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(71) Applicant: **Shanghai Jilong Plastic Products Co.,
Ltd**
Shanghai 201205 (CN)

(72) Inventor: **Bai, Hao**
Pudong (CN)

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(74) Representative: **2K Patentanwälte Blasberg
Kewitz & Reichel**
Partnerschaft mbB
Schumannstrasse 27
60325 Frankfurt am Main (DE)

(54) **Inflatable surfing device**

(57) The present disclosure relates to an inflatable surfing device (10). An inflatable surfing device (10) comprises a main body (101) having a main deck surface (103), a main bottom surface (104) and a through-hole throughout the main deck surface and the main bottom surface to define a primary inflatable chamber (110); and

a secondary inflatable chamber (120) defined in the through-hole, and having a deck surface and a bottom surface. Even if one of the inflatable chambers is broken and leaks in the water, the other inflatable chamber(s) can still serve as a floating board to help the surfer return to the land.

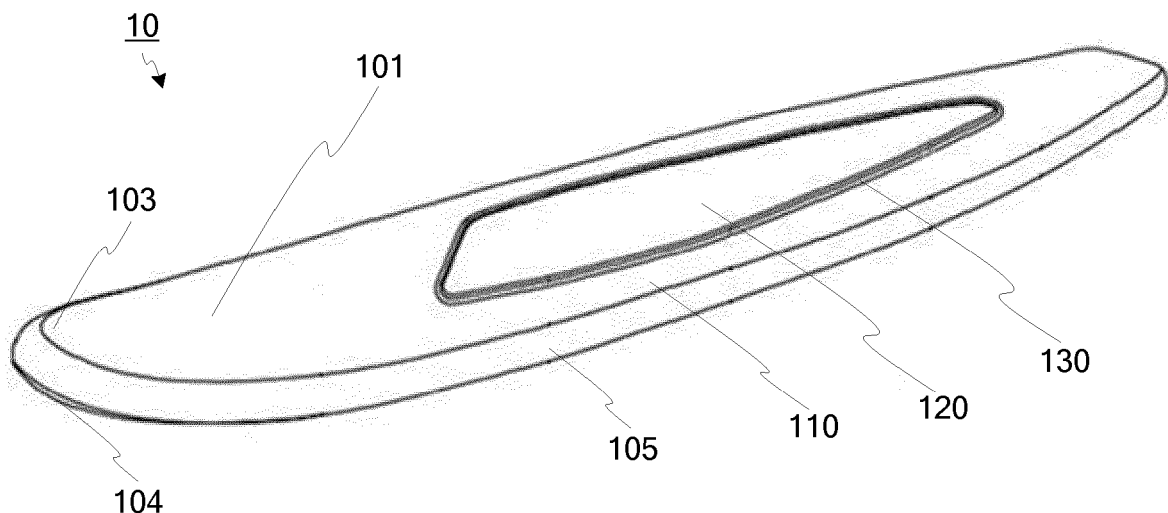


Fig.1

Description**BACKGROUND OF THE DISCLOSURE****(1) FIELD OF THE DISCLOSURE**

[0001] The present disclosure generally relates to surfing devices, and more particularly to inflatable surfing devices.

(2) DESCRIPTION OF RELATED ART

[0002] For many years, surfing has been a well established recreational and sporting activity, and with the progression and increased popularity of the surfing sport, surfers have searched for better designed and constructed surfboards. Traditional foam/fiberglass/hard-plastic surfing boards are rigid, and thus hard to carry around.

BRIEF SUMMARY OF THE DISCLOSURE

[0003] An object of the present disclosure is therefore to devise a portable surfing device.

[0004] The present invention provides an inflatable surfing device comprising a main body having a main deck surface, a main bottom surface and a through-hole throughout the main deck surface and the main bottom surface to define a primary inflatable chamber; and a secondary inflatable chamber defined in the through-hole and having a deck surface and a bottom surface.

BRIEF DESCRIPTION OF THE DRAWING

[0005] The following detailed description of the preferred embodiments of the present disclosure will be better understood when read in conjunction with the appended drawings. The present disclosure is illustrated by way of examples, and not limited by the accompanying figures, in which like references indicate similar elements.

FIG. 1 is an overall view of an inflatable surfing device 10 according to an embodiment of the present disclosure;

Fig. 2 illustrated a section of the inflatable surfing device 10 of Fig. 1;

Fig. 3 is a decomposed enlarged view of the dotted circle portion illustrated in the sectional view of Fig. 2;

Fig. 4 illustrated the sectional view of another spacer 130' according to an embodiment of the present disclosure that could be incorporated into the surfing device 10;

Fig. 5 illustrated the sectional view of still another spacer 130" according to an embodiment of the present disclosure that could be incorporated into

the surfing device 10;

Fig. 6 illustrated a section of an inflatable surfing device 20 according to an embodiment of the present disclosure;

Fig. 7 is an overall view of an inflatable surfing device 30 according to an embodiment of the present disclosure;

Fig. 8 is an overall view of a surfing device 40 according to an embodiment of the present disclosure;

DETAILED DESCRIPTION OF THE DISCLOSURE

[0006] The detailed description of the appended drawings is intended as a description of the currently preferred embodiments of the present disclosure, and is not intended to represent the only form in which the present disclosure may be practiced. It is to be understood that the same or equivalent functions may be accomplished by different embodiments that are intended to be encompassed within the spirit and scope of the present disclosure.

[0007] The subsequently described surfing devices can be embodied, for example but not limited, as stand-up paddleboards (SUP).

[0008] Fig. 1 is an overall view of an inflatable surfing device 10 according to an embodiment of the present disclosure. As illustrated in Fig. 1, the surfing device 10 comprises a main body 101, which has a main deck surface 103 and a main bottom surface 104. An annular rail 105 extends between and connects the main deck surface 103 and the main bottom surface 104. An annular spacer 130 connects the main deck surface 103 and the main bottom surface 104, and departs the main body 101 from an inside through-hole. A first inflatable chamber 110, also referred to as the primary inflatable chamber, is defined by the rail 105, the spacer 130, the main deck surface 103 and the main bottom surface 104. A second inflatable chamber 120, also referred to as the secondary inflatable chamber, is defined in the through-hole by the spacer 130 and two skins, which are also referred as a deck surface and a bottom surface. Each of the inflatable chambers 110 and 120 is equipped with an air inlet and a check-valve (not shown), through which the chambers can be inflated.

[0009] Fig. 2 illustrates a section of the surfing device 10 of Fig. 1. The first and second inflatable chambers 110 and 120 are both filled with double wall fabric (DWF) 108, the double walls of which are bonded to the main deck surface and main bottom surface of the first inflatable chamber 110 and the deck surface and bottom surface of the second inflatable chamber 120 respective. When the chambers 110 and 120 are deflated, the surfing device 10 is generally flat and foldable, at least at the portion of the main body 101. Thus, the surfing device 10 could be received in a smaller container and has a

lower weight than the traditional foam/fiberglass/hard-plastic surfing boards, which makes the surfing device 10 much easier to carry around. As inflated with pressed air, the chambers 110 and 120 will expand till the limitation of the envelope of the chambers and the infilled double wall fabric therein, substantially to the shape of a surfing board. The surfing board 10 can be normally used with an inside air pressure within a range from 15 to 25 psi because of the skin-DWF structure.

[0010] The skin (e.g., the main deck surface and main bottom surface of the primary inflatable chamber and the deck surface and bottom surface of the secondary inflatable chamber) of the surfing device 10 could be made of polyvinyl chloride (PVC), fiber reinforcing PVC, thermoplastic polyurethanes (TPU), rubber, or other thermoplastic materials, or a combination of multiple of the foregoing. For example, a fiber reinforcing PVC sheet can provide an anti-scratch performance when adopted as the skin of the surfing device 10. The first and second inflatable chambers 110 and 120 are individually deflatable. Generally, the inflated surfing device 10 can provide enough floating force to carry an adult surfer. Even if one of the two inflatable chambers is broken and leaks in the water, the other inflatable chamber can still serve as a floating board to help the surfer return to the land. The spacer 130 can also be made of PVC, fiber reinforcing PVC, TPU, rubber, or a combination thereof, and preferably surrounds central point of the surfing board 10, such that the central point of the whole inflated surfing board 10 is located within the second inflatable chamber 120 to thereby enhance the bending resistance of the surfing board 10.

[0011] Fig. 3 is a decomposed enlarged view of the dotted circle portion illustrated in the sectional view of Fig. 2. The spacer 130 has a section of "II" shape. A top belt 131 and a bottom belt 132 thereof depart from each other by a first side belt 133 and a second side belt 134. The first side belt 133 has a section of "J" shape, and opens outwards towards the primary chamber 110. The second side belt 134 has a section of "L" shape, and opens inwards towards the secondary chamber 120. Top and bottom ends of each of the side belts 133 and 134 are bonded to the top belt 131 and the bottom belt 132 by either gluing or laser melting or any other feasible processing, so as to form a chamber 135 thereamong. The spacer 130 helps to further enhance the bending resistance of the surfing board 10 with such a section shape of double sidewalls. The primary inflatable chamber 110 and the secondary inflatable chamber 120 are sealed with the overhanging eaves of the spacer 130 bonding to the edges of the main deck surface 103 of the primary inflatable chamber 110 and the deck surface 103' of the secondary inflatable chamber 120 through the top belt 131 and the porches of the spacer 130 bonding to the edges of the main bottom surface 104 of the primary inflatable chamber 110 and the deck surface 104' of the secondary inflatable chamber 120 through the bottom belt 132 in a manner of gluing or laser melting or any

other feasible processing.

[0012] Fig. 4 illustrated the sectional view of another spacer 130' according to an embodiment of the present disclosure that could be incorporated into the surfing device 10. The spacer 130' has a section of "I" shape. A top belt 131' and a bottom belt 132' thereof depart from each other by a first side belt 133' and a second side belt 134' disposed back to back. The first side belt 133' has a section of "J" shape, and opens outwards towards the primary inflatable chamber 110. The second side belt 134' has a section of "L" shape, and opens inwards towards the secondary inflatable chamber 120. Top and bottom ends of each of the side belts 133' and 134' are bonded to the top belt 131' and the bottom belt 132' by either gluing or laser melting or any other feasible processing. The primary inflatable chamber 110 and the secondary inflatable chamber 120 are sealed with the overhanging eaves of the spacer 130' bonding to the edges of the main deck surface 103 of the primary inflatable chamber 110 and the deck surface 103' of the secondary inflatable chamber 120 through the top belt 131' and the porches of the spacer 130' bonding to the edges of the main bottom surface 104 of the primary inflatable chamber 110 and the deck surface 104' of the secondary inflatable chamber 120 through the bottom belt 132' in a manner of gluing or laser melting or any other feasible processing.

[0013] Fig. 5 illustrated the sectional view of still another spacer 130" according to an embodiment of the present disclosure that could be incorporated into the surfing device 10. A top belt 131" and a bottom belt 132" thereof depart from each other by a side belt 133". The side belt 133" has a section of "J" shape, and opens outwards towards the primary inflatable chamber 110. Top and bottom ends of the side belt 133" are bonded to the top belt 131" and the bottom belt 132" by either gluing or laser melting or any other feasible processing. The primary inflatable chamber 110 and the secondary inflatable chamber 120 are sealed with the overhanging eaves of the spacer 130" bonding to the edges of the main deck surface 103 of the primary inflatable chamber 110 and the deck surface 103' of the secondary inflatable chamber 120 through the top belt 131" and the porches of the spacer 130" bonding to the edges of the main bottom surface 104 of the primary inflatable chamber 110 and the deck surface 104' of the secondary inflatable chamber 120 through the bottom belt 132" in a manner of gluing or laser melting or any other feasible processing.

[0014] Fig. 6 is a sectional view of an inflatable surfing device 20 according to an embodiment of the present disclosure. Similar to the surfing device 10 illustrated in Figs. 1 and 2, the surfing device 20 also comprises a main body, indicated as 201, having a main deck surface 203 and a main bottom surface (not shown). An annular rail 205 extends between and connects the main deck surface 203 and the main bottom surface. An annular spacer 230 connects the main deck surface 203 and the main bottom surface, and departs the main body 201

from an inside through-hole. A primary inflatable chamber 210 is defined by the rail 205, the spacer 230, the main deck surface 203 and the main bottom surface. A secondary inflatable chamber 220 is defined in the through-hole by the spacer 230 and two skins, which are also referred as a deck surface and a bottom surface. The primary inflatable chamber 210 is filled with double wall fabric 208, the double walls of which are bonded to the main deck surface 203 and the main bottom surface. As inflated with pressed air, the chamber 210 will expand till the limitation of the envelope of the chambers and the infilled double wall fabric therein. The secondary chamber 220, however, contains no padding (e.g., double wall fabric), and will expand into an olive as inflated with pressed air. The skin (e.g., the main deck surface and main bottom surface of the primary inflatable chamber and the deck surface and bottom surface of the secondary inflatable chamber) of the surfing device 20 is made of the same material as that of the surfing device 10. The spacer 230 can be of any kind of spacers illustrated above.

[0015] According to an embodiment of the present invention, the inflatable surfing device may comprise one primary inflatable chamber and multiple secondary inflatable chambers.

[0016] Fig. 7 illustrates an inflatable surfing device 30 according to an embodiment of the present disclosure. The surfing device 30 comprises two spacers 330 and 345 dividing the surfing device 30 into a primary inflatable chamber 310 and two secondary inflatable chambers 320, 340. The chambers 320 and 340 are arranged in alignment generally along a longitudinal direction of the surfing device 30. At least one of the chambers 310, 320 and 340, generally including the primary inflatable chamber 310, is filled with double wall fabric. The skin (e.g., the main deck surface and main bottom surface of the primary inflatable chamber and the deck surfaces and bottom surfaces of the secondary inflatable chambers) of the surfing device 30 is made of the same material as that of the surfing device 10, while the spacers 330 and 345 can be of any kind of spacers illustrated above.

[0017] Fig. 8 illustrates an inflatable surfing device 40 according to an embodiment of the present disclosure. The surfing device 40 comprises two spacers 430 and 445 dividing the surfing device 40 into a primary inflatable chamber 410 and two secondary inflatable chambers 420, 440. The chambers 420 and 440 are arranged in parallel across the centre waist of the surfing device 30, to provide enhanced bending resistance under inflation and good folding performance under deflation. At least one of the chambers 410, 420 and 440, generally including the primary inflatable chamber 410, is filled with double wall fabric. The skin (e.g., the main deck surface and main bottom surface of the primary inflatable chamber and the deck surfaces and bottom surfaces of the secondary inflatable chambers) of the surfing device 40 is made of the same material as that of the surfing device 10, while the spacers 430 and 445 can be of any kind of

spacers illustrated above.

[0018] In one embodiment of the present invention, the multiple inflatable chambers of a surfing device are individually manufactured, and then incorporated into one piece with spacer(s) separating the inflatable chambers as illustrated above.

[0019] In another embodiment of the present invention, the multiple inflatable chambers of a surfing device are individually manufactured, and then incorporated into one piece without spacer by using annual plastic sheets to connect the deck surfaces and bottom surfaces of the multiple inflatable chambers in a manner of gluing or laser melting or any other feasible processing.

[0020] Even though, adherence to the exact dimensions, as shown in the figures, does not appear necessary. It is nevertheless to be assumed that the advantageous effects of the sealing engagement according to the present disclosure are based on the fact that it reacts relatively insensitively to tolerance deviations of the neck collar and also of the actual screw cap itself.

[0021] While various embodiments of the present disclosure have been illustrated and described, it will be clear that the present disclosure is not limited to these embodiments only. Numerous modifications, changes, variations, substitutions, and equivalents will be apparent to those skilled in the art, without departing from the spirit and scope of the present disclosure, as described in the claims.

Claims

1. An inflatable surfing device (10), comprising:

a main body (101) having a main deck surface (103), a main bottom surface (104) and a through-hole throughout the main deck surface and the main bottom surface to define a primary inflatable chamber (110); and
a secondary inflatable chamber (120) defined in the through-hole, having a deck surface and a bottom surface.

2. The surfing device as claimed in claim 1, wherein at least one of the primary inflatable chamber and the secondary inflatable chamber contains a double wall fabric filled therein.

3. The surfing device as claimed in claim 1 or 2, wherein the primary inflatable chamber is separated from the secondary inflatable chamber by a spacer (130).

4. The surfing device as claimed in claim 3, wherein the spacer has a cross section of "II" shape.

5. The surfing device as claimed in claim 3 or 4, wherein the spacer has a top belt (131) and a bottom belt (132) departing from each other by a first side belt

and a second side belt, the first side belt has a cross section of "J" shape and opening outwards towards the primary chamber, the second side belt has a cross section of "I" shape and opening inwards towards the secondary chamber, and top and bottom ends of each of the first side belt and the second side belt are bonded to the top belt and the bottom belt,

wherein the top belt is bonded to the main deck surface of the main body and the deck surface of the secondary inflatable chamber, and the bottom belt is bonded to the main bottom surface of the main body and the bottom surface of the secondary inflatable chamber such that the primary inflatable chamber and the secondary inflatable chamber are sealed.

6. The surfing device as claimed in claim 3, wherein the spacer has a cross section of "I" shape.

7. The surfing device as claimed in any of the claims 3 or 6, wherein the spacer has a top belt and a bottom belt departing from each other by a first side belt and a second side belt disposed back to back, the first side belt having a cross section of "J" shape and opening outwards towards the primary chamber, the second side belt having a cross section of "I" shape and opening inwards towards the secondary chamber, and top and bottom ends of each of the first side belt and the second side belt are bonded to the top belt and the bottom belt,
- wherein the top belt is bonded to the main deck surface of the main body and the deck surface of the secondary inflatable chamber, and the bottom belt is bonded to the main bottom surface of the main body and the bottom surface of the secondary inflatable chamber such that the primary inflatable chamber and the secondary inflatable chamber are sealed.

8. The surfing device as claimed in any of the claims 3 or 6, wherein the spacer has a top belt and a bottom belt departing from each other by a side belt, the side belt having a cross section of "J" shape and opening outwards towards the primary chamber, and top and bottom ends of the side belt are bonded to the top belt and the bottom belt,
- wherein the top belt is bonded to the main deck surface of the main body and the deck surface of the secondary inflatable chamber, and the bottom belt is bonded to the main bottom surface of the main body and the bottom surface of the secondary inflatable chamber such that the primary inflatable chamber and the secondary inflatable chamber are sealed.

9. The surfing device as claimed in any of claims 1-8, wherein the main deck surface, the main bottom sur-

face, the deck surface, and the bottom surface are made of PVC, fiber reinforcing PVC, TPU, rubber, or a combination thereof.

10. The surfing device as claimed in any of claims 1-9, wherein the secondary inflatable chamber surrounds central point of the surfing device.
11. The surfing device as claimed in any of claims 1-9, further comprising another secondary inflatable chamber and the two secondary inflatable chambers being arranged in alignment substantially along a longitudinal direction of the surfing device.
12. The surfing device as claimed in any of claims 1-9, further comprising another secondary inflatable chamber and the two secondary inflatable chambers being arranged in parallel across centre waist of the surfing device.

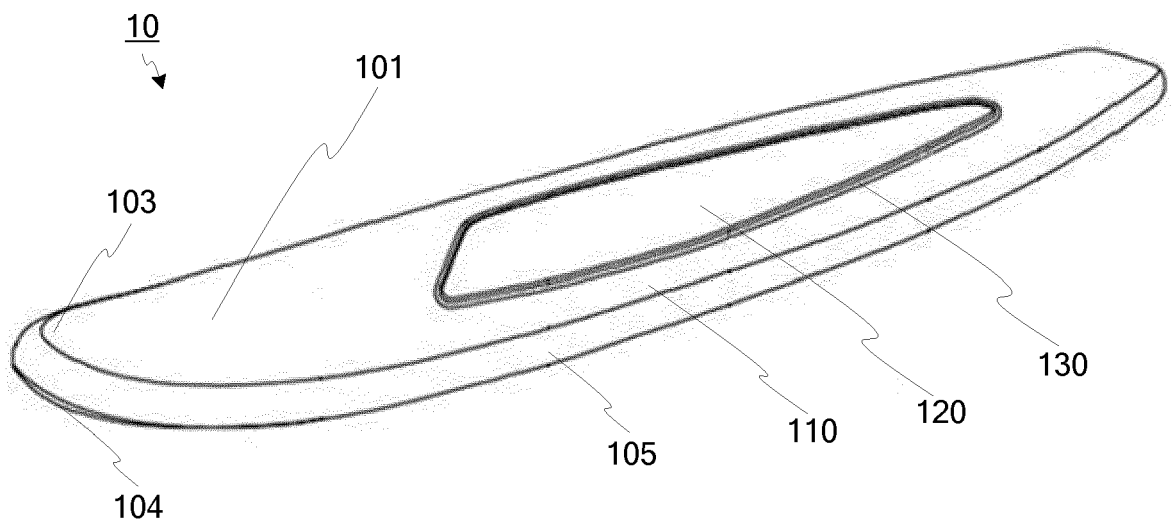


Fig.1

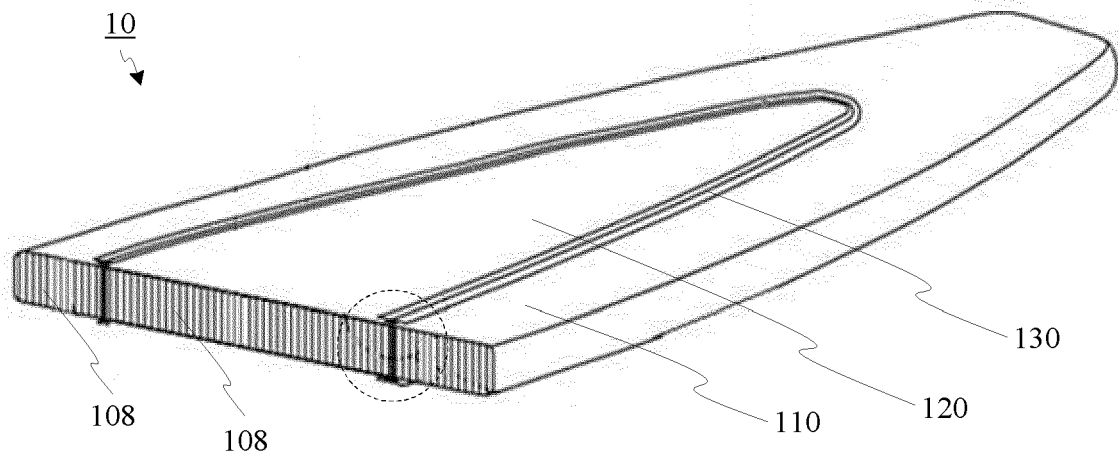


Fig.2

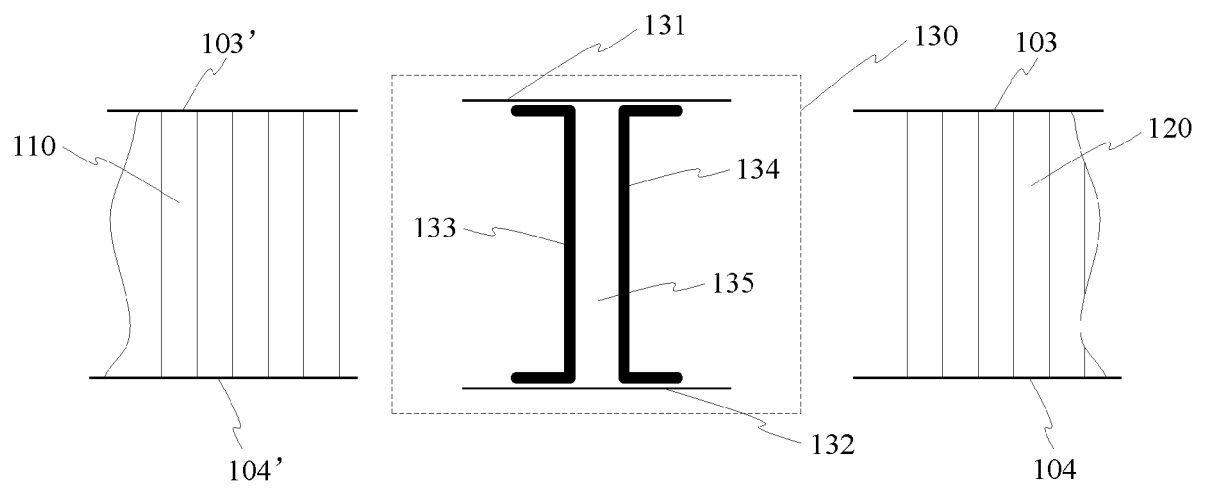


Fig.3

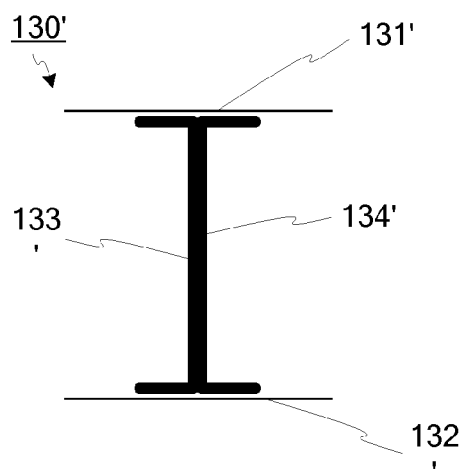


Fig.4

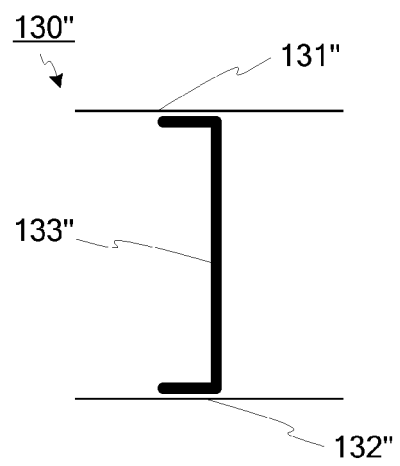


Fig.5

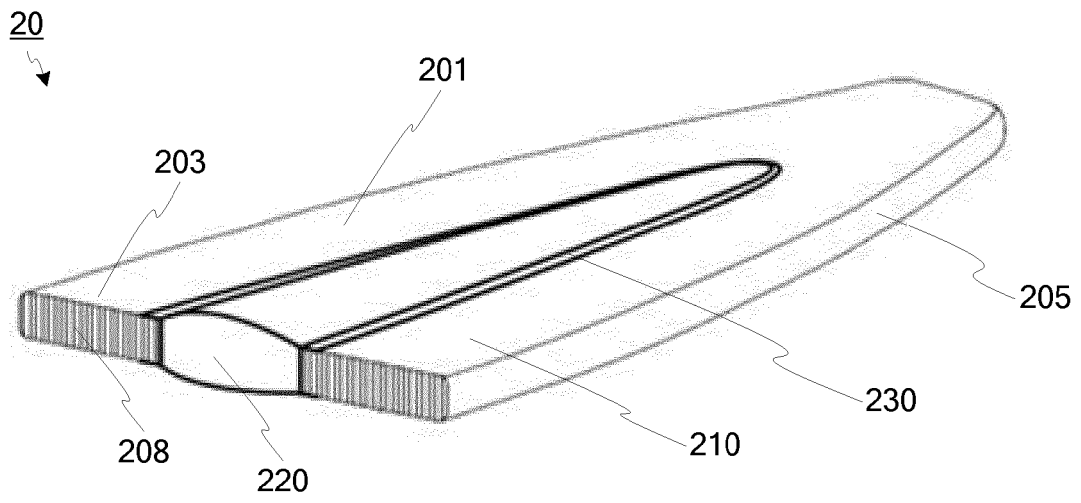


Fig.6

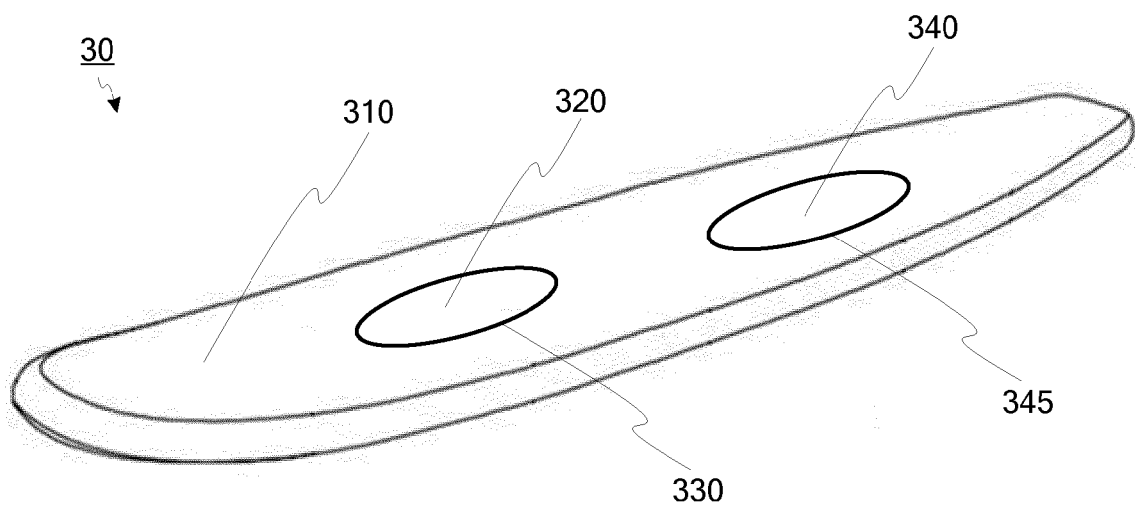


Fig.7

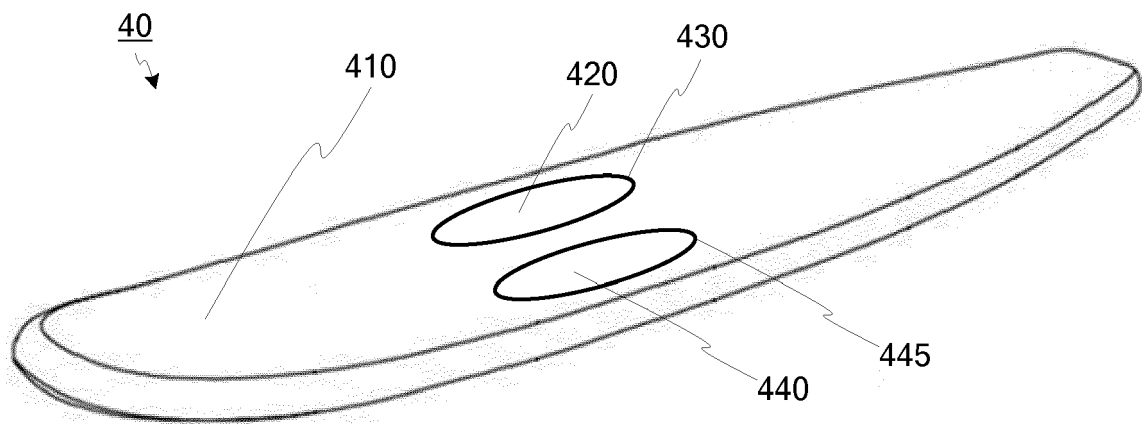


Fig.8



EUROPEAN SEARCH REPORT

Application Number
EP 14 15 0964

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2012 008858 U1 (WELLANDT UTE [DE]) 29 October 2012 (2012-10-29)	1,2,9-12	INV. B63B35/79 B63B7/08
Y	* paragraph [0001] - paragraph [0014]; figures 1-3 *	3-8	
Y	----- FR 2 602 980 A1 (HOUDEBERT RAOUL [FR]) 26 February 1988 (1988-02-26)	3-8	
A	* page 3, line 18 - page 4, line 30; figures 1-6 *	1	

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B63B
Place of search			Examiner
The Hague			Martínez, Felipe
Date of completion of the search			
29 October 2014			
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
ON EUROPEAN PATENT APPLICATION NO.**

EP 14 15 0964

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202012008858 U1	29-10-2012	NONE	
FR 2602980 A1	26-02-1988	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82