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(54) **Balancing jacket for diving activities equipped with integrated packing system for its transport**

(57) Balancing jacket for diving activities equipped with integrated packing system for its transport. Onto two areas (6) symmetrically opposed with respect to the middle of the back portion (2) of the jacket cooperating connecting means (7,7') are applied, which connect said portions in an easily engageable and releasable way. The invention also relates to a method for packing a balancing jacket for diving activities by means of an integrated wrapping system, comprising the following steps: (a) tidily folding the components of the jacket on the front side; (b) assembling said elements as a package by pulling said complementary connecting means on the back portion of the jacket, and (c) firmly connecting said complementary connecting means, thus forming a compact package or assembly.

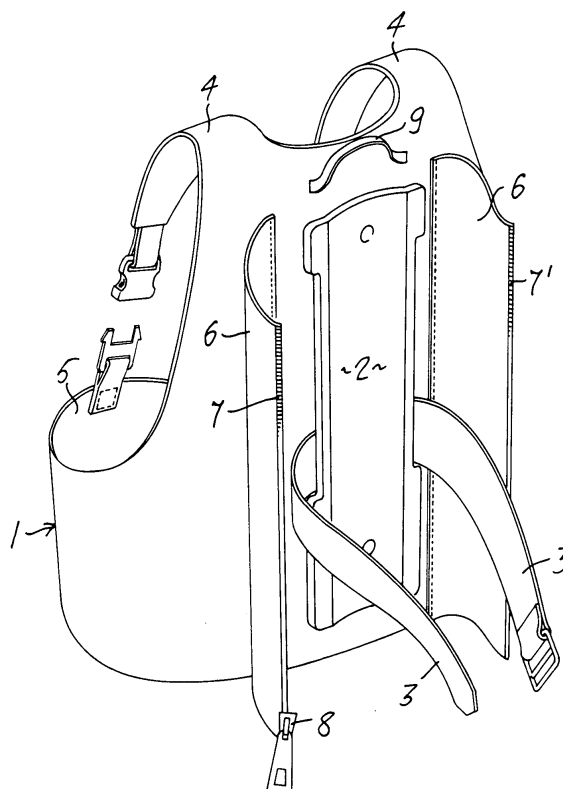


Fig. 1

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Description

[0001] The present invention relates to jackets for diving activities, and more particularly to a system for packing and transporting said jackets without bags or similar external containers, but using packing means integrated within the jacket structure.

[0002] The jackets for diving activities are very incumbrant and space-requiring garments, which may not easily be transported and which during storage are easily subject to damages.

[0003] From EP 0 506 256 A, a self contained breathing apparatus is known comprising a compressed air cylinder, facemask and hose which when not in use are stored and carried within a case formed from an assembly of flexible sheet material. The element of the case are constructed such that when it is opened and reversed it is adapted to form a garment to be worn over the torso and support the air cylinder for use.

[0004] The said garment is however formed from a flexible sheet material such as a plasticised polyester fabric, which can be easily folded and transformed into a case.

[0005] However it would be quite impossible to transform the garment of the said prior art device, which is not conceived for underwater use, and which is made from a comparatively thin fabric, into a balancing jacket for underwater activities, made from a multi-layer heavy fabric, and even if so transformed, it would be impossible to reverse it in the manner disclosed in said prior art document so as to transform it into a case suitable for its transport.

[0006] It is therefore the main object of the present invention to provide a jacket for diving activities provided with packing means integrated within the jacket structure.

[0007] According to a main feature of the invention, a balancing jacket is provided in which onto two areas symmetrically opposed with respect to the middle of the back portion of the jacket cooperating connecting means are applied, which connect said portions in an easily engageable and releasable way.

[0008] According to an embodiment of the present invention, said cooperating means consist of two wings or strips of fabric joined on one of their sides to opposite sides of the jacket, and provided on their free sides with a male and a female zip element, respectively, or alternatively with other types of cooperating connecting means, such as for instance Velcro-type connecting means.

[0009] According to a further embodiment of the invention, such cooperating means consist of two areas on the edge of the back of said jacket, said cooperating connecting means being fastened directly onto said areas.

[0010] Said connecting cooperating elements can be zip-type or Velcro-type elements, or automatic button or the like.

[0011] Further objects and advantages of the present invention will be more evident from the following description of some embodiments of the invention with reference to the enclosed drawings, in which:

Figure 1 is a perspective view in elevation from the rear or back side of a jacket provided with two side wings of fabric equipped with zip elements according to the invention, showing the initial position of the packing operation;

Figure 2 is a perspective view in elevation from the front side of the jacket in Figure 1, in a first preparatory packing step;

Figure 3 shows a further packing step of the jacket in Figures 1 and 2, in which the two side wings have been pulled forward, so as to envelop the jacket;

Figure 4 shows the final step of the packing operation, in which the zip elements of the side wings have been engaged one to the other, thus enveloping the jacket in a compact package;

Figure 5 is a view similar to Figure 1, showing a second embodiment of the means according to the invention for packing a jacket; and

Figures 6 and 7 show two subsequent steps of the packing operation of the jacket in Figure 5, corresponding to the steps in Figures 3 and 4 of the embodiment in Figures 1 to 4.

[0012] With reference to the drawings, and referring first to the embodiment in Figures 1 to 4, the numeral 1 indicates a balancing jacket for diving activities. Although to a mere illustrative and demonstrative purpose a specific type of jacket has been shown, the latter can be of any kind, such as for instance a so-called "back-mounted" jacket or a mixed jacket, or any other kind of jacket.

[0013] The jacket 1 is associated in a usual way with a back 2 (in the case shown a stiff back, generally made of plastic). The numeral 3 indicates the belt for fastening a bottle (not shown) to the back 2. The jacket shown further comprises, in quite a usual way, the shoulder straps 4 and the two ventral strips. Two strips or wings of fabric 6 are fastened with one of their sides, for instance by sewing, to the back portion of the jacket 1. Such strips of fabric 6 extend upwards for a height substantially corresponding to the height of the jacket 1, and are provided on their free side with a zip male and female element 7, 7', respectively.

[0014] Figure 2 shows a first packing step of the jacket in Figure 1. As shown, in this step the jacket, after being deflated, is folded so as to assemble it tidily, folding the shoulder straps 4 forward and the ventral strips 5 on themselves, so as to assemble it substantially within the borders of the two wings 6.

[0015] In the following step, shown in Figure 3, the two side portions of the assembly in figure 2 are further folded by placing the ends of the two wings 7, 7' one beside the other until they come into contact (Figure 4),

so that the male zip element can be fitted into the female element, and by acting upon the zip slide 8 the jacket is shut up within the package consisting of two wings and the rear back 2. Advantageously, a string 9, suitably shaped as a handle, constitutes a holding element for an easy transport of the package thus obtained.

[0016] When using the jacket as balancing element for scuba diving, the two wings 6 are advantageously folded on the sides of the back 1, and means for keeping them firmly in place can be provided for, such as for instance Velcro-type temporary fastening means, or in case of "back-mounted" jackets said wings can be fitted under the rear inflatable pocket of the jacket, or the like.

[0017] With reference to Figures 5 to 7 a second embodiment of a packing system for a jacket, wholly similar to the one in Figures 1 to 4, will now be described.

[0018] As can be observed, the jacket 1 in Figure 5 is not provided with the two side wings 6, which are replaced by two zip elements, male and female respectively, 10, 10' applied onto the outer edges of the back portion of the jacket 1 for instance by sewing. The jacket packing operation shown in Figure 5 is in a first step substantially as described with reference to the step in Figure 2 concerning the embodiment in Figure 1. The strips of the jacket back equipped with the zips 10, 10' are now seized and placed one beside the other, as shown in Figure 6, then the male zip element 10' is fitted into the female element 10, and by acting upon the slide 8 the zip is closed, thus completing the jacket packing operation, as shown in Figure 7.

[0019] Obviously, the zips 10, 10' can be replaced by Velcro-type connecting elements or by connecting elements with automatic buttons, or by any other connecting element that can be easily coupled and released.

[0020] The advantages deriving from the present invention will be evident. The jacket size is minimized and its transport is made highly comfortable. The belt 3 for fastening the bottle can be wrapped around the jacket after the latter has been packed, so as to close it on the front side, thus eliminating hanging elements, as shown by way of example in Figure 7.

Claims

1. Balancing jacket for diving activities equipped with integrated packing system for its transport, **characterized in that** onto two areas symmetrically opposed with respect to the middle of the back portion of the jacket cooperating connecting means are applied, which connect said portions in an easily engageable and releasable way.
2. Jacket according to claim 1, **characterized in that** said means are applied in positions symmetrically opposed with respect to the middle of the back portion of the jacket.
3. Jacket according to claims 1 or 2, **characterized in that** said cooperating means consist of two wings or strips of fabric joined on one of their sides to opposite sides of jacket, and provided on their free sides with connecting cooperating elements.
4. Jacket according to claims 1 or 2, **characterized in that** said cooperating means consist of two areas on the edge of the back of said jacket, said cooperating connecting means being fastened onto said areas.
5. Jacket according to claims 3 or 4, **characterized in that** said connecting cooperating elements consist of zip-type or Velcro-type elements, or of automatic button or similar fast coupling elements.
6. Jacket according to claim 3, in which said strips or wings are fastened to the jacket by sewing.
7. Method for packing a balancing jacket for diving activities by means of an integrated wrapping system, comprising the following steps: (a) tidily folding the components of the jacket on the front side; (b) assembling said elements as a package by pulling said complementary connecting means on the back portion of the jacket, and (c) firmly connecting said complementary connecting means, thus forming a compact package or assembly.
8. Balancing jacket for diving activities equipped with integrated packing system for its transport, and method for packing it, substantially as described and shown and to the purposes mentioned above.

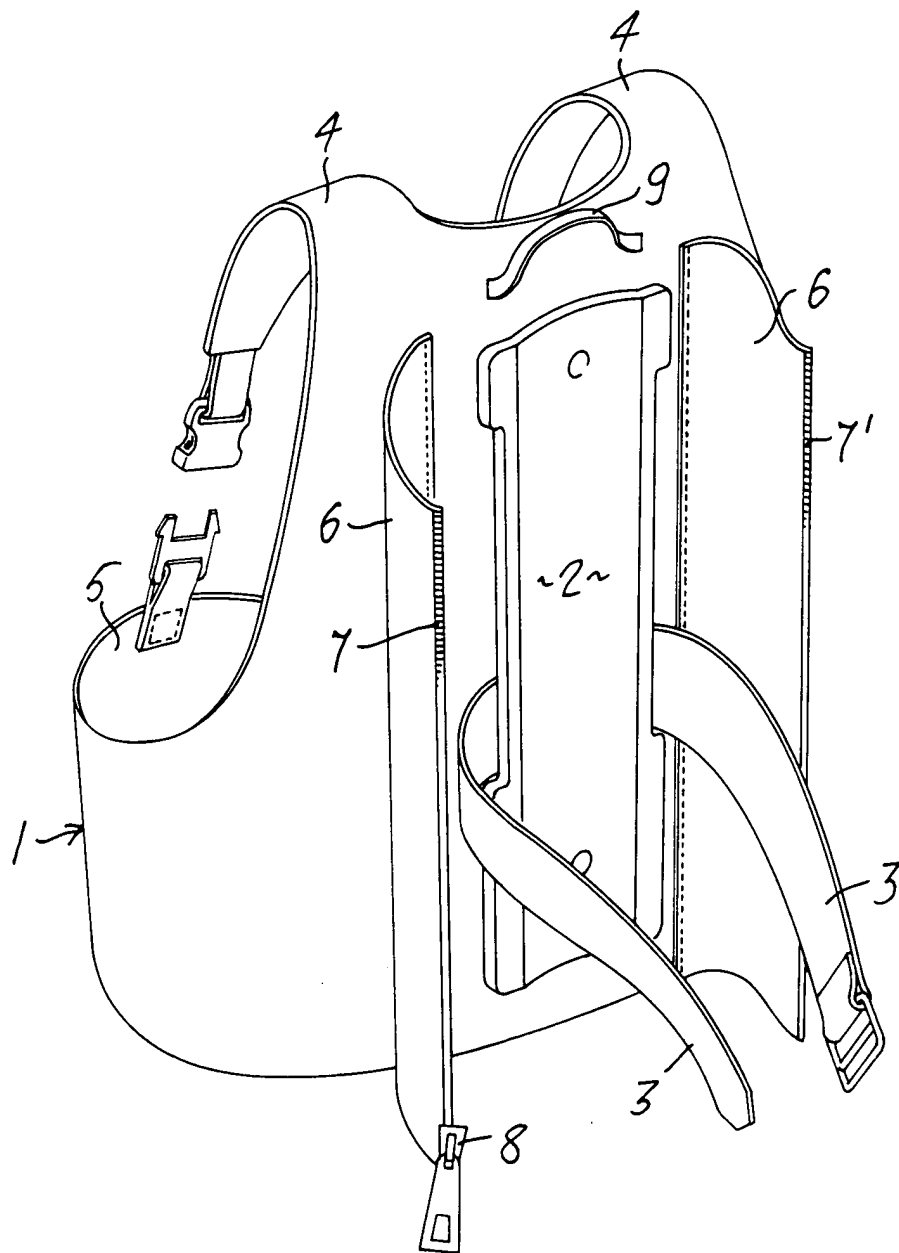


Fig. 1

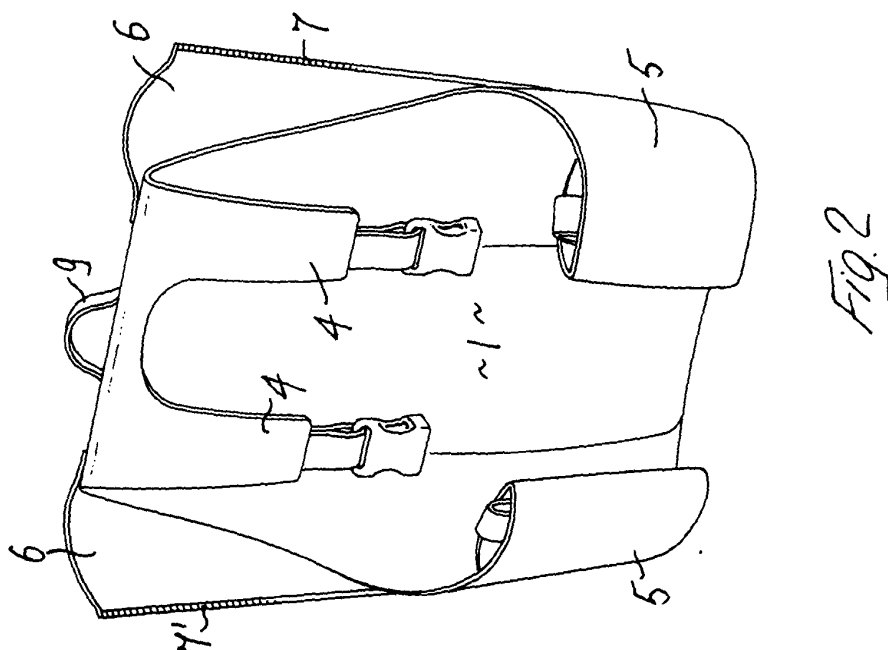


Fig. 2

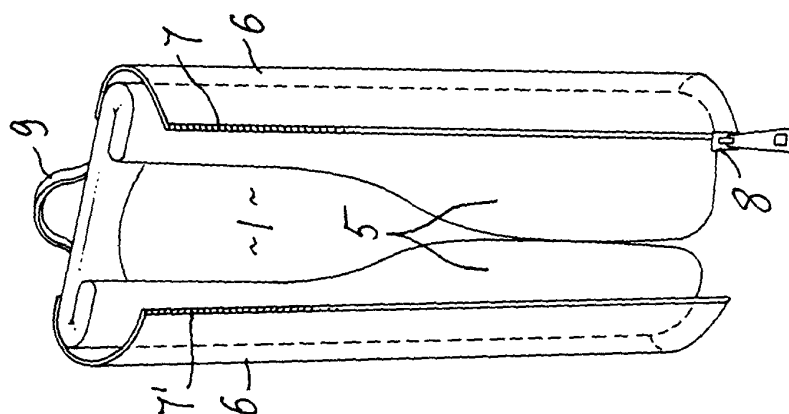


Fig. 3

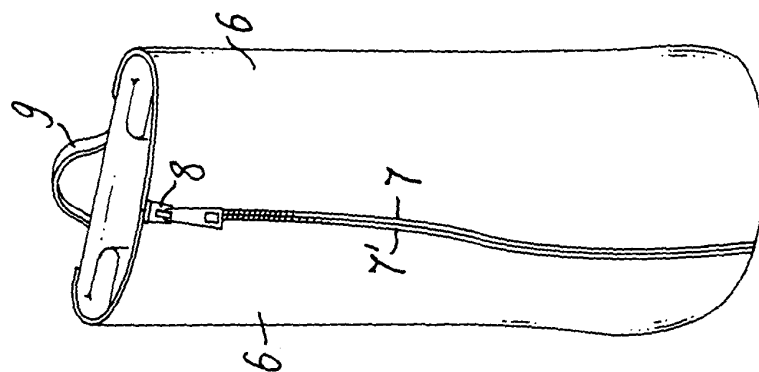
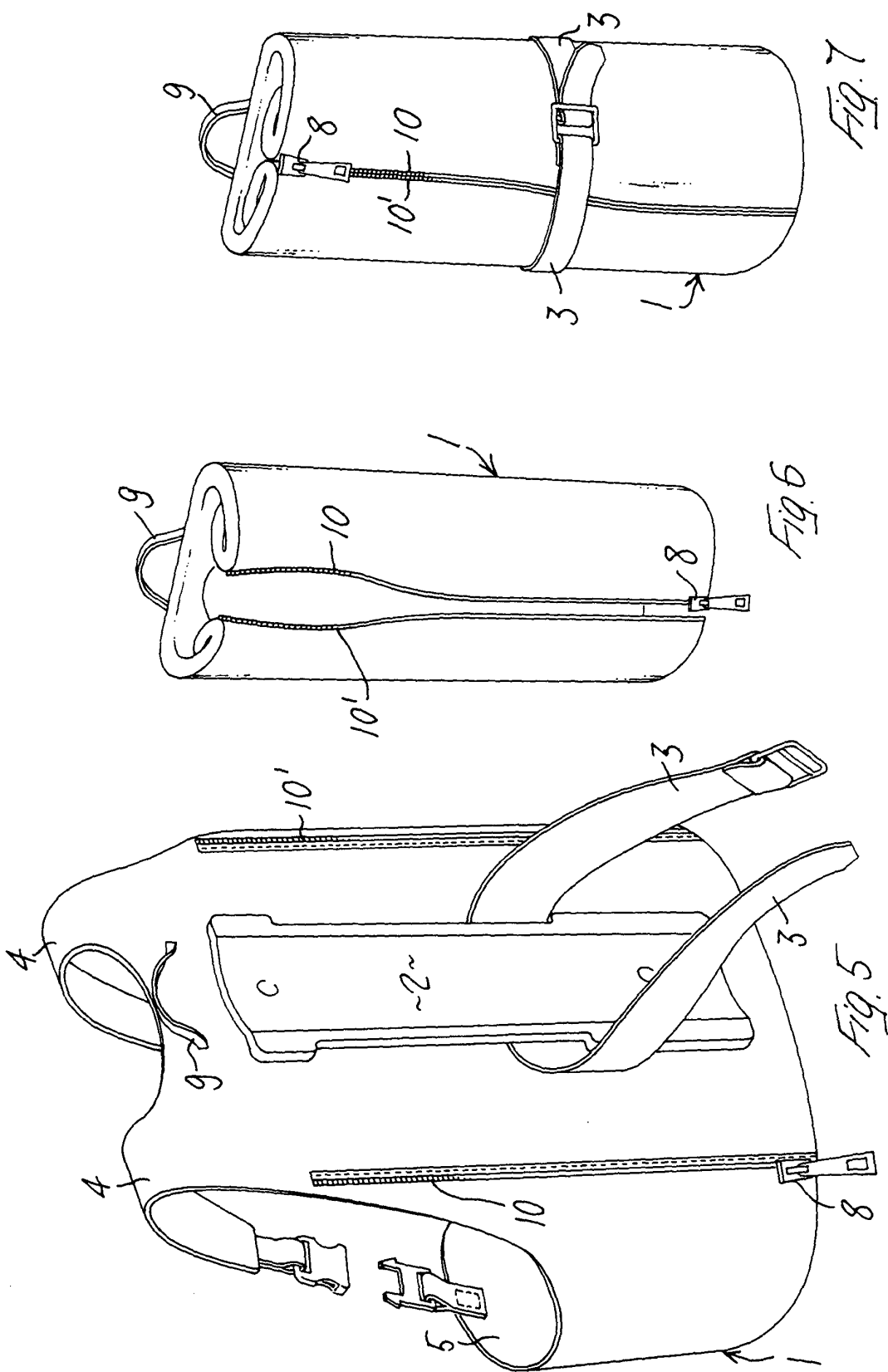


Fig. 4





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EUROPEAN SEARCH REPORT

Application Number
EP 03 01 4799

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 506 256 A (RACAL HEALTH & SAFETY LTD) 30 September 1992 (1992-09-30) * column 2, line 42 - column 4, line 58; figures 1-8 * -----	1-8	B63C11/08 B63C11/02
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B63C A41D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 October 2003	Examiner DE SENA HERNAND..., A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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