

[54] **RESCUE AND SAFETY VEST**

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[52] U.S. Cl.....**182/3, 128/134**
[51] Int. Cl.**A62b 35/00**
[58] Field of Search182/3, 5, 6, 7; 128/134, 78;
2/309

[57] **ABSTRACT**

A rescue and safety vest comprising separate front and back portions having means thereon for quickly and releasably joining the front and back portions together about the torso of a person. Both the front and back portions include enlarged vest portions which provide support and evenly distribute pressure over the torso of the person, and one of the portions includes relatively wide leg straps which encircle the legs of the person and provide lifting support therefor.

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15 Claims, 9 Drawing Figures

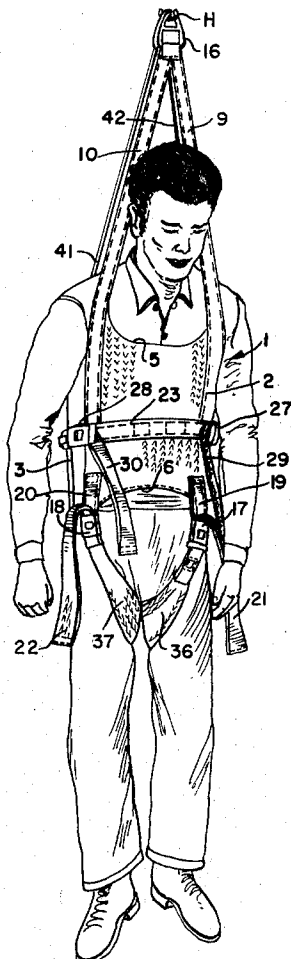


FIG. 1.

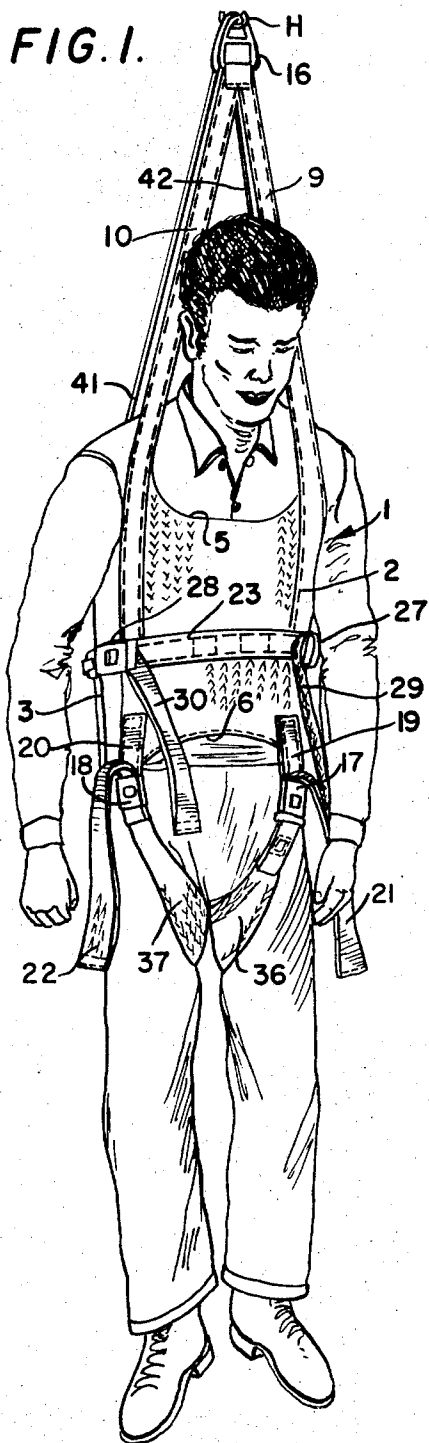
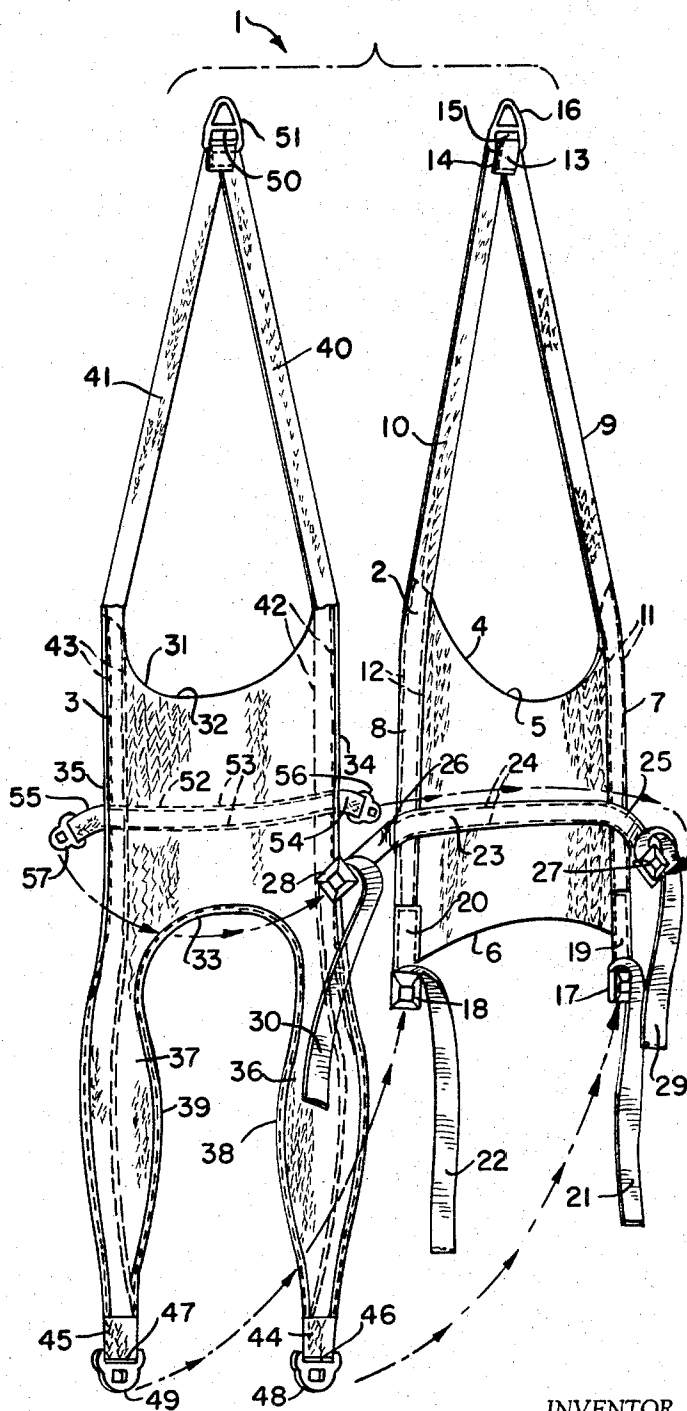


FIG. 2.



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FIG. 5.

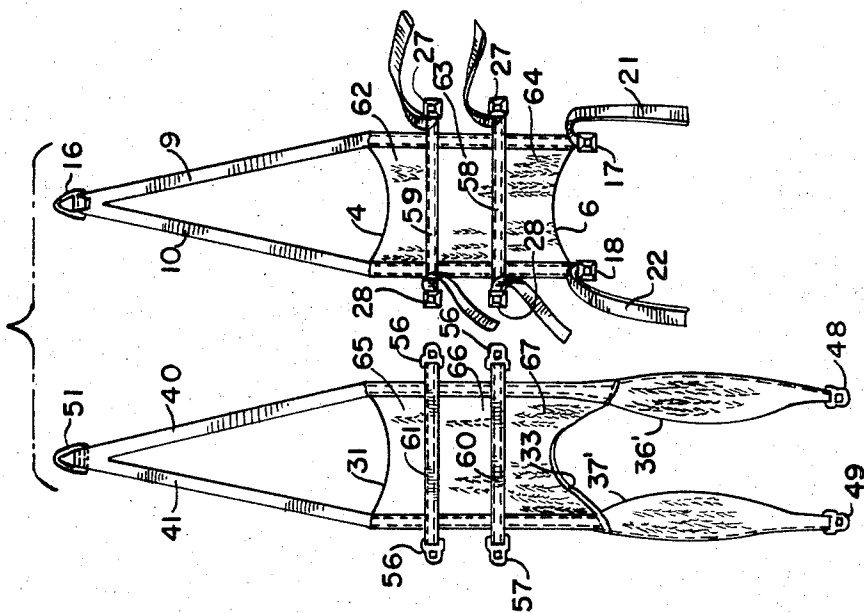


FIG. 4.

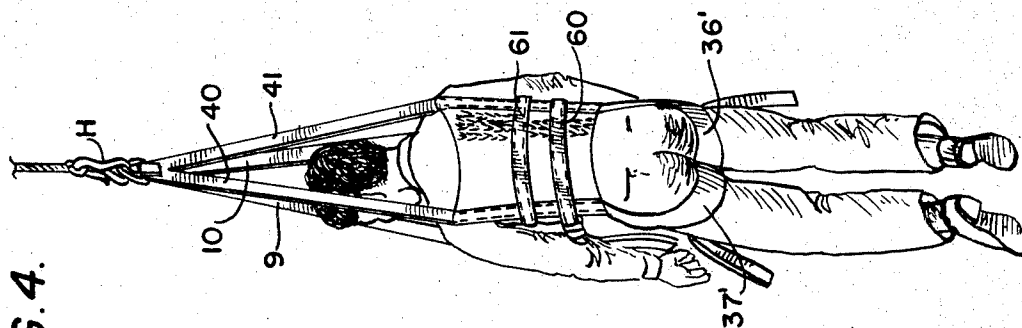
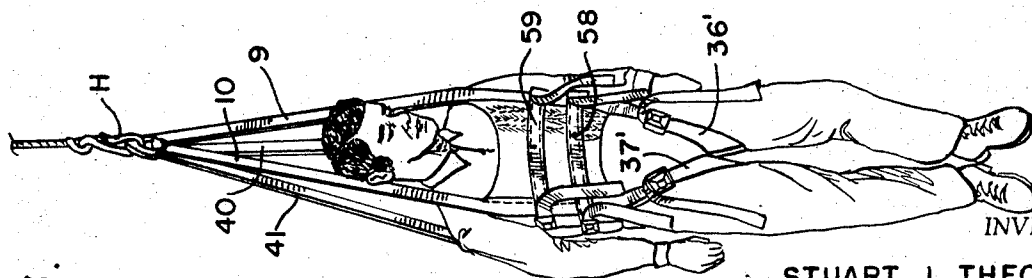


FIG. 3.



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FIG. 6.

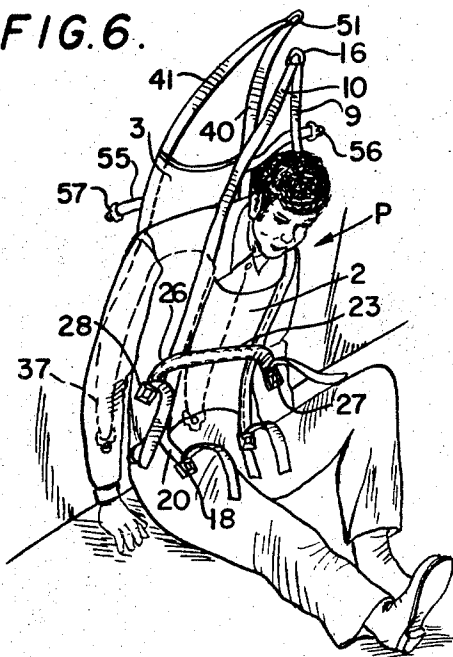


FIG. 7.

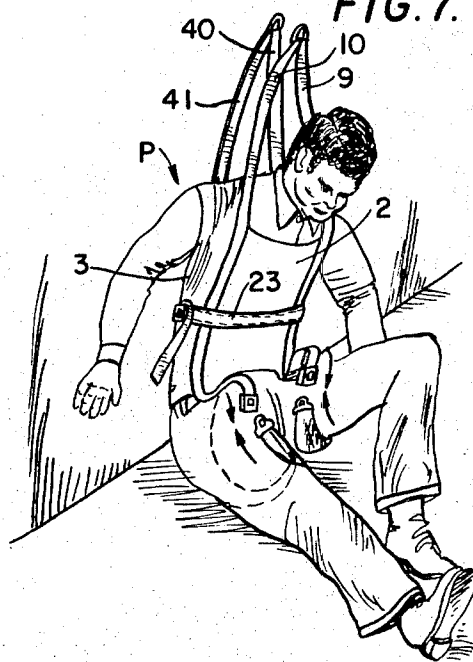


FIG. 9.

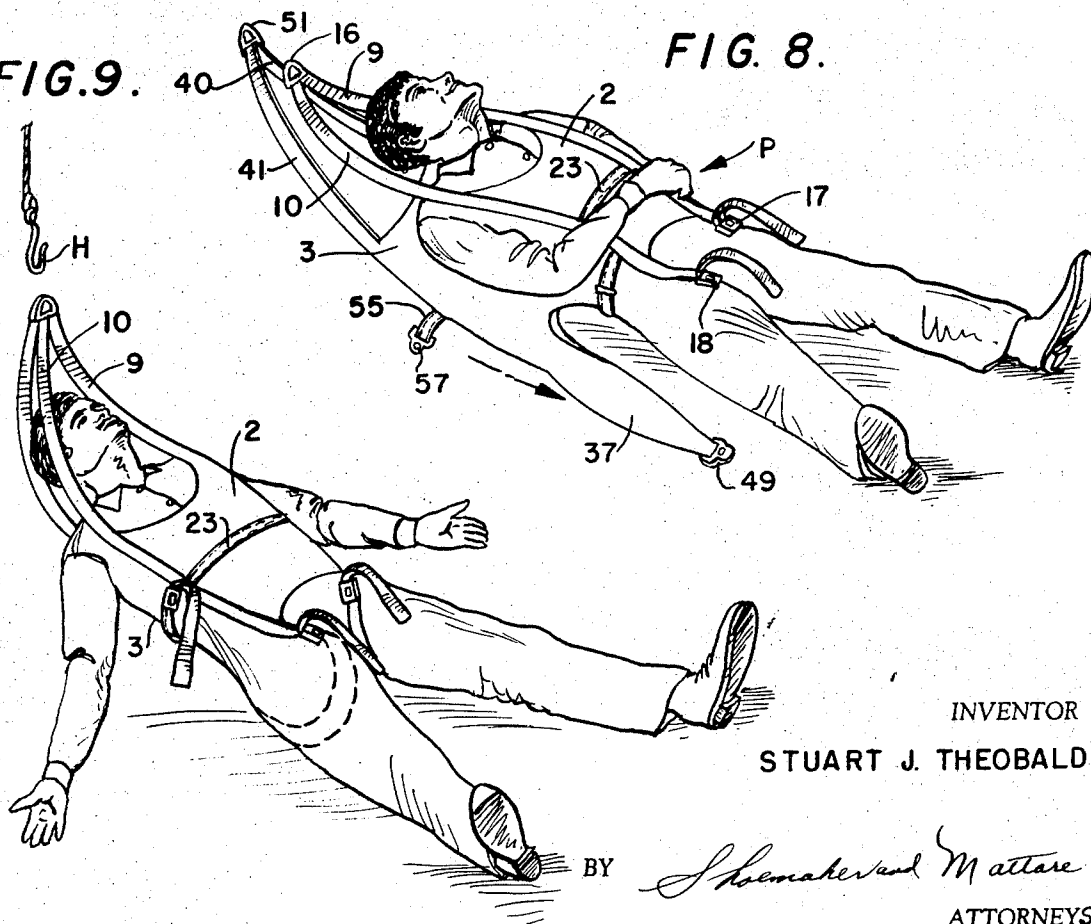
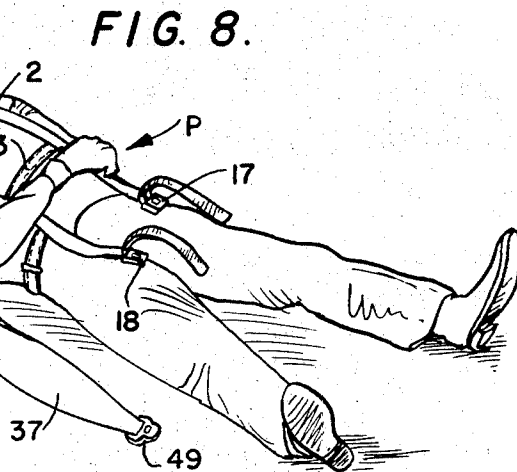


FIG. 8.



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RESCUE AND SAFETY VEST**BACKGROUND OF THE INVENTION**

This invention relates to a rescue and safety vest which can either be worn by a person engaged in a hazardous activity where there is a possibility of the person falling, or the rescue and safety vest can be quickly and easily secured to an injured person for rescuing the injured person from relatively inaccessible places, such as a mine shaft or a hold of a ship or the like.

The rescue and safety vest can be easily worn by a person while engaged in an activity where there is the possibility of the person falling, such as, for example, when the person is working from a scaffold or the like, such as in window washing or construction or other activity, since the vest is constructed and positioned on the person such that it does not interfere with normal movement of the person in performing his duties. The vest will provide a secure and evenly distributed lifting force to the person in the event he falls from the scaffold or the like without placing excess force on specific portions of the person's body.

The vest can also be used as a rescue vest for rescuing injured persons from relatively inaccessible places, such as a mine shaft, hold of a ship, or tower or pole for power transmission lines or the like. Because of its unique, two-part construction, the rescue vest can be easily secured about the body of the person without necessitating undue movement of the person even though he is unconscious. For example, if the injured person is in a sitting position, the vest can be positioned about the person without moving him from the sitting position, or if the person is in a horizontal position, the vest can be positioned about his body without moving him excessively. This is important when injuries such as broken bones or internal injuries or the like are likely to be encountered since movement of the injured person under such circumstances may aggravate or increase the extent of his injuries. If the injured person is conscious, he can quickly and easily position the rescue and safety vest about himself without any aid from another person.

The rescue and safety vest includes vest or torso encircling portions which distribute pressure over a large area of the person's body and thus do not exert large and injurious forces on localized portions of the person's body as frequently occurs with conventional rescue equipment.

Further, the major lifting force is exerted on the person's legs, just under the buttocks, by means of a pair of relatively wide leg straps or lifting bands extending around the person's legs under the buttocks and accordingly the lifting force is distributed over a large area, thus eliminating the possibility of the leg straps cutting into the person's legs when he is lifted during a rescue operation.

The rescue and safety vest may be economically manufactured from nylon webbing or the like with continuous filling yarns and finished selvages. For example, the strap portions of the rescue and safety vest could comprise conventional seat belt material and the like, if desired, and the buckle fastening means for attaching the front and back portions to the person could comprise a mechanism similar or identical to that used in seat belts as used in automobiles or the like. The ply

and strength of the materials used are determined by the requirements with respect to the weight to be lifted and the weight to be sustained in a free fall or the like.

OBJECTS OF THE INVENTION

It is an object of this invention to provide a rescue and safety vest which may be quickly and easily placed on an injured person either by the injured person or by another person if the injured person is unconscious.

Another object of this invention is to provide a rescue and safety vest which includes relatively broad or wide areas in supporting engagement with the body of the person to prevent excessive pressure or force being applied to the person when he is lifted with the rescue and safety vest.

A further object of this invention is to provide a rescue and safety vest having supporting or lifting leg straps or bands which engage the legs of the person using the vest adjacent the buttocks of the person, and wherein the leg straps include wide portions engaging the legs of the person so that the leg straps exert a lifting force on the person over a large area and thus do not cut into or injure the person.

An even further object of this invention is to provide a two-part rescue and safety vest having means for quickly and easily joining the two parts about a person for providing a safety device or rescue device for the person.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a person being lifted or suspended in the rescue and safety vest according to the present invention.

FIG. 2 is an exploded perspective view of the rescue and safety vest of the present invention.

FIGS. 3 and 4 are front and back perspective views, respectively, of a person being lifted or suspended in a second form of rescue and safety vest of the present invention.

FIG. 5 is a plan view of the front and back portions of the rescue and safety vest of the present invention showing the relative arrangement of parts.

FIG. 6 is a schematic perspective view of an injured person in a sitting position with the rescue and safety vest of the present invention being placed in position.

FIG. 7 is a schematic perspective view similar to FIG. 6, showing the rescue and safety vest in position on the person.

FIG. 8 is a schematic perspective view of an injured person in a horizontal position and illustrating one way in which the rescue and safety vest may be applied to the person.

FIG. 9 is a view similar to FIG. 8, showing the rescue and safety vest in position on the person.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, wherein like reference numerals refer to like parts throughout the several views, a first form of the rescue and safety vest is indicated generally at 1 in FIGS. 1 and 2 and comprises a front portion 2 and a back portion 3. The front 2 includes a vest 4 having upper and lower arcuately recessed or concave edges 5 and 6 and opposite, substantially parallel edges 7 and 8. The vest 4 is of such

size that the bottom arcuate edge 6 is preferably positioned immediately below the navel of the person wearing the rescue and safety vest, and the arcuate top edge 5 extends across the chest of the person with edges 7 and 8 extending along the sides of the person substantially in alignment with the arms of the person. A pair of elongate, vertically extending lifting means or straps 9 and 10 are sewed to the vest 4 along the opposite edges 7 and 8 thereof by suitable stitching such as indicated at 11 and 12.

As can be seen in FIG. 2, the straps 9 and 10 are overlapped with the opposite edges 7 and 8 of the vest 4 approximately the width of the straps, and a double stitch is used to securely fasten the straps and vest together. Straps 9 and 10 extend upwardly a substantial distance above the upper edge 5 of the vest 4 and are suitably connected at their upper ends 13 as by a suitable stitch 14 or the like. The ends 13 of the straps 9 and 10 are passed through an opening 15 in a D-ring 16 prior to making the stitch 14 to secure the D-ring 16 to the straps 9 and 10 and thus provide a means for lifting the rescue and safety vest and a person secured therein.

The straps 9 and 10 may extend a short distance below the lower arcuate edge 6 of the vest 4 and have a suitable quick release means such as buckles 17 and 18 thereon, or the buckles 17 and 18 may be provided on separate strap means 19 and 20 stitched to the vest at the bottom thereof and overlapped with the straps 9 and 10 a short distance upwardly along the opposite sides 7 and 8 of the vest. The straps 19 and 20 are provided with elongated ends 21 and 22 so that the position of the buckles 17 and 18 may be adjusted to accommodate persons of different size.

A transversely extending belt 23 of substantially the same width and thickness as straps 9 and 10 is stitched across the vertical mid-portion of the vest 4 as by means of suitable stitching 24 or the like and extends at its opposite ends 25 and 26 outwardly beyond the opposite edges 7 and 8 of the vest. Suitable quick release buckle or clasp means 27 and 28 are on the ends 25 and 26 of belt 23, and elongated lengths of strap or belt 29 and 30 are provided at opposite ends of belt 23 so that the buckles 27 and 28 may be adjusted along the length of the straps for accommodating persons of different size.

The back 3 includes a similar vest portion 31 having an arcuately recessed concave upper edge 32, an arcuately recessed concave lower edge 33, opposite edges 34 and 35, and a pair of downwardly extending leg portions or lifting bands 36 and 37 extending integrally from the bottom of the vest 31. The leg portions 36 and 37 include relatively wide portions 38 and 39 adjacent the vertical mid-portions thereof. A pair of elongate longitudinally extending straps 40 and 41 are sewed along the opposite edges 34 and 35 of the vest 31 by suitable stitching 42 and 43, and the straps 40 and 41 extend downwardly along the outer edge of the leg encircling portions 36 and 37. The lower ends 44 and 45 of the leg encircling portions 36 and 37 are extended through openings 46 and 47 in suitable fastening means 48 and 49 and are folded back up along the leg encircling portions 36 and 37 and suitably sewed or fastened thereto. The upper ends of the straps 40 and 41 are extended through a suitable opening 50 in a D-ring 51 and are folded back and stitched against the upper ends thereof.

A transversely extending belt 52 is sewed across the vertical mid-portion of the vest 31 as by stitching 53 or the like and extends at its opposite ends 54 and 55 outwardly beyond the opposite edges 34 and 35 of the vest and has suitable fastening means 56 and 57 thereon.

In use, the front 2 and back 3 of the rescue and safety vest are placed in position on the person and the leg encircling portions 36 and 37 extended around the legs of the person under the buttocks thereof, and the fastening means 48 and 49 are inserted into the buckles 17 and 18. The length of the straps may then be adjusted to tighten the leg encircling portions around the legs of the person. The fastening means 56 and 57 are then brought around the sides of the person and connected with the buckles 27 and 28 and the length of the straps adjusted to tighten the vest portions about the torso of the person. A suitable hook means H is then placed through the D-rings 16 and 51 and the person may be lifted as indicated in FIG. 1.

The vest portions 4 and 31 provide a uniformly distributed force or support over the torso of the person and the wide portions 38 and 39 of the leg encircling portions 36 and 37 distribute the lifting force over the back portion of the legs of the person under the buttocks thereof and prevent the leg straps from cutting into the person as he is being lifted.

As can be seen in FIG. 1, the person remains in an upright position as he is being lifted, and excessive pressure is not applied to his body and his breathing and the like is unrestricted. The vest portions 4 and 31 provide good support to the torso or body of the person and maintain it in an upright position and are effective in rescuing persons suffering from internal injuries or other injuries such as broken ribs and the like.

Further, due to the simplicity and light weight of the rescue and safety vest, it can be easily worn by a person engaged in a hazardous activity where there is a possibility of the person falling, without impeding the normal activity or movement of the person in performing his duties.

Referring now to FIGS. 3, 4 and 5, a second form of the invention is shown and is identical in every respect with the form of the invention illustrated in FIGS. 1 and 2, except that a pair of body encircling belts 58 and 59, and 60 and 61 are sewed to the front and back vest portions 4 and 31, respectively. The belts are equally spaced on the vest portions and divide the vest portions into three substantially equal areas 62, 63, 64, and 65, 66, and 67, respectively.

Also, the leg encircling lifting straps 36' and 37' comprise integral extensions of the straps or belts 40 and 41 stitched along opposite sides of the vest 31, with the lower edge 33 of the vest terminating similar to the lower edge 6 of the front vest 4.

Referring now to FIGS. 6, 7, 8 and 9, typical positions which an injured person is likely to be in are illustrated.

In FIGS. 6 and 7, an injured person P is indicated in a sitting position. In FIGS. 6, the front 2 of the vest is positioned on the front of the body of the person P and the back 3 of the vest is being lowered behind the person. This may be accomplished by pulling downwardly on the leg encircling straps 36 and 37. If the nature of the injuries sustained by the person permit, he may be tilted forwardly to make positioning of the back 3 of the rescue and safety vest easier; however, in the event

the injuries of the person do not permit unnecessary movement of the person, the vest may be positioned without moving the person forwardly.

As seen in FIG. 7, the vest is in position with the buckles fastened and a hook extended through the D-rings at the top of the lifting straps 9, 10, 40, and 41 for lifting the person.

In FIGS. 8 and 9, an injured person P is shown in horizontal position. If the nature of the injury permits, the person may be rolled on his side to aid in placing the back 3 under him prior to buckling the front and back together, or if the nature of the injury to the person does not permit him to be rolled on his side, the back 3 may be slid lengthwise under the person by pulling on the leg encircling straps 36 and 37, or the back and front may be positioned in any other way deemed advisable under the particular circumstances encountered. In any event, the rescue and safety vest can be quickly and easily positioned on a person in any of a various number of positions and either in a state of consciousness or unconsciousness without requiring unnecessary movement of the injured person, and once in position, the rescue and safety vest provides good support to the body of the person to prevent further injury thereto.

Any suitable material may be used in manufacturing the rescue and safety vest, such as cotton or nylon and the like. The vest may be made in several sizes, such as small, medium and large, or it may be made in a single size. Other types of fastening means than the specific buckles and fasteners as described herein may be used as desired so long as a secure and quick release mechanism is used for ease in placing the rescue and safety vest on a person and speed in removing it from the person.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive, since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents, are therefore intended to be embraced by those claims.

I claim:

1. A rescue and safety vest for placement on an injured or sick person in either a reclining or sitting or standing position without requiring undue movement of the person, said vest comprising a one-piece torso engaging back vest portion and a separate one-piece torso engaging front vest portion, strap means secured to said vest portions to secure said vest portions to the torso of a person, depending spaced apart lifting bands on one of said vest portions for extending about an upper portion of the legs of a person and under the buttocks thereof, an end portion of said lifting bands connected to the other vest portion, and elongate lifting strap means secured along the sides of each vest portion and extending upwardly therefrom to lift a person supported in said rescue and safety vest while maintaining the torso of the person straight.

2. A rescue and safety vest as in claim 1, wherein the vest of the front portion is of such size as to extend over and support the major portion of the front of the torso

of the person, and wherein the back vest portion is of such size as to extend over and support the major portion of the torso of the person at the back thereof.

3. A rescue and safety vest as in claim 2, wherein a pair of elongate longitudinally extending lifting straps extend upwardly from the opposite upper edges of said front vest portion, the upper ends of said lifting straps being connected together at their upper ends and joined to a suitable means for attachment to a lifting means to lift the rescue and safety vest and a person secured therein.

4. A rescue and safety vest as in claim 3, wherein a pair of elongate, longitudinally extending lifting straps are secured to said back vest portion at the opposite upper edges thereof, the upper ends of said lifting straps on said back portion being connected together at their upper ends and connected to a suitable means for attachment to a lifting means to lift the rescue and safety vest and a person secured therein.

5. A rescue and safety vest as in claim 4, wherein a pair of elongate, longitudinally extending leg encircling lifting bands extend downwardly from opposite edges of said back portion for encircling the legs of a person and providing lifting support thereto.

6. A rescue and safety vest as in claim 5, wherein strap means are on the bottom opposite edges of said front vest portion and have quick release coupling means thereon for cooperative engagement with complementary quick release coupling means on the lower ends of said lifting bands on said back portion.

7. A rescue and safety vest as in claim 6, wherein said strap means to secure the vest portions to the torso of a person comprises a body encircling belt means on each of said front and back vest portions with quick release coupling means thereon for releasably securing said front and back portions to each other about the person.

8. A rescue and safety vest as in claim 7, wherein said belt means is positioned substantially mid-way between the upper and lower ends of said front and back vest portions.

9. A rescue and safety vest as in claim 7, wherein said belt means comprises a pair of vertically spaced belt means on each of said front and back vest portions.

10. A rescue and safety vest as in claim 9, wherein said belt means are equally spaced and divide the front and back portions into three substantially equal areas.

11. A rescue and safety vest as in claim 7, wherein the lifting straps extend continuously completely along the opposite longitudinal edges of said front and back vest portions, said lifting straps being sewed along the opposite longitudinal edges of said front and back vest portions.

12. A rescue and safety vest as in claim 11, wherein said lifting straps extend downwardly below the lower edge of said back vest portion and along the outside edge of said leg encircling portions.

13. A rescue and safety vest as in claim 12, wherein said leg encircling portions include relatively wide portions engageable with the legs of the person under the buttocks thereof.

14. A rescue and safety vest as in claim 13, wherein said widened leg encircling portions comprise integral parts of said back vest portion.

15. A rescue and safety vest as in claim 13, wherein said widened leg encircling portions comprise integral

parts of said longitudinally extending lifting strap means.

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