooperate with the front part in keeping the face up. The back portion **29** under buoyancy fits in the area **49** to dispose its buoyancy directly against and in the small of the back of the wearer so as not to counteract the effect of the overlapping front portions in tipping the wearer slightly backward in the water, but effectively adds its buoyancy for support once the wearer is so tipped.

As previously mentioned, other vests of this nature have not been entirely satisfactory in that they are so uncomfortable that the wearer will often yield to the temptation of removal. One of the principal sources of discomfort has been the tendency of the vest to force itself upwardly around the wearer when in a sitting position, due to the rigidity imparted to the vest by virtue of

the quilted construction. I have overcome this difficulty by providing a line of flexure between the front sections and shoulder sections by the line of stitching **38**, as well as by the corresponding line of flexure formed by the line of stitching **41**. This construction, coupled with the absence of buoyant material from the lower portion of the back section imparts to the wearer a sufficient degree of comfort to overcome the temptation to remove the vest. For example, when the wearer is sitting, the skirts **27** and **29** may, under strain, flex upwardly by virtue of the flexible web connection between the skirts and the corresponding front or back section. If this flexure is not sufficient and the legs or other portions of the body tend to force the vest upwardly, the line of stitching **38** permits my vest to bulge forwardly and outwardly rather than place a direct strain on any portion of the wearer's body, thereby contributing greatly to his comfort.

To form a vest which can be truly said to be of universal size, it is necessary to consider that certain people are shorter than others and, therefore, the distance from the shoulder to the waistline will vary. Other vests of the general type described cannot, therefore, be said to fulfill the requirements of a universal size inasmuch as a vest large enough to accommodate a large person would extend upwardly around a small person's neck when the waist securing means is tightened. In my construction, however, the line of flexure **38** permits the vest to bulge forwardly slightly under extreme conditions, shortening the distance between the shoulder and the waistline thereby making the position of the waistline relative to the shoulder substantially immaterial.

It should also be noted that my vest is truly reversible inasmuch as the position of the draw string **34** and the tape **42** are always the same relative to the wearer's body and exert their binding action in substantially the same way and in the same direction regardless of which side of the vest is innermost.

It is recognized, of course, that various minor modifications may be made in the structure without departing from the scope and I do not, therefore, wish to be limited to the precise form herein described, but only by the scope of the appended claims.

What is claimed is:

1. In a life preserving vest, inner and outer flexible coverings forming a back section and two front sections joined together at the shoulders and at the sides and provided with armhole openings, buoyant material confined between the coverings by lines of stitching, a stitching between the front and shoulder sections, and means between the front and shoulder sections for securing the vest to the body, the aggregate displacement of the buoyant material in the front sections and shoulder sections being more than twice the displacement of the buoyant material in the back section.

2. In a reversible life preserving vest, inner and outer coverings forming a back section and two front sections, said sections being joined to define meeting edges at the shoulders and sides of said vest and forming armholes, buoyant material between the coverings, a draw string between the coverings at waist height and secured only at one point to the back section, and tape means secured to the meeting edges of the front sections at substantially chest level midway between the inner and outer coverings of said front sections whereby the action of said tape means is identical regardless of which side of the vest is outermost.

3. In a reversible life preserving member, inner and outer coverings connected together and formed into a vest having armholes, buoyant material between the coverings confined by lines of stitching into elongated pockets, the length of a buoyant portion of the life preserving member being sufficient to extend downwardly over the hips of a wearer, and two transverse lines of stitching forming lines of flexure spaced from the lower edge of said life preserving member, the portions of said life preserving member extending over the hips being in segments whereby in deep water said segments will be reversed for insuring the upright position of the wearer.

4. A reversible life preserving vest comprising inner and outer coverings forming a back section and two front sections, said sections being joined together and provided with armholes, buoyant material in the sections confined by lines of stitching into elongated pockets, the front and back sections being connected below the armholes by a flexible web, said web extending downwardly to waist level, and means for securing the vest to a wearer's body, the vest being characterized by having the pockets symmetrically arranged on opposite sides of the central plane of the corresponding sections, whereby said vest is reversible without altering its function or affecting its application to the body of the wearer.

5. A life preserver for an adult of average size, comprising two layers of fabric tailored to be worn as a vest, having a back portion and two front portions extending to a level below the waistline, said front portions being joined to the back portion by loose fabric below and to the rear of the armholes in the upper part of the vest and between the armholes and notches over the side pants pockets of the wearer in the lower edge of the vest, kapok disposed between layers of the upper part of the front portions extending from slightly above the waist to the shoulders, means for securing the kapok in place including stitches predisposing the upper part to flex readily to follow the contour of the torso and the shoulders, kapok disposed between the layers in the lower parts, means for securing the kapok in place in the lower parts including horizontal stitching arranged to allow the lower parts to flex upwardly without crushing the kapok when the wearer is sitting, the stitching along the lower end of the kapok in the upper part of the front portions and the stitching along the top of the kapok in the lower front portions providing a shirr tube between the fabric, said fabric at said shirr tube permitting the lower parts to flex away from the body and up when the wearer is in the water, kapok disposed in the top half of the back portion, means for securing the kapok in place, kapok disposed in the bottom portion below the level of said shirr tube, and means for securing the free edges of the front portions together identically with either side of the vest out including a draw string anchored in said shirr tube intermediate its ends.

6. A life preserver comprising upper and lower portions at the front and back connected together, said upper portion forming a body fitting garment, buoyant material carried by each of said portions, the buoyant material of the upper rear portion having its lower edge disposed above the level of the lower edge of the upper front portion, means between said upper and lower portions for securing the lower part of said upper

portion snugly around the trunk of the wearer, said lower portion being in depending segments, whereby said segments will reverse and extend upwardly for buoying the upper portion of the body of the wearer with the front portions superposed on each other and the lower rear portion disposed below the upper rear portion so that his nose and mouth will be supported above the water level in deep water.

7. A life preserving vest including inner and outer flexible coverings tailored to provide a back section and two front sections joined to the back section at the shoulders and at the sides to provide armhole openings, buoyant material disposed between the coverings and confined by lines of stitching into elongated pockets arranged in vertically spaced buoyant portions in each section, horizontal stitching at approximately the waist line forming a flexure line between the buoyant portions in each section, the lower portions in the front sections being movable independently of the lower portion in the back section, said back section comprising an upper buoyant portion disposed across the shoulders of the wearer a substantial distance above the horizontal stitching and a lower portion which flexes about said line of stitching to move upwardly into contact with the body of the wearer below the upper buoyant portion when immersed, the buoyant portions in the front sections being movable into superposed positions under the influence of water to shift the effective center of buoyancy of the vest upwardly and frontwardly when immersed.

8. In a reversible life preserving vest, inner and outer flexible coverings forming a back section and two front sections joined together at the shoulders and at the sides and provided with armhole openings, buoyant material between said coverings confined by vertical lines of stitching to vertically elongated pockets extending from the shoulders downwardly to the waist line at the front, means at the lower edge of said pockets for securing the vest to the wearer, a normally dependent buoyant portion attached to certain of said sections at points spaced from the armhole openings and movable to a position to overlap the upper portion of the vest when immersed in water so as to shift the center of buoyancy upwardly, and a horizontal line of stitching at approximately chest level between the front and shoulder sections providing a line of flexure between the front sections and the shoulder sections.

FREDERICK LEE BROWN.