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E. G. BAKER

3,360,813

UTILITY BUOYANT VEST

Filed May 3, 1965

4 Sheets-Sheet 1

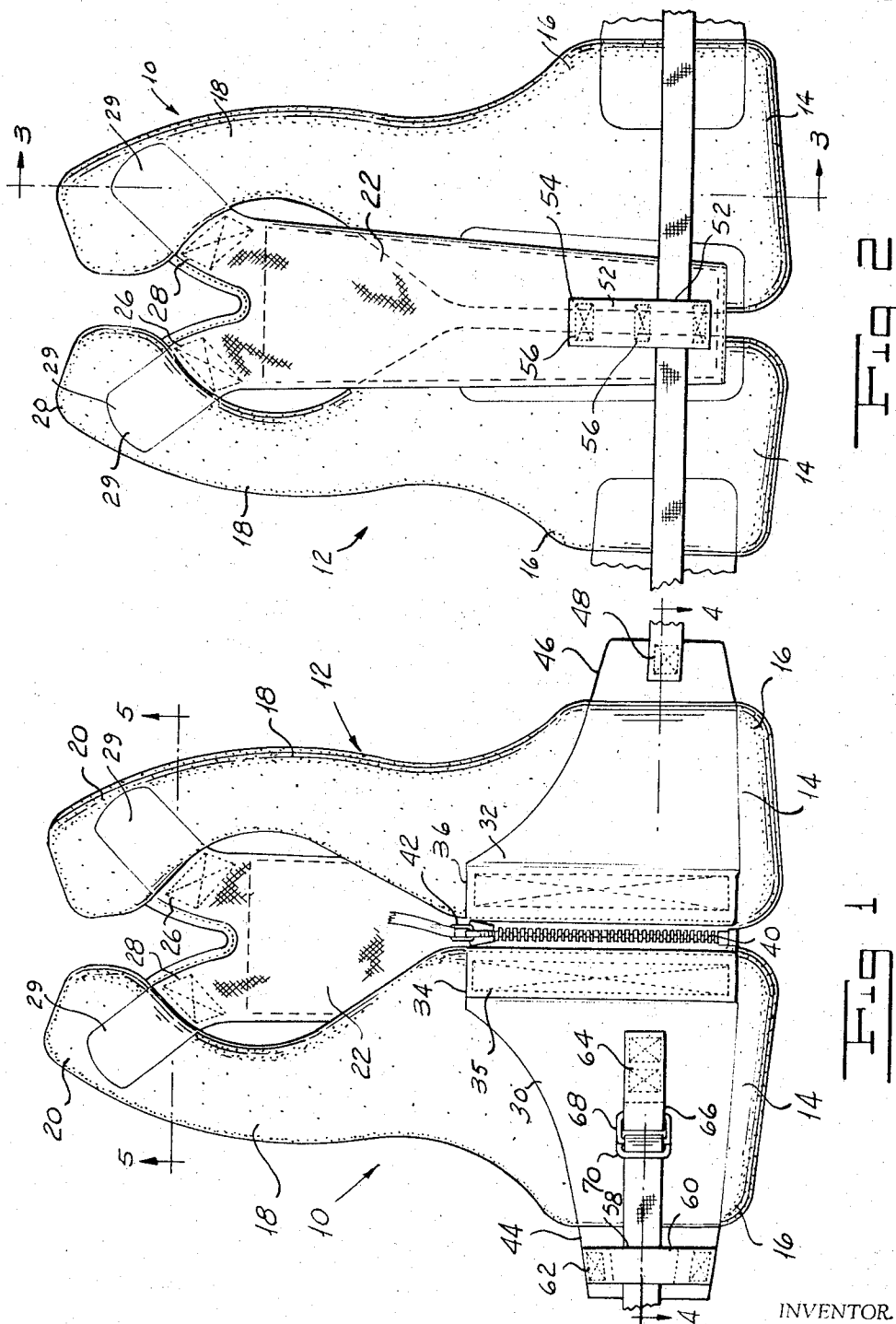


FIG. 2

FIG. 1

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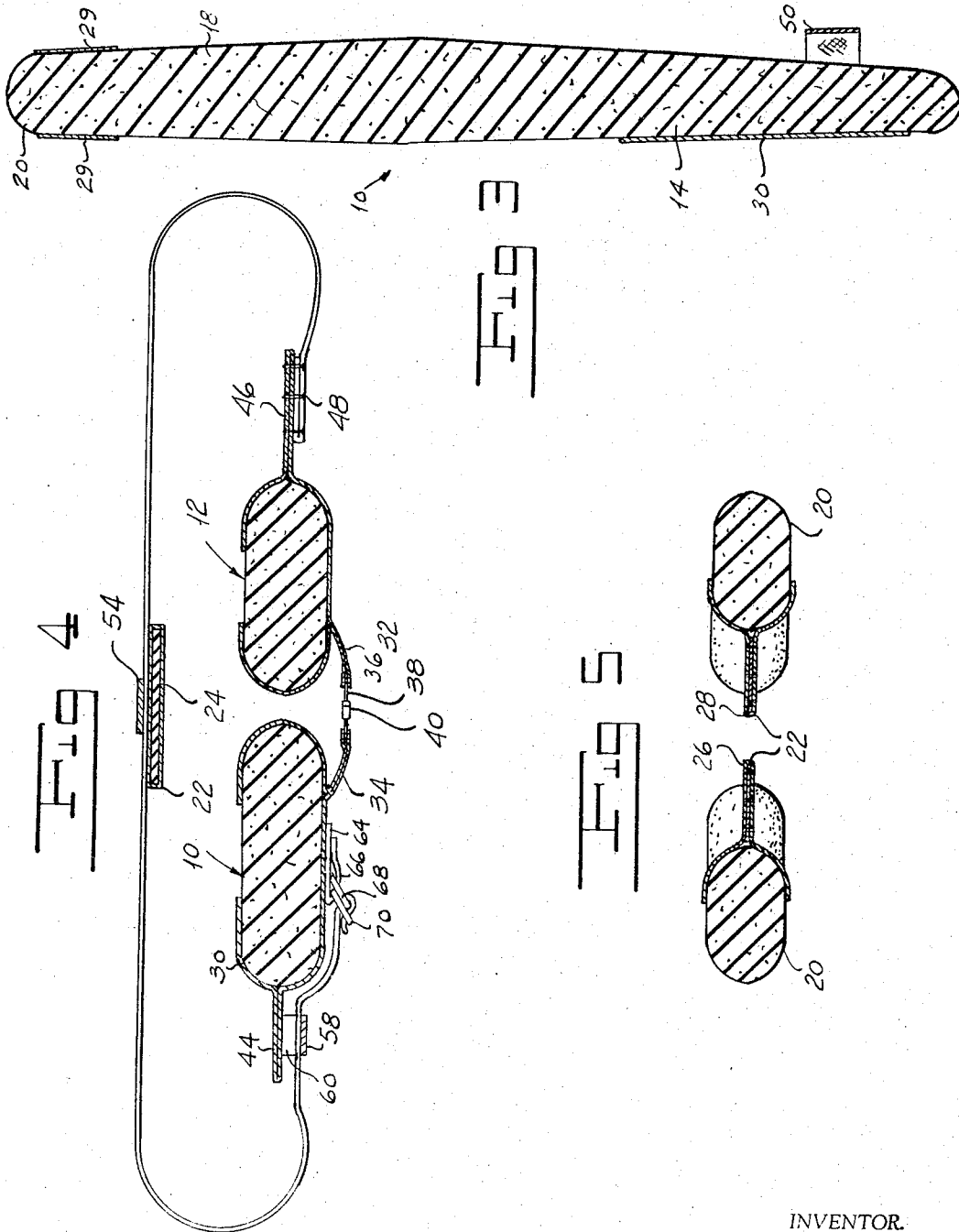
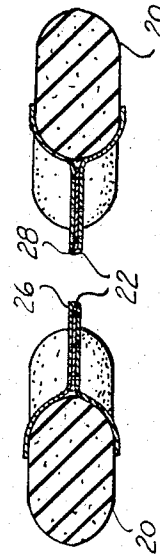


Fig 5



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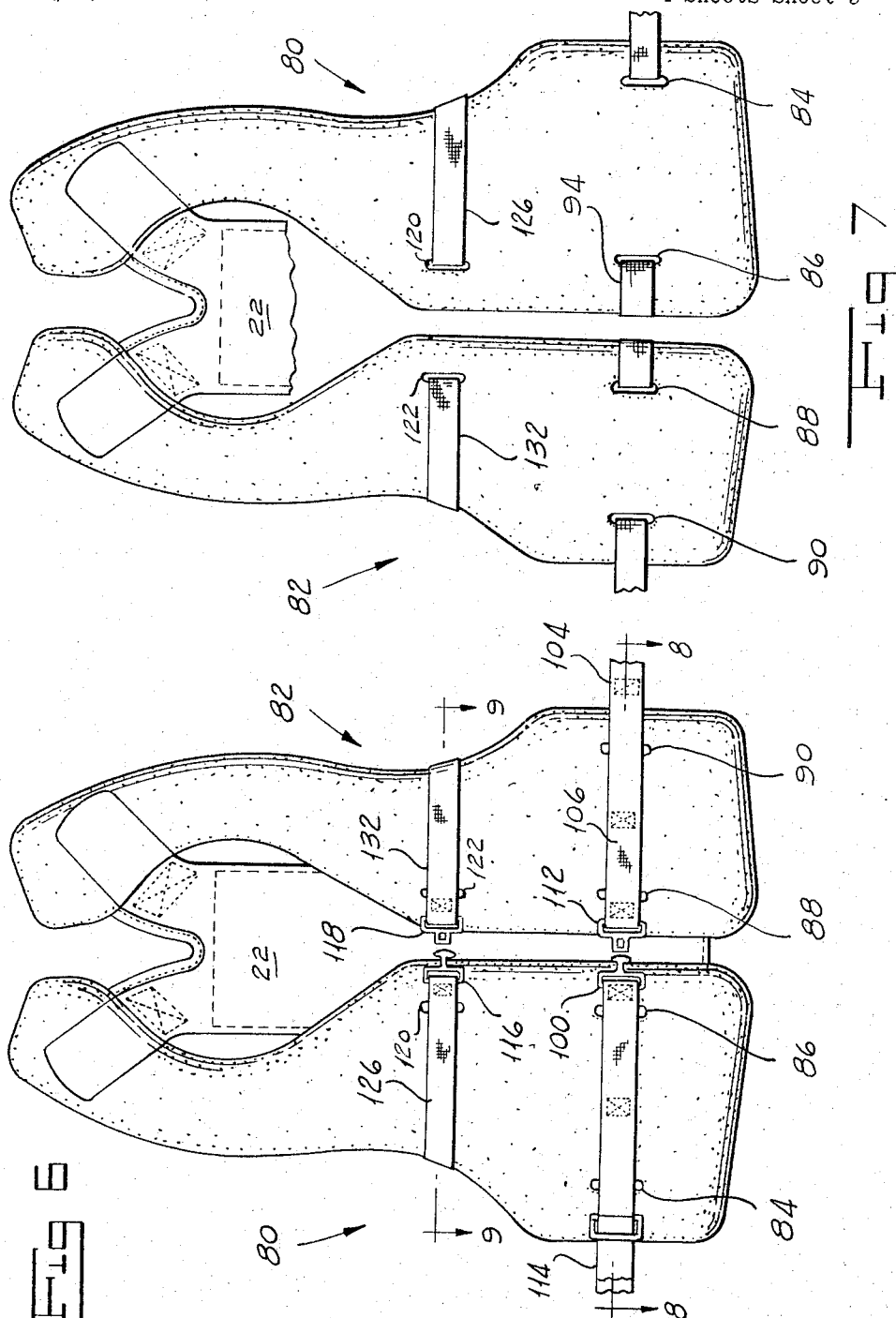
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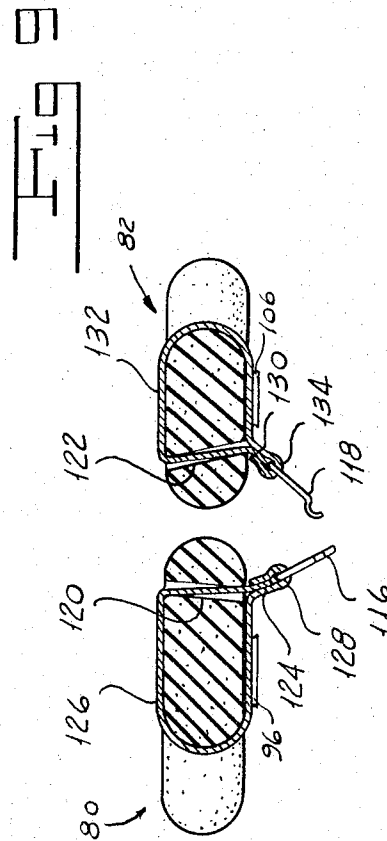
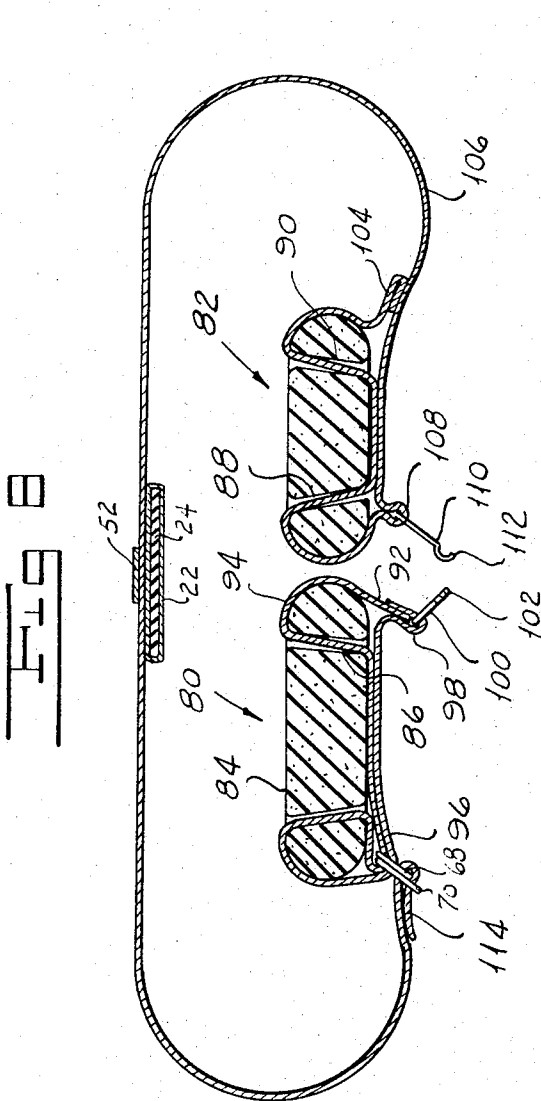
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UTILITY BUOYANT VEST

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ABSTRACT OF THE DISCLOSURE

A utility buoyant vest having right-hand and left-hand front sections of unitary buoyant material and an elongated protective back piece of material relatively stiffer than said buoyant material extending along the spine of a wearer and joined by a yoke to said front sections and a belt for gathering said sections and said protective back piece in the region of the waist of the wearer.

My invention relates to a utility buoyant vest and more particularly to an improved buoyant vest which will accommodate an extremely wide range of sizes while being adapted to ensure that the wearer floats face up and while affording a person wearing the jacket protection in a vital area.

There are many instances in which persons engaged in strenuous activities on or near the water must be afforded a high degree of freedom of movement while being protected against drowning in the event they accidentally fall into the water. One particular example of such an instance is in the construction of structures such, for example, as bridges and the like wherein workmen must work in rather precarious positions over the water. When working on such projects the danger exists not only that a workman may tumble into the water accidentally as a result of slipping, tripping or the like but, also, that a workman may be struck by some moving member such, for example, as a beam carried by a crane and be rendered unconscious as he is knocked from the structure. In such case, a life preserver or the like adapted to buoyantly support the wearer is of little use if it permits the person to float face-down in the water.

Another desideratum of a buoyant jacket or the like adapted to be used by persons, such as workmen, is that it be adapted to be donned over a variety of outerwear. As the seasons change, the person using such a vest wears more or less outer clothing. It should be possible for the worker to use the same outer vest for all seasons with the vest being securely held on his person. Moreover, it is desirable that a standard vest be adapted to be worn by people of widely different sizes.

One area of a workman's body which is particularly susceptible of very serious injury when struck by a moving member is the wearer's spine. Consistent with the primary consideration of buoyantly supporting the user, a buoyant vest should afford some protection for the wearer's spine. At the same time the user's freedom of movement should be ensured.

I have invented a utility buoyant vest which is especially adapted for use by persons engaged in relatively strenuous activities on or near the water. My buoyant vest accommodates an extremely wide range of sizes and may be donned over a variety of outerwear while snugly fitting the wearer's body. I provide my buoyant vest with means for protecting the spine of the wearer while not interfering with the buoyant properties of the vest or with the wearer's freedom of movement. I so construct my buoyant vest that it will turn an unconscious person face-up in the water. My vest affords the wearer a high degree of freedom of movement.

One object of my invention is to provide a utility

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buoyant vest which is adjustable to size over a very wide ranges of sizes.

Another object of my invention is to provide a utility buoyant vest which automatically turns an unconscious person face-up in the water.

A further object of my invention is to provide a utility buoyant vest which protects the spine of the wearer against injury.

A still further object of my invention is to provide a utility buoyant vest which affords the wearer a high degree of freedom of movement.

Other and further objects of my invention will appear from the following description.

In general my invention contemplates the provision of a utility buoyant vest having right- and left-hand sections of buoyant material constructed to provide a differential buoyancy with relation to the wearer's body so as to ensure that the wearer is supported face-up with his head out of the water. I provide my vest with a backpiece of relatively stiff material joined to shoulder portions of the buoyant members by a yoke and extending downwardly along the spine of the wearer. A releasable fastener joins the buoyant members at the front and a belt adjustably positioned vertically of the back member and engaging the front members permits the vest to be snugly secured to the wearer's body.

In the accompanying drawings which form part of the instant specification and which are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

FIGURE 1 is a front elevation of one form of my utility buoyant vest.

FIGURE 2 is a rear elevation of the form of my utility buoyant vest shown in FIGURE 1.

FIGURE 3 is a sectional view of my utility buoyant vest taken along the line 3-3 of FIGURE 2 and drawn on an enlarged scale.

FIGURE 4 is a sectional view of my utility buoyant vest taken along the line 4-4 of FIGURE 1.

FIGURE 5 is a sectional view of my utility buoyant vest taken along the line 5-5 of FIGURE 1.

FIGURE 6 is a front elevation of my utility buoyant vest illustrating an alternate form of means for securing the vest to the wearer's body.

FIGURE 7 is a rear elevation of the form of my utility buoyant vest shown in FIGURE 6 with parts broken away.

FIGURE 8 is a sectional view of my improved buoyant vest taken along the line 8-8 of FIGURE 6.

FIGURE 9 is a sectional view of my improved buoyant vest taken along the line 9-9 of FIGURE 6.

Referring now to FIGURES 1 to 5 of the drawings my utility buoyant vest includes a right-hand section indicated generally by the reference character 10 and a left-hand section indicated generally by the reference character 12 of buoyant material. Each of the right-hand and left-hand sections 10 and 12 is formed of a suitable buoyant material such, for example, as unicellular foamed plastic and is provided with a waist portion 14 which is laterally extended to form a wing 16. Extending upwardly from the waist portion 14 of each of the sections 10 and 12 is a shoulder portion 18 having an extension 20 adapted to fit behind the wearer's head in a manner to be described.

I so construct the sections 10 and 12 that the major portion of the buoyancy provided thereby is in the chest area of the wearer. Thus, the buoyant vest tends to support the user in a face-up position in the water. In addition to arranging each of the sections 10 and 12 with a major portion of the buoyant material in the chest area, I make the right-hand section bigger than the left. Owing to this arrangement, where a person is lying face-down in the water, the differential buoyancy of the two sections

generates a turning moment tending to rotate the wearer to a face-up position. The laterally extending wings 16 of the sections 10 and 12 reduce the tendency of the wearer to rock back and forth owing to motion induced by the waves. That is to say, these wings 16 exert a stabilizing influence on the wearer's body.

As is pointed out hereinabove, the rearward extensions 20 rest behind the wearer's head when the vest is in use to ensure that his head will be out of the water. These extensions are so constructed that while achieving the purpose of keeping the wearer's head out of the water, they do not extend rearwardly beyond his head for any appreciable distance. Thus, the possibility of the wearer being knocked over when he turns and accidentally strikes a surrounding element of structure is substantially reduced as compared with the danger existing where a jacket is provided with a full collar portion of buoyant material. A further feature of the extensions 20 and of the overall configuration of the vest is that it permits one to sit in the usual aircraft seat without discomfort while wearing my vest.

My buoyant vest includes an elongated envelope 22 formed of a suitable material such, for example, as a fire-resistant fabric. The envelope 22 encases an insert 24 formed of relatively stiff foamed plastic which extends along the length of the spine of the wearer. Stitching 26 and 28 forms a yokelike extension in the envelope 22 above the insert 24. The arms of the yokelike extension are secured to the extensions 20 of the buoyant members 10 and 12 in any suitable manner. For example, flaps 29 on the ends of the arms are placed over the extensions 20 and are secured thereto by means of a suitable adhesive. This arrangement provides such a neck opening as permits the jacket to be worn over outer clothing and by persons of widely varying size.

I place fabric pieces 30 and 32 across the front of each member 10 and 12 and extend the pieces for a distance around the back of each member. A suitable adhesive secures the pieces to the members. Stitching 35 secures zipper halves to folds 34 and 36 formed in the pieces 30 and 32 at the inner edges of members 10 and 12. The teeth 40 of the zipper are adapted to be engaged by operation of a slide 42 releasably to hold the two members 10 and 12 closed over the wearer's body.

Stitching 48 secures a belt 50 formed of fire-resistant webbing to a fold 46 formed in piece 32 at the outer edges of wing 16 of member 12. Belt 50 passes around the wearer's body and is slipped through one of two or more fabric loops 52 formed in a strip of webbing 54 secured to the envelope 22 by spaced areas of stitching 56. The respective fabric loops 52 permit the position of the belt 50 to be adjusted vertically with respect to the envelope 22 and its insert 24 to accommodate persons of different size.

After having passed through a loop 52, the belt 50 passes through a loop 58 formed on a fold 44 of piece 30 at the outer edge of the wing of member 10 by a length of material 60 secured to the fold 44 by stitching 62. A short length of webbing 64 stitched to the piece 30 on right-hand front member 10 has a loop 66 therein which receives a pair of cinch rings 68 and 70. The free end of the belt 50 passes through both rings 68 and 70 and then back through the member 70. After having donned the vest and engaged the zipper, the user draws on the free end of the belt 50 to pull the vest snugly against his body. The cinch rings 68 and 70 frictionally hold the belt in the adjusted position.

Referring now to FIGURES 6 to 9 of the drawings, in an alternately form of my utility buoyant vest I provide a right-hand section indicated generally by the reference character 80 and a left-hand section indicated generally by the reference character 82. Owing to the fact that, with the exception of the particular means for securing the vest to the wearer's body, the form of my

invention shown in FIGURES 6 to 9 is similar to the form of the invention shown in FIGURES 1 to 5, the other parts will not be described in detail. I provide the right-hand and left-hand sections 80 and 82 with respective pairs of spaced slots 84 and 86 and 88 and 90. Starting with one end 92 of a length of material 94 such, for example, as woven nylon webbing, I pass the length around the inboard edge of the right-hand section 80, then outwardly through the slot 86 across the front of the portion of the section 80 between the slots 84 and 86 and form a loop 96 therein by stitching or the like to hold the cinch elements 68 and 70. After forming the loop 96 I pass the length through the slot 84 and around the outboard edge of the section 80 and back across the front and form a loop 98 therein which retains a fastening element 100 having a T-head 102. The folds of loop 98 receive end 92 and I stitch the loop to the end thus to retain element 100.

Beginning with one end 104 of a length 106 of material such as nylon webbing, I pass the length first around the outboard edge of the left-hand section 82 and outwardly through the slot 90 and across the front of the section 82 between slots 88 and 90 and thence inwardly through slot 88 and around the inboard edge of the section 82. I next form a loop 108 in the length by stitching or the like to retain a receptacle 110 having a slotted hook 112 for receiving T-head 102. After forming the loop I pass the length 106 across the front of section 82 and stitch the length to a fold formed in end 104. I then run the free end 114 of the length 106 through one of the loops 52 formed in the piece 54 by stitching 56 and adjustably secure the free end 112 to the section 80 by the cinch element 68 and 70.

The form of my invention shown in FIGURES 6 to 9 includes auxiliary fastening means comprising a T-head fastener 116 and a slotted hook receptacle element 118 adapted to be engaged securely to hold the upper portion of the vest to the wearer's body. I provide the sections 80 and 82 with respective slots 120 and 122 positioned just below the neck opening of the vest. Beginning with one end 124 of a length of material such as nylon webbing 126, I pass the length first through the slot 120 across the back of section 80 around the outboard edge thereof and back across the front of the section. At this point I form a loop 128 in the length 126 for retaining the fastener element 116. In forming the loop I enclose the end 124 therein and stitch the pieces together. Beginning with an end 130 of a length of material 132 of nylon webbing or the like, I pass the length through slot 122 across the back of section 82 around the outboard edge thereof and back across the front to form a loop 134 for retaining the receptacle 118. In forming loop 134 I enclose the end 130 in the fold of the loop and secure the parts together by stitching or the like.

In use of the form of my utility vest shown in FIGURES 1 to 5 the wearer first slips his head through the opening formed by the yoke and by the shoulder portions 18 with the belt 50 passing through one of the loops 52 and through the loop 58. He next operates the slide 42 to engage the teeth 40. When this has been done, the free end of the belt 50 is passed through the buckle elements 68 and 70 and the belt is drawn tight. It will readily be appreciated that the yoke construction and the loops 52 permit the vest to be donned over outer clothing and by users widely varying in size.

When the vest has been donned, the extensions 20 are positioned generally behind the wearer's head. They do not, however, extend any appreciable distance behind the wearer so that the danger of this striking a surrounding structural element as the user turns is minimized. The envelope 22 carrying the relatively stiff insert 24 extends along the length of the wearer's spine closely adjacent the wearer's body. It protects the wearer against accidental injury by a moving object. This insert also lends in-

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tegrity to the vest as it positively positions the body strap 50 in the desired position at the wearer's waist. If the wearer accidentally falls or is knocked into the water, the differential buoyancy of the sections 10 and 12 produces a turning moment which causes the wearer to be turned face-up in the water. The differential buoyancy of the upper portions moreover induces a spiral movement of the wearer when turning to be sure that the head of the wearer emerges first. When the wearer has thus been turned face-up, the extensions 20 behind the wearer's head keep his head out of water even though he be unconscious. Owing to its construction my vest may be packed and stowed in a relatively small space.

In use of the form of my vest shown in FIGURES 6 to 9 the wearer slips his arms through the spaces between the back 22 and the front sections 80 and 82. The T-head 102 is then inserted into the slotted hook of receptacle 110. Then the T-head fastener 116 is engaged in the slotted hook receptacle 118. The free belt end 114 may then be pulled securely to hold the vest in position on the wearer's body. It will be understood that the auxiliary fastening means 116 and 118 serves to hold the upper portion of the vest closely to the wearer's body. It also obviates the possibility of the jacket accidentally riding up over the wearer's head.

It will be seen that I have accomplished the objects of my invention. I have provided a utility buoyant vest which is especially adapted for use by persons engaging in relatively strenuous activities on or near the water. I so construct my vest as to turn an unconscious wearer face-up in the water and to hold him in that position with his head out of the water. My vest protects the wearer against potential injury to his spine. It may readily be stored. My vest is so constructed that it may be worn outside outer garments and it may be worn by persons varying widely in size while retaining its other desirable properties.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of my claims. It is further obvious that various changes may be made in details within the scope of my claims without departing from the spirit of my invention. It is, therefore, to be understood that my invention is not to be limited to the specific details shown and described.

Having thus described my invention, what I claim is:

1. A utility buoyant vest including in combination respective distinct independently formed left-hand front and right-hand front members of relatively flexible buoyant material, said members having a waist portion and a shoulder portion joined by a chest portion with a major part of the buoyant material in said chest portion, said members having different volume displacements, an elongated protective element of relatively stiffer material extending along the length of the wearer's spine, a flexible yoke connecting said protective element to said shoulder portions, a belt, means for securing said belt to one of said members, spaced loops carried by said protective element for adjustably positioning said belt thereon, means for adjustably connecting said belt to the other member and lateral stabilizers on said waist portions.

2. A utility buoyant vest including in combination respective distinct independently formed left-hand front and right-hand front members of relatively flexible buoyant material, said members having a waist portion and a shoulder portion joined by a chest portion with a major part of the buoyant material in said chest portion, said members having different volume displacements, an elongated protective element of relatively stiffer material extending along the length of the wearer's spine, a flexible yoke connecting said protective element to said shoulder portions, a belt, means for securing said belt to one of said members, spaced loops carried by said protective

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element for adjustably positioning said belt thereon, means for adjustably connecting said belt to the other member and extensions on said shoulder portions, said extensions adapted to be disposed behind the wearer's head.

3. A utility buoyant vest including in combination respective distinct independently formed left-hand front and right-hand front members of relatively flexible buoyant material, said members having a waist portion and a shoulder portion joined by a chest portion with a major part of the buoyant material in said chest portion, said members having different volume displacements, an elongated protective element of relatively stiffer material extending along the length of the wearer's spine, a flexible yoke connecting said protective element to said shoulder portions, a belt, means for securing said belt to one of said members, spaced loops carried by said protective element for adjustably positioning said belt thereon and means for adjustably connecting said belt to the other member.

4. A utility buoyant vest including in combination respective left-hand front and right-hand front members of relatively thick and relatively flexible buoyant material and means comprising a flat and relatively thin rear elongated protective member of relatively stiffer material extending along the spine and closely adjacent to the body of a wearer for joining said members.

5. A utility buoyant vest including in combination respective left-hand front and right-hand front sections of buoyant material, each of said sections comprising a relatively thick unitary body having a waist portion and a shoulder portion, and a rearward extension on said shoulder portion, a flat and relatively thin rear elongated protective element extending along the spine of a wearer, said element formed of a material relatively stiffer than said buoyant material, a fabric envelope carrying said protective element, a yoke securing said envelope to said shoulder portions to form a neck opening, a belt and, respective loops spaced along the length of said envelope for receiving said belt.

6. A utility buoyant vest including in combination respective left-hand front and right-hand front relatively thick sections of resilient buoyant material each having a waist portion and a shoulder portion connected by a chest portion, each of said sections tapering from said chest portion towards said waist portion, a flat and relatively thin rear elongated protective element extending along the spine of a wearer, said element formed of a material relatively stiffer than said buoyant material, a fabric envelope carrying said protective element, a yoke securing said envelope to said shoulder portions to form a neck opening, a belt and respective loops spaced along the length of the envelope for receiving said belt.

7. A utility buoyant vest including in combination respective left-hand front and right-hand front relatively thick sections of resilient buoyant material each having a waist portion and a shoulder portion, a flat and relatively thin rear elongated protective element extending along the spine of a wearer, said element formed of a material relatively stiffer than said buoyant material, a fabric envelope carrying said protective element, a yoke securing said envelope to said shoulder portions to form a neck opening, a belt and respective loops spaced along the length of said envelope for receiving said belt.

8. A utility buoyant vest including in combination respective left-hand front and right-hand front relatively thick sections of resilient buoyant material each formed with a shoulder portion and a waist portion, a flat and relatively thin rearwardly positioned protective element extending along the length of a wearer's spine in closely spaced relation to the wearer's body, said element formed of a material relatively stiffer than said buoyant material, a yoke for connecting said protective element adjacent the upper end thereof to said shoulder portions, a belt adapted to connect said protective element to said

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waist portions and means adjacent the lower end of said protective element for adjustably positioning said belt longitudinally of said protective element.

9. A utility buoyant vest including in combination respective left-hand front and right-hand front relatively thick sections of resilient buoyant material each formed with a shoulder portion and a waist portion, a flat and relatively thin rearwardly positioned elongated protective element extending along the length of a wearer's spine in closely spaced relationship to the wearer's body, said element formed of a material relatively stiffer than said buoyant material, a yoke for connecting said protective element adjacent the upper end thereof to said shoulder portions and means comprising a belt for connecting said protective element adjacent the lower end to said waist portions.

10. A utility buoyant vest including in combination respective left-hand front and right-hand front relatively thick sections of buoyant material, a flat and relatively thin rearwardly positioned elongated protective element extending along the length of a wearer's spine and in closely spaced relationship to the wearer's body, said element formed of a material relatively stiffer than said buoyant material, and means comprising a flexible yoke for joining said protective element to said front sections.

11. A utility buoyant vest including in combination respective distinct independently formed left-hand front and right-hand front members of relatively flexible buoyant material, said members having a waist portion and a shoulder portion joined by a chest portion with a major part of the buoyant material in said chest portion, said members having different volume displacements, an elongated protective element of relatively stiffer material extending along the length of the wearer's spine, a flexible yoke connecting said protective element to said shoulder portions, a belt, means for securing said belt to one of

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said front members adjacent the lower end thereof, spaced loops carried by said protective element for adjustably positioning said belt thereon adjacent the lower end of said protective element, means for adjustably connecting said belt to the other member adjacent the lower end thereof and means for releasably connecting the chest portions of said members.

12. A buoyant vest for supporting a wearer in the water while protecting his spine against accidental injury including in combination respective right-hand and left-hand unitary buoyant relatively thick members of resilient material each having a waist portion and a chest portion and a shoulder portion and a rearward extension on said shoulder portion, an elongated protective element relatively thinner than said buoyant members disposed rearwardly along the spine of a wearer and in closely spaced relationship to the wearer's body, said element being formed of a material relatively stiffer than said buoyant members and means for joining said protective element and said left-hand and right-hand members to form a vest, said rearward extensions being disposed behind the wearer's head for a limited distance when said vest is donned.

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