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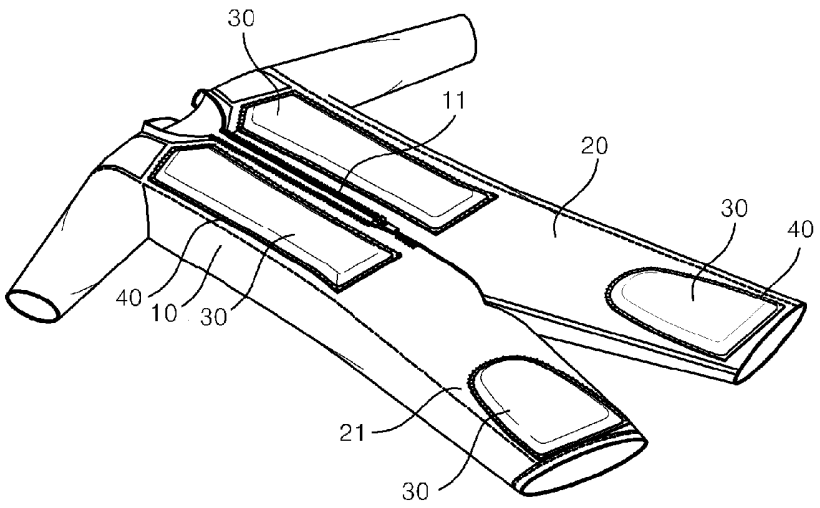
(54) **BUOYANT SWIMSUIT**

(57) The present invention relates to a buoyant swimsuit, and more specifically to a swimsuit, for which the top and bottom portions form a single piece, provided with: a zipper on the front top portion of the swimsuit, moving vertically up and down, so as to facilitate putting on the swimsuit; and buoyancy-generating buoyant member on either side of the zipper on the front top portion of the swimsuit, a part of the back top portion of the swimsuit, and parts of the leg portions on front and back bottom portions of the swimsuit, wherein the buoyant member is formed by sewing a first fabric and a second fabric together, foam being interposed therebetween, and the first fabric and second fabric are made of neoprene. The swimsuit according to the present invention is highly buoyant but does not hinder the movement of a swimmer and is easy to put on, and thus has the benefit of facilitating beginning swimmers or young children in learning to swim. Furthermore, the present invention has the benefit of preventing drowning accidents of poor swimmers such as young children or the disabled.

[Fig. 1]



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Description

TECHNICAL FIELD

[0001] The present invention relates to a buoyant swimsuit, and in particular to a buoyant swimsuit which allows a beginning swimmers or young children to easily enjoy swimming with the aid of a buoyant swimsuit wherein a plurality of buoyant members are incorporated into a front side chest portion, a back side portion and leg portions on front and back portions of the swimsuit.

BACKGROUND

[0002] A typical swimsuit which, in general, is put on when having a fun in the water, is made of just a woven fabric which absorbs water when it is in water, so the weight of such a swimsuit increases, and buoyancy may be weakened. In case of a person who is learning to swim, a beginning swimmers and young children, if the buoyancy of a human body is unbalanced, they may sink underwater, thus drinking water through a mouth and a nasal For this reason, they may become stiffened and swim a horror of water. The balancing of the buoyancy may become more hardly underwater due to the horror of water.

[0003] In particular, in case of a disabled person whose body is not freely to move, the muscles which have been stopped from movements for a moment, will be activated, for which a disabled person having a muscle impairment is recommended to do underwater exercise for a predetermined time. The disabled person, however, feels afraid of entering into water due to the aforementioned problems, hates entering into water.

[0004] The aforementioned problems, a method is being researched, which is able allow a person who is learning to swim, a beginning swimmers, a young children and a disabled person to maintain buoyancy. As a result of a method of equipped with the air pocket into the swimsuit, such a disclosed in Korean Patent Laid-Open Publication No. 96-9920 and the Korean Utility Model Laid-Open Publication No. 94-2680.

[0005] The swimsuit equipped with an air pocket is configured to form a plurality of air pockets the surroundings of each of which are bonded using a high frequency in such a way that an outer layer and an inner layer made of a material is coated on the outer and inner surfaces while leaving a flexible pocket layer made of a synthetic resin material at the front and back portions of a chest and a lower stomach portion and hips. Thus, the swimsuit having the air pockets, it needs to provide one or more than one air injection port to inject air into the air pockets, and it needs to inject air whenever wearing the swimsuit, and in case of undressing, it needs to eliminate air, which may caused inconvenience. If the air injection port is opened during swimming, the inside air may discharge to the outside, for which a swimmer who is enjoy swimming only believed the buoyancy of a swimsuit, may risk his life. Since the air pockets remain inflated during swimming, the conventional swimsuit may receive a lot of water resistance.

[0006] In addition, the Korean Utility Model Laid-Open Number 20-218542, a low density polyethylene foam resin sheet of 0.5~1mm is laminated with at least more than five layers, and the laminated structure is inserted between the inner and outer layers of the front side part of a swimsuit and the inner and outer layers of the back face part, and the inner and outer layers of the swimsuit are made of a flexible spandex material, thus obtaining an easier wearing. In the inserted sheet layer, a part of only the inner layer is sewed in the longitudinal direction, thus providing buoyancy without interfering with the flexible operation of the inner and outer layers, not causing any movement. In this case, since the polyethylene foam resin sheet is employed with respect to the whole front and back sides of the swimsuit, the user cannot move easily after putting on the swimsuit, and the swimsuit does not substantially stick to the swimmer's body throughout all the portions.

SUMMARY OF THE INVENTION

Technical problem

[0007] Resolved the problems about a conventional buoyant of swimsuit, the present invention are directed providing a buoyant swimsuit wherein a plurality of buoyant members are incorporated into a swimsuit integrated with upper and lower suits, and the buoyant members are incorporated into parts, a chest, a back, legs of part portion were equipped with buoyant member, for which the buoyant members don't interfere with the motions of a user's body, and the buoyant member is made of a polyethylene foam material or an ethylene vinyl acetate foam material, so a separate air injection is not necessary when attaching or detaching, and less water resistance occurs thanks to the uses of the buoyant members, and a swimmer's body temperature can be maintained.

Technical solution

[0008] The present disclosure provides a buoyant swimsuit which may include, but is not limited to, a swimsuit wherein a top of the swimsuit and a bottom of the swimsuit are integrated; and a buoyant member which is disposed at a front side of the top of the swimsuit, and the buoyant member producing a buoyancy may be disposed at a part of the back side of the top of the swimsuit, and the buoyant member producing a buoyancy may be disposed at a part of the leg part of the front side and the rear side of the bottom of the swimsuit, and the buoyant member can be configured in such a way that a foam is disposed in such a way that a foam is disposed between a first raw cloth and a second raw cloth, and the first raw cloth and the second raw cloth are sewed to each other.

[0009] In the present invention may include a zipper

configured to move in the upward and downward, namely, vertical direction is disposed at the front side of the top of the swimsuit easily to wearing of the swimsuit, and the buoyant member configured to produce the buoyancy is disposed at both sides of the zipper at the front side of the top of the swimsuit, and the first raw cloth and the second raw cloth are made of Neoprene.

[0010] In the present invention may include such a way that the first raw cloth forms the whole portions of the top of the swimsuit and the bottom of the swimsuit, and the second raw cloth is provided only at a portion wherein the foam has been incorporated.

[0011] In the present invention may include the first raw cloth may form the whole portions of the top of the swimsuit and the bottom of the swimsuit, and the second raw cloth may form the whole portions of the top of the swimsuit and the bottom of the swimsuit, by which the swimsuit can be made, in whole, of the two-ply Neoprene.

[0012] Moreover, the present invention may include the foam of the buoyant member is made of any of a polyethylene foam or an ethylene vinyl acetate foam, wherein the thickness thereof is 10~100mm.

[0013] Furthermore, in the present invention may include the foam disposed at the back side of the top of the swimsuit has a buoyancy smaller than the foam provided at a front side of the swimsuit top, and the foam disposed at the back side of the bottom of the swimsuit has a buoyancy smaller than the foam disposed at the front side of the bottom of the swimsuit.

Advantageous Effects

[0014] According to the present invention, the buoyancy of the swimsuit is large, and the body motions of a swimmer are not interfered, and it is easy to put on, and it may allow a beginning swimmers and a young children to easily learn how to swim.

[0015] Moreover, the present invention may allow to prevent a user who does not swim well, for example, young children, a disabled person, a beginning swimmers, etc. from being drowned in water.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

FIG. 1 is a perspective view illustrating a swimsuit according to the present invention.

FIG. 2 is a front view illustrating a swimsuit according to the present invention.

FIG. 3 is a rear view illustrating a swimsuit according to the present invention.

FIGS. 4 and 5 are horizontal cross sectional views illustrating a body part of the top of a swimsuit according to the present invention.

FIG. 6 is a cross sectional perspective view illustrating a buoyant member according to the present invention.

FIG. 7 is a front view illustrating a children swimsuit according to the present invention.

FIG. 8 is a vertical cross sectional view illustrating a state where a woman swimsuit is put on according to the present invention.

FIG. 9 is a front view for describing another exemplary embodiment wherein a plurality of partitions are defined at a buoyant member in a swimsuit in FIG. 2.

FIG. 10 is a rear view for describing further another exemplary embodiment wherein a plurality of buoyant members are employed in a swimsuit in FIG. 3.

DETAILED DESCRIPTION OF THE INVENTION

Best mode

[0017] The present invention will be described in detail.

[0018] The buoyant swimsuit according to the present invention uses a buoyant member made of a foam, not using an air pocket, by which any inconvenience which occurs when putting on or taking off a swimsuit and a high water resistance, which were the problems of the conventional air pocket swimsuit, can be resolved. The present invention proposes a swimsuit wherein the buoyant member is incorporated even at parts of the swimsuit, not all over the swimsuit, whereupon the swimsuit is able to produce a high buoyancy and does not interfere with the motions of a user's body.

[0019] More specifically, the swimsuit according to the present invention is equipped with a zipper at a front side of the top of the swimsuit, which is configured to move in the upward and downward, namely, vertical direction for the use to easily put on, and the buoyant member for producing buoyancy is disposed at both sides of the zipper at the front side of the top of the swimsuit, and the buoyant member for producing buoyancy is provided at a part of the back side of the top of the swimsuit, and the buoyant member for producing buoyancy is provided at parts of the leg parts of the front side and the back side of the bottom of the swimsuit. Such a buoyant member may be manufactured in such a way that foams are disposed between a first raw cloth and a second raw cloth, and then the first raw cloth and the second raw cloth are sewed to each other. The first raw cloth and the second raw cloth are made of Neoprene, for which the swimsuit does not interfere with the motions of a user's body while providing a high buoyancy, and it is easily to put on, and the present invention may advantageously allow a beginning swimmers or young children to easily learn how to swim.

[0020] The swimsuit according to the present invention will be described in detail with reference to FIGS.1 to 8.

[0021] FIG. 1 is a perspective view illustrating a swimsuit according to the present invention. FIG.2 is a front view illustrating a swimsuit according to the present invention. FIG. 3 is a rear view illustrating a swimsuit according to the present invention. The swimsuit according

to the present invention is made in the form of a suit wherein a swimsuit top 10 and a swimsuit bottom 20 are integrated. In the drawings, while a swimsuit formed of a short sleeve top and a pant bottom is illustrated as a representative example, but it is obvious that the swimsuit formed of any of a long sleeve top and a trouser bottom, a sleeveless top and a pant bottom, a sleeveless top and a trouser bottom can be employed,

[0022] As illustrated in FIGS. 1 to 3, a zipper 11 configured to move in the upward and downward, namely, vertical direction is disposed in the center of the front side of the swimsuit top 10, which makes it easier to pun on the swimsuit. The zipper 11 may be disposed at the back side, not at the front side. The position of the zipper 11 is surely not limited thereto. It is preferred that the zipper 11 may be provided at the front side, not at the back side, for the sake of easier wearing.

[0023] The swimsuit according to the present invention may be configured in such a way that a plurality of the buoyant members 30 for producing buoyancy are disposed at parts of the swimsuit top 10 and the swimsuit bottom 20. Most preferably, the buoyant members 30 are provided at the chest part at both sides of the zipper 11 of the swimsuit top 10. The buoyant members 30 for producing buoyancy may be provided at a part (the upper part when viewing from the user's body) of the back side of the swimsuit top 10.

[0024] Moreover, the buoyant members 30 for producing buoyancy may be provided at a part of the leg part 21 of the front and back sides of the swimsuit bottom 20. The seven buoyant members 30 may be provided at the front and back sides of the swimsuit.

[0025] The reason why the buoyant member 30 is provided at a part of the swimsuit, not all over the swimsuit is that if the buoyant member 30 is provided all over the swimsuit, the motions of the user's body will be inevitably limited by the buoyant members 30. Moreover, if the buoyant member 30 having a relatively thicker thickness as compared to the raw cloth of the swimsuit is provided all over the swimsuit, the swimsuit may not stick tight to the user's body, for which water resistance may occur, and a wearing feeling is not good. For this reason, don't limit to motions of the user's body and two pieces of the buoyant member are disposed at the chest part of the swimsuit top 10, one piece of the buoyant member is disposed at the back part, and four pieces of the buoyant member are disposed at the front and back sides of the leg part 21 of the swimsuit bottom 20. It is obvious that the buoyant member 30 disposed at the leg part 21 of the swimsuit bottom 20 is disposed contacting with the front and back portions of the thigh, not the joint portions.

[0026] Furthermore, the buoyant member 30 may be manufactured using the foam 31, not in the form of the conventional air pocket. As described earlier, the conventional air pocket inevitably may entail forming the air injection port and injecting the air whenever the swimsuit is put on or taken off and removing the air, so the buoyant member 30 is made of the foam 31 which is a light material.

[0027] FIG. 4 is a horizontal cross sectional view illustrating the body part of the top of the swimsuit. The buoyant member 30 may be manufactured in such a way that the foam 31 is disposed between the first raw cloth 1 and the second raw cloth 2. Here, the first raw cloth 1 corresponds to a basic raw cloth which forms the swimsuit top 10 and the swimsuit bottom 20. The second raw cloth 2 corresponds to an additional raw cloth which is employed to incorporate the foam 31. Since the first raw cloth 1 and the second raw cloth 2 are sewed to each other, the foams 31 incorporated by a sewing line 40 can be fixed in place without movements.

[0028] It is preferred that the first raw cloth 1 and the second raw cloth 2 are made of Neoprene. The Neoprene is the trademark of a synthetic rubber made of a polymer of chloroprene. A lot of air can be stored inside of the Neoprene. The key features of such Neoprene are that it has a high damage resistance and is elastic and has a high heat-resisting property when it is exposed to the atmosphere for a long time. If the swimsuit is made of Neoprene, a heat keeping performance can become good, and a desirable buoyancy can be obtained, and the swimsuit can stick tight to the user's skin. The raw cloth may be manufactured in such a way to laminate nylon to both sides of the Neoprene. If the Neoprene and the nylon are laminated with each other, the durability can be enhanced more, and the wearing feeling can be improved more.

[0029] Accordingly, in the present invention, the swimsuit is made of Neoprene which is a raw cloth producing a desirable buoyancy, and a plurality of the buoyant members 30 may be additionally provided. In this way, it is possible to produce buoyancy higher than any of the conventional swimsuits, and a beginning swimmers or young children and a disabled person can be flow stable on water, whereby various accidents can be prevented, and the learning of swimming can be easier. Even though the user uses the swimsuit for a long time, it does not need to worry that the temperature of the body lowers. Moreover, adult men and women who are good at swimming can even receive help in terms of buoyancy when they were swim at sea or river and can put on the swimsuit of the present invention to keep the temperature of the body.

[0030] In the present invention, the thicknesses of the first raw cloth 1 and the second raw cloth 2 are not limited. Preferably, the thicknesses thereof are about 2~3mm which are thick enough not to interfere with the motions of the use. More specifically, if the first raw cloth 1 and the second raw cloth 2 are thinner than 2mm, the heat keeping performance and the buoyancy may be degraded, and the durability may be weakened. If thicker than 3mm, the motions of the user's body may be limited. For this reason, it is preferred that the thicknesses of the first raw cloth 1 and the second raw cloth 2 are about 2~3mm. For the sake of easier wearing, the body part of each of the swimsuit top 10 and the swimsuit bottom 20 may be made of a high density Neoprene which has a good heat

keeping performance since it has a high compression ratio. The arm part of the swimsuit top 10 and the leg part of the swimsuit bottom 20 is preferably made of a low density Neoprene which has a high flexibility since it has a low compression ratio. It is obvious that the swimsuit top 10 is made of a high density Neoprene which has a high compression ratio, and the swimsuit bottom 20 is made of a low density Neoprene which has a low compression ratio.

[0031] As illustrated in FIG. 5, the second raw cloth 2 is not disposed at a portion where the foam 31 is provided, but the second raw cloth 2 may be disposed all over the swimsuit top 10 and the swimsuit bottom 20 like the first raw cloth 1, by which the swimsuit can be made, in whole, of a two-ply Neoprene. At this time, the first raw cloth 1 and the second raw cloth 2 may be fixed by the sewing line through sewing. If the swimsuit is formed of a two-ply raw cloth, the thicknesses of the first raw cloth 1 and the second raw cloth 2 may be thin, namely, less than 2mm, for which the motions of the user's body are not limited.

[0032] Meanwhile, the foam 31 forming the buoyant member 30 may be formed of any of a polyethylene (PE) foam or an ethylene vinyl acetate (EVA) foam. Alternatively, the swimsuit top 10 may be formed of the PE foam and the swimsuit bottom 20 may be formed of the EVA foam by mixing the aforementioned two foams.

[0033] A lot of air pores are formed in the insides of the PE foams and the EVA foams, so they have a high buoyancy, and the prices thereof are cheap, and they are light. For this reason, they can be preferably used for the buoyant member of the swimsuit. It is preferred that the thickness of the foam 31 is 10~100mm. If the thickness of the foam 31 is less than 10mm, the buoyancy may be low, for which the effect of the buoyant member may be bad. If the thickness thereof is over 100mm, it may be too thick, which can limit the motions of the user's body, and more water resistance may occur. In the present invention, the buoyant member 31 may have various thicknesses for each part. Considering the easiness and swimming pattern of the body motions, the foam 31 disposed at the back side of the swimsuit top 10 has a buoyancy smaller than the foam 31 disposed at the front side of the swimsuit top 10, and the foam 31 disposed at the back side of the swimsuit bottom 20 has a buoyancy smaller than the foam 31 disposed at the front side of the swimsuit bottom 20. More specifically, the chest part at the front side of the swimsuit top 10 which does not interfere with the motions of the user's body may be formed of the foam 31 of 50~100mm, and the back side of the swimsuit top 10 may be formed of the foam 31 of 10~20mm, and the rear side of the leg part of the swimsuit bottom 20 may be formed of 10~20mm, and the front side of the leg part of the swimsuit bottom 20 may be formed of the foam 31 of 20~50mm, by means of which the motions of the user's body can be more free while maintaining a high buoyancy, and the water resistance can be minimized.

[0034] As illustrated in FIG. 6, the foam 31 may be formed of only a pure PE foam or EVA foam; however the foam 31 may be formed using a silver nano particle or charcoal powder for the sake of antibiosis of the foam 31. Alternatively, the foam 31 may be formed using a green tea powder for the sake of a good arrogance (a bad smell removal). Namely, if the buoyant member 30 is formed in a type wherein a functional powder 32 containing one or more than of a silver nano particle, a charcoal powder and a green tea powder has been evenly distributed within the foam 31, the bad smell can be eliminated while maintaining the antibiosis of the buoyant member 30.

[0035] The reason for distribute the functional powder 32 into the inside of the foam 31, the functional powder 32 may be foamed after it has been evenly distributed into the PE resin or the EVA resin when forming the foam 31. The functional powder may be included less than 1% by weight in the foam 31. In case of the silver nano particle, 60~180nm sizes may be used. In case of the charcoal powder and the green tea powder, 10~100μm sizes may be used. These sizes are not limited thereto. If necessary, other functional powders may be additionally provided, in addition to the silver nano powder, the charcoal powder and the green tea powder.

[0036] While the example wherein the buoyant member 30 is formed of the PE foam or the EVA foam has been described, it is obvious that the buoyant member 30 may be formed of other kinds of the foam 31.

[0037] Meanwhile, the swimsuit according to the present invention may be manufactured in a type appropriate to children in such a way that the buoyant member 30 provided at the chest, back and leg parts may be shaped like a heart, a star and a predetermined character popular to children for the sake of children who are not interested in swimming since they are afraid of water due to poor swimming. For example, as illustrated in FIG. 7, the chest part of the swimsuit top 10 may be equipped with a heart-shaped buoyant member 30, and the leg part of the swimsuit bottom 20 may be equipped with a star-shaped buoyant member 30. In this way, the swimsuit may cause the children to be interested and show an intention to put on the swimsuit. Since such an interest in the swimsuit may cause another interest in swimming, the swimming training of the children can be efficient.

[0038] In case of the woman user, a separate brassiere cup is put on under a conventional swimsuit so as to cover breasts. Wearing the swimsuit may cause inconvenience due to the brassiere cup. The user may feel uncomfortable when swimming. As illustrated in FIG. 8, the present invention is referred to a women swimsuit, wherein it can be configured in the shape of a brassier cup so that the buoyant member 30 disposed at both sides of the zipper 11 of the front side 10 of the top of the swimsuit can stick tight to the breasts of the woman. More specifically, the buoyant member 30 at the breast part may be formed in such a way that a central portion thereof is formed in the shape of a hemispherical brassier

cup to match with the breast line of the woman. In this state, the buoyant member 30 of the breast part can carry out the role of the brassier cup of the swimsuit, so the user does not need to wear a separate brassier cup under the swimsuit. Forming the buoyant member 30 in the shape of a brassier cup means that the foam 31 disposed inside is formed in the shape of a brassier cup. Since the first raw cloth 1 is a flexible raw cloth, it may expand when in use, so it can stick tight to the breast part of the woman. For this reason, it does not need to limit the shape thereof. The second raw cloth 2 may be enough as long as it is able to incorporate the foam 31 together with the first raw cloth 1 while covering the foam 31.

[0039] FIG. 9 is a view for describing another exemplary embodiment of the present invention wherein the buoyant member 30 in FIG. 2 has been modified.

[0040] As illustrated therein, the buoyant member 30 may be formed of a plurality of partitions. The buoyant member 30 may allow to make more natural the motions of the user. The partitions allow to minimize the formation of irregular wrinkles due to the buoyant member 30 if the buoyant member 30 is folded or twisted due to the motions of the user. Moreover, the partitions are able to reduce any damage to the buoyant member 30, and may allow to increase the life span of the buoyant member 30.

[0041] FIG. 10 is a view for describing further another exemplary embodiment of the present invention, wherein the buoyant member 30 in FIG. 3 has been modified.

[0042] As illustrated therein, the buoyant member 30 may be disposed at the back side of the swimsuit, and different from the integrated configuration in FIG. 3, the buoyant member 30 may be provided in multiple numbers. Moreover, the buoyant member 30 may be formed in a shape wherein it extends from the upper side of the top of the swimsuit to the upper side of the bottom of the swimsuit, by which more stable buoyancy can be obtained when in use.

[0043] The buoyant member 30 of the swimsuit producing a desirable buoyancy according to the present invention may be provided under the swimsuit, and it can be manufactured into various forms according to the modified embodiments.

[0044] In the present invention, while the swimsuit wherein the top 10 and the bottom 20 of the swimsuit are integrated, has been described as an example, the top 10 and the bottom 20 of the swimsuit may be made separate, and the buoyant member 20 may be provided at only the top 10 of the swimsuit, and intended to cover modifications and equivalent arrangements.

[0045] While this invention has been described in connection with what is presently considered to be practical exemplary embodiments, it should be also understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalences of such meets and bounds are therefore intended to be embraced by the appended claims.

Claims

1. A buoyant swimsuit, comprising:

   a swimsuit wherein a top (10) of the swimsuit and a bottom of the swimsuit(20) are integrated; and
   a buoyant member (30) which is disposed at any of a front side and a rear side of the top (10) of the swimsuit.

2. The swimsuit of claim 1, further comprising:

   a buoyant member (30) which is configured to producing buoyancy and is disposed at a part of a leg part (21) of any of the front side and the rear side of the bottom (20) of the swimsuit.

3. The swimsuit of either claim 1 to claim 2, wherein the buoyant member (30) can be manufactured in such a way that a foam (31) is disposed between a first raw cloth (1) and a second raw cloth (2), and the first raw cloth (1) and the second raw cloth (2) are sewed to each other.

4. The swimsuit of claim 3, wherein the first raw cloth (1) and the second raw cloth (2) are made of Neoprene.

5. The swimsuit of claim 1, wherein a zipper (11) configured to move in the upward and downward, namely, vertical direction is disposed at the front side of the top (10) of the swimsuit for the sake of an easier wearing of the swimsuit, and the buoyant member (30) configured to produce the buoyancy is disposed at both sides of the zipper (11) at the front side of the top (10) of the swimsuit.

6. The swimsuit of claim 3, wherein the first raw cloth (1) allows to form the whole portions of the top (10) of the swimsuit and the bottom (20) of the swimsuit, and the buoyant member (30) is configured in such a way that the second raw cloth (2) is disposed only at a portion wherein the foam (31) is incorporated.

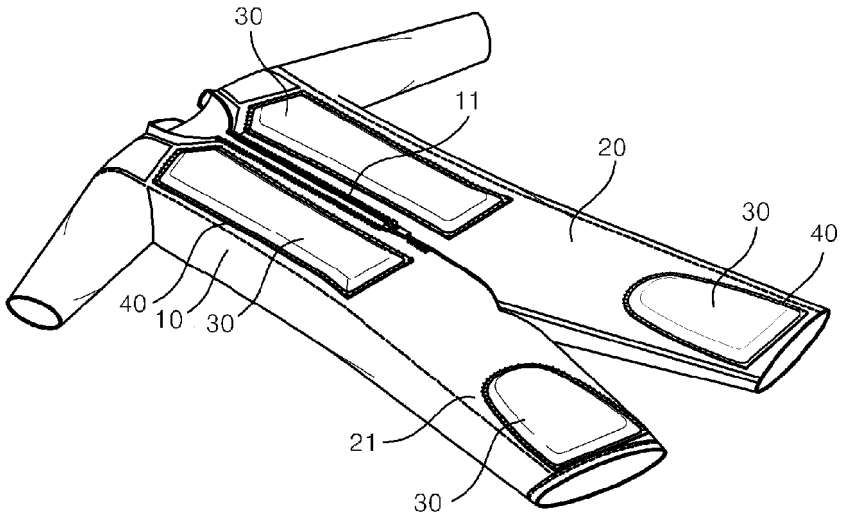
7. The swimsuit of claim 3, wherein the first raw cloth (1) allows to form the whole portions of the top (10) of the swimsuit and the bottom (20) of the swimsuit, and the second raw cloth (2) allows to form the whole portions of the top (10) of the swimsuit and the bottom (20) of the swimsuit, whereby the swimsuit can be formed, in whole, of a two-ply Neoprene.

8. The swimsuit of claim 3, wherein the foam (31) of

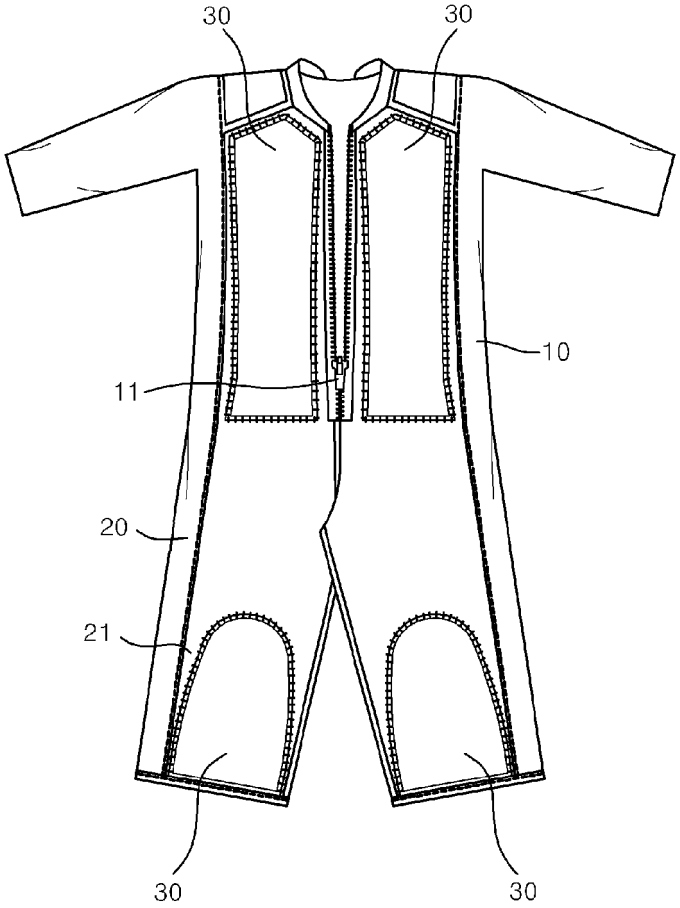
the buoyant member (30) is made of any of a polyethylene foam or an ethylene vinyl acetate foam, wherein the thickness thereof is 10~100mm.

9. The swimsuit of claim 3, wherein the foam (31) disposed at the back side of the top (10) of the swimsuit has a buoyancy smaller than that of the foam (31) disposed at the front side of the top (10) of the swimsuit, and the foam (31) disposed at the back side of the bottom (20) of the swimsuit has a buoyancy smaller than that of the foam (31) disposed at the front side of the bottom (20) of the swimsuit.

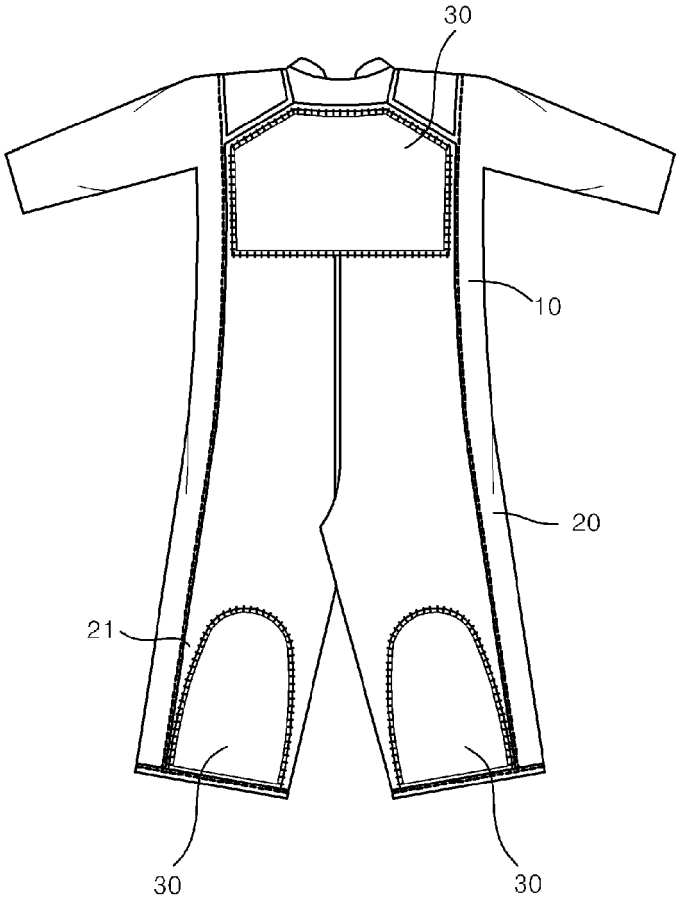
[Fig. 1]



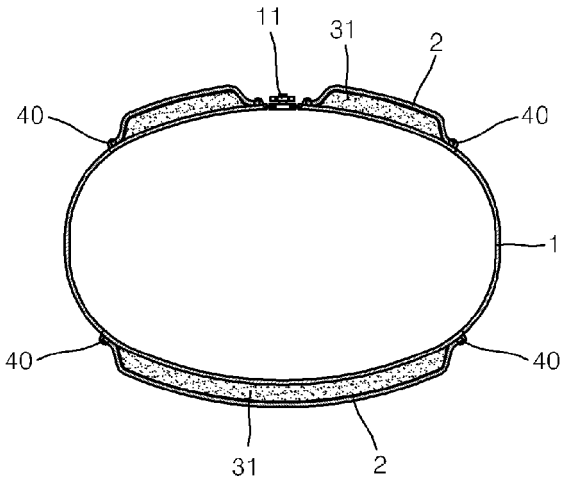
[Fig. 2]



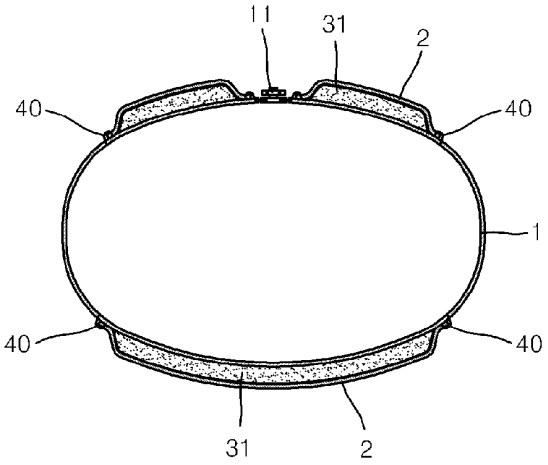
[Fig. 3]



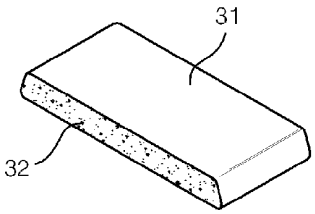
[Fig. 4]



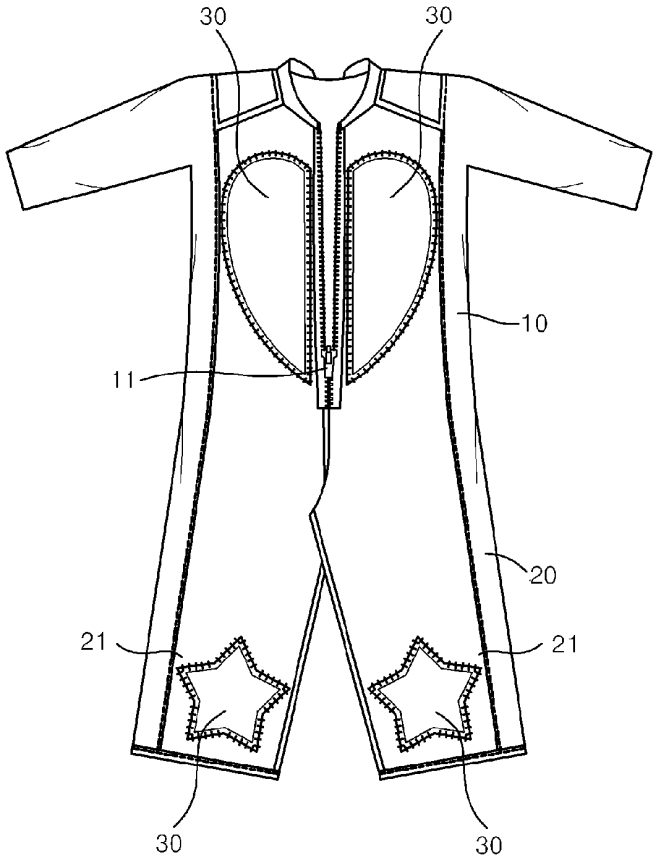
[Fig. 5]



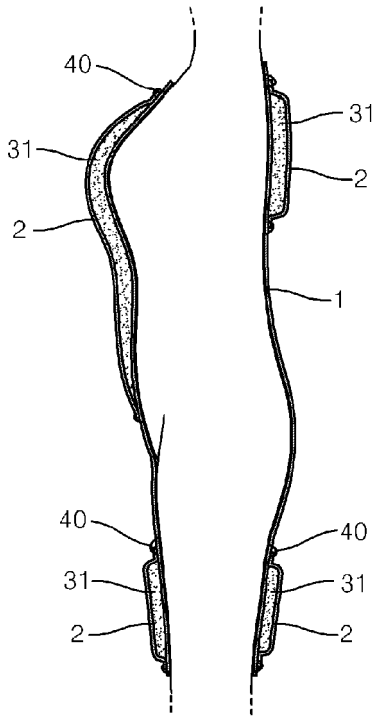
[Fig. 6]



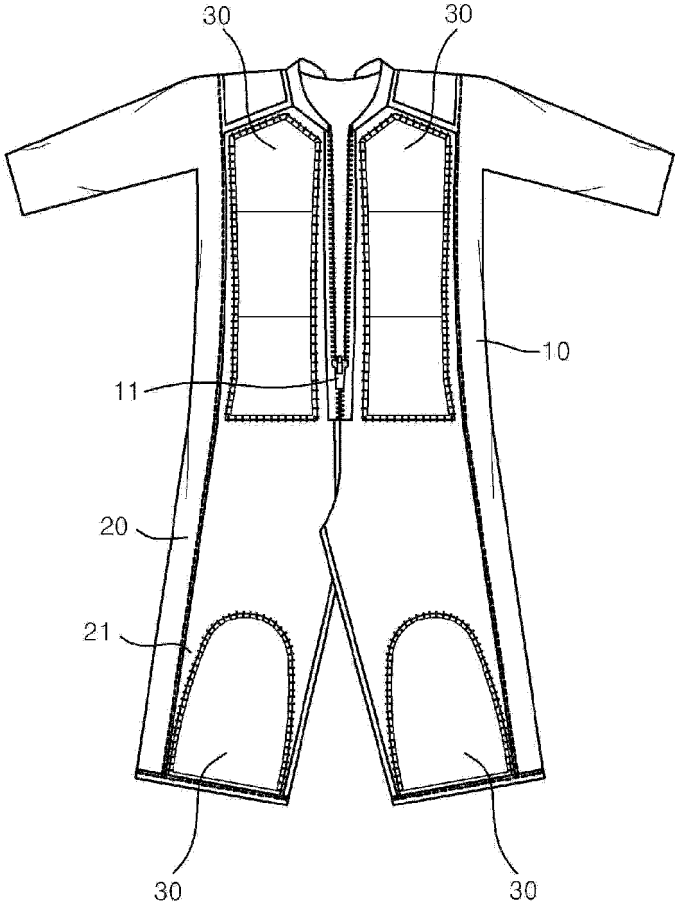
[Fig. 7]



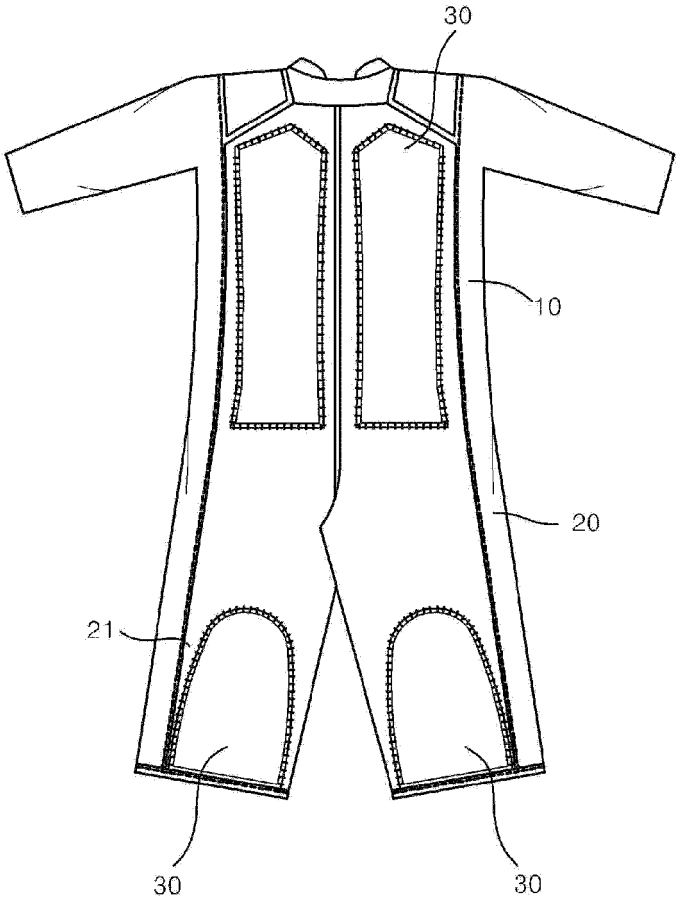
[Fig. 8]



[Fig. 9]



[Fig. 10]



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2015/003702

A. CLASSIFICATION OF SUBJECT MATTER

A41D 7/00(2006.01)i, A41D 13/012(2006.01)i, A63B 31/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A41D 7/00; B63C 9/08; A41D 13/00; B63C 9/087; A41D 13/012; A63B 31/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models: IPC as above
Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: swimming suit, foaming body, zipper

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2012-202007 A (FOOT MARK KK.) 02 October 2012 See claims 1, 3-5, figures 2-3	1-3,4,5,6-8
A		9
A	US 8591275 B2 (GONSALVES, Dennis James et al.) 26 November 2013 See abstract, claims 1-5, figures 1-3	1-9
A	KR 20-0218542 Y1 (DO'VISION CO., LTD.) 02 April 2001 See abstract, claim 1, figure 1	1-9
A	KR 20-0304371 Y1 (GWON, Hyeoc Man et al.) 17 February 2003 See claim 1, figures 1-2	1-9
A	JP 2003-239116 A (HANAMI KENJI) 27 August 2003 See abstract, claims 1-2, figure 1	1-9

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 JULY 2015 (30.07.2015)	**04 AUGUST 2015 (04.08.2015)**
Name and mailing address of the ISA/**KR** Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2015/003702

Patent document cited in search report	Publication date	Patent family member	Publication date
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KR 20-0218542 Y1	02/04/2001	NONE	
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JP 2003-239116 A	27/08/2003	NONE	

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 969920 **[0004]**
- KR 20218542 **[0006]**