

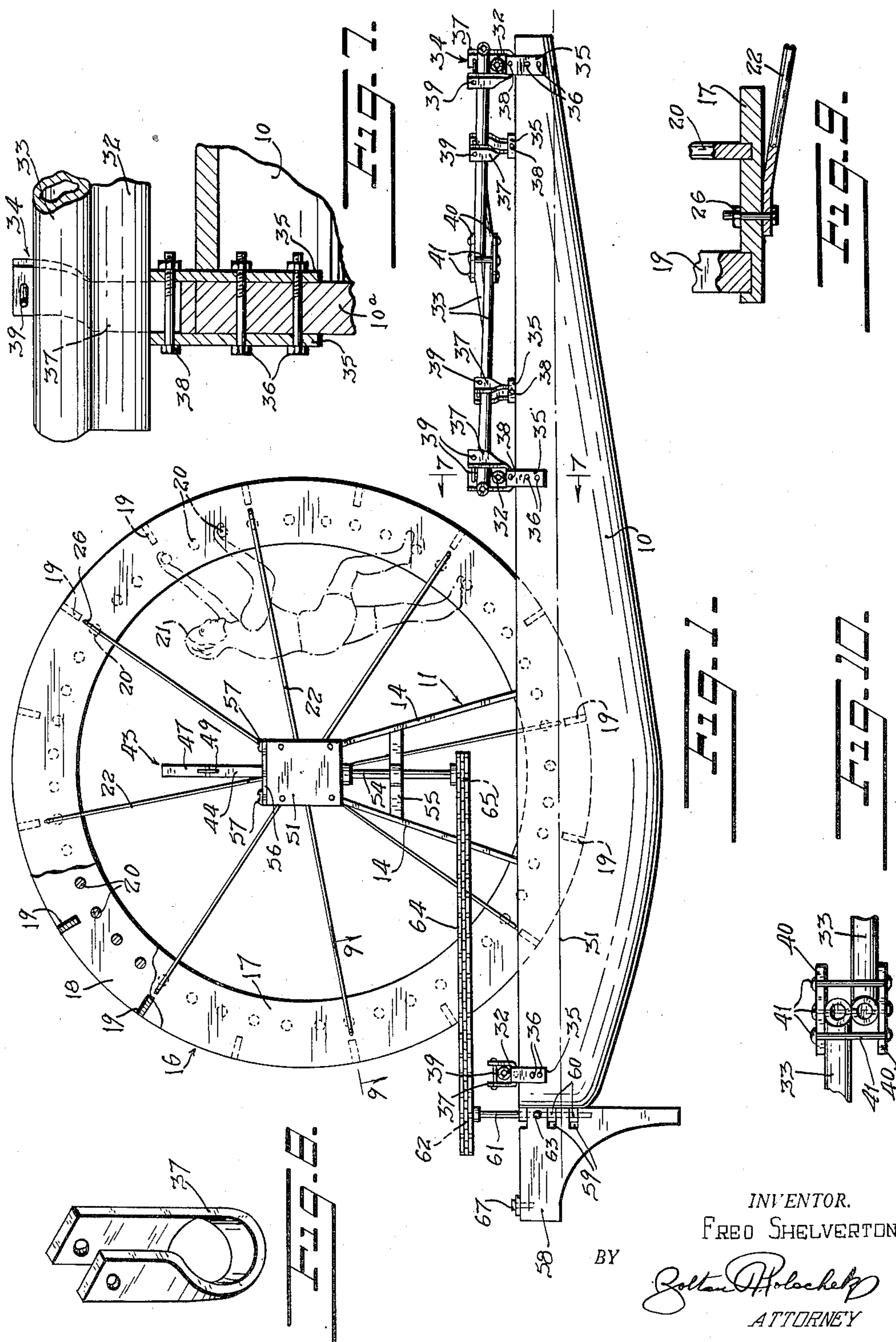
March 6, 1951

F. SHELVERTON

2,544,240

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3 Sheets-Sheet 1



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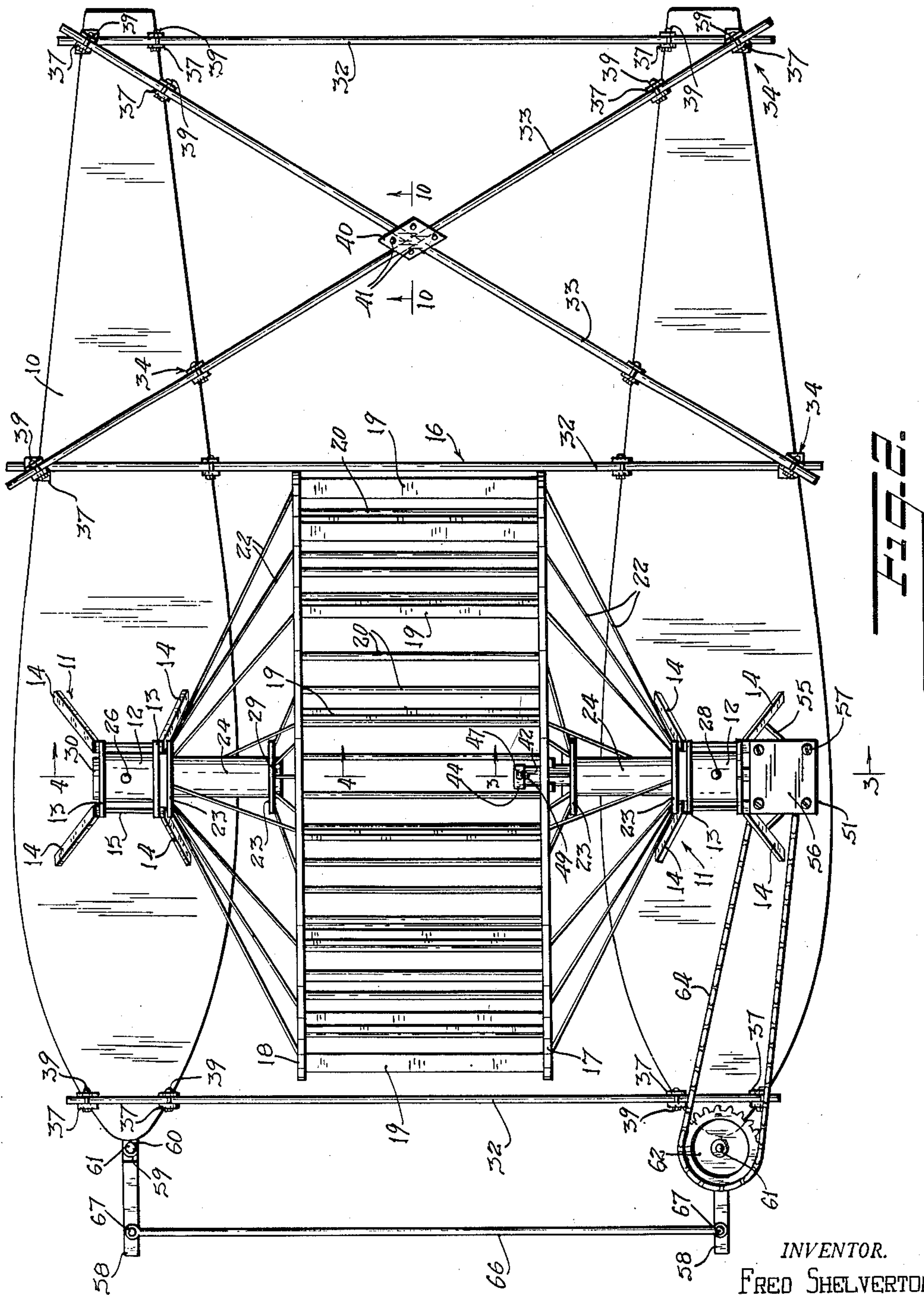
F. SHELVERTON

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WATER CYCLE

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3 Sheets-Sheet 2



INVENTOR.
FRED SHELVERTON
BY
Goldman Polachsky
ATTORNEY

March 6, 1951

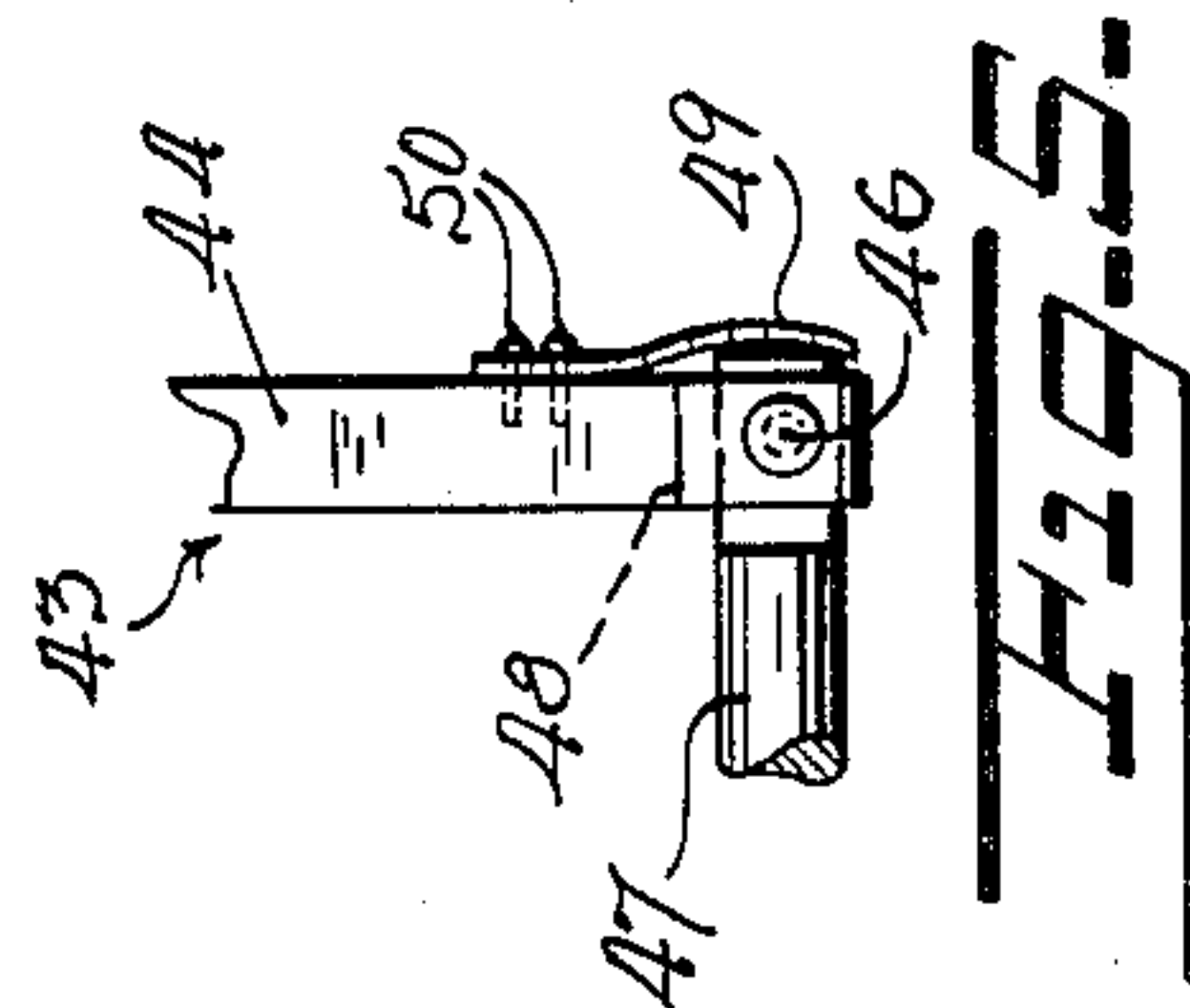
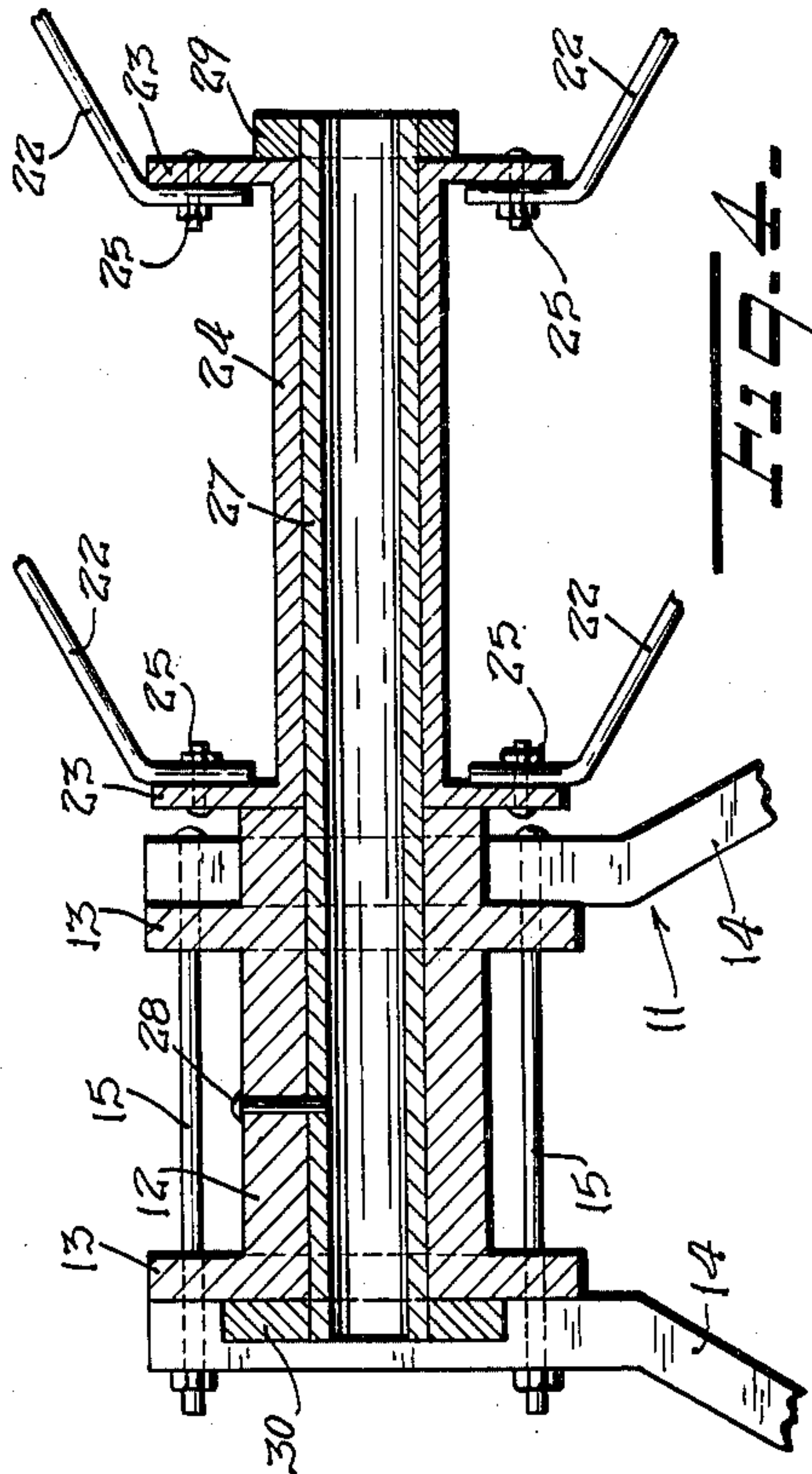
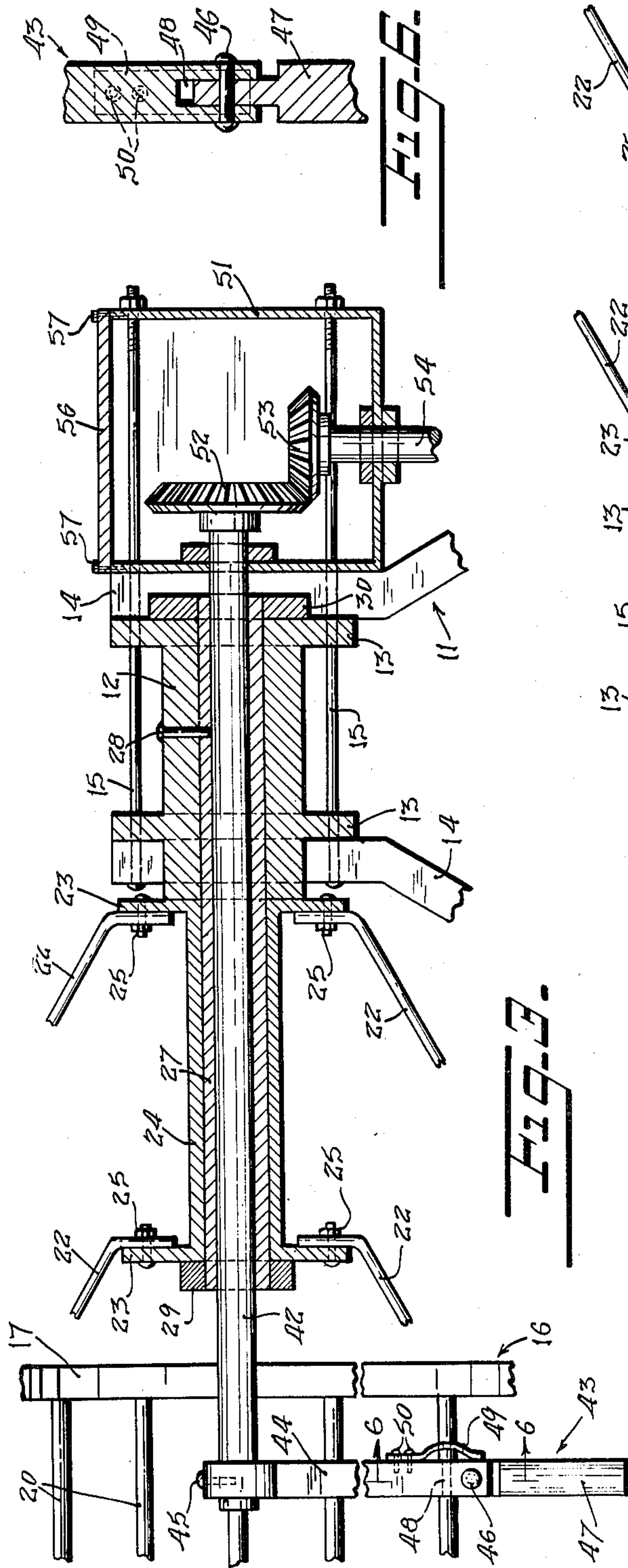
F. SHELVERTON

2,544,240

WATER CYCLE

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3 Sheets-Sheet 3



INVENTOR.
FRED SHELVERTON
BY
John H. Hollock
ATTORNEY

UNITED STATES PATENT OFFICE

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WATER CYCLE

Fred Shelverton, Pequannock, N. J.

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4 Claims. (Cl. 115—23)

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The subject of this invention is a new and useful self-propulsion watercraft constituting an amusement device for bathers at a body of water floatingly carrying the device.

A salient advantage of the invention is that it provides a novel and valuable watercraft, for not only offering amusement, but also for strengthening the arm, leg and waist muscles and otherwise affording an exceptionally desirable form of physical exercise in the open air, and further, a device which is feasible of use as a transportation vehicle for travelling over the water at an interesting and sometimes useful rate of speed.

Essentially, the new device comprises a hull component, this preferably in the form of a pair of elongate pontoons suitably connected for maintenance in side by side spaced relation catamaran fashion, a hollow spoked wheel or drum-like cage placed between the pontoons for free rotation about a horizontal axis transverse to the direction of length of the pontoons, journalling means for the wheel axis, supports upstanding from the tops of the pontoons for axles or shafts concentric with said axis, a series of paddles carried by the cage and spaced circumferentially thereof at its annular zone of greatest diameter and extending parallel to said axis, and a plurality of hand-and-foot-hold rungs also carried by the cage and spaced circumferentially thereof and extending parallel with said axis but disposed inwardly of the inner limits of the widths of the paddles.

With the axis of rotation for the cage properly placed relative to the depth of submergence of the pontoons, the lowermost paddle or paddles dip into the water; so that, after a bather has entered the cage, he may, by use of said rungs, advance hand over hand and foot over foot, from one to another collection of the rungs at the part of the cage adjacent to the stern of the watercraft, as though climbing, thereby to rotate the cage in a direction to cause the paddle equipment to propel the watercraft.

A further object of the present invention proposes the provision of novel means positioned to be easily reached by the person propelling the watercraft for steering the same, and arranged so that it may be operated while the craft is in motion.

It is a further object of this invention to provide a watercraft which is simple and durable and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

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In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of the watercraft constructed in accordance with the present invention and having a portion of the water wheel broken away.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is an enlarged partial vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged partial vertical sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a portion of Fig. 3, but showing a different position of the parts.

Fig. 6 is an enlarged sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is an enlarged partial vertical sectional view taken on the line 7—7 of Fig. 1.

Fig. 8 is a perspective view of one of the supporting brackets of Fig. 7.

Fig. 9 is an enlarged partial horizontal sectional view taken on the line 9—9 of Fig. 1.

Fig. 10 is an enlarged vertical sectional view taken on the line 10—10 of Fig. 2.

The watercraft, according to the present invention, includes two pontoons 10 which are of the relative dimensions shown, and with laterally rounded hull bottoms and flaired at bow and stern as illustrated.

Suitably secured to the deck of each pontoon 10, desirably at a point about one-third of the way back from its bow about at the point of maximum depth and width of the pontoon, there is a standard 11 of inverted-V type and including at its top a hub portion 12.

Each hub 12 has a pair of spaced flanges 13 and each standard 11 further includes four substantially vertical legs 14. The top ends of the legs 14 are secured to the outer faces of the flanges 13 by means of long bolts 15 which pass continuously through the top ends of the legs 14 and the flanges 13. The bottom ends of the legs 14 are secured to the decks of the pontoons 10 in any known manner. The legs 14 are so arranged that they support the hubs 12 in horizontal axial alignment.

The standards 11 rotatively support a drum-like cage 16 which comprises a pair of like spaced annular rim members 17 and 18. Suitably rigidly connecting the two rim members 17 and 18 there are a plurality of like paddles 19 uniformly spaced circumferentially of the cage 16 at the outer portions of the rim members 17 and 18, and a plurality of like rungs 20, likewise uniformly spaced circumferentially of the cage 16 but at the inner portions of the rim members 17 and 18.

As will be understood, any of the parts of the device may be made of any desired material or materials; but with the rim members 17 and 18 made of wood, the rungs 20 may be standard

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wooden rounds or dowels and, desirably, about one inch in diameter. As the cage 16 is herein illustrated, it is of a size such that the inner diameter of the rim members 17 and 18 is about six feet, and the outer diameter thereof is about seven feet four inches. Such a cage will comfortably accommodate a man bather well over six feet tall as indicated by the dot and dash line 21 in Fig. 1.

The cage 16, and its journalling means to be described in a moment, may be constructed in any suitable way; but as the cage is herein shown it is self-complete and readily mountable on its axle or the like, which latter as herein shown is also self-complete. According to this arrangement, the cage further includes at each side a suitable plurality of outwardly extended spokes 22 formed of tubular pipe stock. At each side of the cage 16, the spokes 22 are suitably connected to collars 23 and an annular hub 24 by bolts 25. The outer ends of the spokes 22 are secured to the outer faces of the rim members 17 and 18 by bolts 26, see Fig. 9.

With the cage 16 of the size already mentioned, there is approximately a twenty-eight inch space between each pair of adjoining spokes 22 adjacent to the rim members 17 and 18, which is ample to afford easy ingress and egress for the bather 21 relative to the interior of the cage at any point.

The hubs 24 of the cage 16 are rotatively supported on short tubular shafts 27 which in turn are fixedly mounted in the hubs 12 of the standards 11. The tubular shafts 27 are retained in position by small pins 28, see Figs. 3 and 4, which pass through the hubs 12 and into the shafts 27. The hubs 24 of the cage 16 are rotative on the shafts 27 between the inner ends of the hubs 12 of the standards 11 and collars 29 fixedly mounted on the inner ends of the shafts 27. Complementary collars 30 are mounted on the opposite ends of the shafts 27 adjacent the outer faces of the outer flanges 13 of the hubs 12. Thus, as the bather 21 walks over the rungs 20 of the cage 16, the cage will rotate about the shafts 27 and the paddles 19 will successively dip into and out of the water and propel the watercraft in a forward direction. From Fig. 1, wherein the dot and dash line 31 designates the normal waterline, it will be noted that the paddles 19 at the bottom of the cage 16 extend into the water.

For maintaining the two pontoons 10 in the spacing, parallelism and transverse alignment illustrated, any suitable bracing and staying means may be employed.

The bracing means comprises a plurality of longitudinally spaced laterally extending braces 32 and a pair of cross braces 33 extended between the pair of braces 32 at the front ends of the pontoons 10. Brackets 34 are provided on opposite sides of the pontoons 10 for connecting the ends of the braces 32 and the cross braces 33 to the pontoons. Details of one of the brackets 34 are shown in Figs. 7 and 8 of the drawings. Each bracket 34 includes a pair of spaced plates 35 attached to the inside faces of the side walls 10^a of the pontoons 10, by means of bolts 36. The top ends of the plates project from the top of the pontoons 10 and U-shaped members 37 are secured in position between the top ends of the plates 35 by means of bolts 38. The braces 32 and/or cross braces 33 extend through the U-shaped members 37 and are clamped in position within the U-shaped members 37 by bolts

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39. The bolts 39 pass through and draw together the top ends of the arms of the U-shaped members 37 to securely clamp the braces 32 and/or cross braces 33 in position.

The crossed centers of the cross braces 33 are connected together by means of plates 40 disposed above and below the crossing points of the cross braces 33 and four rivets 41 located one in each of the junctions of the cross braces 33, see Figs. 2 and 10.

Means is provided to permit the bather 21 to steer the watercraft from the interior of the cage 16. This means comprises a shaft 42 rotatively extended through the tubular shaft 27 which rotatively supports the rim member 17 of the cage 16. The inner end of the shaft 42 projects into the side of the cage 16 and is provided with a handle member 43. The handle member 43 includes an arm 44 fixed to the inner end of the shaft 42 by means of a pin 45, see Fig. 3, so that the arm extends radially from the shaft 42.

The free end of the arm 44 has pivotally attached thereto, by means of a pin 46, a hand-grip 47. The end of the hand-grip is cut down to fit into a slot 48, see Fig. 6, cut into the free end of the arm 44. A leaf spring 49 is secured to one side of the arm 44 by means of several rivets 50 and engages the sides of the arm 44 and the hand-grip 47. The leaf spring 49 functions to hold the hand-grip 47 in the longitudinal aligned position with the arm 44, as shown in Fig. 3, in which the hand-grip 47 is out of the way or to hold the hand-grip 47 in a position extended at right angles from the arm 44, as shown in Fig. 5, in which the hand-grip is in its operative position to be used for manually turning the shaft 42.

The outer end of the shaft 42 projects from the tubular shaft 27 and into the side of a hollow casing 51 secured to the side of the respective standard 11 by means of the bolts 15. At that side of the cage 16, the bolts 15 are long enough to secure the casing 51 in position, in addition to securing the top ends of the legs 14 to the flanges 13 of the respective hub 12. Within the casing 51, the shaft 42 is provided with a bevel gear 52 which meshes with a suitable smaller bevel gear 53 fixedly attached to the top end of a shaft 54. The shaft 54 is vertically rotatively extended through the bottom wall of the casing 51 and is rotatively supported intermediate of its ends in a bracket 55, see Fig. 1, mounted on the adjacent legs 14.

The top of the casing 51 is open. The open top is closed by a removable cover 56 which provides access to the bevel gears 52 and 53 for lubricating and the like. The cover 56 is retained in position by four screws 57.

Pivotally secured to the rear end of each of the pontoons 10, there is a rudder 58. Each rudder 58 is formed with cutouts 59 which extend about lugs 60 which project from the rear ends of the pontoons 10. Vertical rods 61 project through the interengaged lugs 60 and the portions of the rudders 58 pivotally supporting the rudders 58 on the lugs 60. One of the rods 61 projects from the top of its respective rudder 58 and is provided at its top end with a sprocket wheel 62. That paddle 58 is pinned to its rod 61, by a pin 63, see Fig. 1, so that the paddle 58 will be turned in one direction or the other as the sprocket wheel 62 is turned in one direction or the other.

A continuous sprocket chain 64 engages the sprocket wheel 62 and engages a second sprocket

wheel 55 mounted on the bottom end of the shaft 54 which carries the bevel gear 53. Thus, as the shaft 42 is turned in one direction or the other by the handle member 43, the shaft 54 will be similarly turned through the medium of the bevel gears 52 and 53 to turn the sprocket wheel 62 in one direction or the other and similarly turn the rudder 58 which carries the sprocket wheel 62.

Means is provided for connecting the rudders 58 together for movement in unison, when the rudder 58 carrying the sprocket wheel 62 is moved in one direction or the other. This means comprises a bar 66 equal in length to the distance between the adjacent faces of the rudders 58 which has its ends pivotally attached to the top edges of the rudders 58. The ends of the bar 66 are formed with openings through which pins 67 from the top edges of the rudders 58 rotatively extend.

If desired, the steering mechanism can be duplicated on both sides of the watercraft, eliminating the necessity for the connecting bar 66.

The operation of the new device should be clear from the foregoing. In Fig. 1 the bather 21 is shown climbing in the cage 16. During such climbing, the cage 16 is being rotated in a clockwise direction as seen in Fig. 1; so that the pontoons 10 are caused to travel bow-on toward the right. Steering is accomplished by turning the handle member 43 in the desired direction to cause the rudders 58 to be turned to turn the watercraft either to the right or the left.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a watercraft having a spaced pair of pontoons between which a large hollow cage carrying a plurality of paddles is rotatively supported by means of end aligned hubs at least one of which is tubular, means operative from within the hollow cage for steering the pontoons, comprising a rudder pivotally mounted on the rear end of each of the pontoons, means connecting said rudders together for unitary movement in one direction or the other, a shaft rotatively extended through the tubular hub, a handle member mounted on the inner end of said shaft within the hollow cage by which said shaft can be turned in one direction or the other, and a transmission interposed between the outer end of said shaft and one of said rudders.

2. In a watercraft having a spaced pair of pontoons between which a large hollow cage carrying a plurality of paddles is rotatively supported by means of end aligned hubs at least one of which is tubular, means operative from within the hollow cage for steering the pontoons, comprising a rudder pivotally mounted on the rear end of each of the pontoons, means connecting said rudders together for unitary movement in one direction or the other, a shaft rotatively extended through the tubular hub, a handle member mounted on the inner end of said shaft within the hollow cage by which said shaft can be turned in one direction or the other, and a

transmission interposed between the outer end of said shaft and one of said rudders, said handle member comprising a radial arm secured at one end to the inner end of said shaft, and a hand grip pivotally secured to the free end of said radial arm to have an inoperative position in end alignment with said arm or an operative position extended radially from the free end of said arm.

3. In a watercraft having a spaced pair of pontoons between which a large hollow cage carrying a plurality of paddles is rotatively supported by means of end aligned hubs at least one of which is tubular, means operative from within the hollow cage for steering the pontoons, comprising a rudder pivotally mounted on the rear end of each of the pontoons, means connecting said rudders together for unitary movement in one direction or the other, a shaft rotatively extended through the tubular hub, a handle member mounted on the inner end of said shaft within the hollow cage by which said shaft can be turned in one direction or the other, and a transmission interposed between the outer end of said shaft and one of said rudders, said handle member comprising a radial arm secured at one end to the inner end of said shaft, and a hand grip pivotally secured to the free end of said radial arm to have an inoperative position in end alignment with said arm or an operative position extended radially from the free end of said arm, and a spring mounted on said arm adjacent its free end and engaging the pivoted end of said hand grip for retaining said hand grip in either its operative or inoperative position.

4. In a watercraft having a spaced pair of pontoons between which a large hollow cage carrying a plurality of paddles is rotatively supported by means of end aligned hubs at least one of which is tubular, means operative from within the hollow cage for steering the pontoons, comprising a rudder pivotally mounted on the rear end of each of the pontoons, means connecting said rudders together for unitary movement in one direction or the other, a shaft rotatively extended through the tubular hub, a handle member mounted on the inner end of said shaft within the hollow cage by which said shaft can be turned in one direction or the other, and a transmission interposed between the outer end of said shaft and one of said rudders, said transmission comprising a bevel gear mounted on the said outer end of said shaft, a vertical shaft rotatively supported adjacent the outer end of the tubular hub, a bevel gear mounted on the top end of said vertical shaft and meshed with said first bevel gear, a sprocket wheel mounted on the bottom end of said vertical shaft, a sprocket wheel mounted on the said one rudder concentric with its pivot, and a chain engaged about said sprocket wheels.

FRED SHELVERTON.

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