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(54) **STAND-UP PADDLING BOARD IN STRUCTURE WITH DOUBLE INDEPENDENT SAFE AIR CHAMBERS AND MANUFACTURING METHOD THEREOF**

STEHPADDELBRETTSTRUKTUR MIT ZWEI UNABHÄNGIGEN SICHEREN LUFTKAMMERN UND HERSTELLUNGSVERFAHREN DAFÜR

PLANCHE DE STAND-UP PADDLE DANS UNE STRUCTURE DOTÉE DE CHAMBRES À AIR DE SÉCURITÉ INDÉPENDANTES DOUBLES SON PROCÉDÉ DE FABRICATION

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Description

TECHNICAL FIELD

[0001] The invention relates to a stand-up paddling board in a structure with double air chambers and also relates to a manufacturing method of the stand-up paddling board in a structure with double air chambers.

DESCRIPTION OF RELATED ART

[0002] Stand-up paddling (SUP) is an aquatic entertainment sport which is rooted in Hawaii, America, has becomes popular in the world and is fastest developed in the world at present. SUP shorts for Stand-Up Paddling and also refers to "stand-up paddling" or "stroke paddle board". The SUP boards are mainly made from a novel space cloth (DWF) and a netted sandwich cloth attached to the novel space cloth, thereby having the advantages of being portable, capable of being folded for storage, high in support strength and the like. There are various types of SUP boards, such as ALL-ROUND, TOURING, SUPF, JUNIOR, WHITE WATER, YOGA, WINDSURF, RACE, MULTI-PERSON and the like, which are suitable for different environments and different people from courtyard swimming pools to outdoor water areas, and SUP is a sport which is very simple, easy to learn and suitable for both the young and the old. Most SUP boards in the current market adopt a paddle board, which is provided with one air chamber and does not have a safety precaution function, and in order to guarantee the safety of users, the manufacturing process should be very strict.

[0003] SUP boards have quite high special requirements for bearing strength and materials; in order to guarantee the safety of users on water, a SUP board in a structure with double air chambers and a process thereof are developed by our company; and when the SUP board is in use, once one air chamber is fractured, customers can still smoothly return to a shore under the protection of the other air chamber.

[0004] EP2808245 discloses a stand-up paddle board with multiple air chambers.

BRIEF SUMMARY OF THE INVENTION

[0005] Aiming at the defects of the prior art, embodiments of the invention provide a stand-up paddling board in a structure with double independent safe air chambers to solve the problems that a paddle board with one air chamber does not have a safety precaution function, and that a structure with double air chambers in current market is unreasonable, influences the support strength of a paddle board due to the failure to bear high-strength tensile force and generates larger potential safety hazards for the selling gimmick of double air chambers. In addition, the invention also provides a manufacturing method of the stand-up paddling board in a structure with double independent safe air chambers.

[0006] In order to solve the above problems and to realize high strength, high support strength and high safety guarantee of a product, the invention provides a stand-up paddling board in a structure with double independent safe air chambers. The stand-up paddling board includes a paddle board body, wherein the paddle board body includes a middle air chamber and a paddle board air chamber; the middle air chamber and the paddle board air chamber are air bags formed by tailoring wire-drawing cloth materials; a groove containing the middle air chamber in a matched manner is formed in the middle of the paddle board air chamber, and the middle air chamber is arranged in the groove; and the paddle board air chamber and the middle air chamber are aligned in surface. The stand-up paddling board has the follow innovation points: a sealing layer is located on the outer side wall of the paddle board air chamber, a sealing layer is located on the outer side wall of the middle air chamber, and an independent sealing layer is located on the inner side wall of the paddle board air chamber; the middle air chamber is fastened and connected with the paddle board air chamber, a connection layer is located on the joint of the middle air chamber and the paddle board air chamber, and a circular reinforced layer is located on the connection layer; a reinforced layer is located on the bottom surface of the paddle board air chamber; and high-pressure safety air valves are respectively arranged on the paddle board air chamber and the middle air chamber, and a sealing layer and a reinforced layer are arranged on the junction of each high-pressure safety air valve and the paddle board body.

[0007] According to the stand-up paddling board in a structure with double independent safe air chambers in one embodiment, a reinforced layer is located on the outer side wall of the middle air chamber, and a reinforced layer is located on the inner side wall of the paddle board air chamber.

[0008] According to the stand-up paddling board in a structure with double independent safe air chambers in one embodiment, each high-pressure safety air valve has an upper half part arranged on the outer surface of the paddle board body and a lower half part arranged in a cavity of the paddle board body.

[0009] According to the stand-up paddling board in a structure with double independent safe air chambers in one embodiment, the upper half part and the lower half part of each high-pressure safety air valve are tightly connected in a spiral manner.

[0010] In one embodiment, the manufacturing process of the stand-up paddling board in a structure with double independent safe air chambers includes the following steps:

- (1) forming an air valve hole with a diameter of 3.5-4.5cm in a paddle board body; adopting a circular sealing layer having the inner diameter of 3.5-4.5cm, and adopting a circular reinforced layer having the inner diameter of 3.5-4.5cm and the outer diameter

2-4cm larger than the outer diameter of the circular sealing layer; concentrically superposing the circular sealing layer, the circular reinforced layer and the air valve hole together through heat sealing or gluing to form a sealing layer and a reinforced layer on the junction of each high-pressure safety air valve and the paddle board body;

(2) cutting a rectangle with a length of 170-30cm in the middle of a wire-drawing cloth, and mounting the corresponding high-pressure safety air valve on the cut rectangle according to step (1); performing heat sealing on four edges of the rectangle by means of a PVC soft netted sandwich cloth with a width of 14-24cm, and forming a middle air chamber by inflating the rectangle, wherein the cut rectangle accounts for 20%-60% of the whole wire-drawing cloth;

(3) performing heat sealing on four edges of a hollowed rectangular part of the wire-drawing cloth by means of a PVC soft netted sandwich cloth with a width of 14-24cm; performing heat sealing on a peripheral edge of a hollowed part by means of a PVC soft netted sandwich cloth with a width of 6-16cm to form a paddle board air chamber;

(4) placing the middle air chamber into the paddle board air chamber, and jointing the edges of the paddle board air chamber and the middle air chamber through a heat sealing process or a gluing process by means of a PVC soft netted sandwich cloth with a thickness of 0.45-0.85mm and a width of 3.5-7cm to form sealing layers on the outer side wall and the inner side wall of the paddle board air chamber as well as a sealing layer on the outer side wall of the middle air chamber respectively;

(5) partially or entirely covering the upper surface and the lower surface of a whole board formed through the connection of the paddle board air chamber and the middle air chamber with a PVC soft netted sandwich cloth with a thickness of 0.45-0.85mm to form a reinforced layer on the bottom surface of the paddle board air chamber and a reinforced layer on the surface of the middle air chamber; and

(6) arranging at least one layer of PVC soft netted sandwich cloth with a thickness of 0.45-0.85mm and a width of 8-20cm on a sealing layer on the peripheral edge of the paddle board air chamber to cover four side surfaces of a paddle board through heat sealing or gluing to respectively form a reinforced layer on the outer side wall of the paddle board air chamber.

[0011] In addition, as a preferable embodiment, the manufacturing process of the stand-up paddling board in a structure with double independent safe air chambers further includes the following steps:

(7) additionally arranging a paddle board body reinforcing strip, namely a layer of netted sandwich cloth which is a high-strength composite material and has a thickness of 0.45-0.9mm, along the outer arc edge of the paddle board air chamber, that is to say, additionally arranging the paddle board body reinforcing strip on an air chamber sealing strip located on the outer edge of the paddle board air chamber, wherein the outer edge reinforcing strip of the paddle board body is 3-4cm wider than the outer edge sealing strip, so that the outer edge sealing strip is completely covered under the outer edge reinforcing strip and is better protected against fractures when impacted, and besides, the support strength of the whole paddle board body is effectively improved;

(8) arranging an EVA non-slip mat with a hardness of 38-55 Pa on the stand-up paddling board, so that the friction between the foot soles of a user and the paddle board body is increased, and the paddle board body can be controlled more easily during paddling;

(9) arranging four stainless steel D-shaped buckles, to be connected with a seat to provide a seat device for a paddler to relax during long-distance paddling, on a middle area of the paddle board body; arranging four elastic rope adapting pieces at the front end of the paddle board body, wherein the elastic rope adapting pieces are combined with elastic ropes to form an article fixing area for the paddler to carry a luggage; arranging two handles 16 at the middle part and the tail part of the paddle board body, wherein the paddle board in an inflated state can be lifted by the paddler through the handles, so as to be moved more conveniently; and

(10) arranging a convenient slide-in large fin at the lower tail part of the paddle board body, and arranging two fixed small fins on two outward sides in front of the large fin, wherein the large fin and the small fins are arranged based on a rule that three center lines extend forwards and are crossed at a center of the front end of the paddle board body, so that the stability and the forward impulse force of the paddle board body are improved; and the small fins located on the two sides are outward and have centers pointing to the center of the paddle board body, so that turning can be flexibly achieved during paddling.

[0012] Compared with the prior art, the invention has the following advantages: first, two air chambers are independently manufactured, the air impermeability of each air chamber is inspected in advance to ensure the safety of each air chamber, then double-surface connection and double-surface reinforcement are performed on the two air chambers to realize large tensile force of double isolation layers as well as a safe structure of inde-

pendent sealing of independent air chambers, and tested air pressure reaches 1.5 times (22.5Psi) of normal pressure 15Psi; second, a rectangular air chamber is obtained through partition, and air is compressed in a regular space to be limited in flowing so as to form a high-pressure support structure; and compared with a same-sized paddle board with one air chamber, the support strength of the paddle board of the stand-up paddling board is improved by 30%, and the usability a product is brought into full play.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0013]

Fig. 1 is a partition diagram of a space cloth for preparing a stand-up paddling board in a structure with double air chambers in an embodiment of the invention;

Fig. 2 is a manufacturing diagram of independent air chambers of the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 3 is an assembly diagram of a middle air chamber of the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 4 is connection diagram of a paddle board air chamber inside the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 5 is a connection reinforcing diagram of the paddle board air chamber inside the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 6 is a reinforcing diagram of an air chamber sealing strip of the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 7 is a schematic diagram of fins of the stand-up paddling board in a structure with double air chambers in the embodiment of the invention;

Fig. 8 is a display diagram of a finished stand-up paddling board in a structure with double air chambers in the embodiment of the invention.

[0014] Reference Signs: 1, paddle board air chamber space cloth; 2, middle air chamber space cloth; 3, air chamber sealing strip; 4, air plug; 5, paddle board air chamber; 6, center air chamber; 7, air chamber connect-

ing strip; 8, air chamber connection reinforced strip; 9, air chamber sealing reinforced strip; 10, EVA non-slip mat; 11, slide-in large fin; 12, fixed small fin; 13, PVC soft reinforced netted sandwich cloth piece; 14, elastic rope adapting piece; 15, stainless steel D-shaped buckle; 16, handle.

DETAILED DESCRIPTION OF THE INVENTION

[0015] The invention is further detailed as follows in combination with the drawings and embodiments. The embodiments are ought to be comprehended as being only used for explaining the invention, but not used for limiting the protection scope of the invention. After reading contents recorded in the invention, those skilled in this field are permitted to make various changes or modifications, these equivalent changes and modifications should also fall within the scope limited by the claims of the invention.

[0016] As shown in Fig. 1-Fig. 8, the preferable embodiment of the invention provides a stand-up paddling board in a structure with double independent safe air chambers. The stand-up paddling board includes a paddle board body, wherein the paddle board body includes a middle air chamber 6 and a paddle board air chamber 5; the middle air chamber 6 and the paddle board air chamber 5 are air bags formed by tailoring wire-drawing cloth materials; a groove containing the middle air chamber 6 in a matched manner is formed in the middle of the paddle board air chamber 5, and the middle air chamber 6 is arranged in the groove; and the paddle board air chamber 5 and the middle air chamber 6 are aligned in surface. A sealing layer is located on the outer side wall of the paddle board air chamber 5, a sealing layer is located on the outer side wall of the middle air chamber 6, and an independent sealing layer is located on the inner side wall of the paddle board air chamber 5; the middle air chamber 6 is fastened and connected with the paddle board air chamber 5, a connection layer is located on the joint of the middle air chamber 6 and the paddle board air chamber 5, and a circular reinforced layer is located on the connection layer; a reinforced layer is located on the bottom surface of the paddle board air chamber 5; and high-pressure safety air valves are respectively arranged on the paddle board air chamber 5 and the middle air chamber 6, and a sealing layer and a reinforced layer are arranged at the junction of each high-pressure safety air valve and the paddle board body.

[0017] When the invention is specifically implemented, a reinforced layer is arranged on the outer side wall of the middle air chamber 6, and a reinforced layer is arranged on the inner side wall of the paddle board air chamber 5.

[0018] When the invention is specifically implemented, each high-pressure safety air valve has an upper half part arranged on the outer surface of the paddle board body and a lower half part arranged in a cavity of the paddle board body, and the upper half part and the lower

half part of each high-pressure safety air valve are tightly connected in a spiral manner.

[0019] As shown in Fig. 1-Fig. 8, when the invention is specifically implemented, the above stand-up paddling board in a structure with double independent safe air chambers is manufactured generally through the following steps:

Step I: in combination with the requirement for safety of an aquatic paddle board, a wire-drawing space cloth is partitioned according to an equant calculation method of 1:1:1 (as shown in Fig. 1, the wire-drawing space cloth is partitioned into a paddle board air chamber space cloth 1 and a middle air chamber space cloth 2) to generate three air support columns with equal strength, so that the strength of the whole paddle board is made uniform, and the balance is better; a middle cuboid air column has a buoyant force of 75L+ and a bearing capacity of 75kg+, and air is effectively compressed in a regular space through reasonable shape division; and compared with a same-sized paddle board with one air chamber, the pressure-bearing rigidity of the whole paddle board body is improved by 30%;

Step II: spaces of the partitioned two parts are sealed with a high-strength composite material 3: 28*28*1000D, namely a specially-made edge sealing material with a thickness of 0.55mm, to form two closed air chambers; the air impermeability of the two closed air chambers are detected; air chamber sealing strips located at the front end and the rear end of the corresponding paddle board body of the paddle board air chamber are obliquely cut by 45°, and air chamber sealing strips located on two sides of the paddle board body are straightly cut; through oblique cutting, the head part of the paddle board body is more streamlined, so that the paddling speed is increased, and the resistance of a water flow is reduced; and through straight cutting, the pressure-bearing area of the paddle board body has a higher rigidity, and the paddle board body is not prone to bending (as shown in Fig. 2) during paddling on a water surface and larger fluctuation on a water surface;

Step III: high-strength press type inflation-deflation integrated air valves 4 are arranged on two independent air chambers, and air valve bodies have a press structure easy and convenient to operate, can achieve manual inflation rapidly within 3min and rapid deflation instantly and adopt dual air sealing, so that the whole paddle board body is safer and more convenient to use;

Step IV: after being manufactured, a middle air chamber 6 is placed back into the original position; the inner and outer air chambers are connected

through an air chamber connecting strip 7 with a pre-set dimension, and the air chamber connecting strip 7 and the air chambers are connected through an aligned back-to-back I-shaped overlapped method which can avoid independent stressed points, so that when the whole paddle board body is inflated to reach a high tensile force of 15-23 PSI, independently-stressed parts can be effectively prevented from bursting through the combination of the aligned back-to-back I-shaped overlapped method and uniform stress of each dotted silk yarn located on a peripheral space cloth body; and according to the aligned back-to-back I-shaped overlapped method, the difference between the width of the connecting strip and the sum of the edges of the two independent air chambers is reasonably set to 5mm, so that the inner and outer independent air chambers reach high integrated strength of an undivided air chamber after being inflated, and a weak tensile force spot (as shown in Fig. 3) is effectively prevented during partition and subsequent bonding of the wire-drawing space cloth;

Step V: an integrally jointed paddle board body with the two air chambers is placed in a room at a constant temperature of 23°C for 24 hours and is inflated to 8-10 PSI after all connecting parts are sufficiently and fixedly connected, the inner and outer air chambers (the paddle board air chamber 5 and the middle air chamber 6) are respectively inflated, and the connection smoothness of the inner and outer air chambers is inspected;

Step VI: a layer of high-strength composite material 8: 20*20*1000D, namely a netted sandwich cloth (as shown in Fig. 5) with a thickness of 0.7mm, is additionally adhered to the air chamber connecting strip to limit the extension of the air chamber connecting strip and to improve the strength of the connecting strip between the two air chambers, and a layer of high-strength composite material 13 is additionally adhered to an air chamber connecting reinforced strip 8 located on the back surface of the paddle board to enhance the whole rigidity of the paddle board;

Step VII: a paddle board body reinforcing strip 9, namely a layer of netted sandwich cloth which is a high-strength composite material: 20*20*1000D and has a thickness of 0.7mm, is additionally arranged along the outer arc edge of the paddle board air chamber, that is to say, the paddle board body reinforcing strip 9 is additionally arranged on the air chamber sealing strip located on the outer edge of the paddle board air chamber; the outer edge reinforcing strip of the paddle board body is 3-4cm wider than the outer edge sealing strip, so that the outer edge sealing strip can be completely covered under

the outer edge reinforcing strip and be better protected against fractures when impacted, and besides, the support strength of the whole paddle board body is effectively improved (as shown in Fig. 6);

Step VIII: an EVA non-slip mat 10 with a hardness of 38-55Pa is placed on the stand-up paddling board, so that the friction between the foot soles of a user and the paddle board body is increased, and the paddle board body can be controlled more easily during paddling;

Step IX: four #316 stainless steel D-shaped buckles 15 are arranged in a middle area of the paddle board body to be connected a seat to provide a seat device for a paddler to relax during long-distance paddling; and four elastic rope adapting pieces 14 are arranged at the front end of the paddle board body; the elastic rope adapting pieces 14 and elastic ropes form an article fixing area for the paddler to carry a luggage; two handles 16 are arranged at the middle part and the tail part of the paddle board body; and the paddle board in an inflated state can be lifted by the paddler through the handles, so as to be moved more conveniently; and

Step X: a convenient slide-in large fin 11 is arranged under the lower tail part of the paddle board body, and two fixed small fins 12 are arranged on two outward sides in front of the large fin 11; the large fin 11 and the small fins 12 are arranged based on a rule that three center lines extend forwards and are crossed at the center of the front end of the paddle board body, so that the stability and the forward impulse force of the paddle board body are improved; and the small fins located on the two sides are outward and have the centers pointing to the center of the paddle board body, so that turning can be flexibly achieved during paddling.

Claims

1. A stand-up paddling board comprising a structure with double independent safe air chambers, comprising a paddle board body, wherein the paddle board body comprises a middle air chamber (6) and a paddle board air chamber (5); the middle air chamber (6) and the paddle board air chamber (5) are air bags formed by tailoring drop-stitch fabric materials (1, 2); a groove containing the middle air chamber (6) in a matched manner is formed in a middle of the paddle board air chamber (5), and the middle air chamber (6) is arranged in the groove; the paddle board air chamber (5) and the middle air chamber (6) are aligned in surface; a sealing layer (3) and a reinforced layer (9) are lo-

cated on an outer side wall of the paddle board air chamber (5), a sealing layer (3) is located on an outer side wall of the middle air chamber (6), and

an independent sealing layer is located on an inner side wall of the paddle board air chamber (5); the middle air chamber (6) is fastened and connected with the paddle board air chamber (5), a connection layer (7) is located on a joint of the middle air chamber (6) and the paddle board air chamber (5), and high-pressure safety air valves are respectively arranged on the paddle board air chamber (5) and the middle air chamber (6), and a sealing layer and a reinforced layer are arranged on a junction of each said high-pressure safety air valve and the paddle board body

characterized in that

a ring-shaped reinforced layer (8) is located on the connection layer, (7) and a reinforced layer (13) is located on a bottom surface of the paddle board air chamber (5).

2. The stand-up paddling board in a structure with double independent safe air chambers according to claim 1, wherein a reinforced layer is located on the outer side wall of the middle air chamber (6), and a reinforced layer is located on the inner side wall of the paddle board air chamber (5).
3. The stand-up paddling board in a structure with double independent safe air chambers according to claim 1, wherein each said high-pressure safety air valve has an upper half part arranged on an outer surface of the paddle board body and a lower half part arranged in a cavity of the paddle board body.
4. The stand-up paddling board in a structure with double independent safe air chambers according to claim 2, wherein an upper half part and a lower half part of each said high-pressure safety air valve are tightly connected in a spiral manner.
5. A manufacturing process of a stand-up paddling board comprising a structure with double independent safe air chambers, comprising the following steps:
 - (1) forming an air valve hole having a diameter of 3.5-4.5 cm in a paddle board body; adopting a ring-shaped sealing layer having an inner diameter of 3.5-4.5 cm, and adopting a ring-shaped reinforced layer having an inner diameter of 3.5-4.5 cm and an outer diameter 2-4 cm larger than an outer diameter of the ring-shaped sealing layer; concentrically superposing the ring-shaped sealing layer, the ring-shaped reinforced layer and the air valve hole together through heat sealing or gluing to form a sealing

layer and a reinforced layer which are located on a joint of each high-pressure safety air valve and the paddle board body;

(2) cutting a rectangle with a length of 170*30 cm in a middle of a drop-stitch fabric (1, 2), and mounting the corresponding high-pressure safety air valve on the cut rectangle according to step (1); performing gluing or heat sealing on four edges of the rectangle by means of a PVC soft netted sandwich cloth (3) with a width of 14-24

cm, and forming a middle air chamber (120) by inflating the rectangle, wherein the cut rectangle accounts for 20%-60% of the whole drop-stitch fabric (1, 2);

(3) performing gluing or heat sealing on four edges of a hollowed rectangular part of the drop-stitch fabric (1, 2) by means of a PVC soft netted sandwich cloth (3) with a width of 14-24 cm; performing heat sealing on a peripheral edge of the hollowed part by means of a PVC soft netted sandwich cloth with a width of 6-16 cm to form a paddle board air chamber (110);

(4) placing the middle air chamber (120) into the paddle board air chamber (110), and jointing edges of the paddle board air chamber and the middle air chamber through a heat sealing process or a gluing process by means of a PVC soft netted sandwich cloth with a thickness of 0.45-0.85 mm and a width of 3.5-7 cm to form sealing layers (7) on an outer side wall and an inner side wall of the paddle board air chamber (110) as well as a sealing layer on an outer side wall of the middle air chamber (120) respectively;

(5) partially or entirely covering an upper surface and a lower surface of the whole board formed through connection of the paddle board air chamber (110) and the middle air chamber (120) with a PVC soft netted sandwich cloth with a thickness of 0.45-0.85 mm to form a reinforced layer (13) on a bottom surface of the paddle board air chamber 5 and a reinforced layer (8) on a surface of the middle air chamber (120); and (6) arranging at least one layer of PVC soft netted sandwich cloth with a thickness of 0.45-0.85 mm and a width of 8-20 cm on a sealing layer on a peripheral edge of the paddle board air chamber (110) to cover four side surfaces of the paddle board through heat sealing or gluing to respectively form a reinforced layer (9) on the outer side wall of the paddle board air chamber (110).

6. The manufacturing process of a stand-up paddling board in a structure with double independent safe air chambers according to claim 5, wherein the following step is further performed:

(7) additionally arranging a paddle board body reinforcing strip, namely a layer of netted sandwich cloth which is a high-strength composite material and has a thickness of 0.45-0.9 mm, along an outer arc edge of the paddle board air chamber, that is to say, additionally arranging the paddle board body reinforcing strip on an air chamber sealing strip located on an outer edge of the paddle board air chamber, wherein the outer edge reinforcing strip of the paddle board body is 3-4cm wider than the outer edge sealing strip, so that the outer edge sealing strip is completely covered under the outer edge reinforcing strip.

7. The manufacturing process of a stand-up paddling board in a structure with double independent safe air chambers according to claim 6, wherein the following step is further performed:

(8) arranging an EVA non-slip mat with a hardness of 38-55 Pa on the stand-up paddling board.

8. The manufacturing process of a stand-up paddling board in a structure with double independent safe air chambers according to claim 7, wherein the following step is further performed:

(9) arranging four stainless steel D-shaped buckles, to be connected with a seat to provide a seat device for a paddler to relax during long-distance paddling, on a middle area of a paddle board body; arranging four elastic rope adapting pieces at a front end of the paddle board body, wherein an article fixing area is formed through combination of the elastic rope adapting pieces and elastic ropes.

9. The manufacturing process of a stand-up paddling board in a structure with double independent safe air chambers according to claim 8, wherein the following step is further performed:

(10) depositing a convenient slide-in large fin at a lower tail part of the paddle board body, and depositing two fixed small fins on two outward sides in front of the large fin, wherein the large fin and the small fins are arranged based on a rule that three center lines extend forwards and are crossed at a center of the front end of the paddle board body, so that the stability and forward impulse force of the paddle board body are improved, and the small fins located on the two sides are outward and have centers pointing to a center of the paddle board body.

Patentansprüche

1. Stand-Up-Paddle-Board, das eine Struktur mit zwei unabhängigen, sicheren Luftkammern umfasst, die einen Paddle-Board-Körper umfasst, wobei der Paddle-Board-Körper eine mittlere Luftkammer (6) und eine Paddle-Board-Luftkammer (5)

umfasst;

die mittlere Luftkammer (6) und die Paddle-Board-Luftkammer (5) Lufttaschen sind, die durch zugeschnederte Drop-Stich-Gewebematerialien (1, 2) ausgebildet sind;

eine Aussparung, in der die mittlere Luftkammer (6) bündig untergebracht ist, in einer Mitte der Paddle-Board-Luftkammer (5) ausgebildet ist, und die mittlere Luftkammer (6) in der Aussparung angeordnet ist;

die Paddle-Board-Luftkammer (5) und die mittlere Luftkammer (6) in einer Fläche ausgerichtet sind; eine Dichtungsschicht (3) und eine verstärkte Schicht (9) sich an einer äußeren Seitenwand der Paddle-Board-Luftkammer (5) befinden,

eine Dichtungsschicht (3) sich an einer äußeren Seitenwand der mittleren Luftkammer (6) befindet, und eine unabhängige Dichtungsschicht sich an einer inneren Seitenwand der Paddle-Board-Luftkammer (5) befindet;

die mittlere Luftkammer (6) mit der Paddle-Board-Luftkammer (5) fixiert und verbunden ist, eine Verbindungsschicht (7) sich an einer Verbindungsstelle der mittleren Luftkammer (6) und der Paddle-Board-Luftkammer (5) befindet, und Hochdruck-Sicherheitsventile jeweils an der Paddle-Board-Luftkammer (5) und der mittleren Luftkammer (6) angeordnet sind, und

eine Dichtungsschicht und eine verstärkte Schicht an einer Übergangsstelle jedes Hochdruck-Sicherheitsventils zu dem Paddle-Board-Körper angeordnet sind, **dadurch gekennzeichnet, dass** eine ringförmige verstärkte Schicht (8) sich an der Verbindungsschicht (7) befindet und eine verstärkte Schicht (13) sich an einer Bodenfläche der Paddle-Board-Luftkammer (5) befindet.

2. Stand-Up-Paddle-Board in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 1, wobei eine verstärkte Schicht sich an der äußeren Seitenwand der mittleren Luftkammer (6) befindet und eine verstärkte Schicht sich an der inneren Seitenwand der Paddle-Board-Luftkammer (5) befindet.

3. Stand-Up-Paddle-Board in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 1, wobei jedes Hochdruck-Sicherheitsluftventil ein oberes Halbtteil, das an einer Außenfläche des Paddle-Board-Körpers angeordnet ist, und ein unteres Halbtteil, das in einem Hohlraum des Paddle-Board-Körpers angeordnet ist, aufweist.

4. Stand-Up-Paddle-Board in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 2, wobei ein oberes Halbtteil und ein unteres Halbtteil jedes Hochdruck-Sicherheitsluftventils spiralförmig fest verbunden sind.

5. Herstellungsprozess eines Stand-Up-Paddle-Boards, umfassend eine Struktur mit zwei unabhängigen, sicheren Luftkammern, der die folgenden Schritte umfasst:

(1) Ausbilden eines Luftventillochs mit einem Durchmesser von 3,5-4,5 cm in einem Paddle-Board-Körper; Anbringen einer ringförmigen Dichtungsschicht mit einem Innendurchmesser von 3,5-4,5 cm, und Anbringen einer ringförmigen verstärkten Schicht mit einem Innendurchmesser von 3,5-4,5 cm und einem Außendurchmesser von 2-4 cm, der größer als ein Außendurchmesser der ringförmigen Dichtungsschicht ist; konzentrisches Überlagern der ringförmigen Dichtungsschicht, der ringförmigen verstärkten Schicht und des Luftventillochs zusammen durch Wärmeversiegelung oder Kleben, um eine Dichtungsschicht und eine verstärkte Schicht auszubilden, die sich an einer Verbindungsstelle jedes Hochdruck-Sicherheitsluftventils und des Paddle-Board-Körpers befinden;

(2) Ausschneiden eines Rechtecks mit einer Länge von 170x30 cm in einer Mitte eines Drop-Stich-Gewebes (1, 2) und Montieren des entsprechenden Hochdruck-Sicherheitsluftventils an dem ausgeschnittenen Rechteck gemäß Schritt (1); Durchführen des Klebens oder der Wärmeversiegelung an vier Rändern des Rechtecks mithilfe eines weichmaschigen, sandwichartigen PVC-Stoffs (3) mit einer Breite von 14-24 cm, und Ausbilden einer mittleren Luftkammer (120), indem das Rechteck aufgeblasen wird, wobei das ausgeschnittene Rechteck 20 % - 60 % des ganzen Drop-Stich-Gewebes (1, 2) ausmachen;

(3) Durchführen des Klebens oder der Wärmeversiegelung an vier Rändern eines hohlen rechteckigen Teils des Drop-Stich-Gewebes (1, 2) mithilfe eines weichmaschigen, sandwichartigen PVC-Stoffs (3) mit einer Breite von 14-24 cm; Durchführen der Wärmeversiegelung an einem Umfangsrand des hohlen Teils mithilfe eines weichmaschigen, sandwichartigen PVC-Stoffs mit einer Breite von 6-16 cm, um eine Paddle-Board-Luftkammer (110) auszubilden; (4) Platzieren der mittleren Luftkammer (120) in der Paddle-Board-Luftkammer (110), und Verbinden der Rändern der Paddle-Board-Luftkammer und der mittleren Luftkammer durch einen Wärmeversiegelungsprozess oder einen Klebprozess mithilfe eines weichmaschigen, sandwichartigen PVC-Stoffs mit einer Dicke von 0,45-0,85 mm und einer Breite von 3,5-7 cm, um Dichtungsschichten (7) jeweils an einer äußeren Seitenwand und einer inneren Seitenwand der Paddle-Board-Luftkammer (110) so-

wie eine Dichtungsschicht an einer äußeren Seitenwand der mittleren Luftschicht (120) auszubilden;

(5) teilweises oder vollständiges Bedecken einer oberen Oberfläche und einer unteren Oberfläche des ganzen Boards, das durch Verbindung der Paddle-Board-Luftkammer (110) und der mittleren Luftkammer (120) ausgebildet ist, mit einem weichmaschigen, sandwichartigen PVC-Stoff mit einer Dicke von 0,45-0,85 mm, um eine verstärkte Schicht (13) an einer Bodenfläche der Paddle-Board-Luftkammer (5) und eine verstärkte Schicht (8) an einer Oberfläche der mittleren Luftkammer (120) auszubilden; und

(6) Anordnen mindestens einer Schicht des weichmaschigen, sandwichartigen PVC-Stoffs mit einer Dicke von 0,45-0,85 mm und einer Breite von 8-20 cm auf einer Dichtungsschicht an einem Umfangsrand der Paddle-Board-Luftkammer (110), um die vier Seitenflächen des Paddle-Boards durch Wärmeversiegelung oder Kleben zu bedecken, um jeweils eine verstärkte Schicht (9) an der äußeren Seitenwand der Paddle-Board-Luftkammer (110) auszubilden.

6. Herstellungsprozess eines Stand-Up-Paddle-Boards in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 5, wobei der folgende Schritt ferner durchgeführt wird:

(7) zusätzliches Anordnen eines Verstärkungsstreifens des Paddle-Board-Körpers, nämlich einer Schicht des maschigen, sandwichartigen Stoffs, der ein Verbundmaterial mit hoher Festigkeit ist und eine Dicke von 0,45-0,9 mm aufweist, entlang eines gebogenen äußeren Rands der Paddle-Board-Luftkammer, was bedeuten soll, dass der Verstärkungsstreifen des Paddle-Board-Körpers zusätzlich auf einem Dichtungsstreifen der Luftkammer angeordnet wird, welcher sich an einem äußeren Rand der Paddle-Board-Luftkammer befindet, wobei der Verstärkungsstreifen des äußeren Rands des Paddle-Board-Körpers 3-4 cm breiter ist als der Dichtungsstreifen des äußeren Rands, so dass der Dichtungsstreifen des äußeren Rands vollständig von dem Verstärkungsstreifen des äußeren Rands bedeckt wird.

7. Herstellungsprozess eines Stand-Up-Paddle-Boards in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 6, wobei der folgende Schritt ferner durchgeführt wird:

(8) Anordnen einer rutschfesten EVA-Matte mit einer Härte von 38-55 Pa auf dem Stand-Up-Paddle-Board.

8. Herstellungsprozess eines Stand-Up-Paddle-Boards in einer Struktur mit zwei unabhängigen, si-

chernen Luftkammern nach Anspruch 7, wobei der folgende Schritt ferner durchgeführt wird:

(9) Anordnen von vier D-förmigen Schnallen aus rostfreiem Stahl, die mit einem Sitz verbunden werden können, um eine Sitzvorrichtung für einen Paddler zum Entspannen während langer Paddeltouren bereitzustellen; Anordnen von vier elastischen Seilformstücken an einem vorderen Ende des Paddle-Board-Körpers, wobei ein Gegenstandfixierungsbereich durch Kombination der elastischen Seilformstücken und elastischen Seilen ausgebildet ist.

9. Herstellungsprozess eines Stand-Up-Paddle-Boards in einer Struktur mit zwei unabhängigen, sicheren Luftkammern nach Anspruch 8, wobei der folgende Schritt ferner durchgeführt wird:

(10) Anbringen einer praktischen, einschiebbaren großen Finne an einem unteren Heckteil des Paddle-Board-Körpers und Anbringen von zwei festen kleinen Finnen an zwei nach außen gerichteten Seiten vor der großen Finne, wobei die große Finne und die kleinen Finnen auf Basis einer Regel angeordnet sind, dass drei Mittellinien sich nach vorne erstrecken und an einer Mitte des vorderen Endes des Paddle-Board-Körpers kreuzen, so dass die Stabilität und Vorwärts-Impulskraft des Paddle-Board-Körpers verbessert werden und die sich an den zwei Seiten befindenden kleinen Finnen nach außen gerichtet sind und Mitten aufweisen, die zu einer Mitte des Paddle-Board-Körpers zeigen.

Revendications

1. Planche de paddle comprenant une structure dotée de chambres à air indépendantes sécurisées doubles, comprenant un corps de planche de paddle, le corps de planche de paddle comprenant une chambre à air centrale (6) et une chambre à air de planche de paddle (5); la chambre à air centrale (6) et la chambre à air de planche de paddle (5) étant des poches d'air formées en confectionnant des matériaux textiles à maille tombée (1, 2); une gorge contenant la chambre à air centrale (6) de manière adaptée étant formée dans un centre de la chambre à air de planche de paddle (5), et la chambre à air centrale (6) étant disposée dans la gorge; la chambre à air de planche de paddle (5) et la chambre à air centrale (6) étant alignées en surface; une couche d'étanchéité (3) et une couche renforcée (9) étant situées sur une paroi de face extérieure de la chambre à air de planche de paddle (5), une couche d'étanchéité (3) étant située sur une paroi de face extérieure de la chambre à air centrale (6), et

- une couche d'étanchéité indépendante étant située sur une paroi de face intérieure de la chambre à air de planche de paddle (5),
la chambre à air centrale (6) étant fixée et connectée à la chambre à air de planche de paddle (5),
une couche de connexion (7) étant située sur une jointure de la chambre à air centrale (6) et de la chambre à air de planche de paddle (5),
des vannes pneumatiques de sécurité à haute pression étant respectivement disposées sur la chambre à air de planche de paddle (5), et la chambre à air centrale (6), et
une couche d'étanchéité et une couche renforcée étant disposées sur une jonction de chaque dite vanne pneumatique de sécurité à haute pression et du corps de planche de paddle,
caractérisée en ce
qu'une couche renforcée de forme annulaire (8) est située sur la couche de connexion (7) et
qu'une couche renforcée (13) est située sur une surface inférieure de la chambre à air de planche de paddle (5).
2. Planche de paddle dans une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 1, dans laquelle une couche renforcée est située sur la paroi de face extérieure de la chambre à air centrale (6), et une couche renforcée est située sur la paroi de face intérieure de la chambre à air de planche de paddle (5).
3. Planche de paddle dans une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 1, dans laquelle chaque vanne pneumatique de sécurité à haute pression a une demi-partie supérieure disposée sur une surface extérieure du corps de planche de paddle et une demi-partie inférieure disposée dans une cavité du corps de planche de paddle.
4. Planche de paddle dans une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 2, dans laquelle une demi-partie supérieure et une demi-partie inférieure de chaque vanne pneumatique de sécurité à haute pression est connectée étroitement en spirale.
5. Processus de fabrication d'une planche de paddle comprenant une structure dotée de chambres à air sécurisées indépendantes doubles, comprenant les étapes suivantes :
- (1) formage d'un trou de vanne pneumatique ayant un diamètre de 3,5 à 4,5 cm dans un corps de planche de paddle ; mise en place d'une couche d'étanchéité de forme annulaire ayant un diamètre intérieur de 3,5 à 4,5 cm, et mise en place d'une couche renforcée de forme annu-

laire ayant un diamètre intérieur de 3,5 à 4,5 cm et un diamètre extérieur qui est 2 à 4 cm supérieur à un diamètre extérieur de la couche d'étanchéité de forme annulaire ; superposition concentrique de la couche d'étanchéité de forme annulaire, de la couche renforcée de forme annulaire et du trou de vanne pneumatique ensemble par thermoscellage ou collage pour former une couche d'étanchéité et une couche renforcée qui sont situées sur une jointure de chaque vanne pneumatique de sécurité à haute pression et du corps de planche de paddle,
(2) découpe d'un rectangle d'une longueur de 170*30 cm au centre d'un tissu à maille tombée (1, 2) et montage de la vanne pneumatique de sécurité ou de pression correspondante sur le rectangle découpé selon l'étape (1) ; réalisation d'un collage ou d'un thermoscellage sur quatre bords du rectangle au moyen d'une toile à filet en sandwich souple en PVC (3) d'une largeur de 14 à 24 cm, et formage d'une chambre à air centrale (120) en gonflant le rectangle, le rectangle découpé comptant pour 20 % à 60 % de l'ensemble du tissu à maille tombée (1, 2) ;
(3) réalisation d'un collage ou d'un thermoscellage sur quatre bords d'une pièce rectangulaire évidée du tissu à maille tombée (1, 2) au moyen d'une toile à filet en sandwich souple en PVC (3) d'une largeur de 14 à 24 cm, réalisation d'un thermoscellage sur un bord périphérique de la pièce évidée d'une largeur de 6 à 16 cm pour former une chambre à air de planche de paddle (110) ;
(4) placement de la chambre à air centrale (120) dans la chambre à air de planche de paddle (110), et jointure des bords de la chambre à air de paddle et de la chambre à air centrale par un processus de thermoscellage ou de collage au moyen d'une toile à filet en sandwich souple en PVC d'une épaisseur de 0,45 à 0,85 mm et d'une largeur de 3,5 à 7 mm pour former des couches d'étanchéité (7) sur une paroi de face extérieure et une paroi de face intérieure de la chambre à air de planche de paddle (110), de même qu'une couche d'étanchéité sur une paroi de face extérieure de la chambre à air centrale (120) respectivement ;
(5) recouvrement partiel ou total d'une surface supérieure et d'une surface inférieure de la planche complète formée par connexion de la chambre à air de planche de paddle (110) et de la chambre à air centrale (120) avec une toile à filet en sandwich souple en PVC d'une épaisseur de 0,45 à 0,85 mm pour former une couche renforcée (13) sur une surface inférieure de la chambre à air de planche de paddle (5) et une couche renforcée (8) sur une surface de la chambre à air centrale (120) ; et

- (6) disposition d'au moins une couche de toile à filet en sandwich souple en PVC d'une épaisseur de 0,45 à 0,85 mm et d'une largeur de 8 à 20 cm sur une couche d'étanchéité sur un point périphérique de la chambre à air de planche de paddle (110) pour recouvrir quatre surfaces latérales de la planche de paddle par thermoscellage ou collage respectivement pour former une couche renforcée (9) sur la paroi de face extérieure de la chambre à air de planche de paddle (110).
6. Processus de fabrication d'une planche de paddle comprenant une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 5, dans lequel l'étape suivante est en outre réalisée :
- (7) disposition supplémentaire d'une bande de renfort de corps de planche de paddle, à savoir d'une couche de toile à filet en sandwich qui est un matériau composite à haute résistance et a une épaisseur de 0,45 à 0,9 mm le long d'un bord arqué extérieur de la chambre à air de planche de paddle, c'est-à-dire disposition supplémentaire de la bande de renfort de corps de planche de paddle sur une bande d'étanchéité de chambre à air située sur un bord extérieur de la chambre à air de planche de paddle, la bande de renfort de bord extérieur du corps de planche de paddle étant 3 à 4 cm plus large que la bande d'étanchéité de bord extérieur, de sorte que la bande d'étanchéité de bord extérieur est complètement recouverte en dessous de la bande de renfort de bord extérieur.
7. Processus de fabrication d'une planche de paddle comprenant une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 6, dans lequel l'étape suivante est en outre réalisée :
- (8) disposition d'un tapis antidérapant en EVA d'une dureté de 38 à 55 Pa sur la planche de paddle.
8. Processus de fabrication d'une planche de paddle comprenant une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 7, dans lequel l'étape suivante est en outre réalisée :
- (9) disposition de quatre boucles en forme de D en acier inoxydable à connecter à un siège pour créer un dispositif de siège pour un pagayeur afin de se reposer en pagayant sur longue distance, sur une zone centrale d'un corps de planche de paddle ; disposition de quatre pièces d'adaptation de cordes élastiques à une extrémité avant du corps de planche de paddle, une zone de fixation d'articles étant formée par combinaison des pièces d'adaptation de cordes élastiques et des cordes élastiques.
9. Processus de fabrication d'une planche de paddle comprenant une structure dotée de chambres à air sécurisées indépendantes doubles selon la revendication 8, dans lequel l'étape suivante est en outre réalisée :
- (10) dépôt d'une grande ailette adaptée se glissant à l'intérieur à une partie queue inférieure du corps de planche de paddle, et dépôt de deux petites ailettes fixes sur deux faces extérieures à l'avant de la grande ailette, la grande ailette et les petites ailettes étant disposées en se basant sur une règle voulant que trois lignes centrales s'étendent vers l'avant et se croisent à un centre de l'extrémité avant du corps de planche de paddle, de sorte que la stabilité et la force d'impulsions vers l'avant du corps de planche de paddle sont améliorées, et que les petites ailettes situées sur les deux faces sont tournées vers l'extérieur et ont des centres pointés vers un centre du corps de planche de paddle.

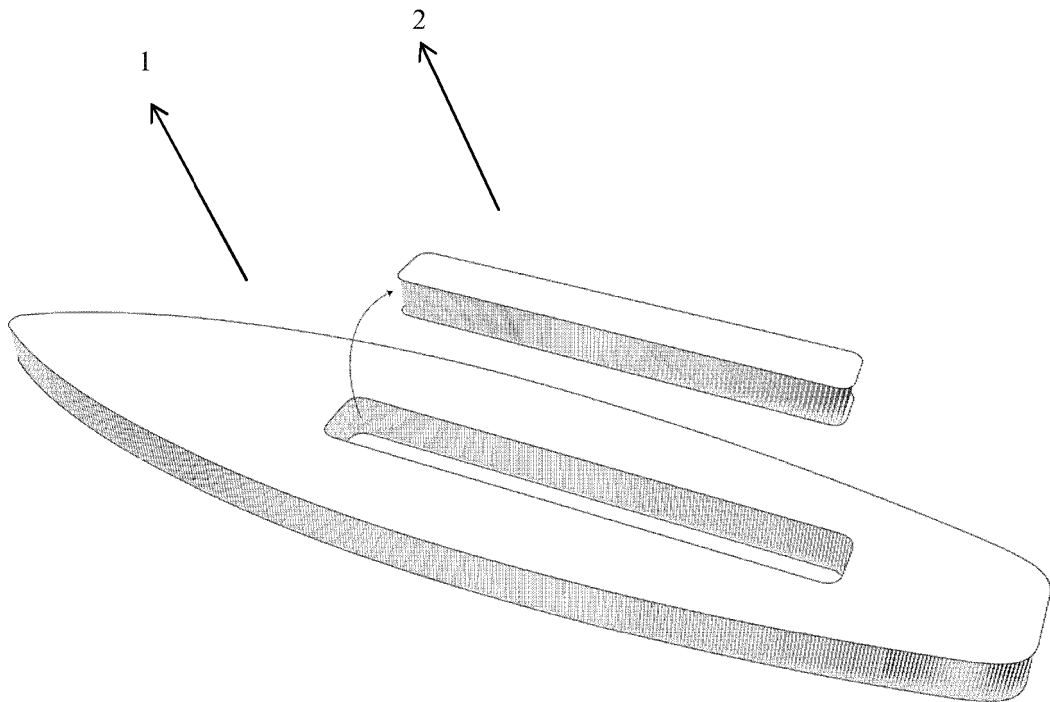


Fig. 1

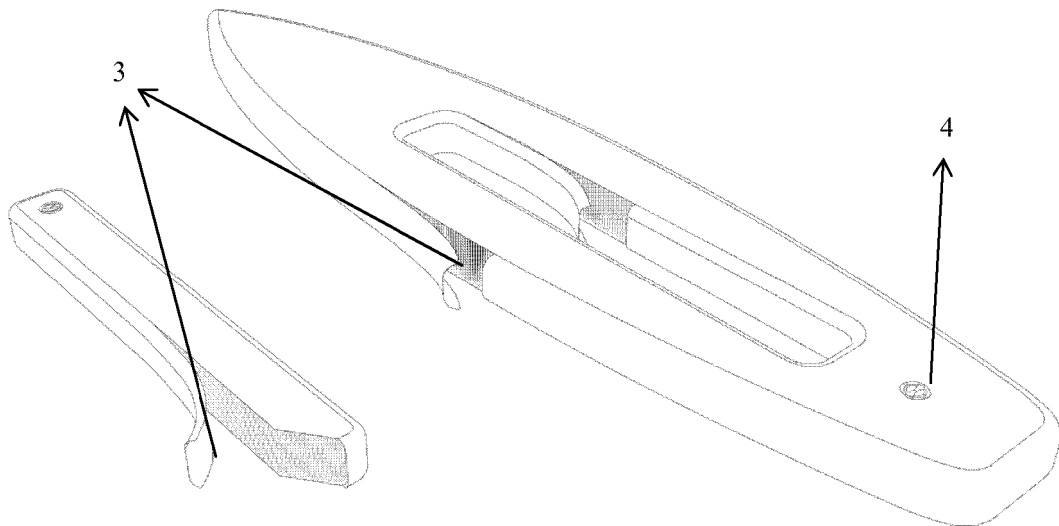


Fig. 2

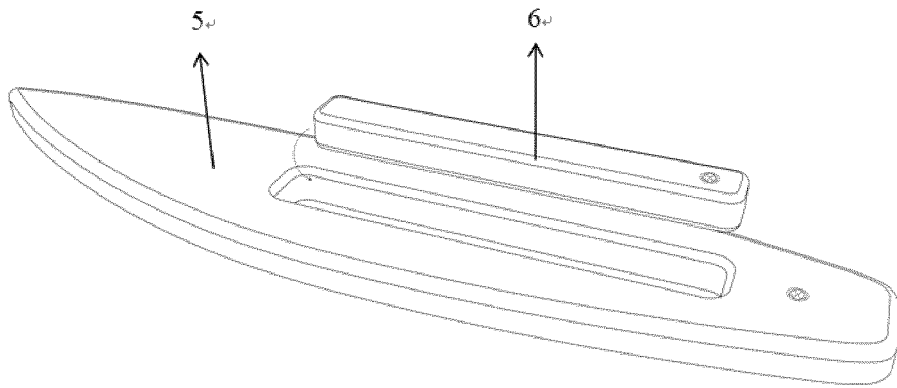


Fig. 3

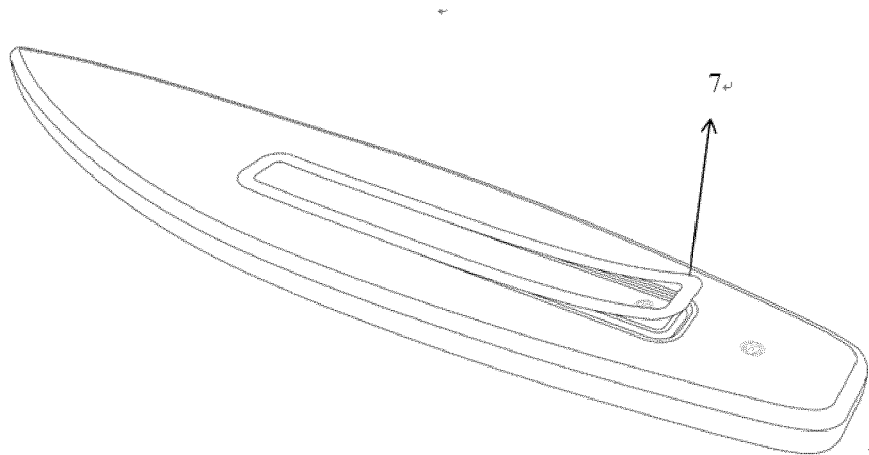


Fig. 4

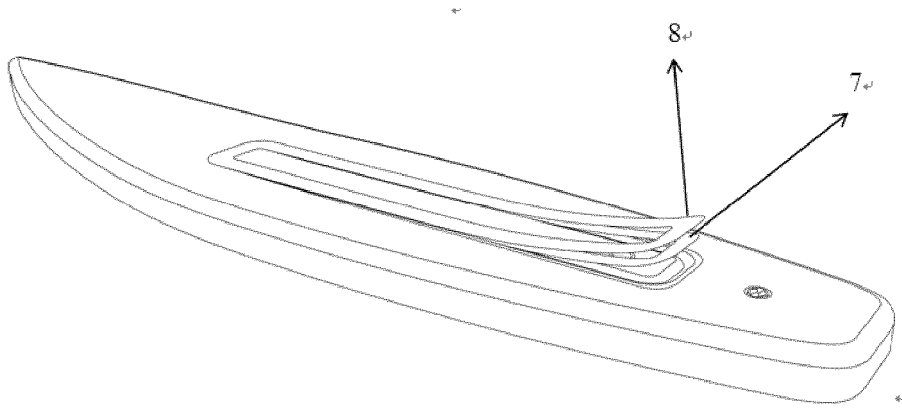


Fig. 5

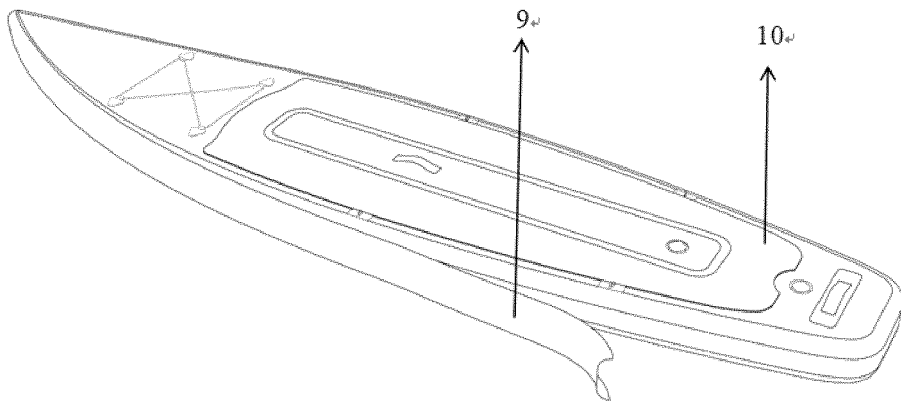


Fig. 6

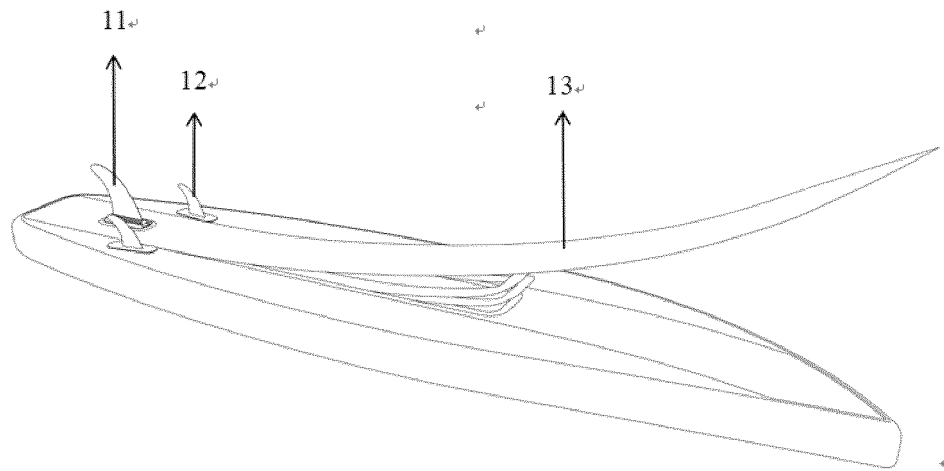


Fig. 7

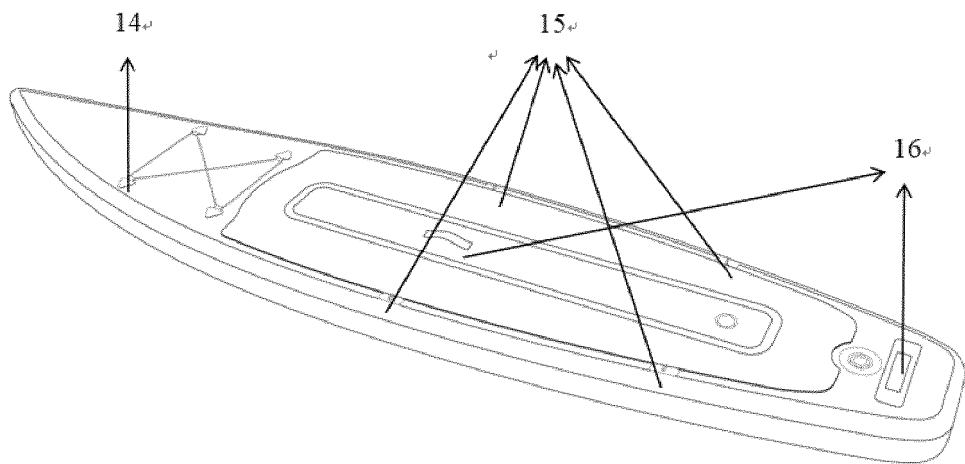


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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