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(54) **DUAL MOTOR MOUNT SYSTEM AND PERSONAL FLOATATION CRAFT USING SAME**

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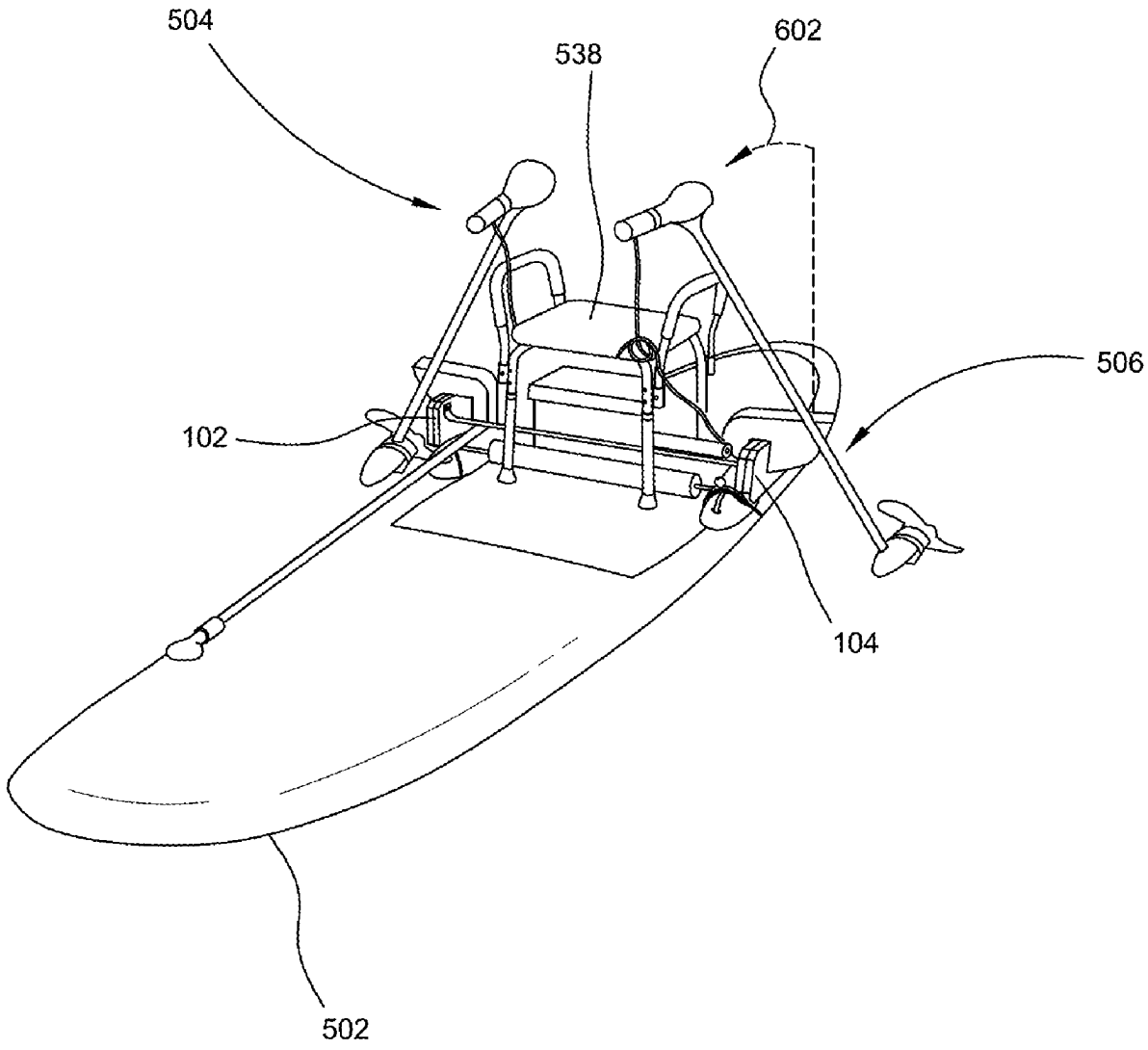
(57) **ABSTRACT**

A personal floatation craft system includes a mounting block system secured to the top of a personal floatation craft. The mounting block system includes a first mounting block disposed at a first side of the personal floatation craft and a second mounting block at a second side of the personal floatation craft. A first propulsion unit is mounted at the first mounting block and a second propulsion unit is mounted at the second mounting block.



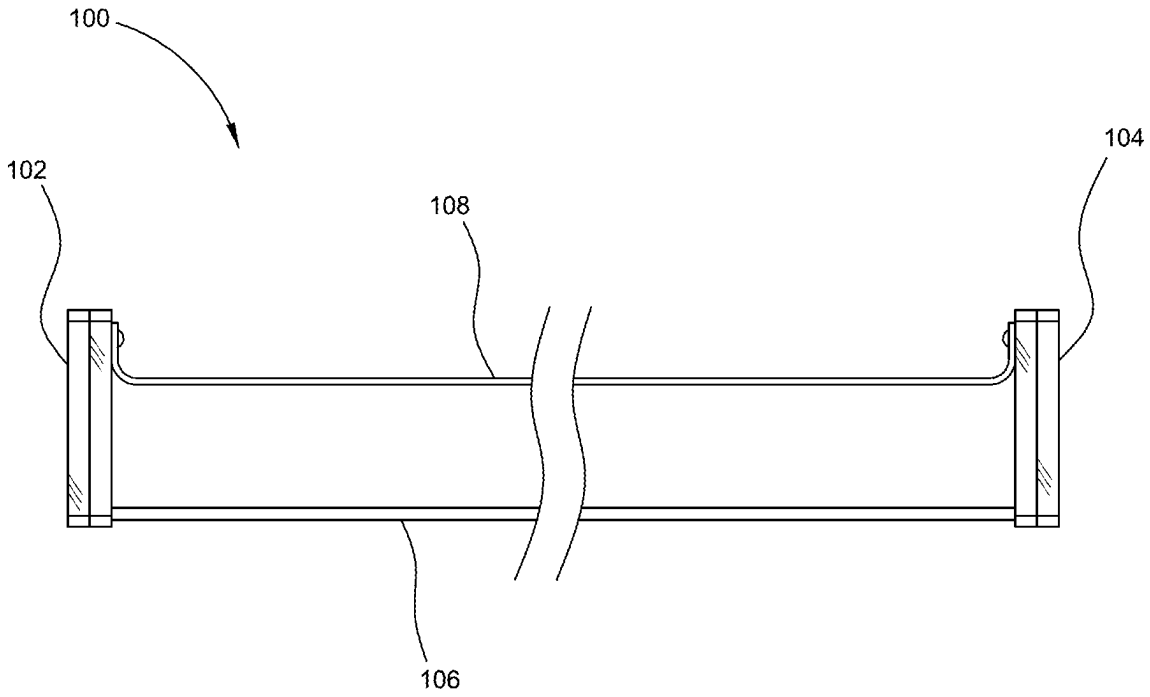


FIG.1

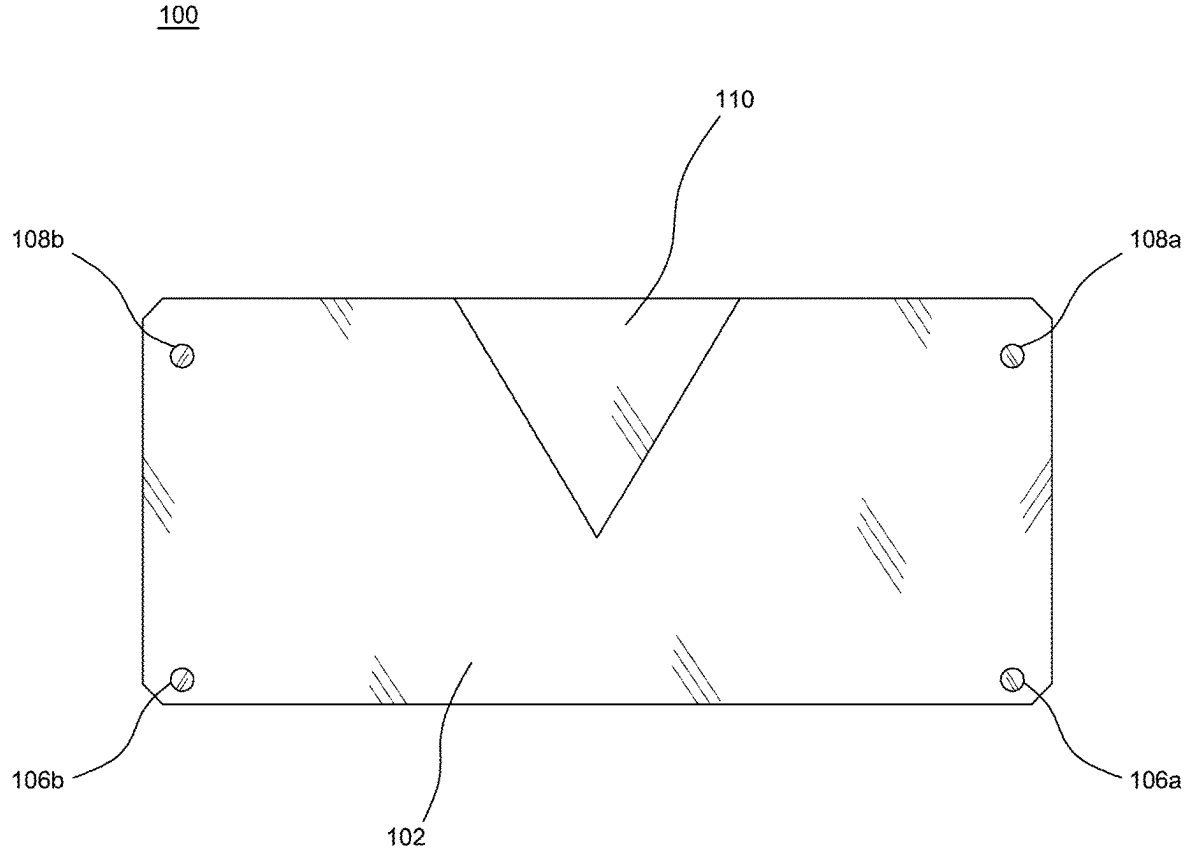


FIG.2

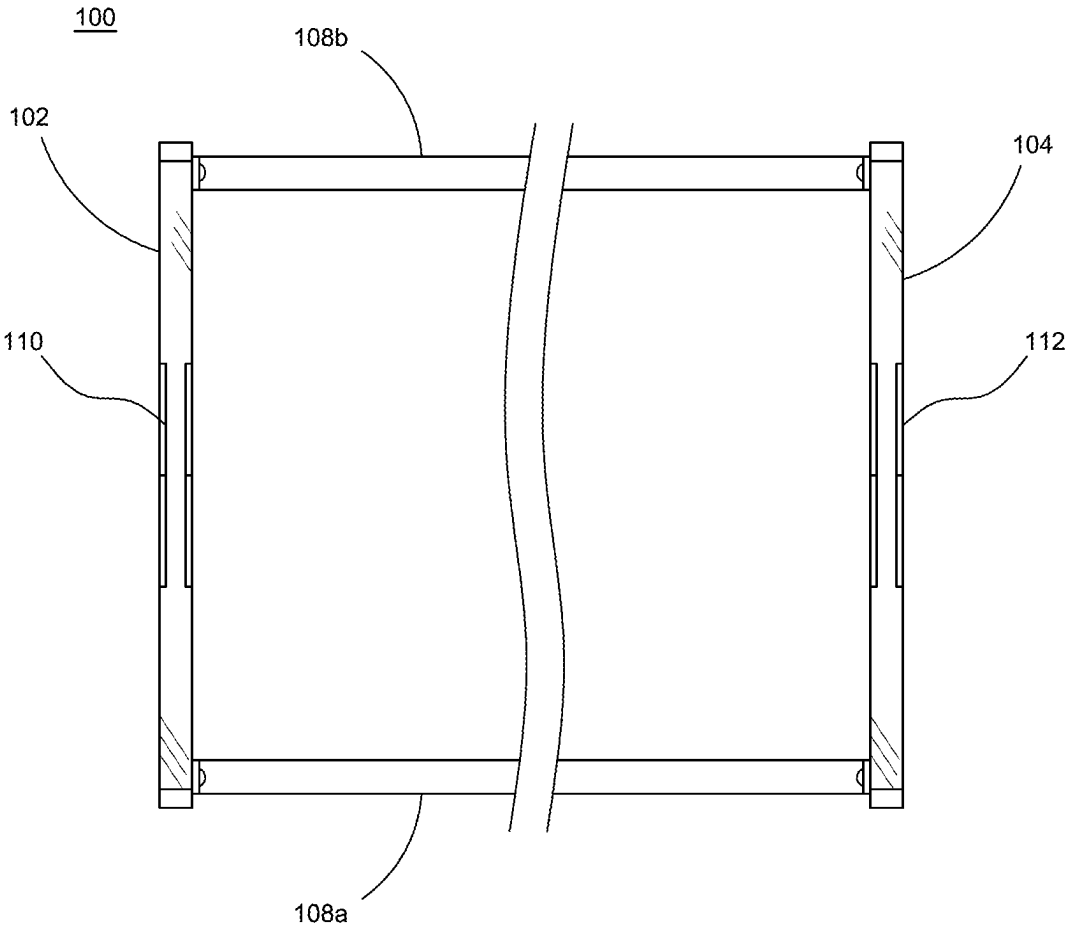


FIG.3

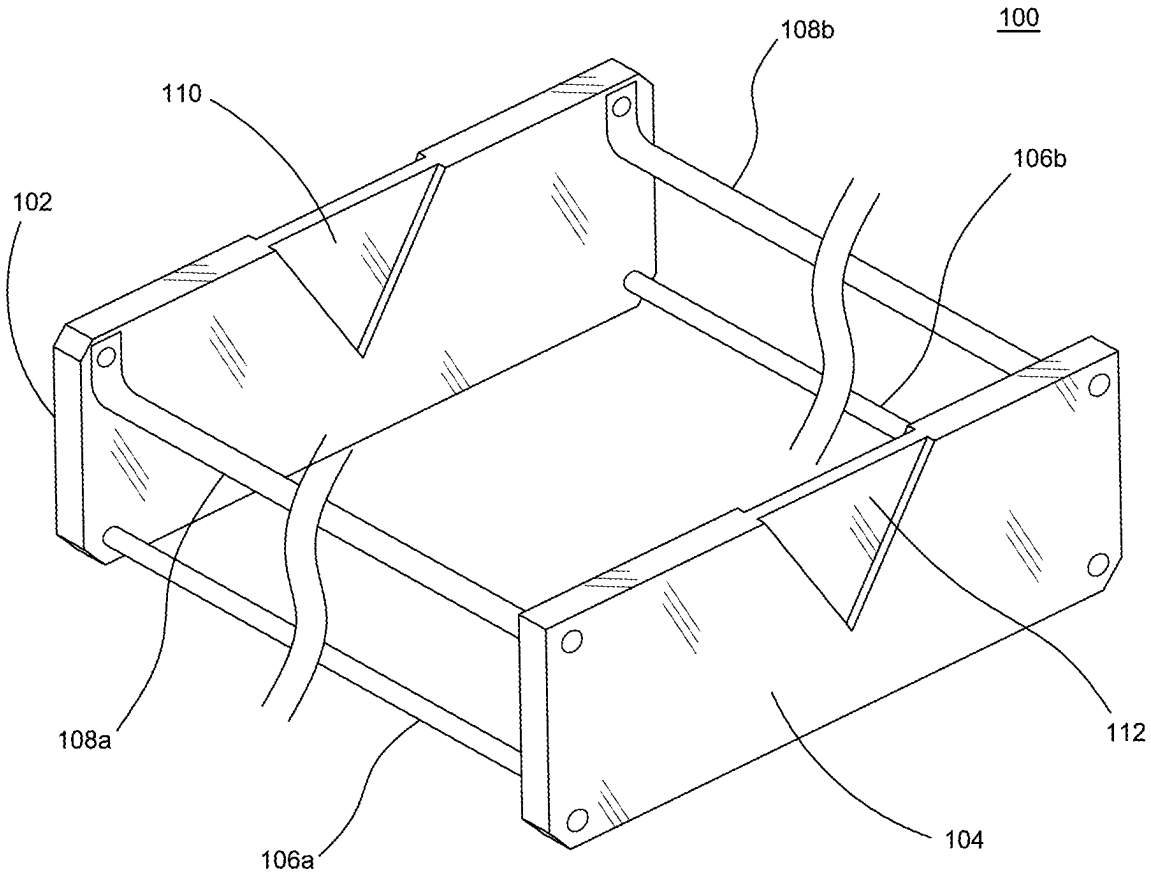


FIG.4

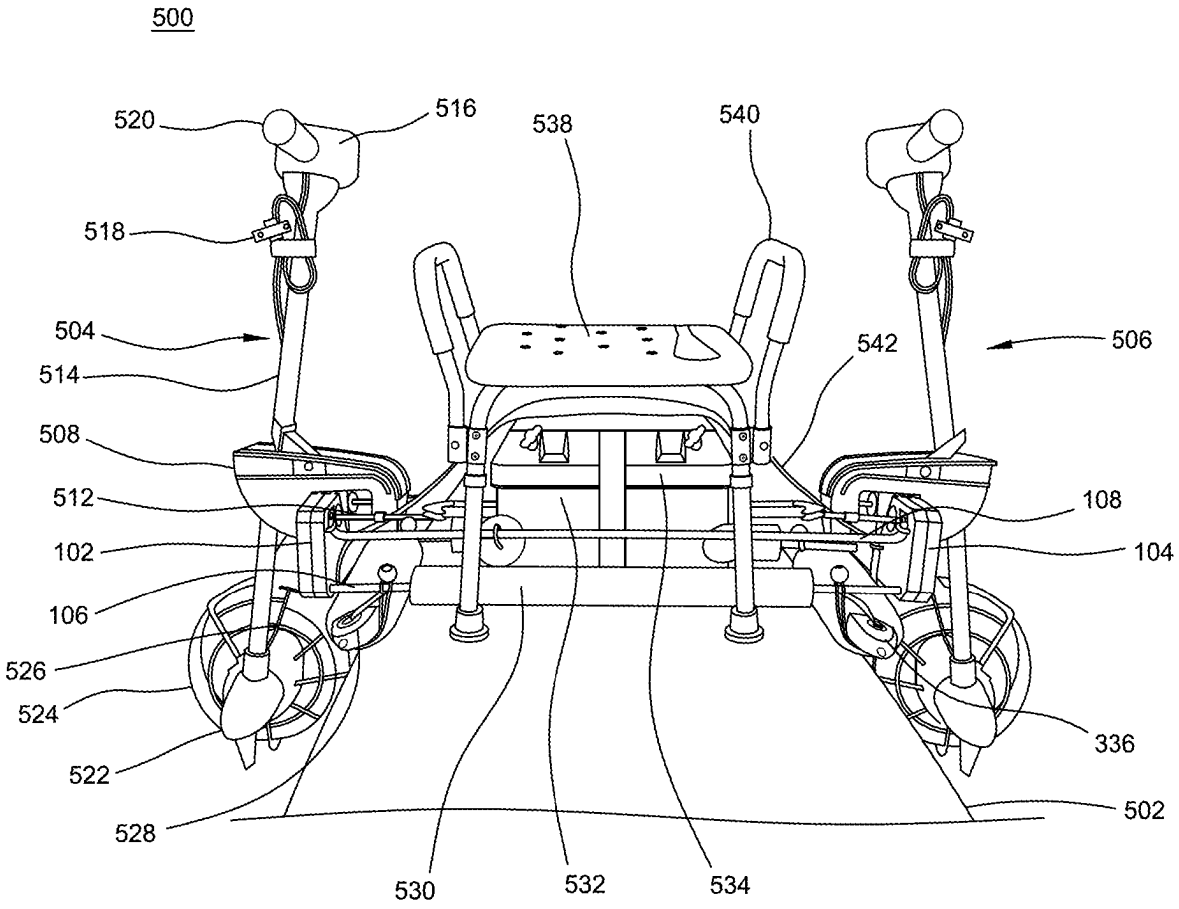

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FIG.5

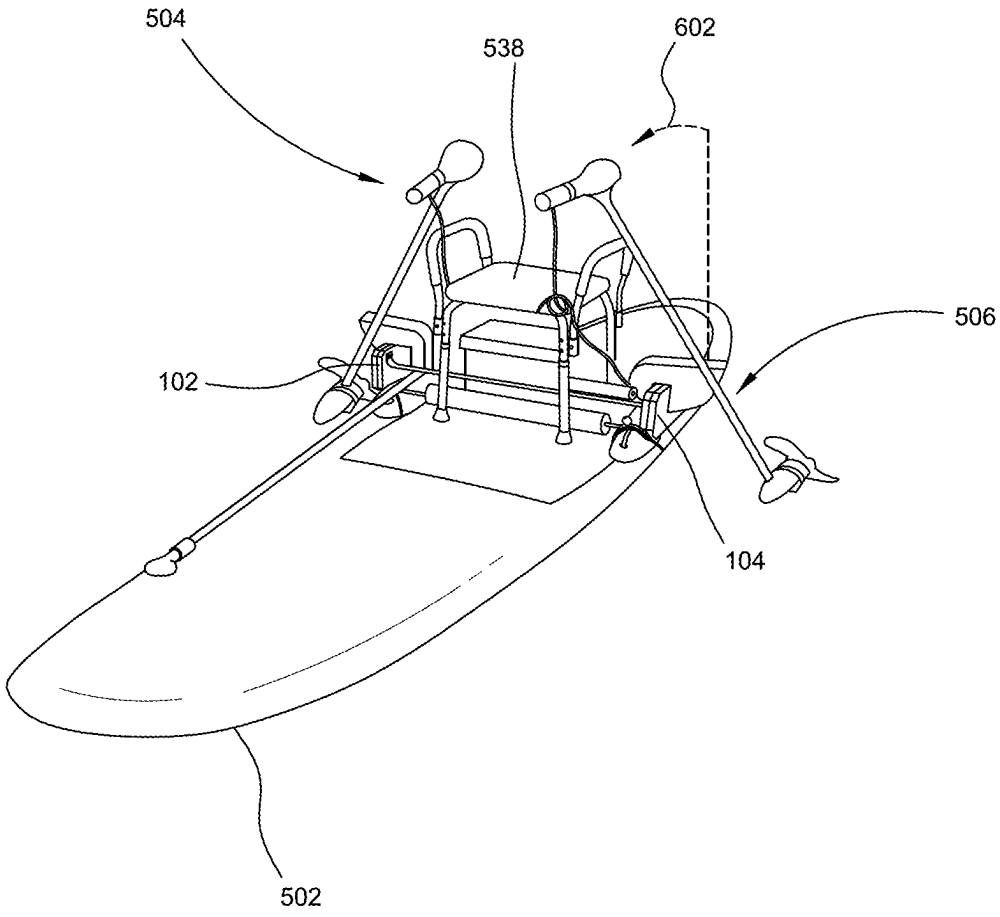

FIG.6

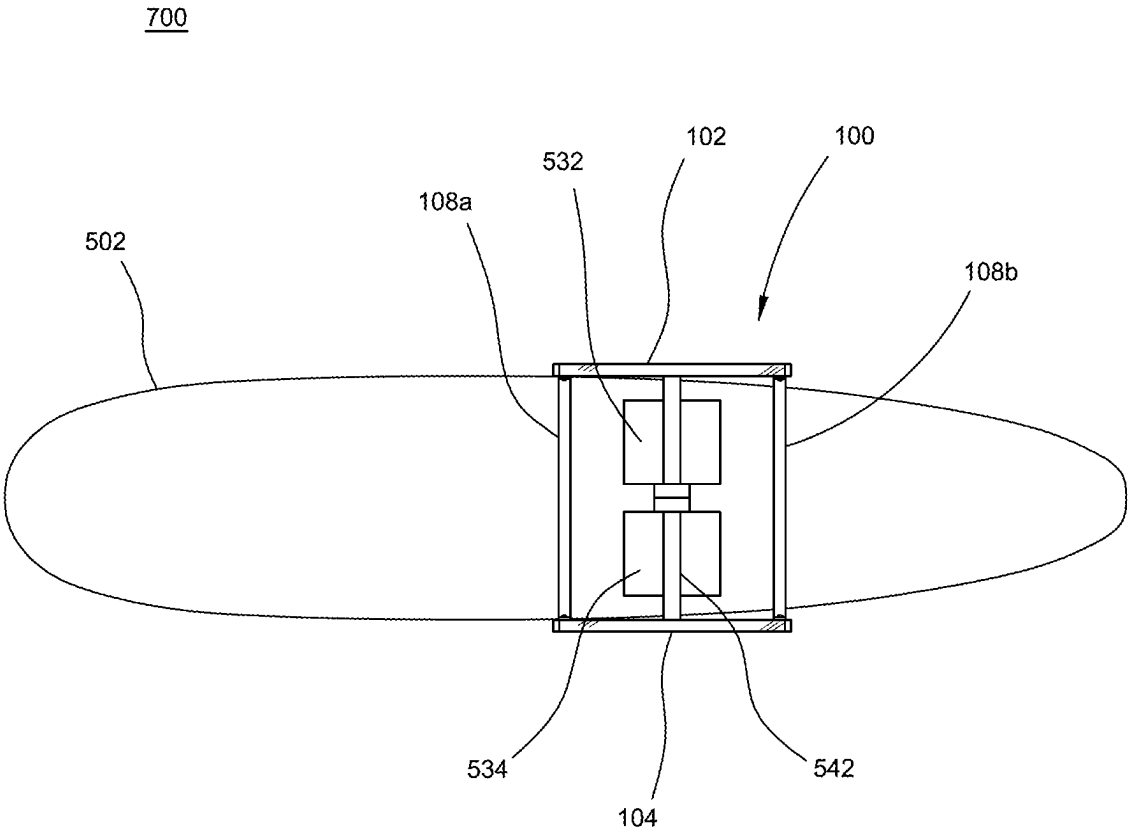

FIG.7

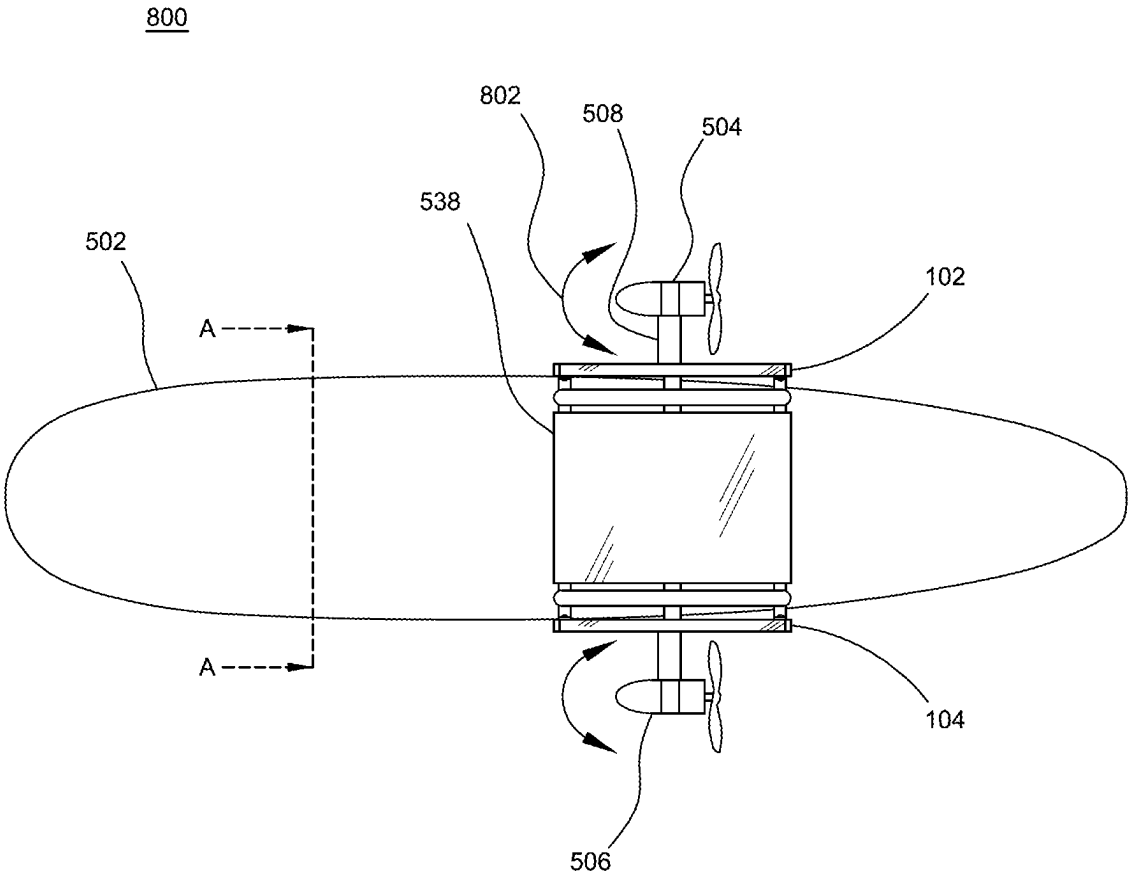

FIG.8

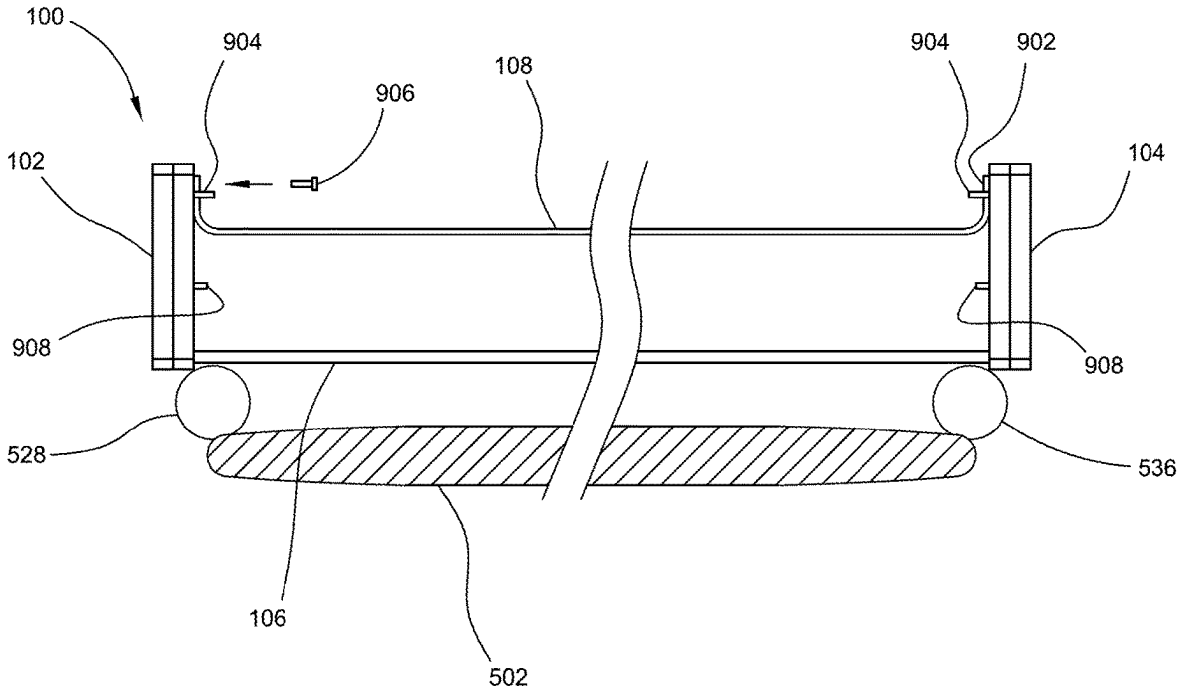

FIG.9

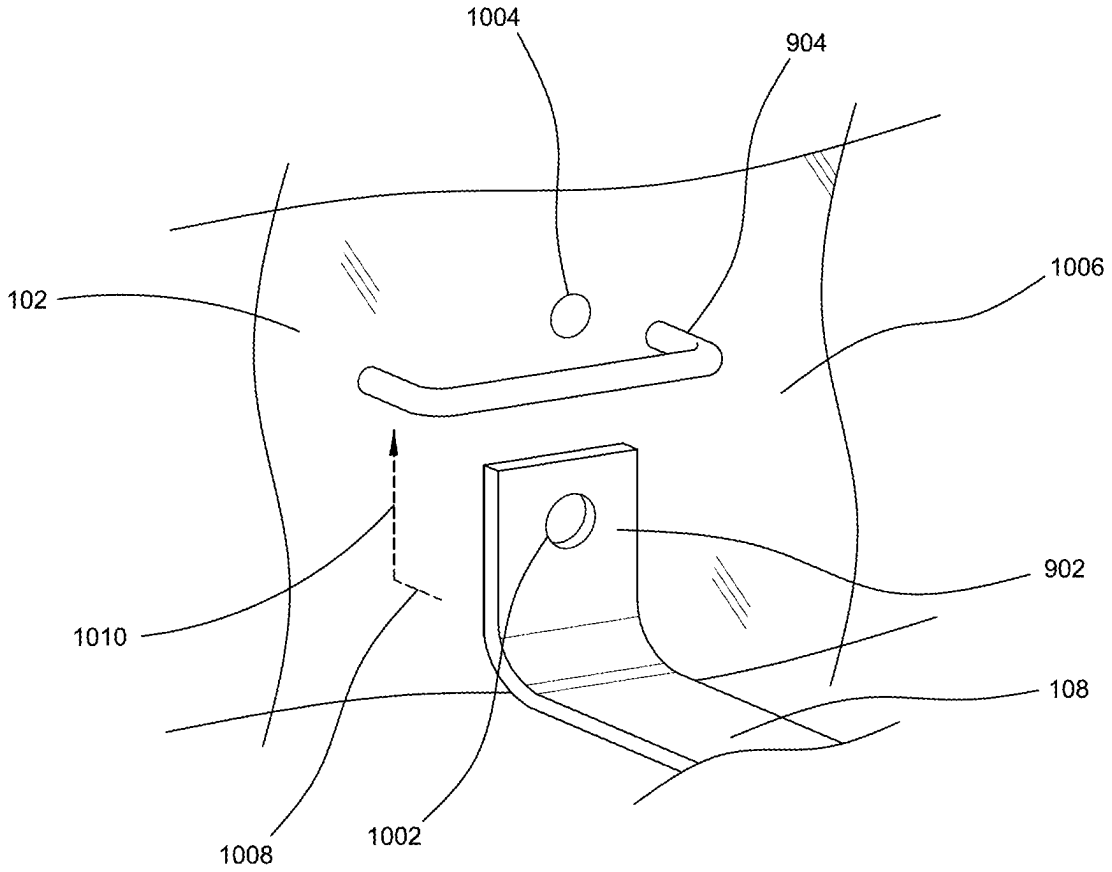

FIG.10

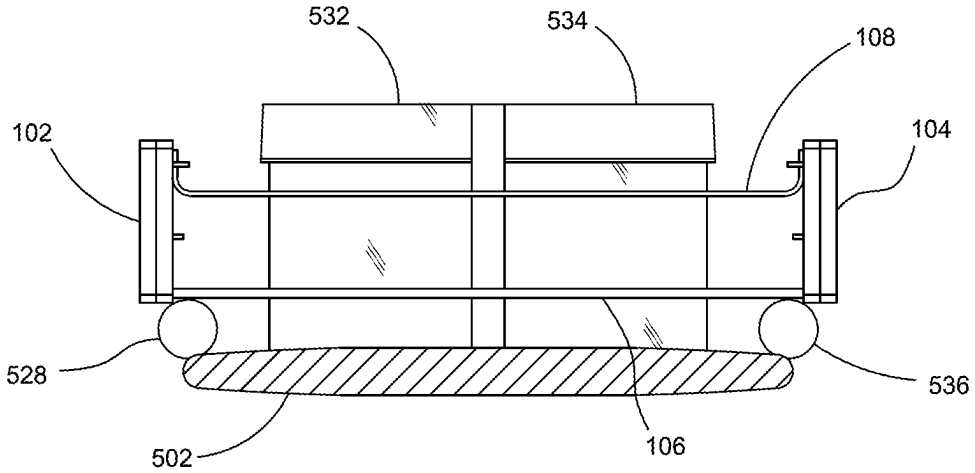
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FIG.11

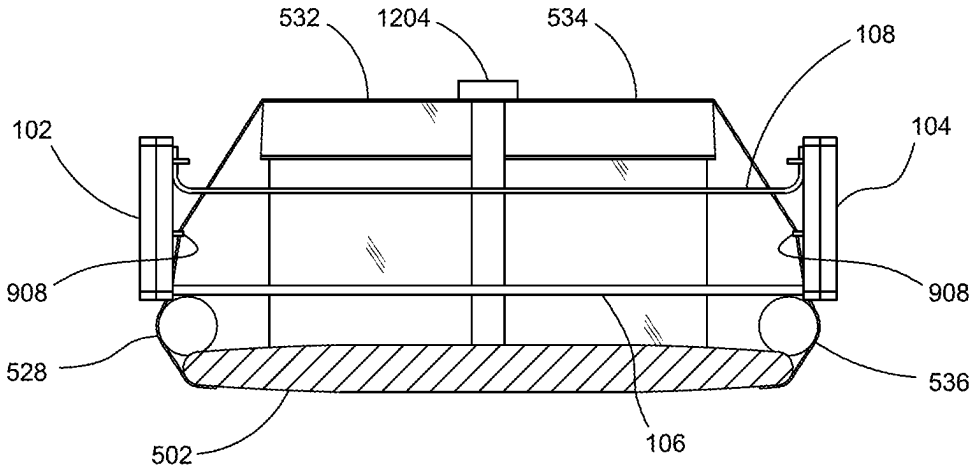
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FIG.12

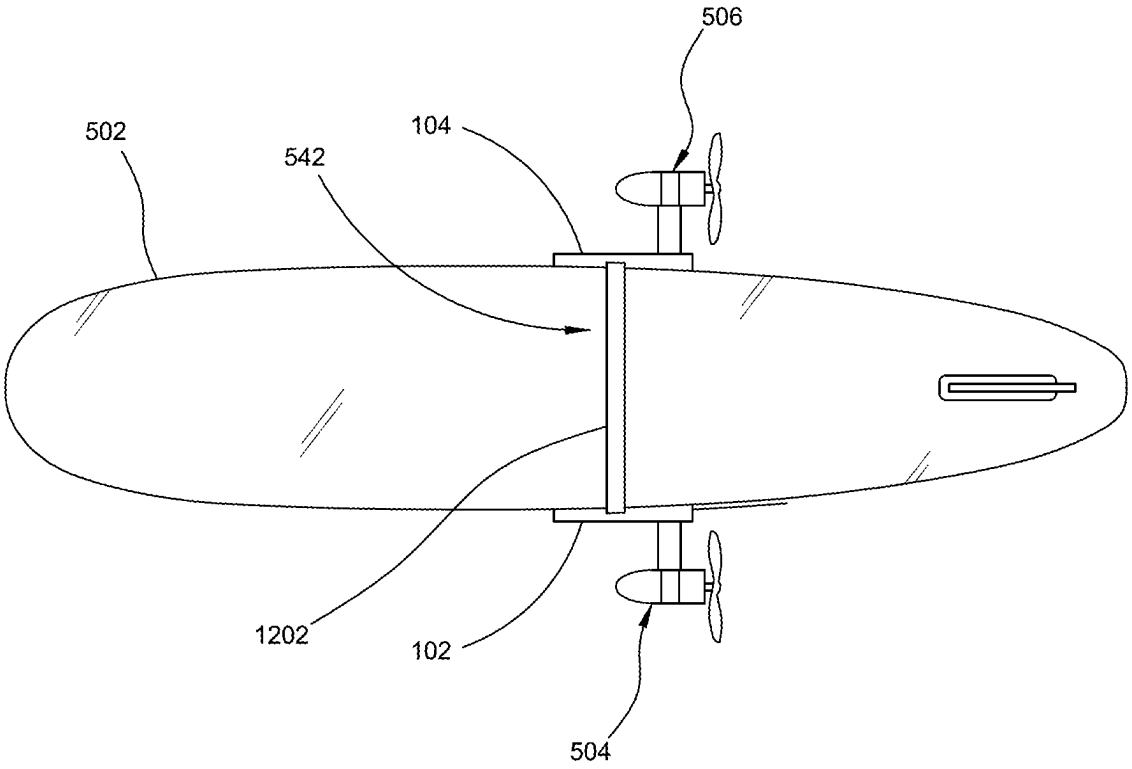

FIG.13

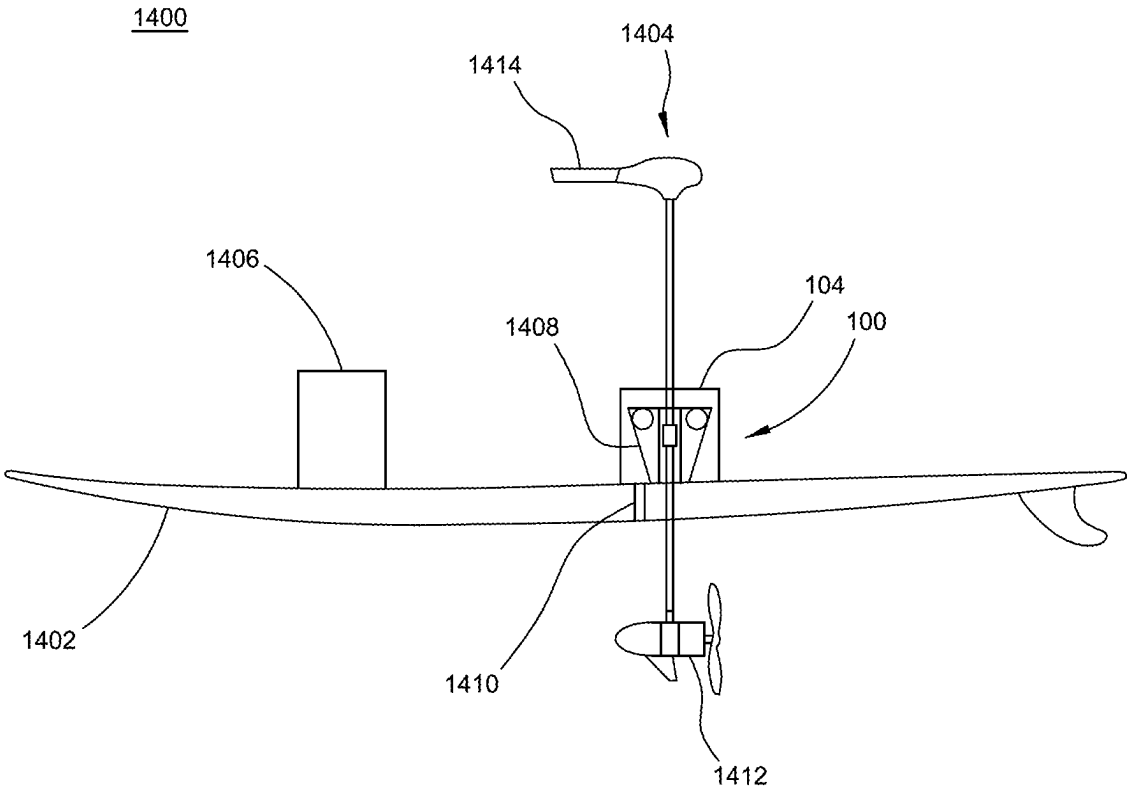

FIG.14

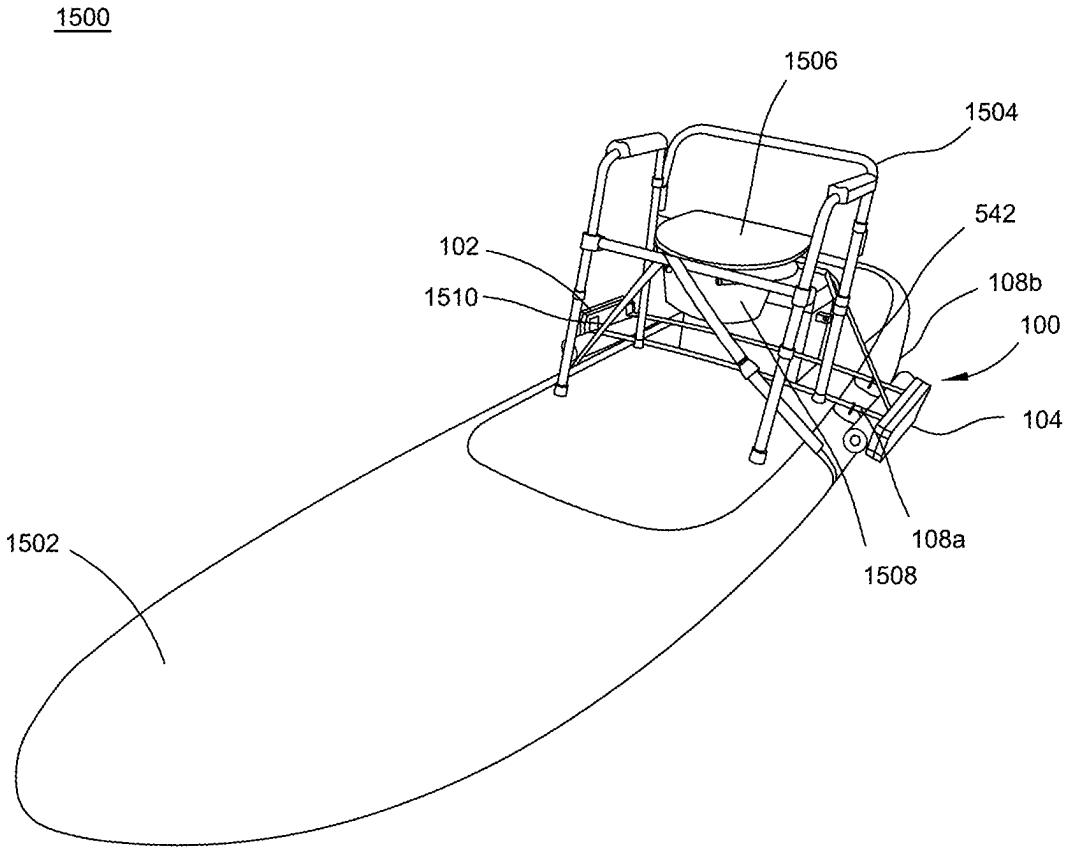

FIG.15

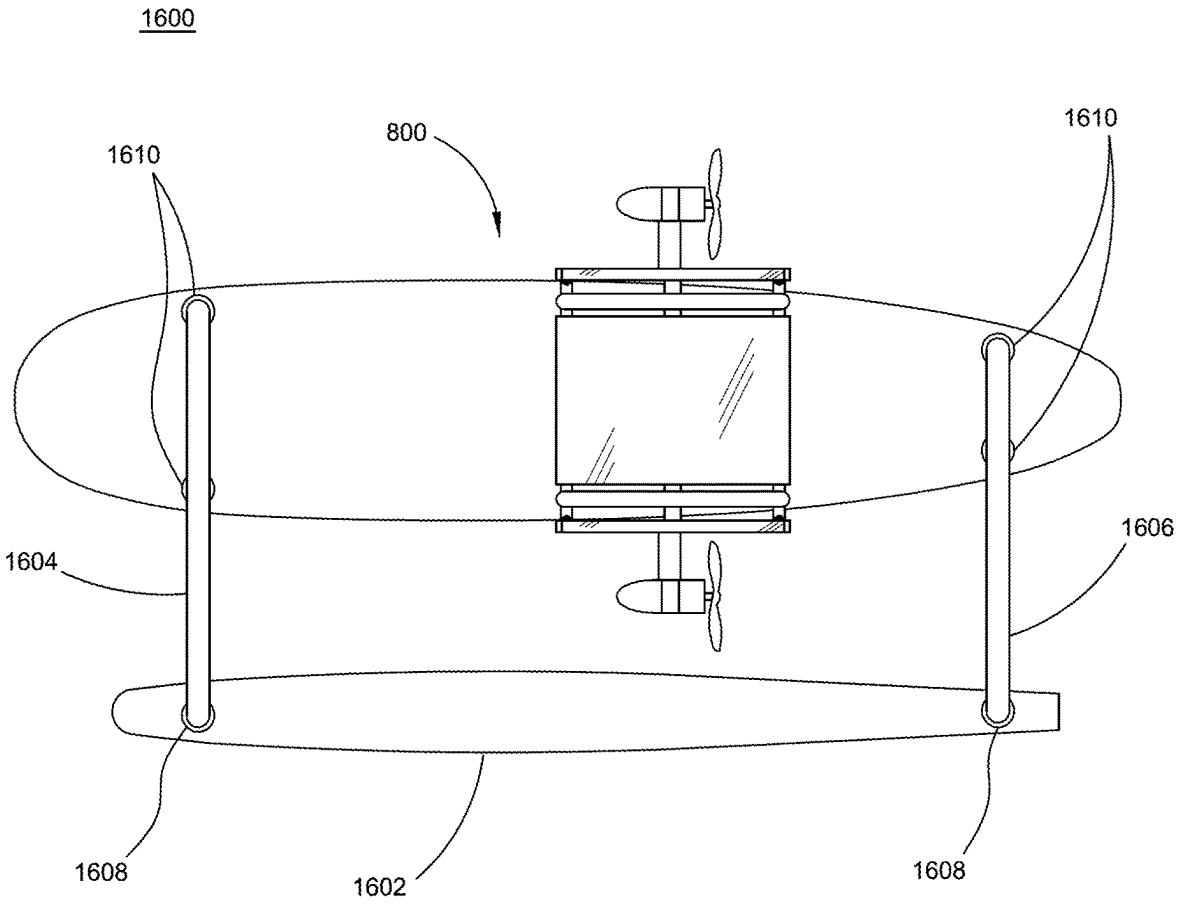

FIG.16

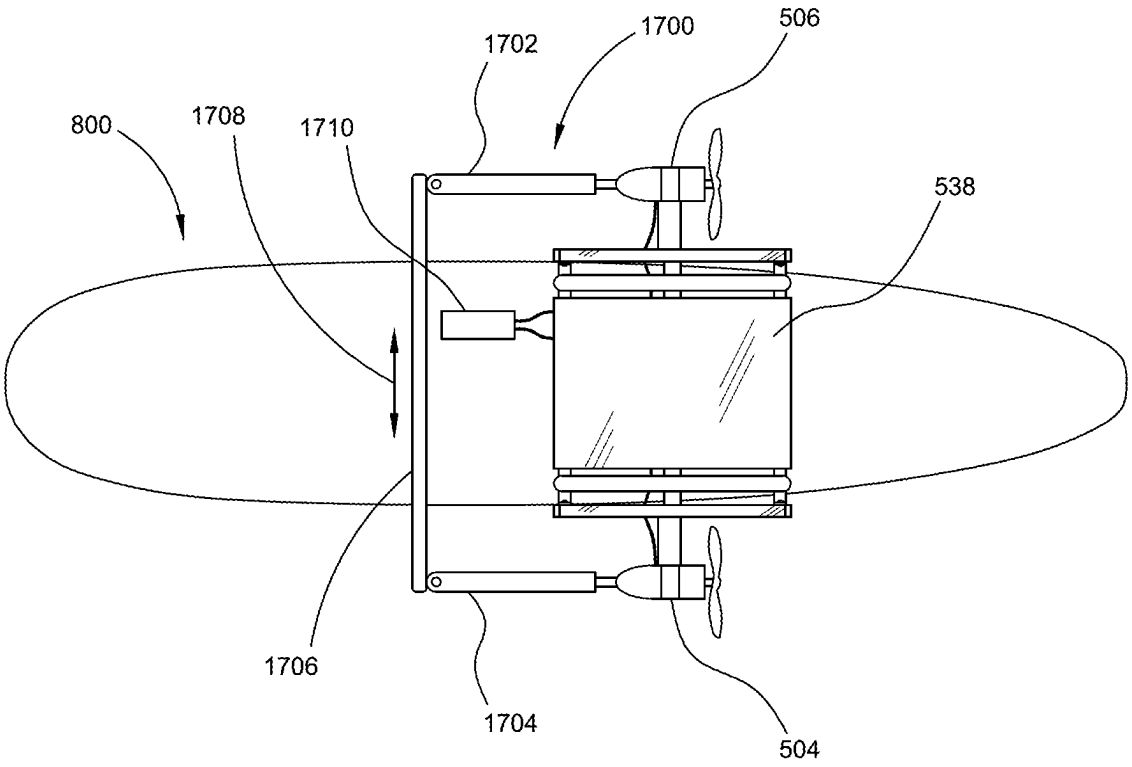

FIG.17

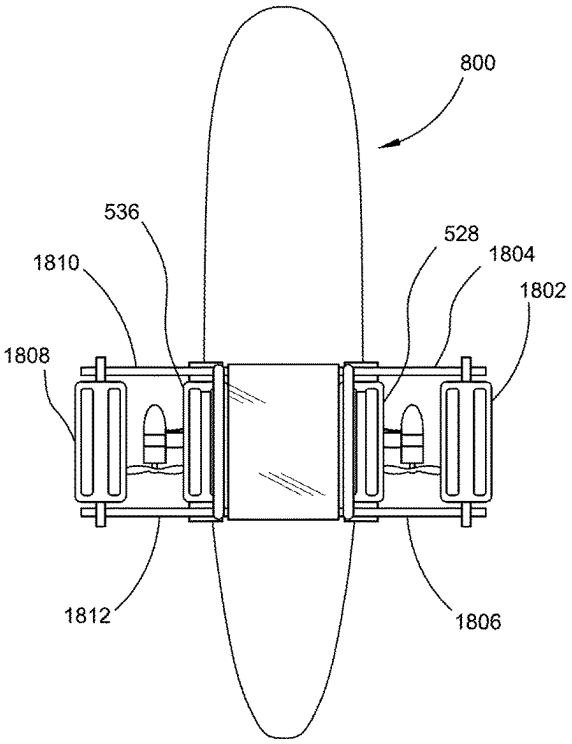

FIG.18A

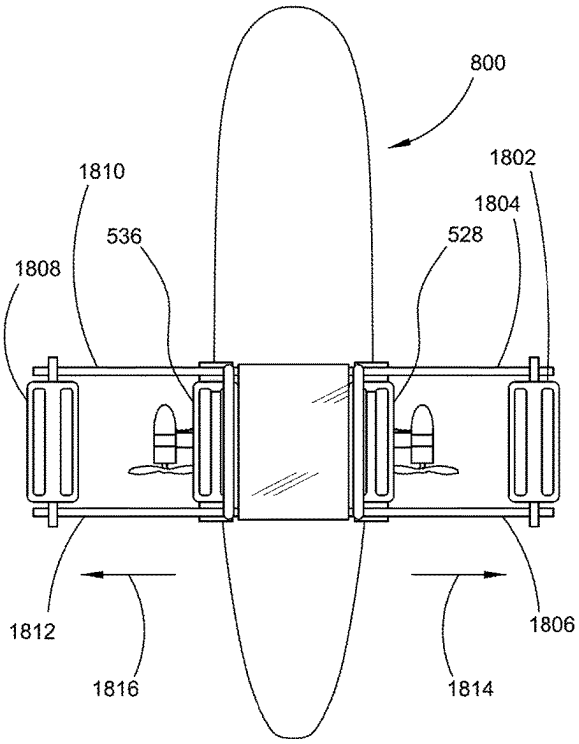

FIG.18B

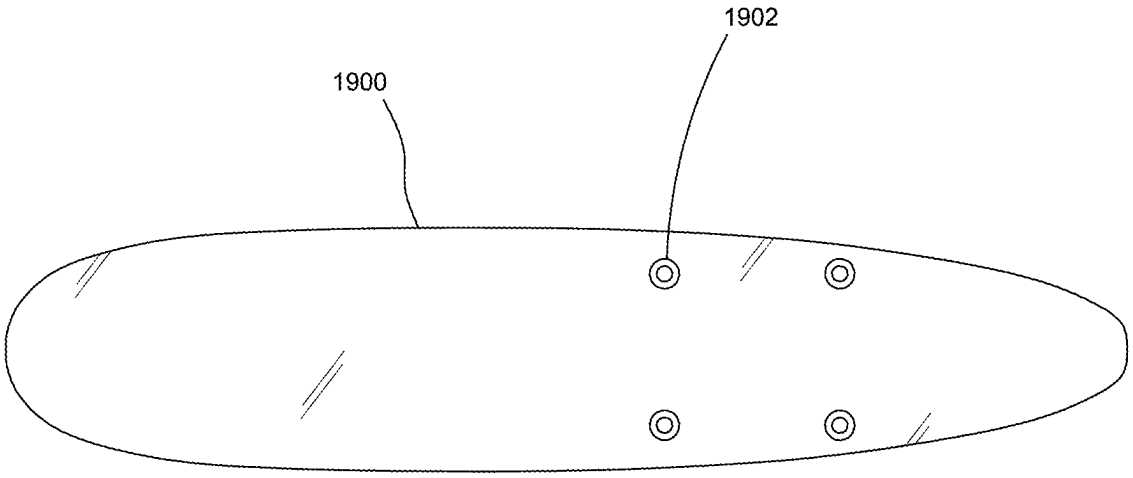

FIG.19

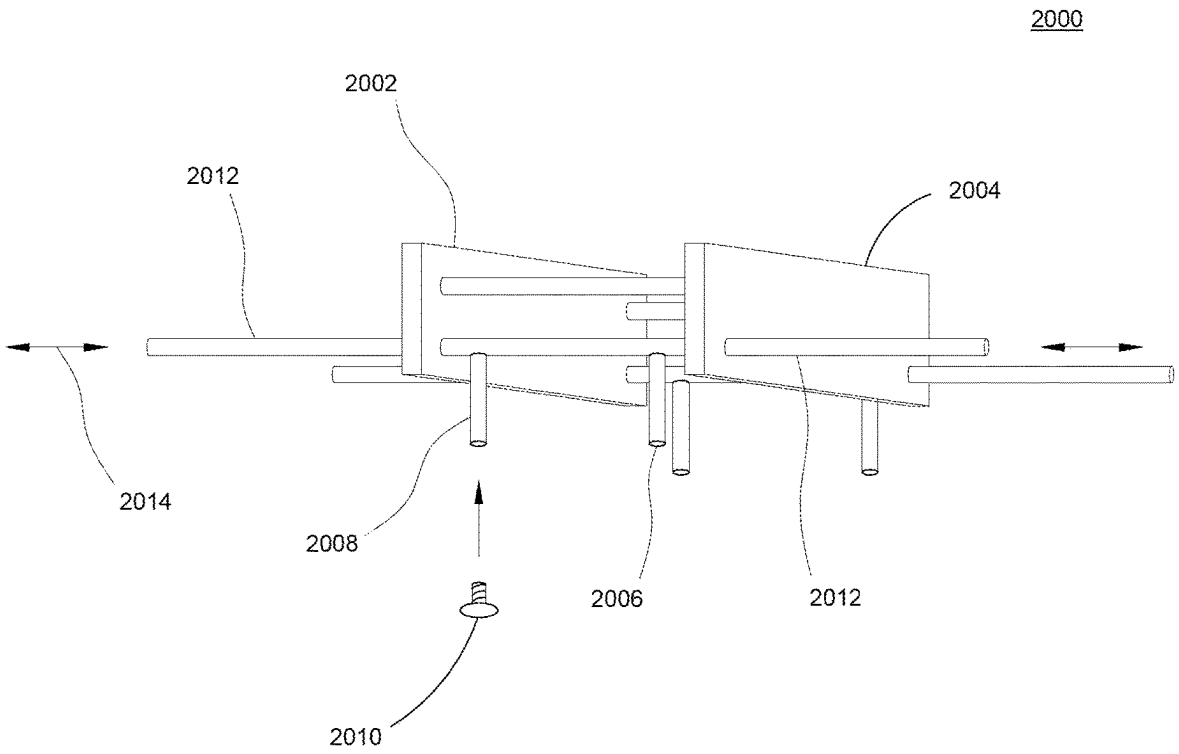

FIG.20

DUAL MOTOR MOUNT SYSTEM AND PERSONAL FLOATATION CRAFT USING SAME

FIELD OF THE INVENTION

[0001] The present invention relates generally to powering small or personal watercraft, and, more particularly, relates to a structure for mounting motors on each side of the craft that can be independently controlled by an operator on the watercraft.

BACKGROUND OF THE INVENTION

[0002] There is an increasing interest is small recreational watercraft such as small skiffs, canoes, paddleboards, and kayaks. In general, these personal floatation craft are sized for one or two people, lack an inboard motor, and are not suited for a heavy rear-mounted outboard engine. Further, these watercrafts are typically designed to be human powered, using paddles or oars. Although larger of these personal floatation craft have been outfitted with outboard motors before, such as canoes, the motor is mounted at the rear, requiring a person to sit at the rear to operate the motor, requiring a balancing of their weight and the weight of the motor at the front of the craft. In addition, the maneuverability of the craft is limited. For other personal floatation craft, such as, for example, paddleboards, it is known to mount single trolling motors in some fashion to the back/tail of paddle boards/stand up paddle boards, but these mounts/systems are very limited and still have the same rear/tail mounted "single motor" issues mentioned above.

[0003] Therefore, a need exists to overcome the problems with the prior art as discussed above.

SUMMARY OF THE INVENTION

[0004] In accordance with some embodiments of the inventive disclosure, there is provided a motor mount system for a personal floatation craft. The personal floatation craft has a front end, a rear end, and first side, and a second side opposite the first side. The motor mount system includes a first mounting block at the first side. The first mounting block provides a wall configured to receive a motor mount of a first electric outboard motor and oriented in a direction generally parallel to the first side of the personal floatation craft. There is also a second mounting block at the second side opposite the first mounting block. The second mounting block provides a wall configured to receive a motor mount of a second electric outboard motor and is oriented in a direction generally parallel to the second side of the personal floatation craft. There is also at least one forward brace bar connecting the first mounting block to the second mounting block across a top of the personal floatation craft, and at least one rearward brace bar connecting the first mounting block to the second mounting block across the top of the personal floatation craft.

[0005] In accordance with a further feature, the motor mount system includes clamps that clamp the at least one forward brace bar and the at least one rearward brace bar the top of the personal flotation craft at the first side and at the second side.

[0006] In accordance with a further feature, the at least one forward brace bar comprises an upper forward brace bar and a lower forward brace bar.

[0007] In accordance with a further feature, the at least one rearward brace bar comprises an upper rearward brace bar and a lower rearward brace bar.

[0008] In accordance with a further feature, there is also a first side float disposed between the first mounting block and the first side of the personal floatation craft, and a second side float disposed between the second mounting block and the second side of the personal floatation craft.

[0009] In accordance with a further feature, there is also a battery disposed between the at least one forward brace bar and the at least one rearward brace bar.

[0010] In accordance with a further feature, there is also a chair disposed over the at least one forward brace bar and the at least one rearward brace bar.

[0011] In accordance with some embodiments of the inventive disclosure, there is provided a personal floatation craft system, including a personal floatation craft having a length, a front end, a rear end, a first side and a second side. The system also includes a mounting block system disposed on a top of the personal water craft, and which includes a first mounting block at the first side which is oriented in a direction generally parallel to the first side of the personal floatation craft, a second mounting block at the second side opposite the first mounting block and oriented in a direction generally parallel to the second side of the personal floatation craft. The mounting block system also includes at least one forward brace bar connecting the first mounting block to the second mounting block across a top of the personal floatation craft, and at least one rearward brace bar connecting the first mounting block to the second mounting block across the top of the personal floatation craft. The personal floatation craft system further includes a first propulsion unit mounted on the first mounting block, and a second propulsion unit mounted on the second mounting block.

[0012] In accordance with a further feature, there is also a strap that secures the mounting block system to the personal floatation craft.

[0013] In accordance with a further feature, the at least one forward brace bar comprises an upper forward brace bar and a lower forward brace bar.

[0014] In accordance with a further feature, the at least one rearward brace bar comprises an upper rearward brace bar and a lower rearward brace bar.

[0015] In accordance with a further feature, there is also a first side float disposed between the first mounting block and the first side of the personal floatation craft, and a second side float disposed between the second mounting block and the second side of the personal floatation craft.

[0016] In accordance with a further feature, there is also a battery disposed between the at least one forward brace bar and the at least one rearward brace bar.

[0017] In accordance with a further feature, there is also a chair disposed over the at least one forward brace bar and the at least one rearward brace bar.

[0018] In accordance with a further feature, the first and second propulsion units are electric motors mount on the first and second mounting blocks, respectively by gimbaled clamps.

[0019] Although the invention is illustrated and described herein as embodied in a motor mount system and a personal floatation craft system using the motor mount system, it is, nevertheless, not intended to be limited to the details shown because various modifications and structural changes may be made therein without departing from the spirit of the

invention and within the scope and range of equivalents of the claims. Additionally, well-known elements of exemplary embodiments of the invention will not be described in detail or will be omitted so as not to obscure the relevant details of the invention.

[0020] Other features that are considered as characteristic for the invention are set forth in the appended claims. As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention, which can be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one of ordinary skill in the art to variously employ the present invention in virtually any appropriately detailed structure. Further, the terms and phrases used herein are not intended to be limiting; but rather, to provide an understandable description of the invention. While the specification concludes with claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the following description in conjunction with the drawing figures, in which like reference numerals are carried forward. The figures of the drawings are not drawn to scale.

[0021] Before the present invention is disclosed and described, it is to be understood that the terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting. The terms "a" or "an," as used herein, are defined as one or more than one. The term "plurality," as used herein, is defined as two or more than two. The term "another," as used herein, is defined as at least a second or more. The terms "including" and/or "having," as used herein, are defined as comprising (i.e., open language). The term "coupled," as used herein, is defined as connected, although not necessarily directly, and not necessarily mechanically. The term "providing" is defined herein in its broadest sense, e.g., bringing/coming into physical existence, making available, and/or supplying to someone or something, in whole or in multiple parts at once or over a period of time.

[0022] "In the description of the embodiments of the present invention, unless otherwise specified, azimuth or positional relationships indicated by terms such as "up", "down", "left", "right", "inside", "outside", "front", "back", "head", "tail" and so on, are azimuth or positional relationships based on the drawings, which are only to facilitate description of the embodiments of the present invention and simplify the description, but not to indicate or imply that the devices or components must have a specific azimuth, or be constructed or operated in the specific azimuth, which thus cannot be understood as a limitation to the embodiments of the present invention. Furthermore, terms such as "first", "second", "third" and so on are only used for descriptive purposes, and cannot be construed as indicating or implying relative importance.

[0023] In the description of the embodiments of the present invention, it should be noted that, unless otherwise clearly defined and limited, terms such as "installed", "coupled", "connected" should be broadly interpreted, for example, it may be fixedly connected, or may be detachably connected, or integrally connected; it may be mechanically connected, or may be electrically connected; it may be directly connected, or may be indirectly connected via an intermediate medium. As used herein, the terms "about" or "approximately" apply to all numeric values, whether or not explicitly indicated. These terms generally refer to a range of numbers that one of skill in the art would consider equivalent to the recited values (i.e., having the same function or result). In many instances these terms may include numbers that are rounded to the nearest significant figure. In this document, the term "longitudinal" should be understood to mean in a direction corresponding to an elongated direction of the article being referenced. Those skilled in the art can understand the specific meanings of the above-mentioned terms in the embodiments of the present invention according to the specific circumstances.

[0024] Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of X, at least one of Y, and at least one of Z to each be present.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] The accompanying figures, where like reference numerals refer to identical or functionally similar elements throughout the separate views and which together with the detailed description below are incorporated in and form part of the specification, serve to further illustrate various embodiments and explain various principles and advantages all in accordance with the present invention.

[0026] FIG. **1** is a front elevational view of a mounting block system for use with a personal floatation craft to allow mounting of dual propulsion systems, in accordance with some embodiments.

[0027] FIG. **2** is a right side elevational view of a mounting block system for use with a personal floatation craft to allow mounting of dual propulsion systems, in accordance with some embodiments.

[0028] FIG. **3** is a top plan view of a mounting block system for use with a personal floatation craft to allow mounting of dual propulsion systems, in accordance with some embodiments.

[0029] FIG. **4** is a top-side-front perspective view of a mounting block system for use with a personal floatation craft to allow mounting of dual propulsion systems, in accordance with some embodiments.

[0030] FIG. **5** is a front perspective view of a personal floatation craft having a mounting block system to allow mounting of dual propulsion systems, in accordance with some embodiments.

[0031] FIG. **6** is a front side perspective view of a personal floatation craft having a mounting block system to allow mounting of dual propulsion systems, in which movement of the propulsion units is indicated, in accordance with some embodiments.

[0032] FIG. **7** is a top plan view of a personal floatation craft with a mounting block system and batteries for powering propulsion units, in accordance with some embodiments.

[0033] FIG. **8** is a top plan view of a personal floatation craft with a mounting block system and propulsion units, fully assembled, in accordance with some embodiments.

[0034] FIG. **9** shows a front view of the personal floatation craft with the mounting block system positioned on top of

the personal floatation craft, in a partial assembly state, in accordance with some embodiments.

[0035] FIG. **10** shows a detail view of an upper support strut attachment for a mounting block system, in accordance with some embodiments.

[0036] FIG. **11** shows a detail view of an upper support strut attachment for a mounting block system, with batteries in place, in accordance with some embodiments.

[0037] FIG. **12** shows a detail view of an upper support strut attachment for a mounting block system, with the batteries and mounting block system secured to the personal floatation craft, in accordance with some embodiments.

[0038] FIG. **13** shows a bottom view of the personal floatation craft shown in FIG. **12**.

[0039] FIG. **14** shows a side view of a personal floatation craft in an alternate arrangement, in accordance with some embodiments.

[0040] FIG. **15** shows a perspective view of a personal floatation craft in an alternate arrangement, in accordance with some embodiments.

[0041] FIG. **16** shows a top plan view of a personal floatation craft with an outrigger, in accordance with some embodiments.

[0042] FIG. **17** shows a top plan view of a personal floatation craft with handlebars that connect to each of the propulsion units to allow an operator to steer the personal flotation craft with one hand, in accordance with some embodiments.

[0043] FIG. **18**A shows a top plan view of a personal floatation craft outfitted with dual motors and having extendible stabilizing outriggers in a non-extended position, in accordance with some embodiments.

[0044] FIG. **18**B shows a top plan view of a personal floatation craft outfitted with dual motors and having extendible stabilizing outriggers in an extended position, in accordance with some embodiments.

[0045] FIG. **19** shows a top plan view of a personal floatation craft that includes mounting scuppers to receive a mounting block system, in accordance with some embodiments.

[0046] FIG. **20** shows a mounting block system for a personal floatation craft that has vertical mounting extensions that fit into mounting scuppers in a personal floatation craft, in accordance with some embodiments.

DETAILED DESCRIPTION

[0047] While the specification concludes with claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the following description in conjunction with the drawing figures, in which like reference numerals are carried forward. It is to be understood that the disclosed embodiments are merely exemplary of the invention, which can be embodied in various forms.

[0048] The present invention provides a novel and efficient mounting system that allows mounting independent propulsion units to a personal floatation craft. A personal floatation craft is a small craft intended for one or two people to float on and traverse a body of water. Examples of personal floatation craft include paddle boards, sail boards, canoes, kayaks, surf boards, row boats, and similar small water craft. These craft all are typically human powered, although it is not uncommon for some forms of small craft to have a motor mounted on them. However, using one motor, while useful, does not provide a fuller range of motion and control of which these small craft are capable. According to the inventive disclosure, there is disclosed herein a mounting system that allows mounting dual independently controlled propulsion units at the sides of the craft. This arrangement provides the operator greater control and maneuverability, which can be very advantageous in certain conditions. In order to mount the propulsion units there needs to be a mounting system that can be readily adapted to, and mounted on, the various forms of personal floatation craft.

[0049] FIGS. **1-4** show various view of one example of a mounting block system. In particular, FIG. **1** is a front elevational view of a mounting block system **100**, FIG. **2** is a right-side elevational view of the mounting block system **100**, FIG. **3** is a top plan view of the mounting block system **100**, and FIG. **4** is a top-side-front perspective view of the mounting block system **100**. The mounting block system **100** is configured for use with a personal floatation craft to allow mounting of dual propulsion systems, in accordance with some embodiments. In general, the mounting block system **100** is lightweight and provides vertical wall members that are adapted to accept the mounting hardware of a propulsion unit typically configured to be mounted on the transom of a small boat. Thus, the mounting block system include vertical wall members **102** and **104** which are spaced apart by some distance that is dictated by the length of the brace bars **106**, **108** between the vertical wall members **102**, **104**. The length of the brace bars **106**, **108** can be selected so that the vertical wall members **102**, **104** are each located at the opposite sides of a given personal floatation craft. That is, the brace bars **106**, **108** can be selected or sized for a particular application, and they can be different length brace bars **106**, **108** for different personal floatation craft. In some applications both lower and upper brace bars **106**, **108**, respectively, can be used, and is some applications there can be just one level of brace bar. As can be seen in FIGS. **3-4**, in addition to a lower brace bar **106** and an upper brace bar **108**, there can be both forward and rearward lower brace bars **106***a*, **106***b*, and forward and rearward upper brace bars **108***a*, **108***b*.

[0050] The brace bars **106**, **108** fix the distance between the vertical wall member **102**, **104** and also provide support for the propulsion units mounted on the vertical wall members **102**, **104**. The accommodate the propulsion units, each of the vertical wall members **102**, **104** can have a mounting region **110**, **112**, respectively, that is thinner that other portions of the vertical wall members **102**, **104**. The vertical wall members **102**, **104** can be made of suitably lightweight and rigid materials, including plastic or wood. In some embodiments the vertical wall members can be hollow in the region around the mounting region **110**, **112** to provide buoyancy in the event of the personal floatation craft leaning to one side or the other. The mounting regions **110**, **112**, however, should be sufficiently rigid that a mounting clamp of a propulsion unit can clamp onto the mounting region **110**, **112** with sufficient force to retain the propulsion unit in place when operating. In some embodiments the vertical wall members **102**, **104** can have a thickness, at the front and rear, of one to three inches, a height of eight to fifteen inches, and a length of twelve to twenty inches. In other embodiments they can have dimensions outside of those ranges. The brace bars **106**, **108** can be made of a rigid material, such as plastic or metal. In some embodiments the brace bars **106**,

108 can be make of aluminum, and they can be tubular or flat. The brace bars **106**, **108** can be attached to the vertical wall members **102**, **104** by any of a variety of mean, including by threading into threaded openings in the vertical wall members **102**, **104** in some embodiments. In other embodiments the brace bars **106**, **108** can have ends that attach to features on the vertical wall members. Those skilled in the art will appreciate that there are numerous ways to attach the brace bars **106**, **108** to the vertical wall members that can accomplish the goal of retaining the vertical wall members at a fixed distance apart while operating propulsion units mounted on the vertical wall members. Thus, the forces and torque imparted to the vertical wall members **102**, **104** by the propulsion units during operation must be resisted by the brace bars in maintaining the distance between the vertical wall members. As shown here, in some embodiments the brace bars **106**, **108** can extend through the vertical wall members **102**, **104**, and in other embodiments the brace bars **106**, **018** can simply attach to features on the sides of the vertical wall members **102**, **104** or have ends that sit in pockets that do not pass completely through the vertical wall members **102**, **104**. The brace bars **106**, **108** provide sufficient rigidity in holding the vertical wall members **102**, **104** but also minimize how much of the personal floatation craft is covered by the mounting block system **100**. Thus, for example, batteries for providing power to the propulsion units can be placed between the forward brace bars **106***a*, **108***a* and the rearward brace bars **106***b*, **108***b*.

[0051] FIG. **5** is a front perspective view of a personal floatation craft system **500** having a mounting block system to allow mounting of dual propulsion units, in accordance with some embodiments. There is a personal floatation craft **502** that, in this example, is a paddle board, and specifically what is known as a stand-up paddle board because it is intended that the user stand on the paddle board and use a paddle to propel the paddle board across the water. The paddle board can be a solid paddle board or an inflatable type paddle board. In other embodiments the personal floatation craft **502** can be another type of personal water craft, such as a canoe or kayak, as examples.

[0052] The mounting block system is positioned on top of the personal flotation craft **502**, and includes a first mounting block **102**, a second mounting block **104**, a pair (forward and rearward) of lower brace bars **106**, and a pair (forward and rearward) of upper brace bars **108**. The lower brace bars (forward and rearward) are supported on floats **528**, **536** at the sides of the paddle board **502**. The bottoms of the vertical wall members **102**, **104** can be partially in contact with the floats **528**, **536**, which in turn rest on the paddle board **502**. The floats **528**, **536** can be generally cylindrical members that are compressible and resilient. The floats **528**, **536** are buoyant and compressibly resilient, meaning they can be compressed and will tend to return to their original shape when the compressive force is relieved/removed. The buoyancy of the floats **528**, **536** can offset the loading of other components not normally carried by the personal flotation craft **502**. In application where the personal floatation craft **502** is less susceptible to such loading, the floats **528**, **536** may be omitted.

[0053] Mounted on the first mounting block **102** is a first propulsion unit **504**, and mounted on the second mounting block **104** is a second propulsion unit **506**. In the present example, the first and second propulsion units **504**, **506** are electric trolling motors. An electric trolling motor is a relatively small outboard motor that drives a propeller, and can be easily manually directed to move a small boat at a trolling speed (e.g., 1.5-2.5 miles per hour). Of course, as is well known, trolling motors are manufactured in a variety of sizes and propulsion capabilities for a similar variety of sizes of boats. The propulsion units **504**, **506** can be substantially identical, and so hereafter the details of propulsion unit **504** will be described with the understanding that propulsion unit **506** has equivalent features/structure. There is a mounting clamp **508** that mounts on the mounting block **102**, and can include adjustable clamping members **512** that can be threaded rods that are terminated with a flat plate member that bears against the surface of the mounting block **102**, as is well known. Turning the clamping member **512** increase the force against the mounting block, and against an opposing surface of the clamp **508**. Thus, the mounting block **102** fits between the clamping members **512** and the opposing surface of the clamp **508**. A connecting arm can pass over and rest on top of the mounting block to help support the weight of the propulsion unit **504**.

[0054] The clamp **508** also attaches to a shaft **514** of the propulsion unit **504** via a gimble that allows rotation of the propulsion unit **504**, as will be explained. There are cables **518** that connect to an electric power source, such as a battery **532**, **534** which are set between the forward and rearward brace bars **106**, **108** and the mounting blocks **102**, **104** on the top surface of the personal flotation craft **502**. Although two batteries **532**, **534** are shown being used here, it will be appreciated that a single battery can be used. Likewise, it will be appreciated that there are different types of battery chemistry that can be used equivalently. At the top of the shaft **514** is the control head **516** that houses the electrical control components for operating the propulsion unit **504**. This can include, for example, the speed control used to drive the motor **522** at the bottom of the propulsion unit **504**. A handle **520** can be used to both direct the propulsion as well as provide a throttle input to the control circuit in the head **516** using a conventional twist action, as is well known. The motor **522** drives a propeller **526** at a rate based on the throttle input. A propeller guard **524** can be present to prevent injury by the propeller **526** to an operator should the operator fall off of the personal flotation craft **502**. In addition, the propeller guard **524** can prevent or reduce weed fouling of the propeller **526**.

[0055] A seat **538** can be placed over the batteries **532**, **534** and the brace bars **106**, **108** and can have side handle **540** to assist a person in transitioning between seated and standing positions. In some embodiments a tubular cushion **530** can be placed over one or more of the brace bars **106**, **108** to prevent damage to the brace bar(s) **106**, **108**, as well as to protect the operator's feet (e.g., heels and Achiles regions). And to hold the mounting block assembly to the personal floatation craft **502**, a strap **542** can be placed through strap loops on each other mounting block **102**, **104** and run under the personal floatation craft and, here, over the batteries **532**, **534** to hold all of these elements to the personal floatation craft **502**. The strap **542** can be tightened as needed to keep the mounting block system and other components in place on the personal floatation craft **502**.

[0056] As mentioned, propulsion unit **506** can be substantially identical to propulsion unit **504**, but mounted in a "mirrored" configuration relative to propulsion unit **504**. However, the two propulsion units **504**, **506** can be con-

trolled independently of each other, which allows the user considerable control over the movement and maneuvering of the personal floatation craft **502**. By independently it is meant that the two propulsion units **504**, **506** can be operated at different or the same speeds, in different or the same directions. They can also be tilted independently of each other. The independence of the two propulsion units **504**, **506** allows the user to maneuver the persona floatation craft **502** in ways that are not possible with a single propulsion unit.

[0057] FIG. **6** is a front side perspective view of a personal floatation craft **502** having a mounting block system to allow mounting of dual propulsion units **504**, **506**, in which movement of the propulsion units is indicated, in accordance with some embodiments. As indicated here, for example, the propulsion units **504**, **506** can be tilted with a plane that is generally perpendicular to the elongated direction of the personal floatation craft **502**. Arrow **602** indicates an inward tilt which moves the head of the propulsion unit **506** inward, over the personal floatation craft **502**, which moving the motor outward, and upward. The gimbal in mount **508** facilitates the tilting ability. Typically, when, for example, a trolling motor is mounted on the aft transom of a boat, tilting the motor would angle the propeller downward before it was lifted out of the water. By mounting the propulsion units **504**, **506** on mounting blocks along the side of the personal floatation craft **502**, the motor can be lifted while still keeping the direction of thrust completely forward, which can allow the personal floatation craft **502** to be powered through shallow water.

[0058] FIG. **7** is a top plan view of a personal floatation craft **502** with a mounting block system **100** and batteries **532**, **534** for powering propulsion units, in accordance with some embodiments. In this view it can be seen that the mounting block **102**, **104** are generally oriented such that their lengths are parallel with the elongated direction of the personal floatation craft **502**. Once the batteries **532**, **534** are put in place, a strap **542** can be placed over the batteries **532**, **534**, and through strap rings on the inward-facing surfaces of the mounting blocks **102**, **104**, and around the bottom of the personal floatation craft **502** to hold the mounting block system **100** in place on the personal flotation craft. In FIG. **8** the seat **538** has been added over the mounting block system **100**, and the propulsion units **504**, **506** have been mounted on mounting block **102**, **104**, respectively. Arrow **802** indicates that the propulsion units can be steered by moving the handle to rotate the propulsion unit about the axis of its shaft. Line A-A indicates the section line and direction of view for FIGS. **9**, **11**, and **12**.

[0059] FIG. **9** shows a front view of the personal floatation craft **502** with the mounting block system positioned on top of the personal floatation craft **502**, in a partial assembly state, in accordance with some embodiments. In this view the strap rings **908** on the inward-facing sides of the mounting block **102**, **104** can be seen. In addition, similar mounting rings **904** are shown for receiving an end **902** of the upper brace bar **108**. In some embodiments, such as that shown in FIG. **10**, the end **902** of the brace bar **108** is turned perpendicular to the elongated direction of the brace bar **108**, and is flattened. There is an opening **1002** in the end **902** that corresponds with an opening **1004** in the mounting block **102**. A mounting ring **904** is mounted on the inward-facing surface **1006**, and the end **902** is moved against the inward-facing surface **1006**, as indicated by arrow portion **1008**, and then upward, as indicated by arrow portion **1010**, such that opening **1002** is aligned with opening **1004**. At which point bolt **906** can be passed through both openings **1002**, **1004** to hold the end **902** in place against the mounting block **102**. The bolt **906** can be secured at the other side of the mounting block **102** by a nut, but in some embodiments the bolt **906** can function as a support pin to prevent the brace bar **108** from falling, and the mounting ring **904** prevents the end **902** from pulling away from the mounting block **102**. Alternatively, the mounting ring **904** can include threaded ends that pass through the mounting block **102** to allow the ring **904** to be tightened against the receiving end of the brace bar **108**. As will be appreciated by those skilled in the art, there are numerous equivalent ways of connecting the brace bar to the mounting block.

[0060] In FIG. **11**, the batteries **532**, **534** have been added, and in FIG. **12** the strap **542** has been added. The strap **542** passes over the batteries **532**, **534** and through the strap rings **908** on the mounting block **102**, **104**. The strap rings can be substantially similar to the mounting rings **904** in FIGS. **9-10**. A portion **1202** of the strap **542** passes along the bottom of the personal floatation craft **502**, and a buckle **1204** can be used to tighten the strap **542** as necessary to hold the mounting block system **100** in place on the personal flotation craft **502**. In FIG. **13** a bottom view of the personal floatation craft **502** as shown in FIG. **8**, and here the strap **542**, and in particular the portion **1202** of the strap **542** that suns under the and against the bottom of the personal floatation craft **502** can be seen.

[0061] FIG. **14** shows a side view of an alternate system **1400** or arrangement of a personal floatation craft **1402** with the inventive propulsion mounting block system **100**, in accordance with some embodiments. In this view there is shown a propulsion unit **1404** that is mounted in a gimbaled clamp **1408** to a mounting block of the mounting block system **100**. An identical propulsion unit is provided on the opposite side. A strap **1410** can be used to secure the mounting block system **100** to the personal flotation craft **1402**. The propulsion unit **1404** includes a handle **1414** coupled to a control head, and which is used to both direct (turn/aim) the motor **1412** and control the speed of the motor (i.e., revolution rate of the propeller). The battery **1406** is located forward of the mounting block system **100** in this embodiment, which allows the operator to stand between the mounting blocks of the mounting block system **100**. Because the battery or batteries can be substantially heavy, in some personal flotation craft the exemplary arrangement shown here may provide better balance for stability of the personal floatation craft **1402**. It has also been found that standing while operating the propulsion units is preferred for some activities such as, for example, fishing. The elevated view point afforded by standing (versus sitting or kneeing) may allow an angler to see fish that could not otherwise be seen due to glare of sunlight off the water surface.

[0062] It will be appreciated by those skilled in the art that the mounting block system **100** can be located at any of various points along the length of the personal flotation craft. However, optimum positioning will be dependent on the particular personal floatation craft, the weight of the propulsion units and batteries, the weight of the user and any other gear. It will also be appreciated that, while electric motors are shown here are the propulsion units, small outboard motors that use 2-cycle or 4-cycle internal combustion engines can be used equivalently in some embodi-

ments. An internal combustion outboard engine will weigh more, and since most of that weight is at the top, it will make the craft more top heavy, so one or more outriggers may be attached to the personal floatation craft to help stabilize a system using such outboard engines. It will further be appreciated that, while the use of a strap has been shown here as an exemplary means of securing the mounting block system to the personal floatation craft, it is contemplated that personal floatation craft may be manufactured to receive a secure the mounting block system in a way that obviates the need for a strap. For example, there can be a rod or peg that is captured in corresponding openings in the bottom of a mounting block and the top of the personal floatation craft. Alternatively, the mounting blocks can be manufactures with protrusions extending from the bottom of the mounting block that fit into openings in the top of the personal floatation craft at the sides of the personal floatation craft.

[0063] FIG. **15** shows a perspective view of a personal floatation craft system **1500** in an alternate arrangement, in accordance with some embodiments. The mounting block system **100** is placed on the top of a persona floatation craft **1502**. A chair **1504** having an under-seat cooler **1508** is provided. The inside of the cooler **1508** is accessible by lifting the seat **1506**. The chair is secured to the persona floatation craft **1502** by a strap **1510** much the same way that the mounting block system **100** is secured to the personal floatation craft by strap **542**. In this exemplary embodiment the chair **1504** is positioned in front of the mounting block system **100** so that the cooler **1508** and battery/batteries don't interfere with each other. That is, the under seat cooler **1508** needs space that would be occupied by the battery if the seat were positioned over the mounting block system **100**. This allows the strap **542** that secures the mounting block system to the personal floatation craft **1502** to also secure the battery. It should be further noticed that the mounting block system **100** of the present example uses only one forward brace bar and one rearward brace bar.

[0064] FIG. **16** shows a top plan view **1600** of a personal floatation craft **800** with an outrigger **1602**, in accordance with some embodiments. The outrigger **1602** is attached to the personal floatation craft **800** using bars **1604**, **1606** which attach to mounting points **1608**, **1610** on the outrigger **1602** and personal floatation craft. The outrigger **1602** provides stability that tends to resist a tendency of the personal flotation craft **800** capsizing. In some embodiments an additional outrigger can be provided on the opposite side of the personal floatation craft **800** for additional stability.

[0065] FIG. **17** shows a top plan view of a personal floatation craft **800** with handlebars **1700** The handle bars **1700** can be made of several rigid members including extension members **1702**, **1704** the extend from the existing control that connect to each of the propulsion units **504**, **506** to allow an operator to steer the personal flotation craft with one hand, in accordance with some embodiments. A connecting member **1706** can join to the ends of the extension member **1702**, **1704** in a pivoting connection at each extension member **1702**, **1704**. This allow the operator to move the common member **1706** to the left or right, as indicated by arrow **1708**, causing the propulsion units **504**, **506** to turn in their respective mounts, and allowing the operator to steer by directing the thrust generated by the propulsion units **504**, **506**. Since some propulsion units have a speed control that is operated by twisting the handle of the propulsion unit, a foot pedal **1710** can be provided to allow an operator to control the speed of the propulsion units. In an alternate arrangement, a throttle device, similar to the foot pedal **1710** can be mounted on the handlebars **1700**, like a motorcycle throttle. It will also be appreciated that an additional steering member can be connected through a gear to the common member **1706** and the additional steering member can be moved or turned in the direction the operator wants to travel. That is, since moving the common member **1706** to the right, for example, will result in the front end of the personal floatation craft turning to the left, the additional steering member can be coupled to the steering system so that personal floatation craft will steer in the direction that the additional steering member is moved.

[0066] FIGS. **18**A and **18**B show a top plan view of a personal floatation craft **800** outfitted with dual motors and having extendible stabilizers **1802**, **1808**. In FIG. **18**A the stabilizers **1802**, **1808** are in a non-extended position, and in FIG. **18**B they are in an extended position, in accordance with some embodiments. The stabilizers can be any generally elongated buoyant member, such as a custom designed outrigger, a fender, floats like floats **528**, **536**, or the like. Stabilizer **1802** is attached to the ends of extendible bars **1804**, **1806** which can be in a telescoping relationship with the lower brace bars **106**. That is, extendible bars **1804**, **1806** can withdraw into, and extend outward from the brace bars **106**. Likewise for stabilizer **1808** and extendible bars **1810**, **1812**. In FIG. **18**A the extendible bars are collapsed into the brace bars **106** (obscured in these views by the seat). In FIG. **18**B, the extendible bars **1804**, **1806**, **1810**, **1812** are extended outward in the directions of arrows **1814**, **1816** to move the stabilizers **1802**, **1808** outward. There can be a pin or other means to lock the positions of the extendible bars **1804**, **1806**, **1810**, **1812** in the fully extended position, the fully collapsed position, or intermediate positions.

[0067] FIG. **19** shows a top plan view of a personal floatation craft **1900** that includes mounting scuppers **1902** to receive a mounting block system, in accordance with some embodiments. The scuppers **1902** are openings, preferably reinforced with a rigid liner, through the body of the personal floatation craft **1900**. FIG. **20** shows a mounting block system **2000** for the personal floatation craft **1900** that has vertical mounting extensions **2008** that fit into the mounting scuppers **1902** of the personal floatation craft **1900**. The mounting block system **2000** includes opposing mounting blocks **2002**, **2004** that are connected via brace bars such as lower forward brace bar **2006**. The vertical mounting extensions extend downward in from the lower brace bars (forward and rearward) and fit into the mounting scuppers **1902**. As shown here, the personal floatation craft has four mounting scuppers and mounting block system **2000** has four vertical mounting extensions **2008** that each correspond to a respective one of the four mounting scuppers **1902**. Thus, the mounting block system **2000** can be mounted on the personal floatation craft **1900** by inserting each of the vertical mounting extension **2008** into their corresponding mounting scupper **1902**. It will be appreciated by those skilled in the art that while FIG. **19** shows four scupper openings, different numbers of opening can be used. In some embodiments there may be two openings, for example. By affixing the mounting block system to the personal floatation craft in this way, the use of a strap (e.g., **542**) can be avoided as a means for holding the mounting block system in place. A retaining member **2010** can be threaded into the bottom of each of the vertical mounting

extensions to retain the mounting block system on the personal floatation craft **1900**. Further, extendible bars **2012** are shown here, as a further example to FIGS. **18**A, **18**B, which can extend from and retract into as indicted by arrow **2014**, the brace bars, in order to hold outrigger stabilizers (e.g., **1802**, **1808**).

[0068] Other features can be included in the design of a motorized personal floatation craft, as will occur to those skilled in the field. For example, kill switches can be provided on the propulsion units. The kill switches are operated by an insert or key, and the propulsion unit will not operation unless the key is placed into the kill switch of the propulsion unit. The key can be further attached to a tether or lanyard that can attach at its opposite end to the operator's wrist, or any other location on the operator. Thus, if the operator fall off of the personal flotation craft for some reason, the key will be pulled out of the kill switches, causing the propulsion units to shut off.

[0069] A motor mount system for a personal floatation craft has been disclosed that allows mounting of dual propulsion units on a personal floatation craft, with one propulsion unit on each side of the personal floatation craft. The disclosed apparatus and personal floatation craft allows powered use of the personal floatation craft to make it easier for persons with certain disabilities, young persons, or people who simply want powered mobility of a personal floatation craft. The disclosed apparatus has the benefit of positioning the propulsion units at the side of the personal floatation craft, rather than at the rear, as is common for small watercraft.

[0070] The claims appended hereto are meant to cover all modifications and changes within the scope and spirit of the present invention.

What is claimed is:

1. A motor mount system for a personal floatation craft, the personal floatation craft having a front end, a rear end, and first side, and a second side opposite the first side, the motor mount system comprising:

a first mounting block at the first side, the first mounting block providing a wall configured to receive a motor mount of a first electric outboard motor and oriented in a direction generally parallel to the first side of the personal floatation craft;

a second mounting block at the second side opposite the first mounting block, the second mounting block providing a wall configured to receive a motor mount of a second electric outboard motor and oriented in a direction generally parallel to the second side of the personal floatation craft;

at least one forward brace bar connecting the first mounting block to the second mounting block across a top of the personal floatation craft; and

at least one rearward brace bar connecting the first mounting block to the second mounting block across the top of the personal floatation craft.

2. The motor mount system of claim **1**, further including clamps that clamp the at least one forward brace bar and the at least one rearward brace bar the top of the personal flotation craft at the first side and at the second side.

3. The motor mount system of claim **1**, wherein the at least one forward brace bar comprises an upper forward brace bar and a lower forward brace bar.

4. The motor mount system of claim **1**, wherein the at least one rearward brace bar comprises an upper rearward brace bar and a lower rearward brace bar.

5. The motor mount system of claim **1**, further comprising a first side float disposed between the first mounting block and the first side of the personal floatation craft, and a second side float disposed between the second mounting block and the second side of the personal floatation craft.

6. The motor mount system of claim **1**, further comprising a battery disposed between the at least one forward brace bar and the at least one rearward brace bar.

7. The motor mount system of claim **1**, further comprising a chair disposed over the at least one forward brace bar and the at least one rearward brace bar.

8. A personal floatation craft system, comprising:

a personal floatation craft having a length, a front end, a rear end, a first side and a second side;

a mounting block system disposed on a top of the personal water craft, and having:

a first mounting block at the first side, and oriented in a direction generally parallel to the first side of the personal floatation craft;

a second mounting block at the second side opposite the first mounting block and oriented in a direction generally parallel to the second side of the personal floatation craft;

at least one forward brace bar connecting the first mounting block to the second mounting block across a top of the personal floatation craft; and

at least one rearward brace bar connecting the first mounting block to the second mounting block across the top of the personal floatation craft;

a first propulsion unit mounted on the first mounting block; and

a second propulsion unit mounted on the second mounting block.

9. The personal floatation craft system of claim **8**, further including a strap that secures the mounting block system to the personal floatation craft.

10. The personal floatation craft system of claim **8**, wherein the at least one forward brace bar comprises an upper forward brace bar and a lower forward brace bar.

11. The personal floatation craft system of claim **8**, wherein the at least one rearward brace bar comprises an upper rearward brace bar and a lower rearward brace bar.

12. The personal floatation craft system of claim **8**, further comprising a first side float disposed between the first mounting block and the first side of the personal floatation craft, and a second side float disposed between the second mounting block and the second side of the personal floatation craft.

13. The personal floatation craft system of claim **8**, further comprising a battery disposed between the at least one forward brace bar and the at least one rearward brace bar.

14. The personal floatation craft system of claim **8**, further comprising a chair disposed over the at least one forward brace bar and the at least one rearward brace bar.

15. The personal floatation craft system of claim **8**, wherein the first and second propulsion units are electric motors mount on the first and second mounting blocks, respectively by gimbaled clamps.

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