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(54) **A LIFEJACKET**

SCHWIMMWESTE

GILET DE SAUVETAGE

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Description

[0001] The present invention relates to a foldable lifejacket especially adapted for the cruise ship industry, and more particularly relates to a lifejacket according to the preamble of claim 1.

[0002] A lifejacket adapted for the cruise ship industry must comply with the terms of certification, cf. amongst others ISO 12402-7 and SOLAS (the International Convention for the Safety of Life at Sea) and should only be worn in case of emergency. For the cruise ship owners the storage size of the lifejackets is thus a central factor when making a purchase typically involving a very large number of units as new regulations effective from 2010 require passenger vessels to carry lifejackets as follows: Adult size, 110 % of capacity; child size, 10 % of capacity; and infant size, 2.5 % of capacity, alternatively one lifejacket per infant for voyage durations greater than 24 hours.

[0003] There exist a large number of lifejackets which are foldable to reduce their storage or stowing size, such as Viking SOLAS 2010 PV 9509 lifejacket, Baltic 2010 M.E.D./SOLAS approved lifejacket, Martec SOLAS approved lifejacket, Cosalt Premier 2010 lifejacket, and the applicant's own Regatta Kon-Tiki Royal.

[0004] The international patent application WO 03/070326 A2 relates to a thermal protective lifejacket comprising at least one elastic layer adapted to fit around at least a torso of a wearer and a plurality of buoyancy elements. Furthermore, the buoyancy elements are attached to the elastic layer to provide a lifejacket which can be compactly packed during storage.

[0005] Some central parameters to be measured when testing the behaviour of a lifejacket worn by a test subject floating/immersed in water, and just as a brief overview, may be; turning time to a face-up position, freeboard height (i.e. height from water level to mouth area in the face-up position), torso angle in said face-up position), and face plane (head) angle in said face-up position. As to the different tests, these may consist in or comprise jump and drop tests, stability tests, swimming and water emergence tests, material tests, etc.

[0006] An object of the invention is to provide a solution to minimize the stowing size, compared with said prior art foldable lifejackets.

[0007] A further object of the invention is to improve the field of view of person wearing a lifejacket, in a situation when a ship has to be evacuated.

[0008] A still further object of the invention is to increase the portion of the lifejacket's buoyancy mass immersed in water during use, which reduces the amount of material and results in production cost savings.

[0009] Still further objects of the invention are to simplify donning of the lifejacket and to improve its wearing comfort.

[0010] The lifejacket according to the invention aims at achieving the above and/or other objects by means of the features as stated in the characterizing clause of claim 1.

[0011] Advantageous embodiments of the invention appear from the dependent claims.

[0012] An advantageous, non-restricting, embodiment of the lifejacket according to the invention is explained in more details in the following, by referring to the accompanying drawings, in which

fig. 1 is a top view of a lifejacket according to the invention showing a length and a width dimension, and with the lifejacket being folded/compressed only in the width direction by means of a tightened waist belt and assuming an almost ready-to-use position,

fig. 2 is a side view of the lifejacket in the position as shown in fig. 1,

fig. 3 is a side view of the lifejacket in figs. 1 and 2 in a folded stowing position, and

fig. 4 is a front perspective view of the lifejacket in the position as shown in fig. 3, and

fig. 5 is a principle side view of a person wearing a lifejacket according to the invention floating in a face-up position,

[0013] By initially referring to figs. 1-4, there is shown a lifejacket 1 according to the invention comprising a rear piece 2 which in the embodiments as shown is configured as a central band or strap, a front piece 3 of a suitable fabric, preferably a heavy duty nylon fabric, provided with two front buoyancy chambers 4 filled with a buoyancy material, preferably a suitable foam material, and a neck collar 5 chamber 6 of said fabric preferably filled with the same or a different foam material. A neck opening 7 is provided in an intermediate part 3' of the front piece 3 connecting the neck collar 5 and the front buoyancy chambers 4, and a second opening (not shown) separates the front buoyancy chambers 4 after releasing at least a waist belt 8 buckle 9 and possibly some additional coupling means (not shown) such as lacing and/or a hook and loop fastener and/or a zipper. Advantageously, and as shown in fig. 1, there is also provided a second releasable buckle 10 in order to join the two buoyancy chambers 4 both in a stowing position and in a situation worn by a user. Further, the lifejacket 1 is provided with possibly mandatory means such as reflecting panels 11, a flashing light (not shown), and a whistle 12.

There exist basically two types of lifejackets, namely vest-type lifejackets and yoke or over-the-head-type lifejackets, and the lifejacket 1 according to the invention may, due to its neck opening 7 through which the head of a user should be passed and due to its in other respects vest-like construction be regarded more or less as a combination of said two types.

By especially referring to figs. 2 and 3, a recess is provided in the front buoyancy chambers 4 for accommo-

dating the neck collar 5 in a stowed position with said collar 5 folded into said recess. In order to allow such folding, the back piece 2 advantageously provides a minimum distance D_1 between the neck collar 5 and the buoyancy chambers 4, and at the same time the length of the intermediate part 3' of the front piece, attached to an upper rear part of the front buoyancy chambers 4 and to an lower front part of the neck collar, respectively, is sufficient (i.e. $D_1 \geq D_2$ in the principle view of fig. 2). Further, in the principle view of fig. 2 and in order to obtain a "box" configuration in a stowed position as shown in fig. 3, the equation $D_4 = D_2 + D_3$ should be fulfilled. Even though not shown in the drawings, the name of the ship may advantageously be printed or otherwise exposed on a surface located within said recess.

[0014] By especially referring to figs. 1 and 2, an elastic band 13 is provided in the intermediate part 3' on both sides of the neck opening 7 in order to simplify donning and to stabilize the head of a user immersed in water, as indicated in fig. 5. As also shown in fig. 5, the field of view of a person wearing the lifejacket 1 according to the invention and floating in an intended face-up direction is improved by the recess provided in the front buoyancy chambers 4. At an earlier stage, when said person wearing the lifejacket 1 is still onboard a ship to be evacuated, said recess will advantageously provide an increased field of view in a downward direction right in front of said person, which may increase safety in a crowded evacuation situation. By further referring to fig. 5, the portion of the lifejacket's buoyancy mass immersed in water during use is increased by means of said recess, which improves user comfort and reduces production costs.

[0015] By further referring to figs. 1-4, unpacking the lifejacket 1 from the compactly folded stowing position as shown in figs. 3 and 4 and into the almost ready-to-use position as shown in figs. 1 and 2 is easily made by simply lifting/turning the neck collar 5. Further, to obtain a ready-to-use position, the waist belt 8 buckle 9 and the second releasable buckle 10 should be released, and the front opening separating the said at least two buoyancy chambers 4 should be opened. Then the user should put on the lifejacket 1, and to complete donning the user should simply lock the buckle 9 after adjusting and tightening the waist belt 8 and fastening said possibly provided additional coupling means not shown in the drawings.

[0016] According to the invention there is thus provided; a lifejacket 1 comprising a back piece 2, a front piece 3 provided with at least two front buoyancy chambers 4 filled with a buoyancy material, and a neck collar 5, wherein a recess is provided in the front buoyancy chambers 4 for accommodating the neck collar 5 in a stowed position of said lifejacket 1 in which the neck collar 5 is folded into said recess.

[0017] Further, a neck opening 7 is advantageously provided in the intermediate part 3'of the front piece 3 connecting the neck collar 5 and the front buoyancy chambers 4.

[0018] Still further, the back piece 2 advantageously provides a minimum distance D_1 between the neck collar 5 and the buoyancy chambers 4, and a length of the intermediate part 3' of the front piece 3, attached to an upper rear part of the front buoyancy chambers 4 and to a lower front part of the neck collar 5, respectively, is sufficient to provide folding of the neck collar 5 into the recess.

[0019] Still further, the lifejacket 1 advantageously attains a box configuration in a stowed position in which the neck collar 5 is folded into the recess.

[0020] Still further, an elastic band 13 is advantageously provided in the intermediate part 3' on both sides of the neck opening 7.

[0021] In the drawings there is shown a vest-type lifejacket 1, wherein the front piece 3 is provided with two buoyancy chambers 4 separated by a front opening. However, it should be noted that the scope of invention is not restricted to a vest-type lifejacket, but also includes alternative lifejacket configurations, with an undivided front piece thus provided with a minimum of one buoyancy chamber provided with a recess for accommodating a neck collar in a stowed position.

[0022] Finally, it should also be noted that numerous arrangements of recesses are feasible and that one the same recess may extend over two or more adjacent buoyancy chambers, and the scope of invention is not restricted to the embodiment as shown and described above, but is only restricted by the appended claims.

Claims

1. A lifejacket (1) comprising a back strap (2), a front piece (3) provided with at least one front buoyancy chamber (4) filled with a buoyancy material, and a neck collar (5), wherein the at least one front buoyancy chamber (4) and the neck collar (5) are separate members, and wherein a neck opening (7) is provided in an intermediate part (3') of the front piece (3) connecting the neck collar (5) and the at least one front buoyancy chamber (4), **characterised in that** the intermediate part (3') is attached to an upper rear part of the at least one front buoyancy chamber (4) and to a lower front part of the neck collar (5), and a recess is provided in the at least one front buoyancy chamber (4) for accommodating the neck collar (5) in a stowed position of said lifejacket (1) in which the neck collar (5) is folded into said recess.

2. The lifejacket according to claim 1, **characterized in that** the front piece (3) is provided with at least two front buoyancy chambers (4) separated by a front opening.

3. The lifejacket according to claim 1 or 2, **characterized in that** the back strap (2) provides a minimum distance (D_1) between the neck collar (5) and the

buoyancy chambers (4).

4. The lifejacket according to claim 3, **characterized in that** the lifejacket (1) attains a box configuration in a stowed position in which the neck collar (5) is folded into the recess.

5. The lifejacket according to any of claims 1 - 4, **characterized in that** an elastic band (13) is provided in the intermediate part (3') on both sides of the neck opening (7).

Patentansprüche

1. Schwimmweste (1) umfassend einen Rückengurt (2), einen Vorderteil (3), der mit mindestens einem vorderen Schwimmkörper (4) versehen ist, der mit einem Schwimmmaterial gefüllt ist, und einen Halskragen (5), wobei der mindestens eine vordere Schwimmkörper (4) und der Halskragen (5) Einzelglieder sind, und wobei eine Halsöffnung (7) in einem Zwischenteil (3') des Vorderteils (3) vorgesehen ist, die den Halskragen (5) und den mindestens einen vorderen Schwimmkörper (4) verbindet, **dadurch gekennzeichnet, dass** der Zwischenteil (3') an einem oberen hinteren Teil des mindestens einen vorderen Schwimmkörpers (4) und an einem unteren vorderen Teil des Halskragens (5) befestigt ist, und eine Ausnehmung in dem mindestens einen vorderen Schwimmkörper (4) vorgesehen ist, um den Halskragen (5) in einer verstauten Position der Schwimmweste (1) aufzunehmen, in welcher der Halskragen (5) in die Ausnehmung eingeklappt ist.

2. Schwimmweste nach Anspruch 1, **dadurch gekennzeichnet, dass** der Vorderteil (3) mit mindestens zwei von einer vorderen Öffnung getrennten vorderen Schwimmkörpern (4) versehen ist.

3. Schwimmweste nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Rückengurt (2) einen Minimumabstand ($D_{1)}$ zwischen dem Halskragen (5) und den Schwimmkörpern (4) bereitstellt.

4. Schwimmweste nach Anspruch 3, **dadurch gekennzeichnet, dass** die Schwimmweste (1) in einer verstauten Position, in welcher der Halskragen (5) in die Ausnehmung eingeklappt ist, eine Kastenkonfiguration einnimmt.

5. Schwimmweste nach einem der Ansprüche 1 - 4, **dadurch gekennzeichnet, dass** ein elastisches Band (13) in dem Zwischenteil (3') auf beiden Seiten der Halsöffnung (7) vorgesehen ist.

Revendications

1. Gilet de sauvetage (1) comprenant une pièce dorsale (2), une pièce avant (3) pourvue d'au moins une chambre de flottabilité avant (4) remplie d'un matériau de flottabilité, et un collier (5), dans lequel l'au moins une chambre de flottabilité avant (4) et le collier (5) sont des parties séparées, et dans lequel une ouverture de goulot (7) est prévue dans une partie intermédiaire (3') de la pièce avant (3) reliant le collier (5) et l'au moins une chambre de flottabilité avant (4), **caractérisé en ce que** la partie intermédiaire (3') est fixée à une partie arrière supérieure de l'au moins une chambre de flottabilité avant (4) et à une partie avant inférieure du collier (5), et un évidement est pourvu dans l'au moins une chambre de flottabilité avant (4) pour loger le collier (5) dans une position repliée dudit gilet de sauvetage (1) dans laquelle le collier (5) est plié dans ledit évidement.

2. Gilet de sauvetage selon la revendication 1, **caractérisé en ce que** la pièce frontale (3) est munie d'au moins deux chambres de flottabilité (4) séparées par une ouverture frontale.

3. Gilet de sauvetage selon la revendication 1 ou 2, **caractérisé en ce que** la pièce dorsale (2) fournit une distance minimale ($D_{1)}$ entre le collier (5) et les chambres de flottabilité (4).

4. Gilet de sauvetage selon la revendication 3, **caractérisé en ce que** le gilet de sauvetage (1) atteint une configuration de boîte en position repliée dans laquelle le collier (5) est replié dans l'évidement.

5. Gilet de sauvetage selon l'une quelconque des revendications 1 à 4, **caractérisé en ce qu'**une bande élastique (13) est prévue dans la partie intermédiaire (3') sur les deux côtés de l'ouverture du col (7).

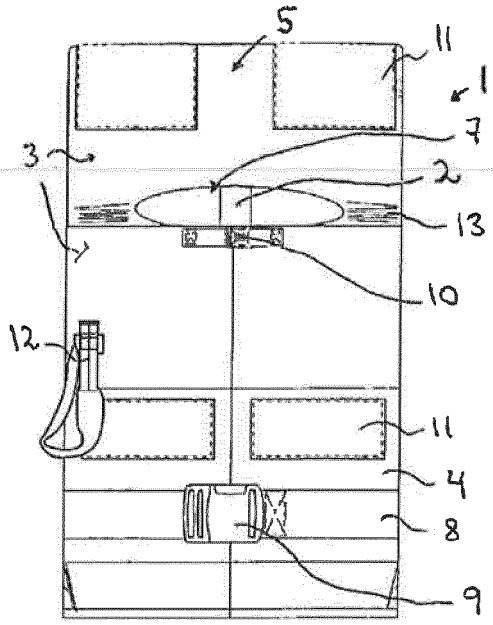

FIG. 1

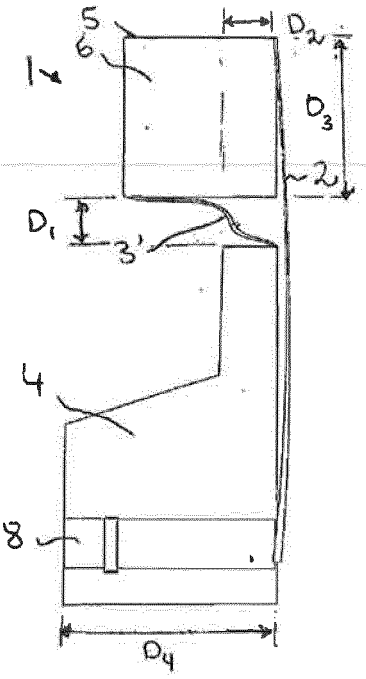

FIG. 2

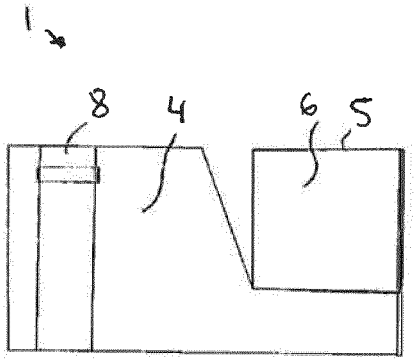

FIG. 3

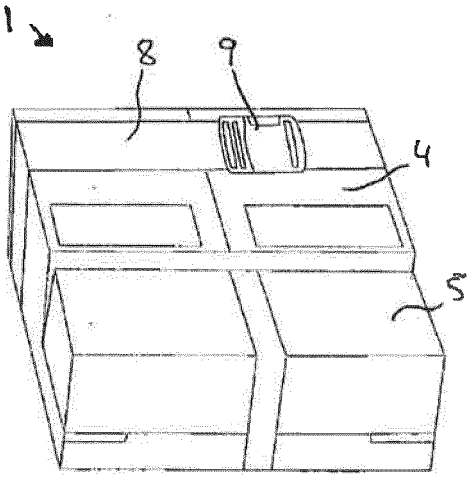

FIG. 4

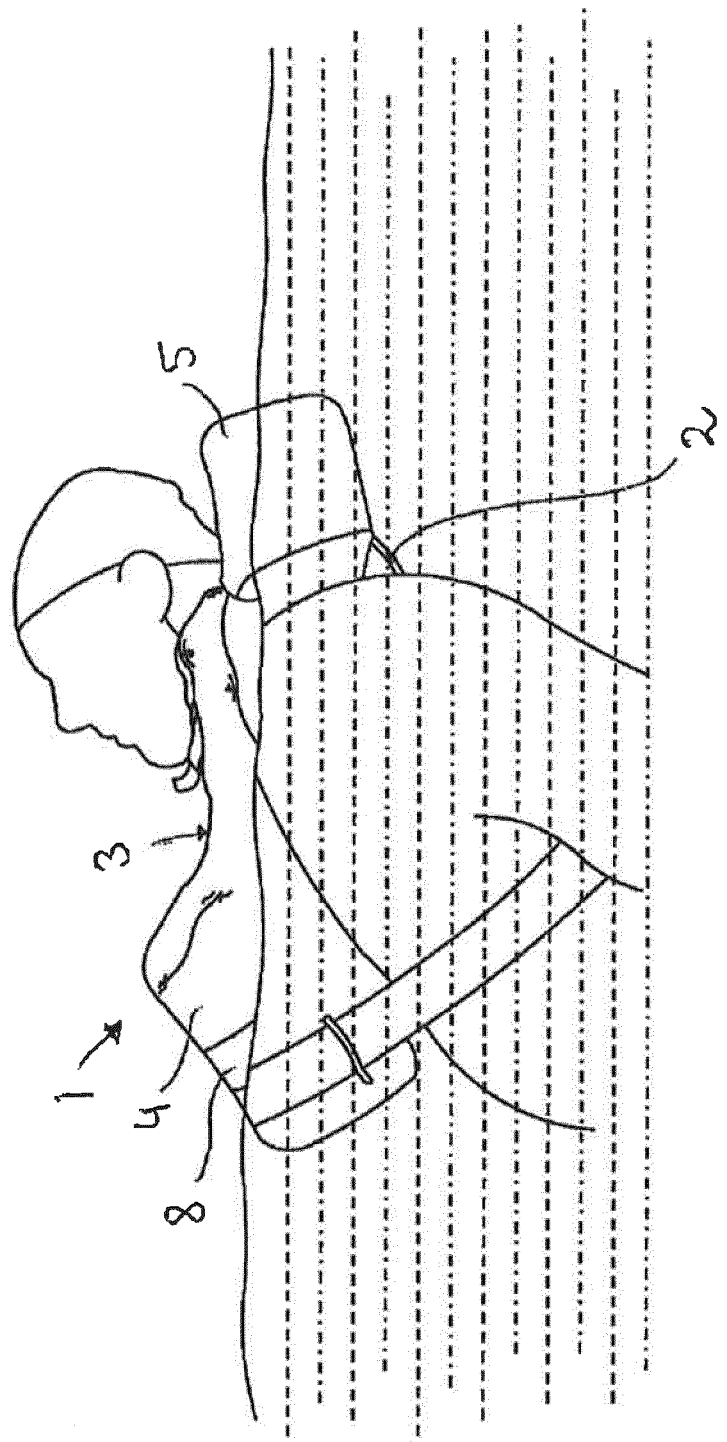

FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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