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(54) **WATER WALKING DEVICE AND SYSTEM**

(57) The present invention provides a water walking device. The water walking device includes a floating device, a water manifold, a pushing plate and a first limiting device. The floating device is provided with a wearing slot, and the wearing slot is configured to allow a user to put a foot in. The water manifold is connected to a bottom of the floating device. The pushing plate is connected to the water manifold and is rotated between an opened position and a closed position. The first limiting device is arranged on one side of the pushing plate facing the water manifold or on one side of the water manifold facing the pushing plate. When the pushing

plate is rotated to the closed position, the first limiting device limits an angle between the water manifold and the pushing plate to form a gap between the water manifold and the pushing plate. The present invention further provides a water walking system. The opening or closing of the pushing plate changes the resistance to the product, and the first limiting device can effectively assist the pushing plate in changing the position of the pushing plate, thereby changing the resistance state, so that the user can easily walk on the water surface. The product has a good use effect.

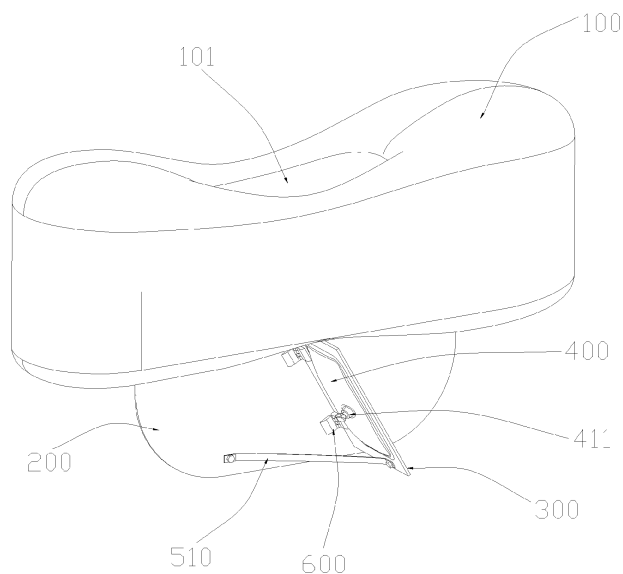


Figure 1

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of water floating devices, and in particular, to a water walking device and system.

BACKGROUND OF THE INVENTION

[0002] In the burning hot summer, water sports can not only relax the body and mind, but also cool the body and relieve the heat, so that the water sports have always been favorite summer sports. Water shoes, as a device that allows a user to float on the water and walk on the water, are particularly popular.

[0003] Most existing water shoes use an inflation device. The existing water shoe includes a shoe sole and a shoe upper. The shoe upper is composed of an inner layer and an outer layer. The inner layer and the outer layer form a sealed air bag. After the air bag has been inflated, people can float and walk on a water surface through the buoyancy of the air bag. However, to balance the gravity of a user, a larger air bag is needed to support the user to walk on the water. The larger air bag has higher resistance in the water, making it very difficult for people to move in the water. Chinese utility model patent CN205168833U discloses a water walking device, including a floating body, a hull, and a paddling device. The paddling device is provided with a first paddling board and a second paddling board. The first paddling board and the second paddling board are opened or closed, so as to push a user to move forward using the resistance of the water. It is convenient for the user to move. However, this structure still has certain drawbacks. It is difficult for the first paddling board and the second paddling board to rotate from a closed position to an opened position in water, and the resistance state transition is not flexible, making it inconvenient to use. Users still need to expend a lot of physical energy to move in water.

[0004] For this purpose, the present disclosure provides a water walking device and system, which can effectively solve the above problems. The water walking device has a simple structure and flexible resistance state transition, and it is convenient for a user to use the water walking device conveniently with less physical energy.

SUMMARY OF THE INVENTION

[0005] In order to overcome the shortcomings of the prior art, the present disclosure provides a water walking device. The water walking device has a simple structure and flexible resistance state transition, and it is convenient for a user to use the water walking device conveniently with less physical energy.

[0006] The present disclosure provides a water walking device, including:

a floating device, wherein the floating device is provided with a wearing slot, and the wearing slot is configured to allow a user to put a foot in;
a water manifold, wherein the water manifold is connected to a bottom of the floating device;
a pushing plate, wherein the pushing plate is connected to the water manifold and is rotated between an opened position and a closed position; and
a first limiting device, wherein the first limiting device is arranged on one side of the pushing plate facing the water manifold or on one side of the water manifold facing the pushing plate; and when the pushing plate is rotated to the closed position, the first limiting device limits an angle between the water manifold and the pushing plate to form a gap between the water manifold and the pushing plate.

[0007] As an improvement of the present disclosure, the first limiting device is a first capsule that is inflated to swell, and the first capsule is provided with an inflation nozzle.

[0008] As an improvement of the present disclosure, when the pushing plate is rotated to the opened position, the second limiting device hinders the pushing plate from being rotated in a direction facing away from the closed position.

[0009] As an improvement of the present disclosure, the second limiting device is a limiting rope; one end of the limiting rope is connected to a rear side of the water manifold, and the other end of the limiting rope is connected to the pushing plate; and when the pushing plate is rotated to the opened position, the limiting rope is tightened to hinder the pushing plate from being rotated in the direction facing away from the closed position.

[0010] As an improvement of the present disclosure, the second limiting device is a limiting convex block; the limiting convex block is arranged at a position, close to the pushing plate, on a front side of the water manifold; and when the pushing plate is rotated to the opened position, the limiting convex block is abutted with a surface of the pushing plate to hinder the pushing plate from being rotated in the direction facing away from the closed position.

[0011] As an improvement of the present disclosure, a smooth curved surface is arranged on one side of the limiting convex block away from the pushing plate; an abutment plane is arranged on one side of the limiting convex block close to the pushing plate; and when the pushing plate is rotated to the opened position, the abutment plane is abutted with a surface of the pushing plate.

[0012] As an improvement of the present disclosure, the pushing plate is obliquely connected to a side surface of the water manifold; an upper end of the pushing plate is connected to a middle part of the water manifold; and the upper end of the pushing plate extends towards a lower side and front side of the water manifold.

[0013] As an improvement of the present disclosure, a mounting slot is provided at the bottom of the floating

device; and an upper end of the water manifold is inserted into the mounting slot.

[0014] As an improvement of the present disclosure, one end of the hinge is connected to a side surface of the water manifold, and the other end of the hinge is connected to a surface of the pushing plate, so as to allow the pushing plate to be rotated relative to the water manifold.

[0015] As an improvement of the present disclosure, the floating device includes a second capsule that is inflated to swell, and a connecting plate; the connecting plate is connected to a bottom of the second capsule; and the second capsule forms the wearing slot and an air chamber after being inflated to swell.

[0016] The present disclosure further provides a water walking system. The water walking system includes two water walking devices configured to be worn on the two feet of a user, wherein each water walking device includes:

a floating device, wherein the floating device is provided with a wearing slot, and the wearing slot is configured to allow a user to put a foot in;

a water manifold, wherein the water manifold is connected to a bottom of the floating device;

a pushing plate, wherein the pushing plate is connected to the water manifold and is rotated between an opened position and a closed position; and

a first limiting device, wherein the first limiting device is arranged on one side of the pushing plate facing the water manifold or on one side of the water manifold facing the pushing plate; and when the pushing plate is rotated to the closed position, the first limiting device limits an angle between the water manifold and the pushing plate to form a gap between the water manifold and the pushing plate.

[0017] As an improvement of the present disclosure, the first limiting device is a first capsule that is inflated to swell, and the first capsule is provided with an inflation nozzle.

[0018] As an improvement of the present disclosure, the water walking system further includes a second limiting device, when the pushing plate is rotated to the opened position, the second limiting device hinders the pushing plate from being rotated in a direction facing away from the closed position.

[0019] As an improvement of the present disclosure, the second limiting device is a limiting rope; one end of the limiting rope is connected to a rear side of the water manifold, and the other end of the limiting rope is connected to the pushing plate; and when the pushing plate is rotated to the opened position, the limiting rope is tightened to hinder the pushing plate from being rotated in the direction facing away from the closed position.

[0020] As an improvement of the present disclosure, the second limiting device is a limiting convex block; the limiting convex block is arranged at a position, close to the pushing plate, on a front side of the water manifold;

and when the pushing plate is rotated to the opened position, the limiting convex block is abutted with a surface of the pushing plate to hinder the pushing plate from being rotated in the direction facing away from the closed position.

[0021] As an improvement of the present disclosure, a smooth curved surface is arranged on one side of the limiting convex block away from the pushing plate; an abutment plane is arranged on one side of the limiting convex block close to the pushing plate; and when the pushing plate is rotated to the opened position, the abutment plane is abutted with a surface of the pushing plate.

[0022] As an improvement of the present disclosure, the pushing plate is obliquely connected to a side surface of the water manifold; an upper end of the pushing plate is connected to a middle part of the water manifold; and the upper end of the pushing plate extends towards a lower side and front side of the water manifold.

[0023] As an improvement of the present disclosure, a mounting slot is provided at the bottom of the floating device; and an upper end of the water manifold is inserted into the mounting slot.

[0024] As an improvement of the present disclosure, the water walking system further includes a hinge, one end of the hinge is connected to a side surface of the water manifold, and the other end of the hinge is connected to a surface of the pushing plate, so as to allow the pushing plate to be rotated relative to the water manifold.

[0025] As an improvement of the present disclosure, the floating device includes a second capsule that is inflated to swell, and a connecting plate; the connecting plate is connected to a bottom of the second capsule; and the second capsule forms the wearing slot and an air chamber after being inflated to swell.

[0026] The present disclosure has the beneficial effects: Through the arrangement of the above structure, during use, a user puts the foot into the wearing slot to wear the product. The floating device provides buoyancy to allow the user to float on a water surface, and the water manifold and the pushing plate are submerged below the water surface. When the user moves the foot forwards, the water walking device slides forwards relative to the water, and the resistance of the water drives the pushing plate to be rotated to the closed position. At this time, the product is in a low resistance state, making it convenient for the user to move the foot forwards. When the user moves the foot backwards, the water walking device slides backwards relative to the water. Due to the limitation of the first limiting device, there is a gap between the water manifold and the pushing plate. The resistance of the water drives the pushing plate to be rotated to the opened position. At this time, the product is in a high resistance state, and the resistance of the water acts on the pushing plate and hinders the user from moving the foot backwards, thus pushing the user to move forwards. The opening or closing of the pushing plate changes the resistance to the product, and the first limiting device can effectively assist the pushing plate in changing the posi-

tion of the pushing plate, thereby changing the resistance state, so that the user can easily walk on the water surface. The product has a good use effect.

BRIEF DESCRIPTION OF DRAWINGS

[0027] In order to explain the technical solutions of the embodiments of the present disclosure more clearly, the following will briefly introduce the accompanying drawings used in the embodiments. The drawings in the following description are only some embodiments of the present disclosure. Those of ordinary skill in the art can obtain other drawings based on these drawings without creative work.

[0028] The present disclosure is further described below in detail in combination with the accompanying drawings and embodiments.

FIG. 1 is a first schematic structural diagram of a pushing plate in an opened position according to a first embodiment of the present disclosure;

FIG. 2 is a second schematic structural diagram of a pushing plate in an opened position according to a first embodiment of the present disclosure;

FIG. 3 is a first schematic structural diagram of a pushing plate in a closed position according to a first embodiment of the present disclosure;

FIG. 4 is a second schematic structural diagram of a pushing plate in a closed position according to a first embodiment of the present disclosure;

FIG. 5 is a schematic diagram of an exploded structure according to a first embodiment of the present disclosure;

FIG. 6 is a schematic diagram of a cross-sectional structure according to a first embodiment of the present disclosure;

FIG. 7 is a schematic structural diagram of a pushing plate in an opened position according to a second embodiment of the present disclosure;

FIG. 8 is a schematic structural diagram of a pushing plate in a closed position according to a second embodiment of the present disclosure; and

FIG. 9 is a schematic structural diagram of a limiting convex block according to a second embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0029] Referring to FIG. 1 to FIG. 9, a water walking device includes:

a floating device 100, wherein the floating device 100 is provided with a wearing slot 101, and the wearing slot 101 is configured to allow a user to put the foot in; a water manifold 200, wherein the water manifold 200 is connected to a bottom of the floating device 100; a pushing plate 300, wherein the pushing plate 300 is

connected to the water manifold 200 and is rotated between an opened position and a closed position; and

a first limiting device 400, wherein the first limiting device 400 is arranged on one side of the pushing plate 300 facing the water manifold 200 or on one side of the water manifold 200 facing the pushing plate 300; and when the pushing plate 300 is rotated to the closed position, the first limiting device 400 limits an angle between the water manifold 200 and the pushing plate 300 to form a gap between the water manifold 200 and the pushing plate 300.

[0030] Through the arrangement of the above structure, during use, a user puts the foot into the wearing slot 101 to wear the product. The floating device 100 provides buoyancy to allow the user to float on a water surface, and the water manifold 200 and the pushing plate 300 are submerged below the water surface. When the user moves the foot forwards, the water walking device slides forwards relative to the water, and the resistance of the water drives the pushing plate 300 to be rotated to the closed position. At this time, the product is in a low resistance state, making it convenient for the user to move the foot forwards. When the user moves the foot backwards, the water walking device slides backwards relative to the water. Due to the limitation of the first limiting device 400, there is a gap between the water manifold 200 and the pushing plate 300. The resistance of the water drives the pushing plate 300 to be rotated to the opened position. At this time, the product is in a high resistance state, and the resistance of the water acts on the pushing plate 300 and hinders the user from moving the foot backwards, thus pushing the user to move forwards. The opening or closing of the pushing plate 300 changes the resistance to the product, and the first limiting device 400 can effectively assist the pushing plate 300 in changing the position of the pushing plate, thereby changing the resistance state, so that the user can easily walk on the water surface. The product has a good use effect.

[0031] In this embodiment, the first limiting device 400 is a first capsule that can be inflated to swell, and the first capsule is provided with an inflation nozzle 411. Through the arrangement of the above structure, during use, the first capsule can be inflated through the inflation nozzle 411. The first capsule is inflated to swell. When the pushing plate 300 is rotated to the closed position, the swelled first capsule is located between the pushing plate 300 and the water manifold 200, so that the gap is formed between the pushing plate 300 and the water manifold 200. When the user moves the foot backwards, due to the gap, the resistance of the water acts on an inner surface of the pushing plate 300 to drive the pushing plate 300 to be rotated to the opened position, and then the resistance of the water pushes the user to move forwards.

[0032] In this embodiment, the water walking system further includes a second limiting device; when the push-

ing plate 300 is rotated to the opened position, the second limiting device hinders the pushing plate 300 from being rotated in a direction facing away from the closed position. Through the arrangement of the above structure, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. The second limiting device hinders the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. At this time, the resistance between the water and the pushing plate 300 is the highest, which can better push the user to move forwards, improve the paddling and moving speed of the user, and make the user experience better.

[0033] In this embodiment, the second limiting device is a limiting rope 510; one end of the limiting rope 510 is connected to a rear side of the water manifold 200, and the other end of the limiting rope 510 is connected to the pushing plate 300; and when the pushing plate 300 is rotated to the opened position, the limiting rope 510 is tightened to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position. Through the arrangement of the above structure, referring to FIG. 1 to FIG. 6, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this time, the limiting rope 510 is tightened to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly. When the user moves the foot forwards, the pushing plate 300 moves towards the closed position, and the limiting rope 510 is loosened and bent and is then stored in the gap between the pushing plate 300 and the water manifold 200 to reduce the resistance between the water and the pushing plate 300, making it convenient for the user to move the foot forwards.

[0034] In this embodiment, the second limiting device is a limiting convex block 520; the limiting convex block 520 is arranged at a position, close to the pushing plate 300, on a front side of the water manifold 200; and when the pushing plate 300 is rotated to the opened position, the limiting convex block 520 is abutted with a surface of the pushing plate 300 to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position. Through the arrangement of the above structure, referring to FIG. 7 to FIG. 9, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this point, the limiting convex block 520 is abutted with the surface of the pushing plate 300 to restrict the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly.

[0035] In this embodiment, a smooth curved surface 521 is arranged on one side of the limiting convex block

520 away from the pushing plate 300; an abutment plane 522 is arranged on one side of the limiting convex block 520 close to the pushing plate 300; and when the pushing plate 300 is rotated to the opened position, the abutment plane 522 is abutted with a surface of the pushing plate 300. Through the arrangement of the above structure, referring to FIG. 9, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this time, the abutment plane on the surface of the limiting convex block 520 is abutted with the pushing plate 300 to restrict the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly. When the user moves the foot forwards, the pushing plate 300 moves towards the closed position, and a water flow flows through a surface of the smooth curved surface 521. The smooth curved surface 521 can reduce the resistance between the limiting convex block 520 and the water, so that the user can move the foot forwards more smoothly.

[0036] In this embodiment, the pushing plate 300 is obliquely connected to a side surface of the water manifold 200; an upper end of the pushing plate 300 is connected to a middle part of the water manifold 200; and the upper end of the pushing plate 300 extends towards a lower side and front side of the water manifold (200). Through the arrangement of the above structure, when the user moves the foot backwards, a movement trajectory of the foot is mostly downward and backward. Therefore, when the pushing plate 300 is obliquely connected to the side surface of the water manifold 200, the pushing plate 300 is basically perpendicular to the movement trajectory of the foot, thereby increasing the resistance between the pushing plate 300 and the water, making it easier for the user to move.

[0037] In this embodiment, a mounting slot 102 is provided at the bottom of the floating device 100; and an upper end of the water manifold 200 is inserted into the mounting slot 102. During use, the upper end of the water manifold 200 is inserted into the mounting slot 102, which can achieve the mounting of the water manifold and the floating device 100 efficiently and simply, and the connection is stable and firm. Meanwhile, when the floating device 100, the water manifold 200, or the pushing plate 300 of the product is damaged, a user can disassemble the damaged component for replacement, so that the service life of the product is prolonged, the usage cost of a user is reduced too, and the product is economical and practical.

[0038] In this embodiment, the water walking device further includes a hinge 600; one end of the hinge 600 is connected to a side surface of the water manifold 200; and the other end of the hinge 600 is connected to a surface of the pushing plate 300, so as to allow the pushing plate 300 to be rotated relative to the water manifold 200. Through the arrangement of the above

structure, during use, the hinge 600 is connected to the water manifold 200 and the pushing plate 300, thus achieving their connection and better connection efficiency. There is no need to arrange a rotating shaft or a rotating hole, which ensures the structural strength of the water manifold 200 and the pushing plate 300, and prolongs the service life of the product.

[0039] In this embodiment, the floating device 100 includes a second capsule 110 that is inflated to swell, and a connecting plate 120; the connecting plate 120 is connected to a bottom of the second capsule 110; and the second capsule 110 forms the wearing slot 101 and an air chamber 103 after being inflated to swell. Through the arrangement of the above structure, during use, the air chamber 103 of the second capsule 110 is filled with air. The second capsule 110 can effectively provide buoyancy. Furthermore, the wearing slot 101 formed after the second capsule 110 is inflated to swell can allow a user to put the foot in, making it convenient for the user to wear the product. The connecting plate 120 at the bottom is directly connected to the water manifold 200. On the one hand, the connection is more stable, and the product is firmer. On the other hand, a stressed area of the foot of the user can be enlarged too; the pressure intensity is reduced; and the user feels comfortable when wearing the product.

[0040] Referring to FIG. 1 to FIG. 9, a water walking system includes two water walking devices configured to be worn on the two feet of a user. Each water walking device includes:

- a floating device 100, wherein the floating device 100 is provided with a wearing slot 101, and the wearing slot 101 is configured to allow a user to put the foot in;
- a water manifold 200, wherein the water manifold 200 is connected to a bottom of the floating device 100;
- a pushing plate 300, wherein the pushing plate 300 is connected to the water manifold 200 and is rotated between an opened position and a closed position; and
- a first limiting device 400, wherein the first limiting device 400 is arranged on one side of the pushing plate 300 facing the water manifold 200 or on one side of the water manifold 200 facing the pushing plate 300; and when the pushing plate 300 is rotated to the closed position, the first limiting device 400 limits an angle between the water manifold 200 and the pushing plate 300 to form a gap between the water manifold 200 and the pushing plate 300.

[0041] Through the arrangement of the above structure, during use, a user puts the two feet into the wearing slots 101 of the two water walking devices to wear the product. The floating device 100 provides buoyancy to allow the user to float on a water surface, and the water manifold 200 and the pushing plate 300 are submerged below the water surface. When the user moves the foot

forwards, each water walking device slides forwards relative to the water, and the resistance of the water drives the pushing plate 300 to be rotated to the closed position. At this time, the product is in a low resistance state, making it convenient for the user to move the foot forwards. When the user moves the foot backwards, the water walking device slides backwards relative to the water. Due to the limitation of the first limiting device 400, there is a gap between the water manifold 200 and the pushing plate 300. The resistance of the water drives the pushing plate 300 to be rotated to the opened position. At this time, the product is in a high resistance state, and the resistance of the water acts on the pushing plate 300 and hinders the user from moving the foot backwards, thus pushing the user to move forwards. The opening or closing of the pushing plate 300 changes the resistance to the product, and the first limiting device 400 can effectively assist the pushing plate 300 in changing the position of the pushing plate, thereby changing the resistance state, so that the user can easily walk on the water surface. The product has a good use effect.

[0042] In this embodiment, the first limiting device 400 is a first capsule that can be inflated to swell, and the first capsule is provided with an inflation nozzle 411. Through the arrangement of the above structure, during use, the first capsule can be inflated through the inflation nozzle 411. The first capsule is inflated to swell. When the pushing plate 300 is rotated to the closed position, the swelled first capsule is located between the pushing plate 300 and the water manifold 200, so that the gap is formed between the pushing plate 300 and the water manifold 200. When the user moves the foot backwards, due to the gap, the resistance of the water acts on an inner surface of the pushing plate 300 to drive the pushing plate 300 to be rotated to the opened position, and then the resistance of the water pushes the user to move forwards.

[0043] In this embodiment, the water walking system further includes a second limiting device; when the pushing plate 300 is rotated to the opened position, the second limiting device hinders the pushing plate 300 from being rotated in a direction facing away from the closed position. Through the arrangement of the above structure, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. The second limiting device hinders the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. At this time, the resistance between the water and the pushing plate 300 is the highest, which can better push the user to move forwards, improve the paddling and moving speed of the user, and make the user experience better.

[0044] In this embodiment, the second limiting device is a limiting rope 510; one end of the limiting rope 510 is connected to a rear side of the water manifold 200, and the other end of the limiting rope 510 is connected to the pushing plate 300; and when the pushing plate 300 is rotated to the opened position, the limiting rope 510 is

tightened to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position. Through the arrangement of the above structure, referring to FIG. 1 to FIG. 6, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this time, the limiting rope 510 is tightened to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly. When the user moves the foot forwards, the pushing plate 300 moves towards the closed position, and the limiting rope 510 is loosened and bent and is then stored in the gap between the pushing plate 300 and the water manifold 200 to reduce the resistance between the water and the pushing plate 300, making it convenient for the user to move the foot forwards.

[0045] In this embodiment, the second limiting device is a limiting convex block 520; the limiting convex block 520 is arranged at a position, close to the pushing plate 300, on a front side of the water manifold 200; and when the pushing plate 300 is rotated to the opened position, the limiting convex block 520 is abutted with a surface of the pushing plate 300 to hinder the pushing plate 300 from being rotated in the direction facing away from the closed position. Through the arrangement of the above structure, referring to FIG. 7 to FIG. 9, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this time, the limiting convex block 520 is abutted with the pushing plate 300 to restrict the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly.

[0046] In this embodiment, a smooth curved surface 521 is arranged on one side of the limiting convex block 520 away from the pushing plate 300; an abutment plane 522 is arranged on one side of the limiting convex block 520 close to the pushing plate 300; and when the pushing plate 300 is rotated to the opened position, the abutment plane 522 is abutted with a surface of the pushing plate 300. Through the arrangement of the above structure, referring to FIG. 9, when the user moves the foot backwards, the pushing plate 300 is rotated to the opened position. At this time, the abutment plane on the surface of the limiting convex block 520 is abutted with the pushing plate 300 to restrict the pushing plate 300 from being rotated in the direction facing away from the closed position, so that the pushing plate 300 is in the opened position all the time. By maintaining the high resistance state, the user moves forwards more smoothly. When the user moves the foot forwards, the pushing plate 300 moves towards the closed position, and a water flow flows through a surface of the smooth curved surface 521. The smooth curved surface 521 can reduce the resistance between the limiting convex block 520 and

the water, so that the user can move the foot forwards more smoothly.

[0047] In this embodiment, the pushing plate 300 is obliquely connected to a side surface of the water manifold 200; an upper end of the pushing plate 300 is connected to a middle part of the water manifold 200; and the upper end of the pushing plate 300 extends towards a lower side and front side of the water manifold (200). Through the arrangement of the above structure, when the user moves the foot backwards, a movement trajectory of the foot is mostly downward and backward. Therefore, when the pushing plate 300 is obliquely connected to the side surface of the water manifold 200, the pushing plate 300 is basically perpendicular to the movement trajectory of the foot, thereby increasing the resistance between the pushing plate 300 and the water, making it easier for the user to move.

[0048] In this embodiment, a mounting slot 102 is provided at the bottom of the floating device 100; and an upper end of the water manifold 200 is inserted into the mounting slot 102. During use, the upper end of the water manifold 200 is inserted into the mounting slot 102, which can achieve the mounting of the water manifold and the floating device 100 efficiently and simply, and the connection is stable and firm. Meanwhile, when the floating device 100, the water manifold 200, or the pushing plate 300 of the product is damaged, a user can disassemble the damaged component for replacement, so that the service life of the product is prolonged, the usage cost of a user is reduced too, and the product is economical and practical.

[0049] In this embodiment, the water walking device further includes a hinge 600; one end of the hinge 600 is connected to a side surface of the water manifold 200; and the other end of the hinge 600 is connected to a surface of the pushing plate 300, so as to allow the pushing plate 300 to be rotated relative to the water manifold 200. Through the arrangement of the above structure, during use, the hinge 600 is connected to the water manifold 200 and the pushing plate 300, thus achieving their connection and better connection efficiency. There is no need to arrange a rotating shaft or a rotating hole, which ensures the structural strength of the water manifold 200 and the pushing plate 300, and prolongs the service life of the product.

[0050] In this embodiment, the floating device 100 includes a second capsule 110 that is inflated to swell, and a connecting plate 120; the connecting plate 120 is connected to a bottom of the second capsule 110; and the second capsule 110 forms the wearing slot 101 and an air chamber 103 after being inflated to swell. Through the arrangement of the above structure, during use, the air chamber 103 of the second capsule 110 is filled with air. The second capsule 110 can effectively provide buoyancy. Furthermore, the wearing slot 101 formed after the second capsule 110 is inflated to swell can allow a user to put the foot in, making it convenient for the user to wear the product. The connecting plate 120 at the bottom is

directly connected to the water manifold 200. On the one hand, the connection is more stable, and the product is firmer. On the other hand, a stressed area of the foot of the user can be enlarged too; the pressure intensity is reduced; and the user feels comfortable when wearing the product.

[0051] One or more implementation modes are provided above in combination with specific contents, and it is not deemed that the specific implementation of the present disclosure is limited to these specifications. Any technical deductions or replacements approximate or similar to the method and structure of the present disclosure or made under the concept of the present disclosure shall fall within the scope of protection of the present disclosure.

Claims

1. A water walking device, comprising:

a floating device (100), wherein the floating device (100) is provided with a wearing slot (101), and the wearing slot (101) is configured to allow a user to put a foot in;

a water manifold (200), wherein the water manifold (200) is connected to a bottom of the floating device (100);

a pushing plate (300), wherein the pushing plate (300) is connected to the water manifold (200) and is rotated between an opened position and a closed position; and

a first limiting device (400), wherein the first limiting device (400) is arranged on one side of the pushing plate (300) facing the water manifold (200) or on one side of the water manifold (200) facing the pushing plate (300); and when the pushing plate (300) is rotated to the closed position, the first limiting device (400) limits an angle between the water manifold (200) and the pushing plate (300) to form a gap between the water manifold (200) and the pushing plate (300).

2. The water walking device according to claim 1, wherein the first limiting device (400) is a first capsule that is inflated to swell, and the first capsule is provided with an inflation nozzle (411).

3. The water walking device according to claim 1, further comprising a second limiting device, wherein when the pushing plate (300) is rotated to the opened position, the second limiting device hinders the pushing plate (300) from being rotated in a direction facing away from the closed position.

4. The water walking device according to claim 3, wherein the second limiting device is a limiting rope

(510); one end of the limiting rope (510) is connected to a rear side of the water manifold (200), and the other end of the limiting rope (510) is connected to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the limiting rope (510) is tightened to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position.

5. The water walking device according to claim 3, wherein the second limiting device is a limiting convex block (520); the limiting convex block (520) is arranged at a position, close to the pushing plate (300), on a front side of the water manifold (200); and when the pushing plate (300) is rotated to the opened position, the limiting convex block (520) is abutted with a surface of the pushing plate (300) to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position.

6. The water walking device according to claim 5, wherein a smooth curved surface (521) is arranged on one side of the limiting convex block (520) away from the pushing plate (300); an abutment plane (522) is arranged on one side of the limiting convex block (520) close to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the abutment plane (522) is abutted with a surface of the pushing plate (300).

7. The water walking device according to claim 1, wherein the pushing plate (300) is obliquely connected to a side surface of the water manifold (200); an upper end of the pushing plate (300) is connected to a middle part of the water manifold (200); and the upper end of the pushing plate (300) extends towards a lower side and front side of the water manifold (200).

8. The water walking device according to claim 1, wherein a mounting slot (102) is provided at the bottom of the floating device (100); and an upper end of the water manifold (200) is inserted into the mounting slot (102).

9. The water walking device according to claim 1, further comprising a hinge (600), wherein one end of the hinge (600) is connected to a side surface of the water manifold (200), and the other end of the hinge (600) is connected to a surface of the pushing plate (300), so as to allow the pushing plate (300) to be rotated relative to the water manifold (200).

10. The water walking device according to claim 1, wherein the floating device (100) comprises a second capsule (110) that is inflated to swell, and a connecting plate (120); the connecting plate (120) is connected to a bottom of the second capsule (110);

and the second capsule (110) forms the wearing slot (101) and an air chamber (103) after being inflated to swell.

11. A water walking system, comprising two water walking devices configured to be worn on the two feet of a user, wherein each water walking device comprises:
 - a floating device (100), wherein the floating device (100) is provided with a wearing slot (101), and the wearing slot (101) is configured to allow a user to put a foot in;
 - a water manifold (200), wherein the water manifold (200) is connected to a bottom of the floating device (100);
 - a pushing plate (300), wherein the pushing plate (300) is connected to the water manifold (200) and is rotated between an opened position and a closed position; and
 - a first limiting device (400), wherein the first limiting device (400) is arranged on one side of the pushing plate (300) facing the water manifold (200) or on one side of the water manifold (200) facing the pushing plate (300); and when the pushing plate (300) is rotated to the closed position, the first limiting device (400) limits an angle between the water manifold (200) and the pushing plate (300) to form a gap between the water manifold (200) and the pushing plate (300).
12. The water walking system according to claim 11, wherein the first limiting device (400) is a first capsule that is inflated to swell, and the first capsule is provided with an inflation nozzle (411).
13. The water walking system according to claim 11, further comprising a second limiting device, wherein when the pushing plate (300) is rotated to the opened position, the second limiting device hinders the pushing plate (300) from being rotated in a direction facing away from the closed position, wherein the second limiting device is a limiting rope (510); one end of the limiting rope (510) is connected to a rear side of the water manifold (200), and the other end of the limiting rope (510) is connected to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the limiting rope (510) is tightened to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position.
14. The water walking system according to claim 13, wherein the second limiting device is a limiting convex block (520); the limiting convex block (520) is arranged at a position, close to the pushing plate (300), on a front side of the water manifold (200); and when the pushing plate (300) is rotated to the opened position, the limiting convex block (520) is abutted

with a surface of the pushing plate (300) to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position, wherein a smooth curved surface (521) is arranged on one side of the limiting convex block (520) away from the pushing plate (300); an abutment plane (522) is arranged on one side of the limiting convex block (520) close to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the abutment plane (522) is abutted with a surface of the pushing plate (300).

15. The water walking system according to claim 11, wherein the pushing plate (300) is obliquely connected to a side surface of the water manifold (200); an upper end of the pushing plate (300) is connected to a middle part of the water manifold (200); and the upper end of the pushing plate (300) extends towards a lower side and front side of the water manifold (200), wherein a mounting slot (102) is provided at the bottom of the floating device (100); and an upper end of the water manifold (200) is inserted into the mounting slot (102); the water walking system further comprises a hinge (600), wherein one end of the hinge (600) is connected to a side surface of the water manifold (200), and the other end of the hinge (600) is connected to a surface of the pushing plate (300), so as to allow the pushing plate (300) to be rotated relative to the water manifold (200); wherein the floating device (100) comprises a second capsule (110) that is inflated to swell, and a connecting plate (120); the connecting plate (120) is connected to a bottom of the second capsule (110); and the second capsule (110) forms the wearing slot (101) and an air chamber (103) after being inflated to swell.

Amended claims in accordance with Rule 137(2) EPC.

1. A water walking device, comprising:
 - a floating device (100), wherein the floating device (100) is provided with a wearing slot (101), and the wearing slot (101) is configured to allow a user to put a foot in;
 - a water separation plate (200), wherein the water separation plate (200) is connected to a bottom of the floating device (100);
 - a pushing plate (300), wherein the pushing plate (300) is connected to the water separation plate (200) and is rotated between an opened position and a closed position; and
 - a first limiting device (400), wherein the first limiting device (400) is arranged on one side of the pushing plate (300) facing the water separation plate (200) or on one side of the water separation plate (200) facing the pushing plate

- (300); and when the pushing plate (300) is rotated to the closed position, the first limiting device (400) limits an angle between the water separation plate (200) and the pushing plate (300) to form a gap between the water separation plate (200) and the pushing plate (300); where the first limiting device (400) is a first capsule that is inflated to swell, and the first capsule is provided with an inflation nozzle (411).
2. The water walking device according to claim 1, further comprising a second limiting device, wherein when the pushing plate (300) is rotated to the opened position, the second limiting device hinders the pushing plate (300) from being rotated in a direction facing away from the closed position.
 3. The water walking device according to claim 2, wherein the second limiting device is a limiting rope (510); one end of the limiting rope (510) is connected to a rear side of the water separation plate (200), and the other end of the limiting rope (510) is connected to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the limiting rope (510) is tightened to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position.
 4. The water walking device according to claim 2, wherein the second limiting device is a limiting convex block (520); the limiting convex block (520) is arranged at a position, close to the pushing plate (300), on a front side of the water separation plate (200); and when the pushing plate (300) is rotated to the opened position, the limiting convex block (520) is abutted with a surface of the pushing plate (300) to hinder the pushing plate (300) from being rotated in the direction facing away from the closed position.
 5. The water walking device according to claim 4, wherein a smooth curved surface (521) is arranged on one side of the limiting convex block (520) away from the pushing plate (300); an abutment plane (522) is arranged on one side of the limiting convex block (520) close to the pushing plate (300); and when the pushing plate (300) is rotated to the opened position, the abutment plane (522) is abutted with a surface of the pushing plate (300).
 6. The water walking device according to claim 1, wherein the pushing plate (300) is obliquely connected to a side surface of the water separation plate (200); an upper end of the pushing plate (300) is connected to a middle part of the water separation plate (200); and the upper end of the pushing plate (300) extends towards a lower side and front side of the water separation plate (200).
 7. The water walking device according to claim 1, wherein a mounting slot (102) is provided at the bottom of the floating device (100); and an upper end of the water separation plate (200) is inserted into the mounting slot (102).
 8. The water walking device according to claim 1, further comprising a hinge (600), wherein one end of the hinge (600) is connected to a side surface of the water separation plate (200), and the other end of the hinge (600) is connected to a surface of the pushing plate (300), so as to allow the pushing plate (300) to be rotated relative to the water separation plate (200).
 9. The water walking device according to claim 1, wherein the floating device (100) comprises a second capsule (110) that is inflated to swell, and a connecting plate (120); the connecting plate (120) is connected to a bottom of the second capsule (110); and the second capsule (110) forms the wearing slot (101) and an air chamber (103) after being inflated to swell.
 10. A water walking system, comprising two water walking devices according to any of the claims 1-9, and the two water walking devices being configured to be worn on the two feet of a user

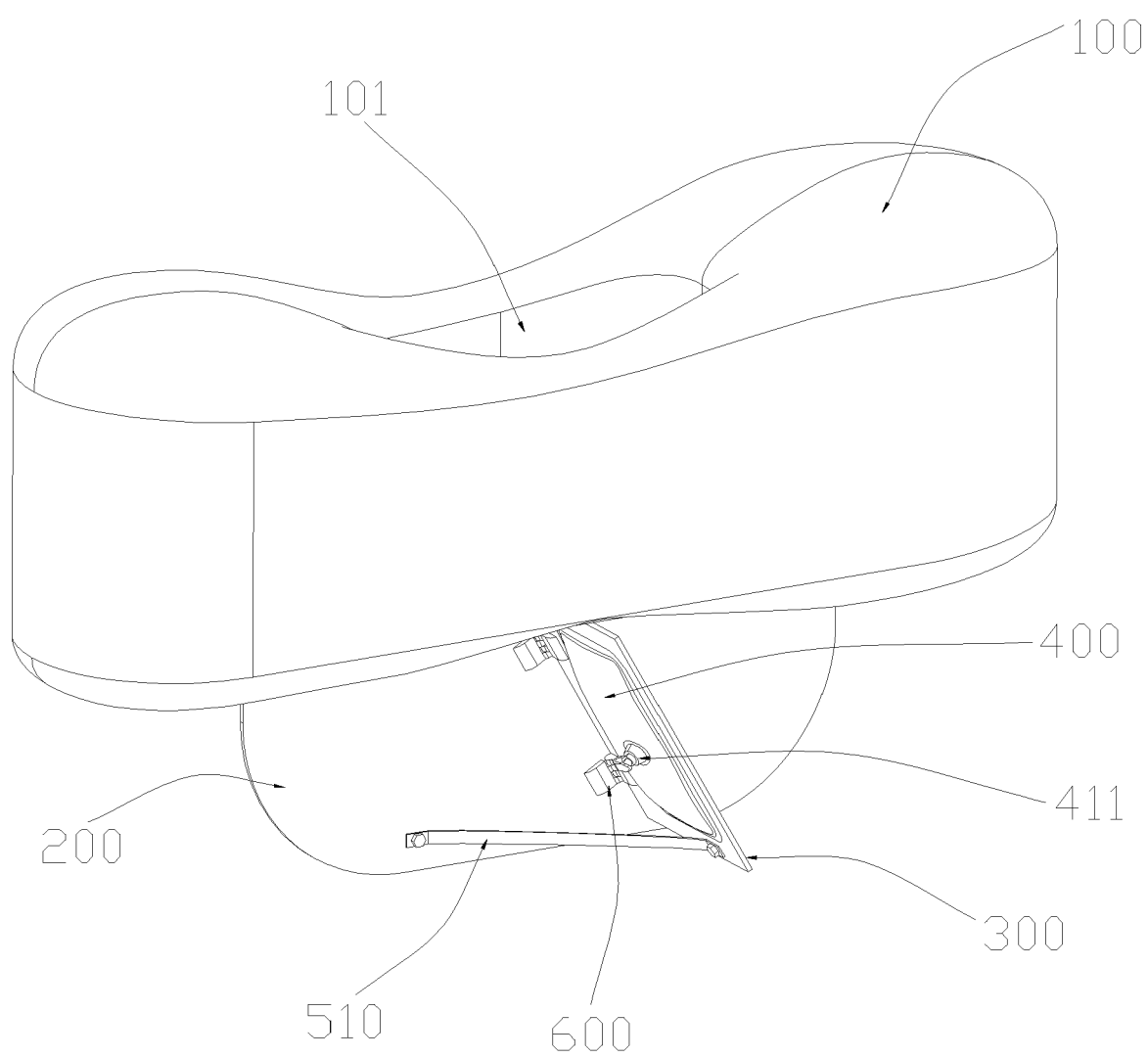


Figure 1

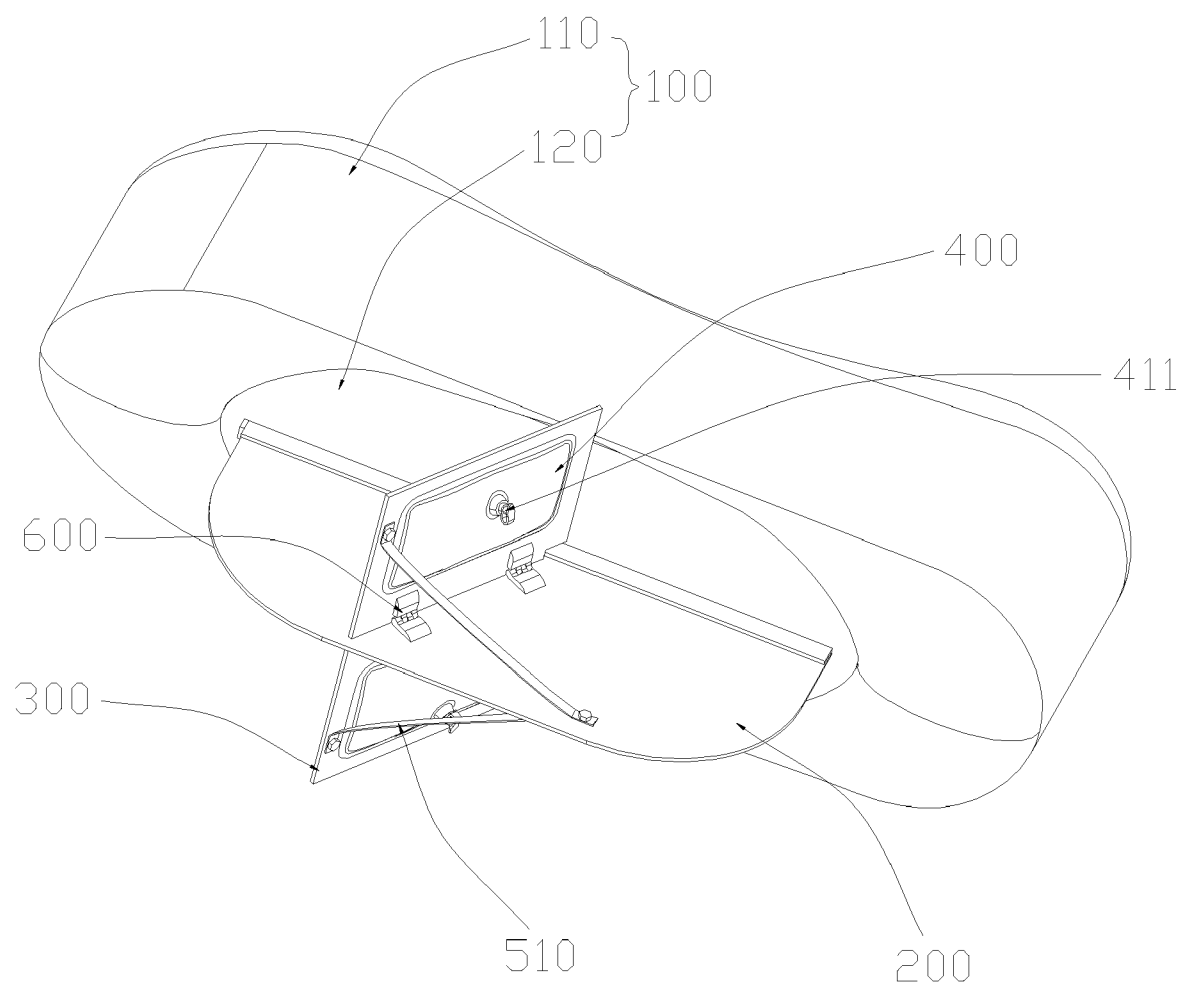


Figure 2

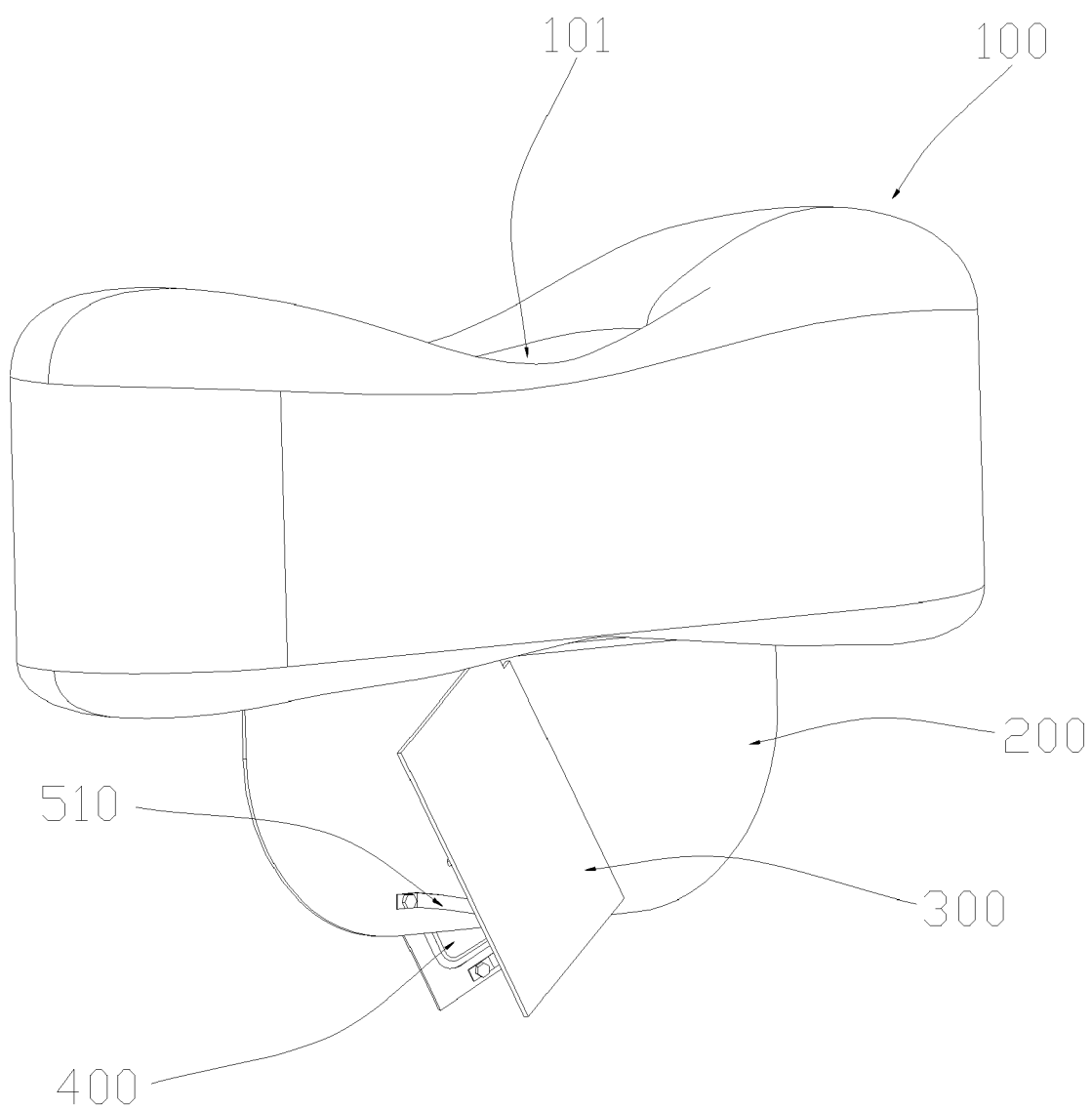


Figure 3

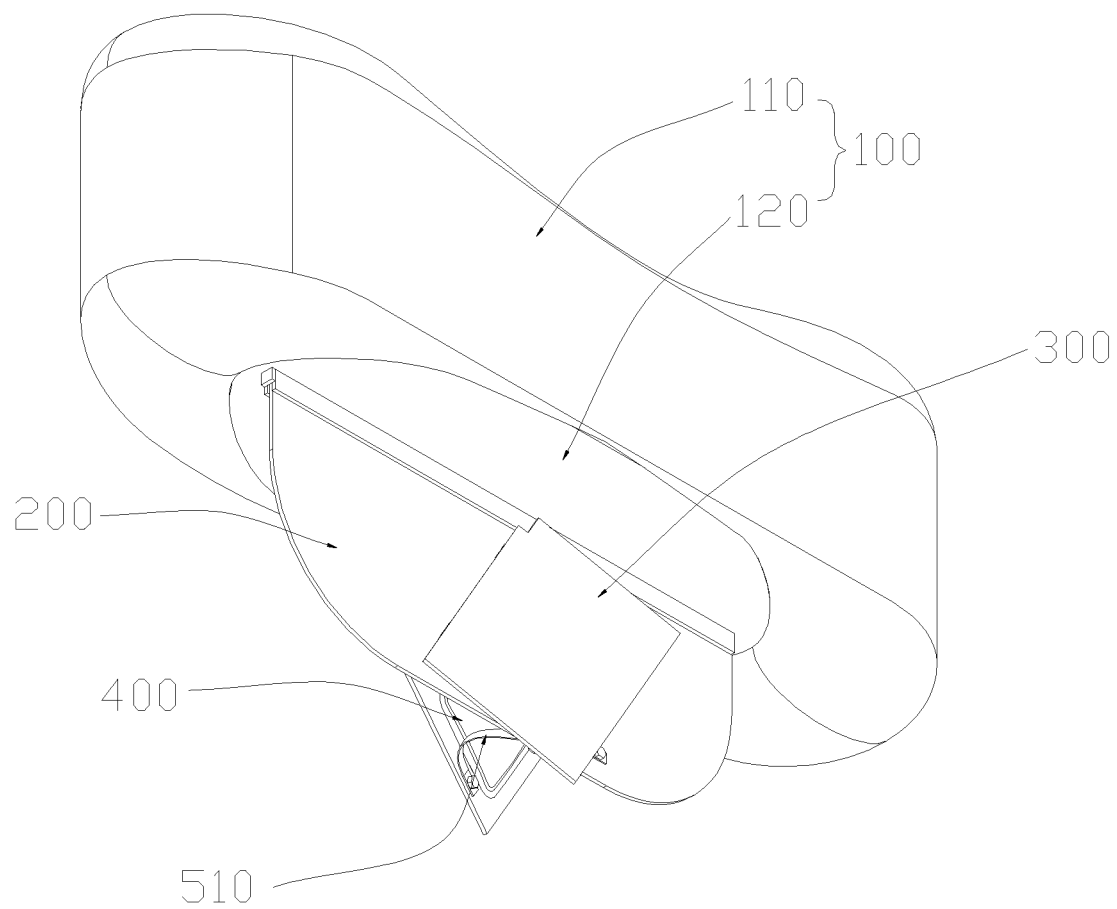


Figure 4

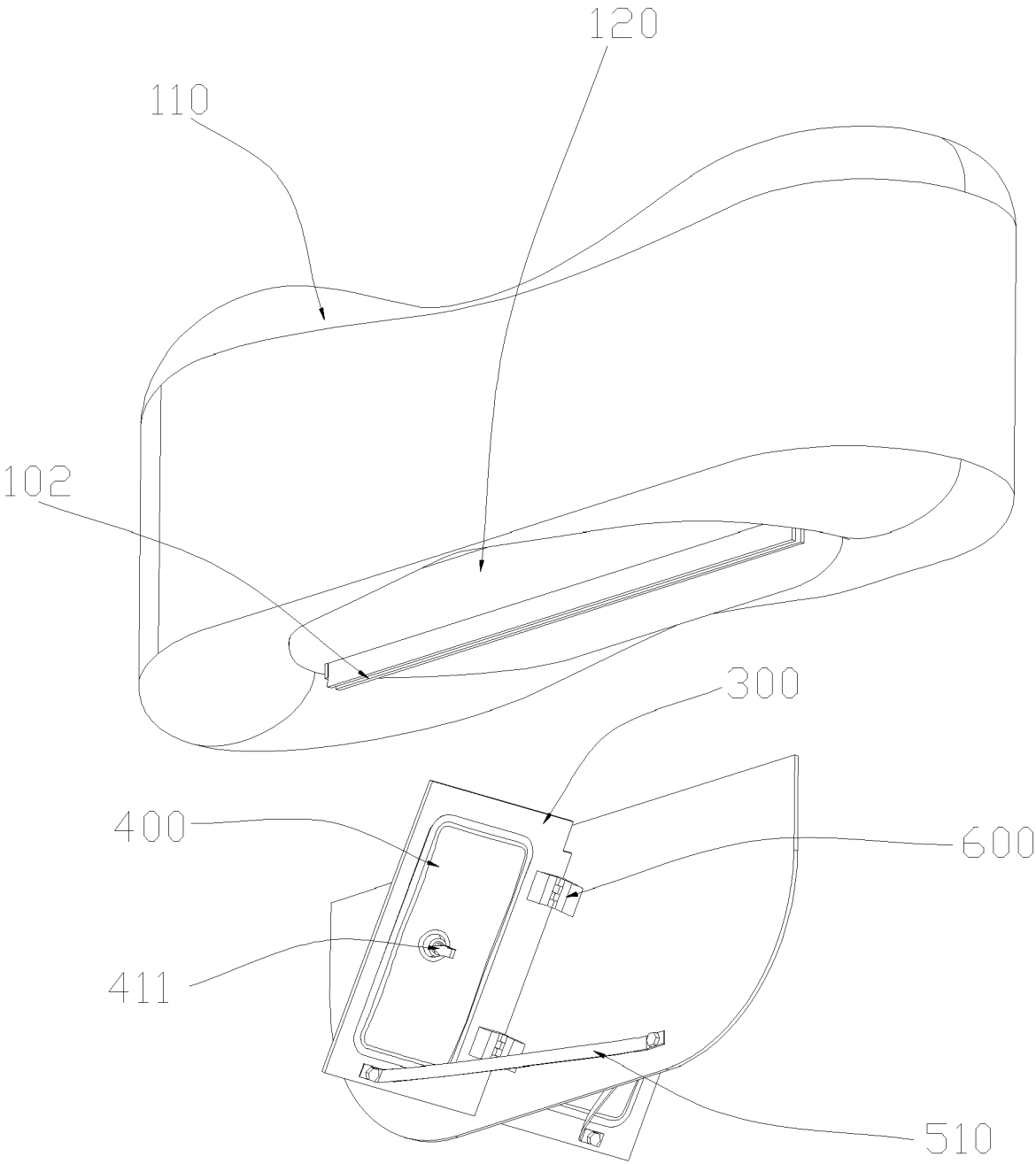


Figure 5

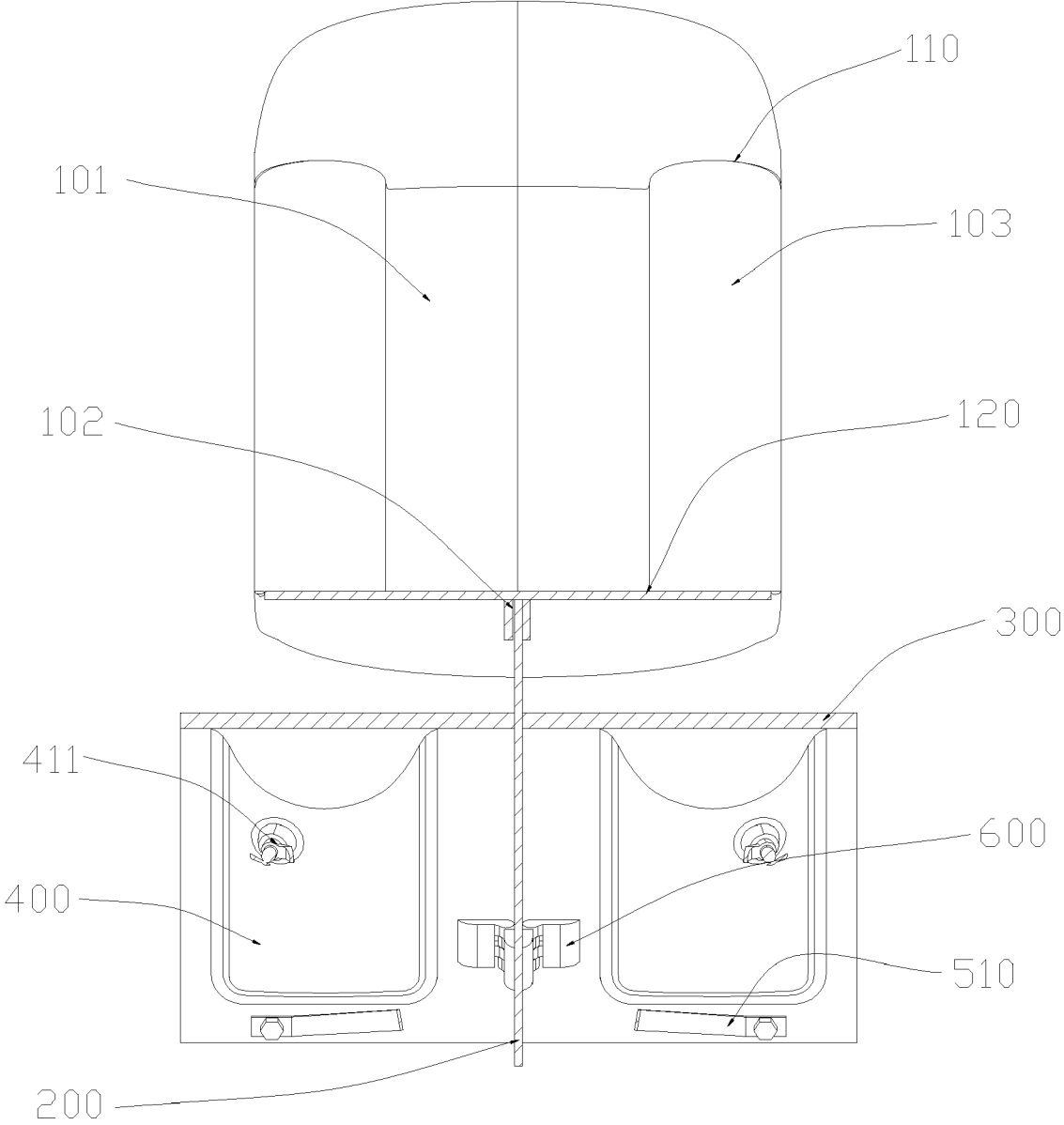


Figure 6

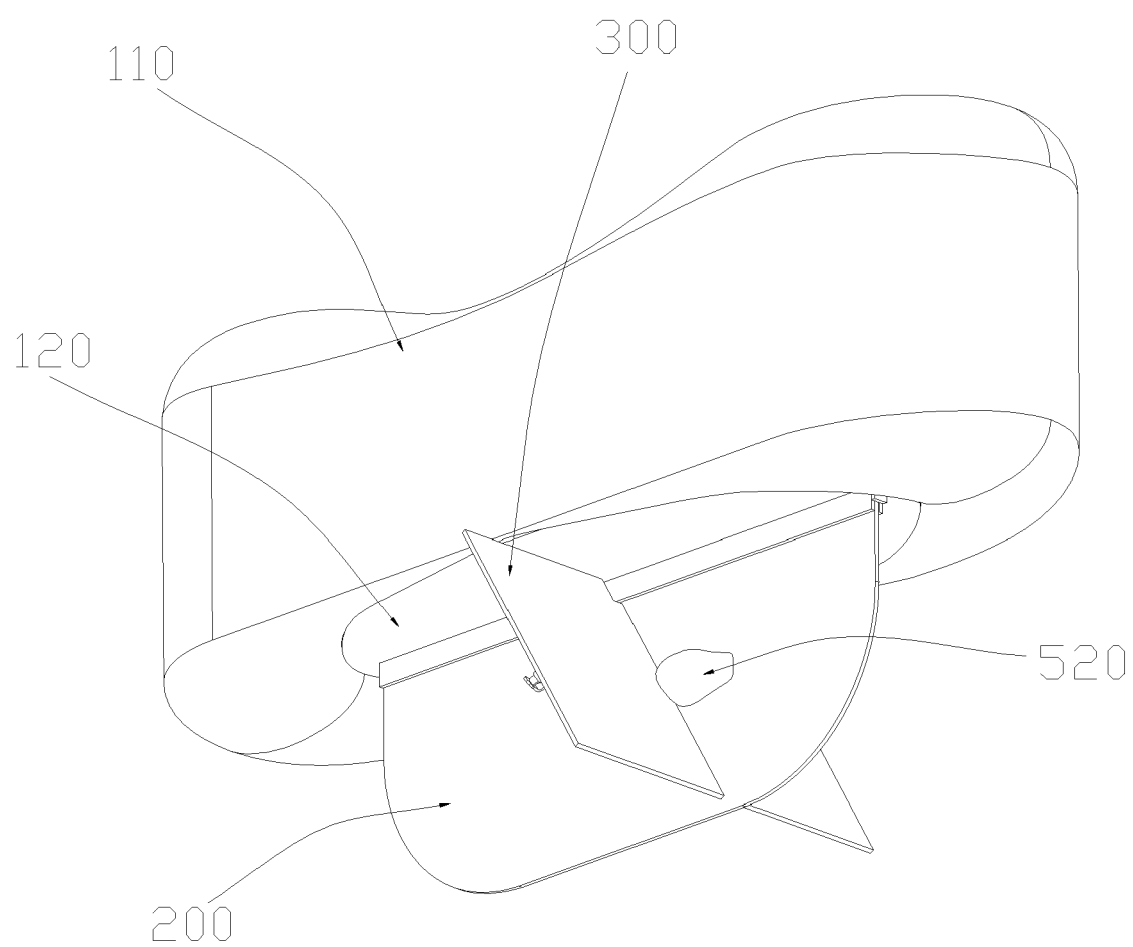


Figure 7

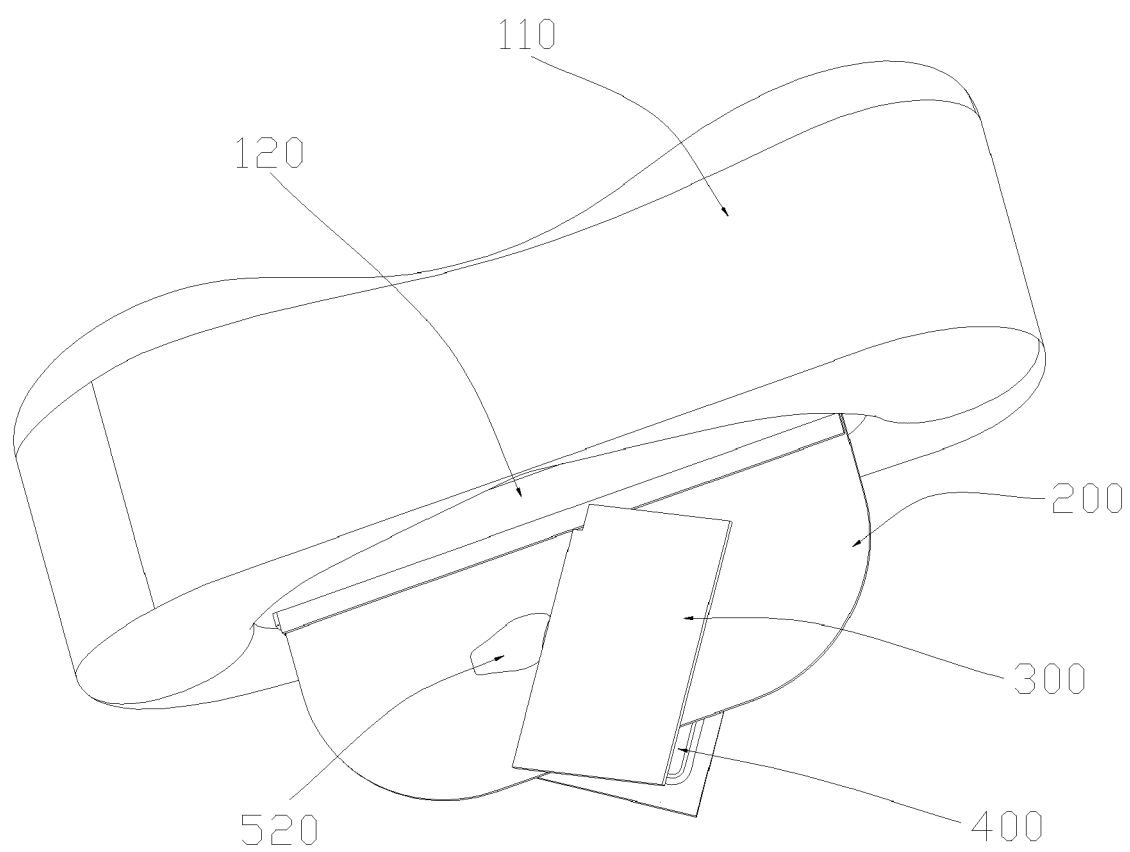


Figure 8

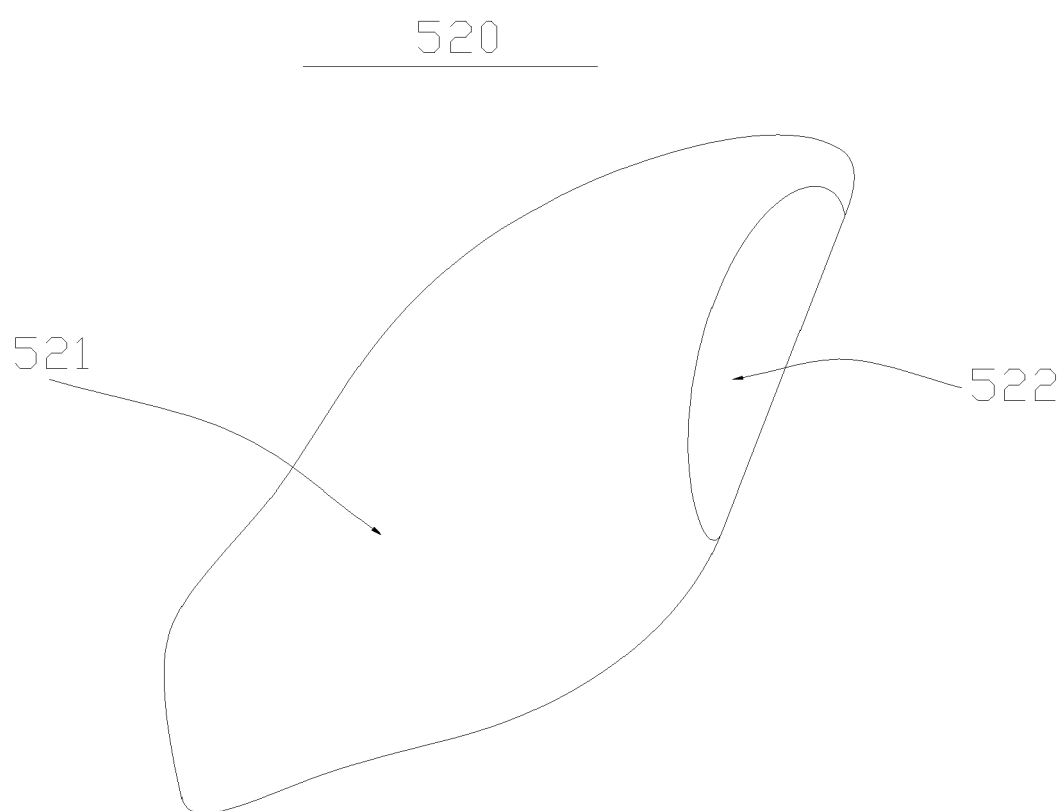


Figure 9



EUROPEAN SEARCH REPORT

Application Number

EP 24 18 9302

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	US 6 939 187 B1 (BORROTO MIGUEL [US]) 6 September 2005 (2005-09-06) * abstract *	1,3-11, 13-15	INV. B63B34/56
A	* figures 1-4, 7 *	2,12	B63H1/32
A	FR 1 398 233 A (GABRIEL HENRI [FR], BIRET GUY [FR]) 7 May 1965 (1965-05-07) * the whole document *	1-15	
A	FR 2 481 939 A1 (COMPARON JEAN [FR]) 13 November 1981 (1981-11-13) * the whole document *	1-15	
A	US 2 707 789 A (BROWN MARVIN W) 10 May 1955 (1955-05-10) * figures *	1,10,11, 15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B63B B63H
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		24 January 2025	Gardel, Antony
CATEGORY OF CITED DOCUMENTS			
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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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EP 24 18 9302

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24-01-2025

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FR 1398233	A	07-05-1965	NONE
FR 2481939	A1	13-11-1981	NONE
US 2707789	A	10-05-1955	NONE

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

REFERENCES CITED IN THE DESCRIPTION

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