March 29, 1966 L. J. LIVAUDAIS 3,242,898

DEVICE FOR WALKING ON WATER

Filed Aug. 5, 1965

3 Sheets-Sheet 1

FIG. 1

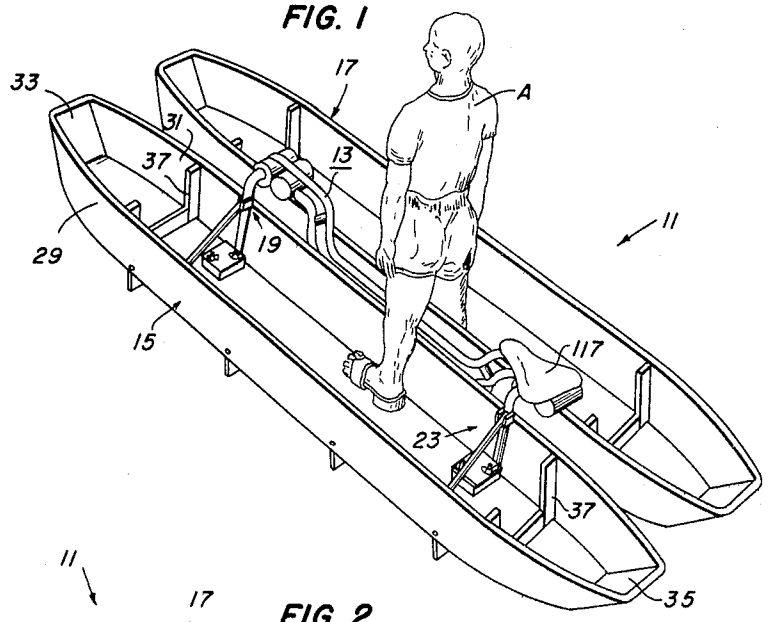

FIG. 2

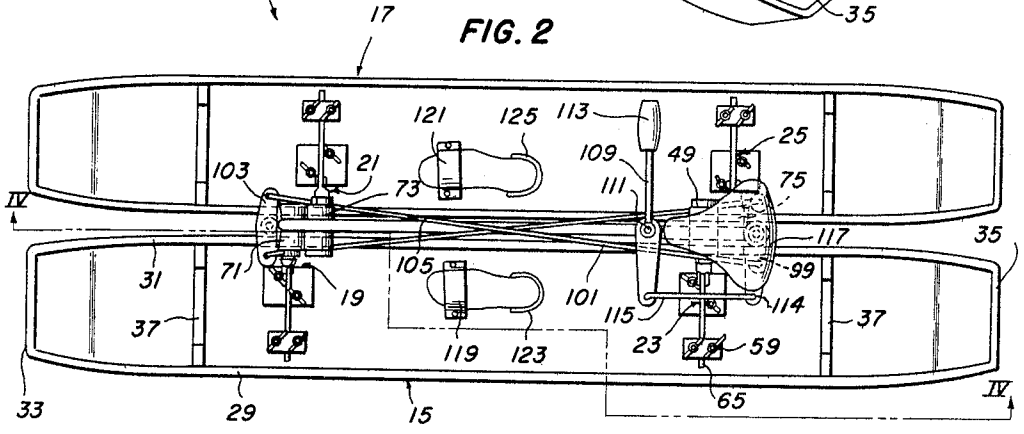

FIG. 3

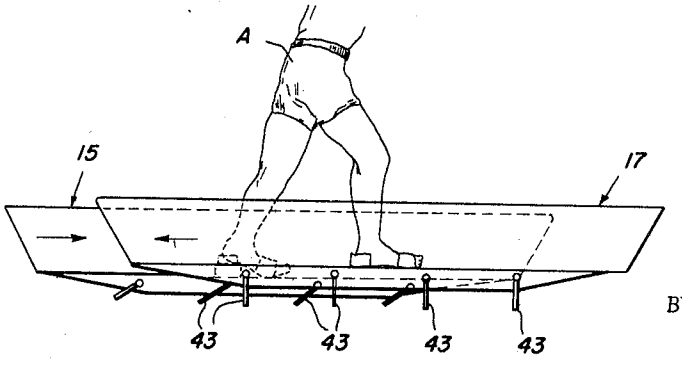

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FIG. 4

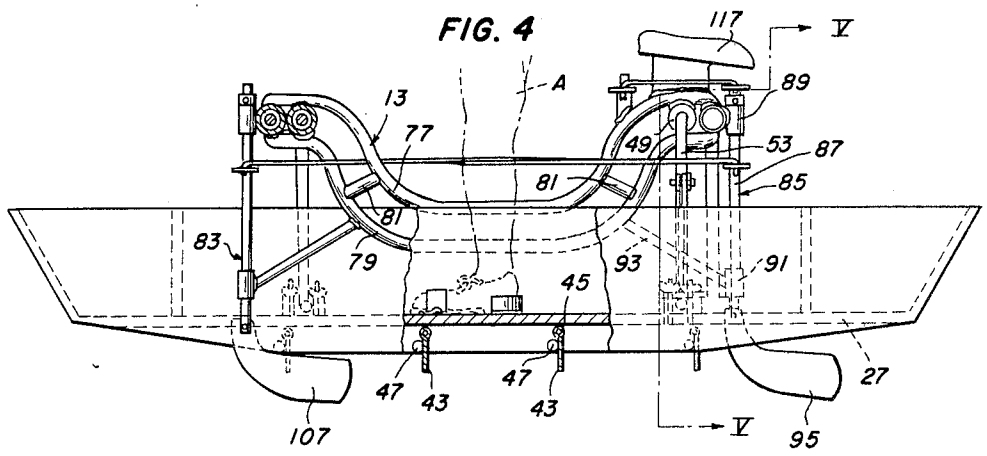

FIG. 6

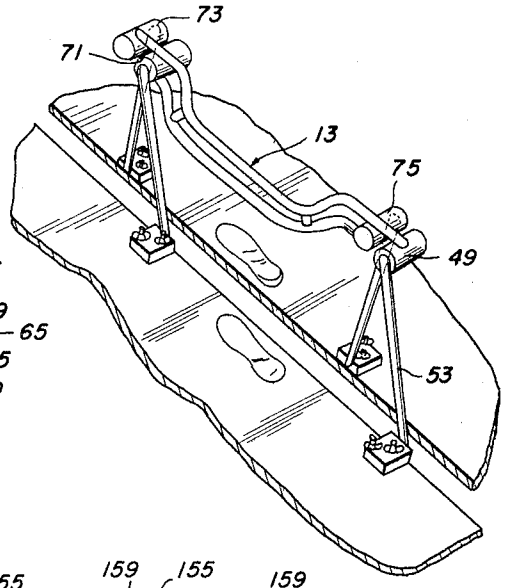

FIG. 5

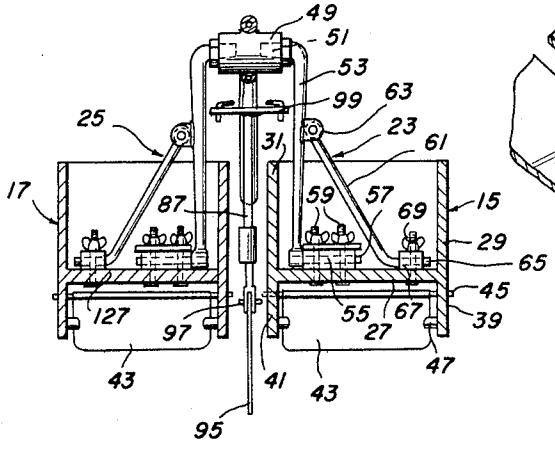

FIG. 7

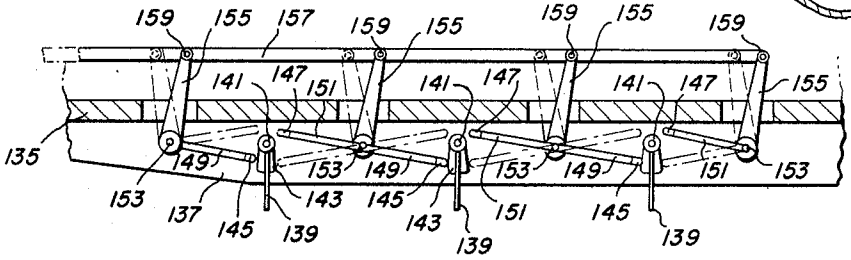

FIG. 8

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FIG. 9

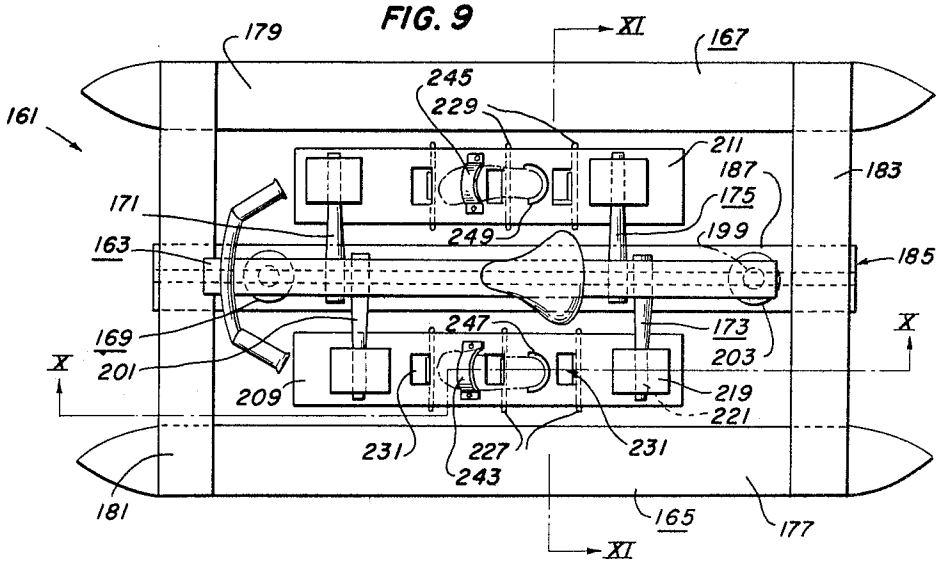


FIG. 10

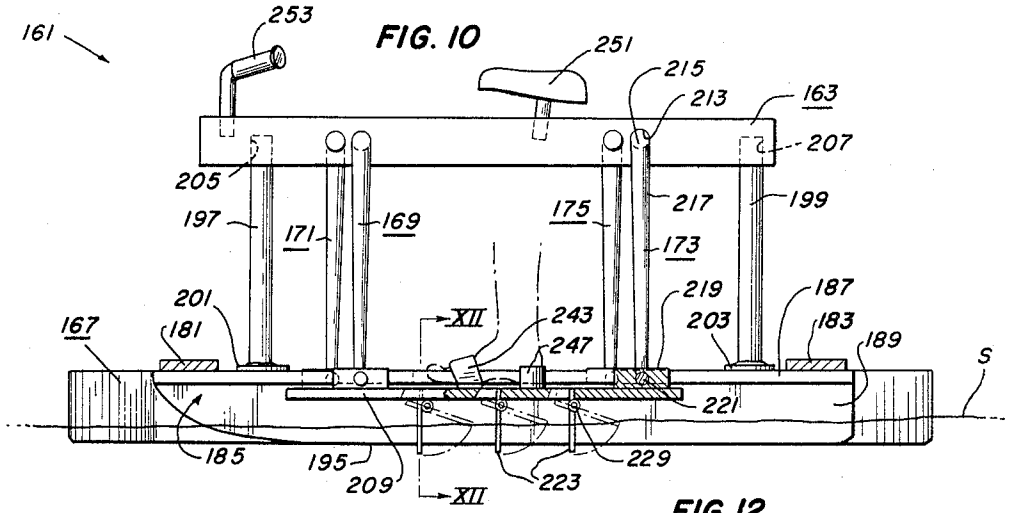


FIG. 11

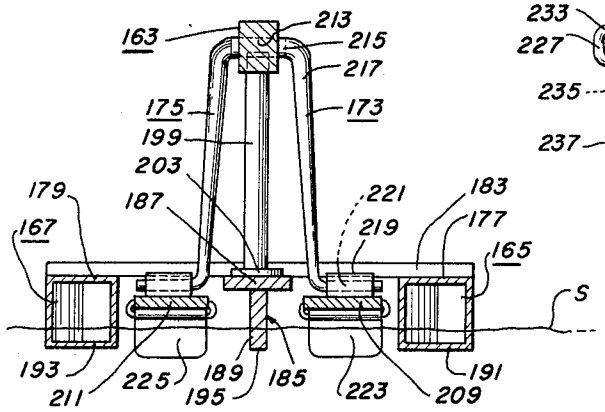
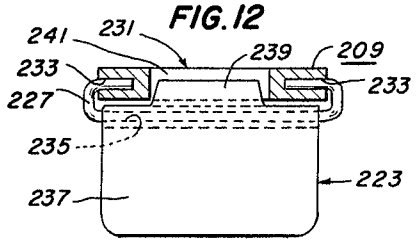


FIG. 12



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3,242,898

DEVICE FOR WALKING ON WATER

Loyd Joseph Livaudais, 1325 North Parkway, Memphis, Tenn.

Filed Aug. 5, 1965, Ser. No. 482,019
12 Claims. (Cl. 115—26)

This is a continuation-in-part of my prior application Serial Number 75,222 filed June 15, 1964. The invention relates to a device for use in walking on water. In particular, the present invention relates to that type of device which includes a pair of side-by-side floating members respectively attached to the feet of the user.

Heretofore, there have been various attempts to provide devices for walking on water, but in general these prior devices have lacked two important factors, namely control and minimum friction. Many of the previous devices had large and unwieldy floats or pontoons, and complicated and heavy mechanisms for connecting the floats or pontoons, which made such devices difficult to walk with and control the direction of movement. Also, many of these previous devices had unstable characteristics and caused undue strain on the person's ankles and feet due to the twisting action of the devices. It is believed that the lack of widespread commercial success of previous devices is primarily due to the above-mentioned factors. The present invention is directed towards overcoming the above-mentioned and other disadvantages in prior devices by providing a water walker which operates on the pendulum truss principle.

Thus, one of the objects of the present invention is to provide a device for walking on water that comprises a rigid frame, a split type boat (a pair of side-by-side closely spaced narrow boats, as opposed to previous floats and pontoons), and pendulum truss means movably interconnecting said rigid frame respectively with said narrow boats.

A further object is to provide such a device that is highly stable and requires a minimum of effort for its operation so that any person, old or young, can safely and easily operate this device for various purposes, such as fishing and other water sports.

A further object is to provide such a device that is provided with improved means for directional control.

A further object is to provide such a device including means for selectively changing the direction of movement to forward or rearward directions.

A further object is to provide a modified form of such a device that can be used on either ice or water.

A further object is generally to improve the design and construction of devices for walking on water, ice or the like.

The means by which the foregoing and other objects of the present invention are accomplished and the manner of their accomplishment will be readily understood from the following specification upon reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of the device of the present invention shown with the user in a standing position.

FIG. 2 is a plan view of the device of FIG. 1.

FIG. 3 is a somewhat schematic view illustrating the operation of the device of the present invention.

FIG. 4 is a partly sectionalized view of the device taken on the line IV—IV of FIG. 2.

FIG. 5 is a sectional view taken as on the line V—V of FIG. 4.

FIG. 6 is a somewhat schematic view showing some of the basic components of the device of the present invention with parts removed for purposes of clarity, and showing a modified arrangement of the pendulum arm bearings.

FIG. 7 is a fragmentary longitudinal sectional view of a modified form of the present invention.

FIG. 8 is an elevational view showing a modified paddle for the device of the present invention.

FIG. 9 is a plan view of another embodiment of the present invention.

FIG. 10 is a sectionalized elevational view of the device taken as on the line X—X of FIG. 9.

FIG. 11 is a transverse sectional view as on the line XI—XI of FIG. 9.

FIG. 12 is an enlarged sectional view of the paddle structure of the device taken as on the line XII—XII of FIG. 10.

Referring now to the drawings in which the various parts are indicated by numerals, the device **11** of the present invention comprises, in general, a rigid and generally fore and aft extending frame **13**, a pair of side-by-side closely spaced narrow boats **15**, **17** disposed in parallel relationship with each other and with frame **13**, a pair of forward pendulum truss assemblies **19**, **21**, and a pair of rearward pendulum truss assemblies **23**, **25**.

Referring now in more detail to the various parts, the boats **15**, **17** are, in effect, a split-type boat which together preferably have an overall width comparable to a full width boat and thus together have the same stable safety characteristics as any skiff or dory of comparable size. Boats **15**, **17** are substantially identical, and the following description of boat **15** should suffice for both:

Boat **15** includes a substantially flat bottom **27**, a substantially vertically extending outer side **29**, a substantially vertically extending inner side **31**, a bow **33**, a stern **35**, and substantially U-shaped members **37** fixedly mounted on the interior of the boat adjacent the bow and stern thereof to add rigidity to the boat. Sides **29**, **31** respectively depend below bottom **27** for portions as at **39**, **41**, which can serve as runners if the device is to be used on ice or the like, and to which are pivotally mounted a plurality of paddles **43** for pivot about transverse axes as by means of the transverse rods **45** to which the paddles are attached and which respectively extend through apertures in the depending portions **39**, **41**. Paddles **43** are spaced longitudinally along the bottom of boat **15**. A plurality of stops **47**, which are preferably constructed of rubber or the like, are fixedly mounted on depending portions **39**, **41** forwardly of paddles **43** to limit clockwise pivot of the paddles, as viewed in FIG. 4, to a depending forward position, as shown in this figure. It will be understood that the paddles **43** are free to pivot counterclockwise from said forward position to rearwardly inclined positions, and the purpose of which will be better understood in the description of the operation of the device **11** to follow later in the specification.

Forward truss assembly **19** and rearward truss assembly **23** are associated with boat **15** and movably interconnect frame **13** respectively adjacent the forward and rearward ends thereof to boat **15**. Likewise, forward truss assembly **21** and rearward truss assembly **25** are associated with boat **17** and movably interconnect frame **13** with boat **17**. The truss assemblies **19**, **21**, **23** and **25** are substantially identical, and the following description of truss

assembly 23 and its connection with frame 13 and boat 15 should suffice for all:

A bearing 49 is mounted on frame 13 adjacent the rearward end thereof and pivotally receives the inturned upper end portion 51 of a depending arm 53 so that the arm is pivotable about an axis extending transversely of frame 13 and device 11. In other words, arm 53 is pivotable in a vertical plane extending fore and aft of the device 11 parallel to frame 13. Means is provided for pivotally attaching arm 53 adjacent the lower end thereof to boat 15, and this means is preferably similar to that construction usually found connecting a bicycle pedal and its associated lever. Thus, a pedal-like member 55 is pivotally mounted on an out-turned portion 57 adjacent the lower end of arm 53, and pedal-like member 55 is attached to bottom 27 as by means of the fastening assemblies 59 so that the pivot axis of the above-described connection of arm 53 with boat 15 extends transverse relative to boat 15 and device 11 in parallel relationship to the pivot axis of the arm with frame 13. Rearward truss assembly 23 preferably additionally comprises a brace rod 61 fixedly attached to arm 53 intermediate the upper and lower ends thereof as by the lug 63. Brace rod 61 extends outwardly and downwardly from arm 53 in an imaginary plane through the upper and lower pivot axes of arm 53 heretofore described. The lower end of brace rod 61 is out-turned as at portion 65 and pivotally attached to bottom 27 in transverse alignment and spaced outwardly from out-turned portion 57. The pivotal attachment of out-turned portion 65 is by any suitable means, such as the bearing 67 attached to bottom 27 as by means of fastening assemblies 69. It will be understood that the pivot axes of the lower end of arm 53 and the lower end of brace rod 61 coincide.

The bearings 71, 73 and 75 respectively of truss assemblies 19, 21 and 25, which correspond to bearing 49 of truss assembly 23, are preferably arranged in the following manner: Bearing 73 is located just rearwardly of bearing 71 and mounted transversely on frame 13. Bearings 49 and 75 are mounted on frame 13 adjacent the rearward end thereof with bearing 49 being just forward of bearing 75. Another arrangement or modified arrangement of the bearings is shown in FIG. 6, wherein it will be seen bearing 71 is located just rearwardly of bearing 73, and bearing 75 is located just forward of bearing 49.

From the foregoing it will be understood that boats 15, 17 can swing in fore and aft movements relative to frame 13 and that the boats are restricted to this straight fore and aft movement in parallel relationship with each other and with the frame. Also, it should be noted that the only connection with the boats 15, 17 of frame 13 is through the truss assemblies 19, 21, 23 and 25. Frame 13, which is located between the boats 15, 17, is elongated fore and aft and is preferably narrow in its dimension which is transverse of device 11. Frame 13 is preferably of tube-like construction and preferably includes an upper member 77 and a lower member 79 rigidly interconnected by the pieces 81 to provide a very light open frame construction. The forward and rearward ends of frame 13 extend above the upper edges of the boats 15, 17, and the frame is preferably depressed adjacent the mid-portion thereof, as best seen in FIG. 4.

A forward rudder assembly 83 is provided adjacent the forward part of frame 13, and a rearward rudder assembly 85 is preferably provided adjacent the rearward end of the frame. Forward and rearward rudder assemblies 83, 85 are substantially identical, and the following description of rearward rudder assembly 85 and its connection with frame 13 should suffice for both:

Rearward rudder assembly 85 includes a vertical rudder post 87 pivotally mounted from frame 13 for pivot about a vertical axis as by means of an upper bushing 89 attached to frame 13 adjacent the rearward end thereof and a lower bushing 91 supported from the frame by means of a diagonal brace 93. A rudder 95 is mounted on the lower end of rudder post 87 for turning movement with the rudder post. Rudder 95 is preferably pivotally mounted from the rudder post as by means of a pin 97 extending through aligned apertures in the bifurcated lower end of the rudder post and through the upper end of the rudder. Rudder 95 is limited in its downward pivoting movement to the position shown in FIG. 4 by contact of the upper portion of the rudder with the portion of the rudder post 87 between the bifurcated lower end thereof, but the rudder is free to pivot upwardly, or counterclockwise as viewed in FIG. 4; as when an object is hit under water, or when traveling on ice or the like, the rudder can pivot up into a position between depending portions 39, 41.

A lever 99 is fixedly attached to rudder post 87 adjacent the upper end thereof and extends outwardly to either side thereof. A control rod 101 is pivotally attached at one end thereof to one end of lever 99, and the opposite end of the control rod is pivotally attached to the remote end of the corresponding lever 103 of forward rudder assembly 83. Another control rod 105 is pivotally mounted in the same manner to the other ends of levers 99, 103. In other words, the control rods 101, 105 are crossed so that movement of lever 99 will cause a similar but opposite movement of the other lever 103, whereby the rudder 95 and the corresponding rudder 107 of forward rudder assembly 83 will swing in opposite directions. The means for moving lever 99 preferably comprises a lever 109 pivotally mounted on frame 13 as at pivot point 111. Lever 109 has a handle 113 at one end thereof and is connected to a lever 114 fixedly mounted on rudder post 87 as by means of the link 115 respectively pivotally connected adjacent opposite ends to levers 109, 114.

A seat 117 is preferably mounted on the top of frame 13 adjacent the rearward end thereof so that the user A of the device 11 can sit down if he so desires.

Feet attaching means such as straps 119, 121 and heel retainers 123, 125 are respectively attached to the boats 15, 17 on the upper surfaces of bottoms 27, 127 for removably receiving the left and right feet of the user A who takes a position straddling frame 13 with his left foot in boat 15 and his right foot in boat 17, as best seen in FIG. 1. Then the user A causes the device 11 to move through the water by moving his legs back and forth in much the same manner as in walking, but, of course, his feet and boats 15, 17 are not picked up but caused to slide back and forth on top of the water. It will be understood that, if desired, only one leg, instead of both legs, may be moved back and forth, in either of which cases the boats will be propelled forwardly. This propelling action is illustrated in FIG. 3 wherein it will be seen that the right leg is moving boat 17 rearwardly, in which case the paddles 43 are depending downwardly and are urged against the stops 47 by the force of the water, and the boat 17 is caused to be pulled forwardly. The other leg, or left leg, is moving forwardly to pull boat 15 forwardly, in which case the paddles 43 pivot rearwardly. In other words, in this example shown in FIG. 3, the right leg is on a pulling stroke and the left leg is on a trailing or idling stroke. It will be understood that at all times the frame 13 floats free and moves upwardly and downwardly as the truss assemblies 19, 21, 23 and 25 are moved back and forth. Thus, when the truss assemblies 19, 21, 23 and 25 reach their mid-point, i.e., when they depend straight down from the frame 13, the frame will be at its highest point, and when the truss assemblies are at their extreme positions of swing, the frame will be at its lowest point. Also, it will be understood that the action of frame 13 and the truss assemblies 19, 21, 23 and 25 is similar to the movements of a person during walking, with the truss assemblies being equivalent to the person's legs and the frame being equivalent to the pelvis of the person. The pendulum established by the truss assemblies 19, 21, 23 and 25 swinging from the

frame 13 are of such a length that the mid-ordinant distance is very small, so that the device 11 requires a minimum amount of work to propel it. In other words, the only lifting work required is to lift the frame 13 the short upward distance as the truss assemblies travel towards the mid-point of their swing. In addition, since the boats 15, 17 move back and forth in horizontal and parallel motions, a minimum amount of resistance to the water is encountered.

Referring now to the modified paddle 129 shown in FIG. 8, the paddle is provided with a plurality of depending points or spikes 131 along the bottom edge thereof, so that the points can dig into the ice and propel the boats forward, or the body portion 133 of the paddle 129 can serve to propel the device through the water in the manner heretofore described relative to the paddle 43.

Referring now to the modified stop arrangement shown in FIG. 7 for providing rearward as well as forward motion of the device 11, the remainder of the device, not shown, is the same as in the preferred embodiment. In FIG. 7 it will be understood that bottom 135 corresponds to bottom 27 of the preferred embodiment, and depending portion 137 corresponds to depending portion 39 of the preferred embodiment. The mechanism for only one boat is shown in FIG. 7, but it will be understood that both of the boats preferably have this mechanism. The paddles 139 are pivotally mounted as at pivot points 141 in the same manner as the pivotal mounting of paddles 43 in the preferred embodiment. However, the paddles 139 are preferably enlarged as at 143. For purposes of clarity, it should be noted that in FIG. 7 the bow of the boat represented is to the left, as viewed in this figure, and the stern of the boat is to the right. For each paddle 139 there is a forward stop 145 and a rearward stop 147. Means are provided for selectively moving the forward stops 145 into place forwardly of enlarged portions 143 and the rearward stops 147 into inoperative positions, as shown in solid lines in FIG. 7, to provide a forward movement of the boat, and to move the forward stops 145 into an inoperative position and the rearward stops into operative positions behind the enlarged portions 143, as shown in broken lines in this figure, to provide rearward movement of the boat. Forward stops 145 are respectively mounted on the ends of levers 149, and rearward stops 147 are respectively mounted on the ends of levers 151, with the levers being pivotally mounted as at pivot points 153 and with arms 155 rigidly attached to the levers 149, 151. The upper ends of arms 155 are movably interconnected by means of a link 157 which is pivoted to the respective arms adjacent the upper ends thereof as at pivot points 159. From the foregoing it will be understood that when link 157 is moved forwardly, the arms 155 will be rotated counterclockwise and cause pivot of levers 149, 151 to move the levers into the broken line position, and rearward movement of link 157 will carry the levers 149, 151 into the solid line position. Also, it will be understood that, on the forward arm 155, it is only necessary to have lever 149 and, on the rearward arm, it is only necessary to have the lever 151; but for the intermediate arms 155, both levers 149, 151 are provided, and they are joined together adjacent the inner ends thereof where they are attached to the arms.

Referring now to the second embodiment of the invention, that is, the embodiment indicated by numeral 161 and illustrated in FIGS. 9 through 12, the second embodiment comprises, in general, a rigid and generally fore and aft extending frame 163, a pair of side-by-side narrow boats 165, 167 disposed in parallel relationship with each other and with frame 163, a pair of forward pendulum truss assemblies 169, 171 and a pair of rearward pendulum truss assemblies 173, 175. Pair of boats 165, 167 are similar to boats 15, 17 of the first described embodiment except that boats 165, 167 preferably are pontoon like and have sealingly secured top boards 177, 179 respectively.

Second embodiment 161 includes bridge structure rigidly interconnecting boats 165, 167 and such structure includes forwardly and rearwardly disposed cross members 181, 183 and a center member 185. Cross members 181, 183 are fixedly secured respectively to the forward and rearward end portions of top boards of 177, 179 of boats 165, 167 and rigidly join the boats in parallel and substantially rectangular configuration. Center member 185 is fixedly secured respectively to the under surfaces of cross-members 181, 183 and is disposed medianally of boats 165, 167. Center member 185 preferably is T-shaped in cross section and formed of two board like members 187, 189. The oppositely disposed end portions respectively of member 187 are fixedly secured to the medianally disposed undersurfaces of cross members 181, 183. The construction or relative arrangement of boats 165, 167 and the bridge structure of the craft is such that the respective bottom surfaces 191, 193 of boats 165, 167 are preferably co-planar with bottom edge surface 195 of cross member vertical member 189.

Frame 163 is rigidly supported from center member 185 by a pair of upstanding post members 197, 199. Flanged base portions 201, 203 of the respective post members are fixedly secured respectively to the forward and rearward portion of center member 185 and support the respective post members. Frame member 163 is fixedly supported from post members 197, 199 with the upper end portions respectively of the post members fixedly secured respectively in sockets 205, 207 of the frame member.

A pair of footboards 209, 211 are disposed respectively on opposite sides of center member 185. Forwardly disposed pair of pendulum truss assemblies 169, 171 and rearwardly disposed pair of pendulum truss assemblies 173, 175 interconnect respectively footboards 209, 211 with frame member 163. The respective truss assemblies are substantially identical and the following description of truss assembly 173 and its connection with frame 163 and footboard 209 will also suffice for truss assemblies 169, 171 and 175:

A bearing 213 is mounted in frame 163 adjacent the rearward end portion thereof and pivotally receives the inturned upper end portion 215 of depending arm 217 so that the arm is pivotable about the axis extending transversely of the frame of device 161. Means is provided for pivotally attaching arm 217 adjacent the lower end thereof to footboard 209 and this means is preferably similar to the construction described in the first embodiment. Thus, a pedal-like member 219 is pivotally mounted on outturned portion 221 adjacent the lower end of arm 217 and member 219 is fixedly attached to the upper surface of footboard 209 by suitable fastener means. Truss assemblies 169, 171, 173 and 175 thus respectively pendantly mount footboards 209, 211 from frame member 163 so that the footboards can be made to swing back and forth, and are restricted to parallel movement relative to each other.

A plurality of paddles 223, 225 are pivotally mounted respectively along the under surfaces of footboards 209, 211. Transversely extending rods 227, 229 respectively pivotally mount paddles 223, 225 from the respective footboards. Each paddle is attached to a respective footboard in like manner, and the following description of the attachment of a paddle 223 to footboard 209 illustrated in FIG. 12 will suffice for all:

Footboard 209 is provided with a rectangular aperture 231 transversely medianally disposed in the footboard and extending therethrough, and a pair of oppositely disposed socket openings 233 extending coaxially and inwardly respectively from the opposite disposed edges of footboard 209. Paddle 223 includes a medianally disposed hinge

portion having an aperture 235, a main body portion 237 and an upwardly disposed tab portion 239. Paddle 223 is pivotally secured with rod 227 extending through aperture 235 and with the oppositely disposed end portions of the rod being back-turned and secured respectively in socket openings 233. Pivotally secured, as such, the forward movement of main body portion 237 or the clockwise rotation (as viewed in FIG. 10) of paddle 223 is limited by tab part 239 abuttingly engaging the rearwardly disposed surface 241 of aperture 231. Tab portion 239 thus functions in a manner similar to stops 47 as described in the first embodiment and causes the respective paddles 223, 225 to function in like manner as paddles 43. Feet attaching straps 243, 245 and heel retaining members 247, 249 are respectively fitted on footboards 209, 211 for receiving respectively the right and left foot of the user.

A seat 251 is mounted on frame member 163 intermediate the ends thereof and handle bars 253 are mounted on the frame member adjacent the forward end thereof.

In using embodiment 161, the user preferably sits on seat 251 with the main body support being thereon and while holding handle bars 253, he moves his feet back and forth to cause the footboards 209, 211 to swing in arcs and to propel the device through the water by the action of the paddles 223, 225. It will be understood that the paddles during the rearward or power strokes will be in the depending position shown in solid lines in FIG. 10 and during the forward or return strokes will be in the broken line positions. In embodiment 161, the directional control of the device may be accomplished by varying the force or effort applied to one footboard relative to the other footboard. That is, should the user desire to direct the craft toward the right, he would apply or exert greater effort with his left leg and greater effort on footboard 209. Conversely, should he desire to move toward the left he would apply a greater effort on footboard 211. However, if desired, steering mechanism, as for example, like that shown in embodiment 11, may be incorporated into embodiment 161.

A desirable feature of embodiment 161 resides in the fact that when this embodiment is in use, the respective paddles 223, 225 are not completely submerged in the water. Referring to FIG. 10, it will be noted that the water surface (indicated S) is substantially at the midportion of each paddle and the water level is substantially below the undersurface of the respective footboard. Such a construction reduces considerably the resistance or the amount of drag of the craft as it moves through the water.

Although the invention has been described in some detail by way of illustration and example for purposes of clarity or understanding, it is to be understood that it is not to be so limited since changes and modifications may be made therein which are within the full intended scope of this invention as hereinafter claimed.

I claim:

1. A device for walking on water comprising a rigid and generally fore and aft extending frame, a pair of side-by-side closely spaced narrow boats disposed in parallel relationship with each other and with said frame, a pair of forward pendulum means adjacent the forward part of said frame and on opposite sides thereof with one of said forward pendulum means being associated with one of said boats and interposed between said frame and its associated boat and with the other of said forward pendulum means being associated with the other of said boats and interposed between said frame and its associated boat, a pair of rearward pendulum means adjacent the rearward part of said frame and on opposite sides thereof with one of said rearward pendulum means being associated with said one of said boats and interposed between said frame and its associated boat and the other of said rearward pendulum means being associated with said other of said boats and interposed between said frame and its associated boat; each of said pendulum means including a pendulum arm, first pivot means pivotally connecting said arm adjacent the upper end thereof to said frame for pivot of said arm about a first axis extending transversely of said frame, and second pivot means pivotally connecting said arm adjacent the lower end thereof to the associated one of said boats for pivot of the lower end of said arm about a second axis extending transversely of said frame; and a plurality of paddles each pivotally mounted on the bottom of said boats for pivot about a transverse axis between a depending forward position and rearwardly inclined positions.

2. A device for walking on water comprising a rigid and generally fore and aft extending frame, a pair of side-by-side closely spaced narrow boats disposed in parallel relationship with each other and with said frame, a pair of forward pendulum truss assemblies adjacent the forward part of said frame and on opposite sides thereof with one of said forward pendulum truss assemblies being associated with one of said boats and interposed between said frame and its associated boat and with the other of said forward pendulum truss assemblies being associated with the other of said boats and interposed between said frame and its associated boat, a pair of rearward pendulum truss assemblies adjacent the rearward part of said frame and on opposite sides thereof with one of said rearward pendulum assemblies being associated with said one of said boats and interposed between said frame and its associated boat and the other of said rearward pendulum truss assemblies being associated with said other of said boats and interposed between said frame and its associated boat; each of said pendulum truss assemblies comprising a pendulum arm, first pivot means pivotally connecting said arm adjacent the upper end thereof to said frame for pivot of said arm about a first axis extending transversely of said frame, second pivot means pivotally connecting said arm adjacent the lower end thereof to the associated one of said boats for pivot of the lower end of said arm about a second axis extending transversely of said frame, a brace rod fixedly attached adjacent the upper end thereof to said arm and extending laterally and downwardly in an imaginary plane through said first and second pivot axes, and third pivot means spaced laterally outwardly from said second pivot means pivotally connecting said brace rod adjacent the lower end thereof to said associated one of said boats for pivot of the lower end of said brace rod about a third axis coincident with said second axis; and a plurality of paddles each pivotally mounted on the bottom of said boats for pivot about a transverse axis between a depending forward position and rearwardly inclined positions.

3. The device of claim 2 which includes stop means for limiting pivot of said paddles, means connected to said stop means for selectively moving said stop means between a forward boat-moving arrangement in which said stop means restricts pivot of each of said paddles between a depending forward position and rearwardly included positions and a rearward boat-moving arrangement in which said stop means restricts pivot of each of said paddles between a depending rearward position and forwardly inclined positions.

4. The device according to claim 3 in which is included forward rudder means turnably mounted on said frame adjacent the forward end thereof, rearward rudder means turnably mounted on said frame adjacent the rearward end thereof, and control means coupled to said forward and rearward rudder means for turning said forward and rearward rudder means in opposite directions.

5. The device of claim 4 in which is included a plurality of points on said paddles adjacent the lower edges thereof for digging into ice and the like.

6. A device for walking on water comprising buoyant means for floating in water, frame means supported by said buoyant means, a pair of footboards disposed in substantially parallel and laterally spaced relationship, pendulum truss means respectively interconnecting said foot-

boards with said frame means for swingably supporting said footboards above the surface of the water, a plurality of pendantly supported paddles pivotally mounted on said footboards, said paddles being long enough to at least partially extend into the water when said paddles extend downwardly, and stop means for limiting respectively the pivotal movement of each paddle.

7. In a boat for walking on water, the propelling means for said boat comprising a rigid fore and aft extending frame, a pair of substantially long narrow boats, bridge structure rigidly interconnecting said pair of boats with said boats disposed side-by-side and parallel and with said bridge structure including a transversely and medianally disposed center member extending fore and aft, an elongated frame member, upstanding support structure rigidly interconnecting said frame member and said center member with said frame member and said center member with said frame member extending fore and aft and disposed substantially directly over said center member, a pair of footboards disposed respectively on opposite sides of said center member, pendulum truss means pivotally interconnecting said pair of footboards to said frame member for swinging movement of said footboards relative to said frame member, a plurality of pendantly supported paddles pivotally mounted respectively along the underside of each said footboard of said pair of footboards, and stop means for limiting respectively the pivotal movement of each paddle.

8. A device for walking on water comprising a rigid fore and aft extending frame, a pair of substantially long narrow boats, bridge structure interconnecting said pair of boats with said boats disposed side-by-side and parallel, said bridge structure including a center member extending fore and aft and disposed medianally of said pair of boats, an elongated frame member, upstanding support structure rigidly interconnecting said frame member and said center member with said frame member extending fore and aft and disposed substantially directly over said center member, a pair of footboards extending respectively fore and aft and disposed respectively on opposite sides of and adjacent said center member, a forwardly disposed pair of pendulum truss assemblies disposed adjacent the forward part of said frame and on opposite sides thereof with one of said forward pendulum truss assemblies being associated with one of said footboards and interposed between said frame and its associated footboard and with the other of said forward pendulum truss assemblies being associated with the other of said footboards and interposed between said frame and its associated footboard, a pair of rearward pendulum truss assemblies adjacent the rearward part of said frame and on opposite sides thereof with one of said rearward pendulum truss assemblies being associated with one of said footboards and interposed between said frame and its associated footboard and the other of said rearward pendulum truss assemblies being associated with the other of said footboards and interposed between said frame and its associated footboard; each of said pendulum truss assemblies comprising a pendulum arm, first pivot means pivotally connecting said arm adjacent the upper end thereof to said frame for pivot of said arm about a first axis extending transversely of said frame, second pivot means pivotally connecting said arm adjacent the lower end thereof to the associated one of said footboards for pivot of the lower end of said arm about a second axis extending transversely of said frame; and a plurality of paddles each pivotally mounted respectively on the bottom of said footboards for pivot about a transverse axis between a depending forward position and a rearwardly inclined position.

9. In a boat for walking on water, the propelling means for said boat comprising a rigid and generally fore and aft extending frame, a pair of movable foot supporting means disposed on opposite sides of said frame in parallel relationship with each other and with said frame, a pair of forward pendulum truss assemblies adjacent the forward part of said frame and on opposite sides thereof with one of said forward pendulum truss assemblies being associated with one of said foot supporting means and interposed between said frame and its associated foot supporting means and with the other of said forward pendulum truss assemblies being associated with the other of said foot supporting means and interposed between said frame and its associated foot supporting means, a pair of rearward pendulum truss assemblies adjacent the rearward part of said frame and on opposite sides thereof with one of said rearward pendulum truss assemblies being associated with said one of said foot supporting means and interposed between said frame and its associated foot supporting means and the other of said rearward pendulum truss assemblies being associated with said other of said foot supporting means and interposed between said frame and its associated foot supporting means; each of said pendulum truss assemblies comprising a pendulum arm, first pivot means pivotally connecting said arm adjacent the upper end thereof to said frame for pivot of said arm about a first axis extending transversely of said frame, and second pivot means pivotally connecting said arm adjacent the lower end thereof to the associated one of said foot supporting means for pivot of the lower end of said arm about a second axis extending transversely of said frame; said forward pendulum truss assemblies and said rearward truss assemblies restricting movement of said foot supporting means to fore and aft movements in parallel relationship with each other and with said frame, and a plurality of paddles each pivotally mounted on the bottom of said foot supporting means for pivot about a transverse axis between a depending forward position and rearwardly inclined positions.

10. A device for walking on water comprising a rigid and generally fore and aft extending frame, a pair of side-by-side closely spaced narrow boats disposed in parallel relationship with each other and with said frame, pendulum truss means movably interconnecting said rigid frame respectively with said boats for restricting movement of said boats to fore and aft movement in parallel relationship with each other and with said frame, a plurality of paddles each pivotally mounted on the bottom of boats for pivot about a transverse axis between a depending forward position and rearwardly inclined positions, and a plurality of points on said paddles adjacent the lower edges thereof for digging into ice and the like.

11. A device for walking on water comprising a rigid and generally fore and aft extending frame, a pair of side-by-side closely spaced narrow boats disposed in parallel relationship with each other and with said frame, pendulum truss means movably interconnecting said rigid frame respectively with said boats for restricting movement of said boats to fore and aft movement in parallel relationship with each other and with said frame, a plurality of paddles each pivotally mounted on the bottom of said boats for pivot about a transverse axis between a depending forward position and rearwardly inclined positions, stop means for limiting pivot of said paddles, means connected to said stop means for selectively moving said stop means between a forward boat moving arrangement in which said stop means restricts pivot of each of said paddles between a depending forward position and rearwardly inclined position and a rearward boat moving arrangement in which said stop means restricts pivot of each of said paddles between a depending rearward position and forwardly inclined position.

12. A device for walking on water comprising a rigid and generally fore and aft extending frame, a pair of side-by-side closely spaced narrow boats disposed in parallel relationship with each other and with said frame, pendulum truss means movably interconnecting said rigid frame respectively with said boats for restricting movement of said boats to fore and aft movements in parallel relationship with each other and with said frame, a plu-

rality of paddles each pivotally mounted on the bottom of said boats for pivot about a transverse axis between a depending forward position and rearwardly inclined positions, forward rudder means turnably mounted on said frame adjacent the forward end thereof, rearward rudder means turnably mounted on said frame adjacent the rearward end thereof, and control means coupled to said forward and rearward rudder means for turning said forward and rearward rudder means in opposite directions.

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