MOTOR BOAT PROPELLED PONTOON BOAT

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ABSTRACT

This invention relates to pontoon boats which normally carries a dingy for transporting the passengers to and from the pontoon boat. The stern end of the pontoon boat is provided with a novel structure for encapsulating a motor boat which provides the motive means to propel the pontoon boat. This invention combines the motor boat and pontoon boat to form an integral structure for purposes of propulsion of both crafts. Both crafts are separable when it is desired to use the motor boat as a tender craft.

8 Claims, 10 Drawing Figures
MOTOR BOAT PROPELLED PONTOON BOAT

This invention relates generally to water crafts and more particularly to pontoon boats.

The basic structure of the pontoon boat of the prior art comprises twin hulls or pontoons which are laterally spaced apart in parallel relation to which is connected a framework therebetween to support a platform thereon. This platform provides deck space on which passengers on the pontoon boat perform their activity. Portions of the deck space are also used as the base for the construction of superstructures such as cabins or framework for awnings.

Pontoons create because of their sturdy design and their very shallow draft can be made relatively large and can carry a large load; also they provide a large deck space and can be used on rivers, lakes, and marshy expanses and other sheltered water ways which are too shallow for conventional boats of comparable size. The prior art practice in the use of pontoon boats is to carry a small boat for use as a dinghy if the docking facilities are not suitable for the pontoon boat. The purpose of the dinghy is to transport the passengers to shore or dock from the pontoon boat which has been moored off shore or away from the dock.

This invention contemplates the use of a motor boat for the purpose of transporting passengers and to a moored pontoon boat, and provide a novel structure and design for a pontoon boat for incapsulating the motor boat when not used for passenger transportation and utilize the motive means of the motor boat to propel the pontoon boat. This invention combines the motor boat and the pontoon boat in such a way to form an integral structure for purposes of propulsion. When it is necessary to moor the pontoon boat off shore because of its size or because of lack of satisfactory docking facilities, the motor boat may be incapsulated and utilized for transportation of the passengers to dock or shore.

Accordingly, the general object of this invention is to provide a pontoon boat having a novel structure to incapsulate the motor boat to use its motive power to propel the pontoon boat.

Another object of this invention is to provide a pontoon boat which is economical to manufacture and which utilizes a conventional motor boat for its means for propulsion.

Other objects and advantages of this invention will become apparent after a study is made of the following detailed descriptions of the preferred embodiments of this invention which is to be read with reference to the accompanying drawings in which:

FIG. 1 is a plan elevation of the present invention;
FIG. 2 is a side elevation of FIG. 1 in longitudinal section taken along line 2—2 of FIG. 1;
FIG. 3 is a cross section elevation taken along the line 3—3 of FIG. 1;
FIG. 4 is a bottom view of this invention;
FIG. 5 is a cross section elevation taken along line 5—5 of FIG. 1;
FIG. 6 is a side view of a ratchet pin in section showing the details thereof;
FIG. 7 is a pictorial diagram of the motor boat lifting apparatus;
FIG. 8 is a perspective view of a cleat connected to the gunwale shown in fragment which is used for anchoring the motor boat to the pontoon boat;
FIG. 9 is a detail perspective view of a locking bar device connected to the deck portion of the pontoon boat shown in fragment; and
FIG. 10 is a side view partly in section of the cooperating elements of the cleat and a portion of the locking bar device shown cleat together.

Referring now more particularly to the drawings, particularly FIG. 1—3, reference numeral 10 designates generally the pontoon boat of my invention. It comprises laterally spaced pontoons 12 and 14 which are in parallel relations and are cylindrically shaped and the forward and rearward ends thereof are formed to converge cone-like for streamlining the flow of water therearound. Pontoons 12 and 14 are hollow in the conventional manner to provide maximum buoyancy. I have shown deck 16 to be connected to pontoons 12 and 14 in the most elementary manner by gussets 18 and 20 respectively. It is contemplated, of course, that the framework connecting pontoons 12 and 14 to deck 16 comprising gussets 18 and 20 shown in the drawing as being properly designed and interconnected to support deck 16 for the use intended. The superstructure shown on deck 16 comprises railing 22 and is minimal in character. Additional superstructure may be included but has not been shown for purposes of clarity in the drawing and description.

The stern portion of deck 16 equally spaced between pontoons 12 and 14 is provided with an opening 24 to longitudinally receive the hull of motor boat 26. I provide an incapsulating wall 28 around opening 24 mounted upright from deck 16. The forward end thereof is provided with a bumper plate 30 suitably shaped and formed from suitable material to prevent damage to the bow 32 of motor boat 26 which is in pressing contact therewith. I show only as a preference bumper plate 30 extending above and below deck 16. I further show bumper plate 30 reinforced by gusset plate 34 which is connected to deck 16. Incapsulating side walls 28, as more clearly shown in FIG. 2, is provided with a cover 36 which is hinged at 38 and 40 for folding and opening respectively, whereby the motor boat 26 may be utilized to store marine or sport gear and equipment. Side gate 42 is provided in side wall 28 as shown in FIG. 1 to provide another and more convenient means to enter or exit from motor boat 26. Pilot wheel 44 is located in any convenient location on deck 16 which operated a cable and pulley system 46 which is supported below deck surface 16. The ends of cable 48 are provided with hooks as at 50 to removably connect eye bolts on each side of the outboard motor 54 of motor boat 26 to control the lateral pivoting of outboard motor 54 and thereby function to steer the pontoon boat 10.

Motor boat 26 is lifted out of the water into its incapsulated position and therein fixedly connected to the pontoon boat in the manner hereinafter described. With particular reference to FIGS. 4 through 10, pontoon boat 10 is provided with hoist means 56 which comprise, as better shown in FIG. 7, a pair of shafts 58 and 60 rotatably supported by spaced bearings 62 and 64 respectively. Bearings 62 and 64 are connected to the underside of deck 16 for longitudinally supporting shafts 58 and 60 respectively, adjacent each side of opening 24. To each of shafts 58 and 60 are provided thereupon, longitudinally spaced sleeves 66, 68 and 70, 72 respectively. Sleeves 66 and 70, and 68 and 72 are positioned on shafts 58 and 60, in lateral alignment. Also connected to shafts 58 and 60 in lateral alignment are sprocket wheels 74 and 76 respectively, which are linked together for counter rotation by sprocket chain 78. I further provide shaft drive means 80 which may be any conventional mechanical link device for rotating either of shafts 58 and 60, or motor means may be provided to drive either of shafts 58 and 60. For purposes of clarity I show a simple mechanical shaft drive means comprising a worm gear 82 keyed to shaft 60 at any convenient location. Meshingly engage to worm gear 82 is worm wheel 84 which is connected to the journalled end of upright crank shaft 86. The other end of crank shaft 86 is shown formed with a bell crank handle 88 for manual turning. Support bearing 90 is fixed to deck 16 to journal support crank shaft 86 upright. As stated above, drive means 80 may be connected to either shaft 58 or 60 at any position so that the operation thereof is available at any convenient location on deck 16.

Connecting each pair of laterally aligned sleeves 66, 70 and 68, 72 on shafts 58 and 60 respectively, are belts 92 and 94 formed from tensely strong, flexible material such as nylon for convolute wrapping thereover whereby shafts 58 and 60 are rotated. Belts 92 and 94 are connected to their respective sleeve pairs 66, 70 and 68, 72 in order that the convolute wrapping thereon does not produce longitudinal shifting of the belts, but only a shortening thereof to take up the girding portion thereof loosely slung therebetween.
The described laterally spaced shafts 58 and 60, and belts 92 and 94 connected thereto for convolute wrapping therearound and slung therebetween, serve as cradle means for raising motor boat 26 out of the water and supporting it in a raised incapsulated position. While in the raised position, bow 32 of motor boat 26 abuts against bumper plate 30 and it is intended that outboard motor 54 connected to transom 96 of motor boat 26 by extensible linkage means 98 capable of being extensibly movable to allow the screw propeller 100 of outboard motor 54 to be lowered into the water when the motor boat 26 is connected to the pontoon boat 10 in its incapsulated position; and thereby allow motor 54 to serve as a drive motor for the pontoon boat. The cradling of motor boat 26 by belts 92 and 94 and rigidly suspended motor boat 26 to pontoon boat 10. Accordingly, I provide longitudinally spaced gunwale hitches 102 on one side of opening 24, and hitches 104 longitudinally spaced on the opposite side of opening 24 in deck 16. Hitches 102 and 104 are mounted in facing position but otherwise are identical in structure and accordingly the description of one will serve to describe the other hitches. I prefer to mount side walls 28 on deck 16 spaced from the edge of opening 24 so that gunwale hitches 102 and 104 may be mounted on deck 16 within said space. Provided on both sides of the gunwales of motor boat 26 are rope cleats 106 and 108 at locations thereon for vertical alignment with hitches 102 and 104 when motor boat 26 is positioned in its bow 32 against bumper plate 30. With particular reference to FIGS. 6 and 8 to 10, one of gunwale hitches 102 is shown in greater detail. Gunwale hitch 102 comprises bar guide frame 110 which is provided with projecting lugs 112 on both sides thereof to provide a base for resting on deck 16 on the space between opening 24 and side wall 28 and is secured to deck 16 by fastening means such as bolts 114. I prefer to form bar guide frame 110 rectangular in shape and hallowed to slidingly receive therethrough hitch bar 116. Hitch bar 116 is provided with a cantilever beam 118 which extends over the gunwale of motor boat 26. A substantial portion of infacing side 120 of bar guide frame 110 is open to allow the cantilever beam 118 of hitch bar 116 to slidingly move downwardly in the substantially open portion of guide frame 110. A hooking clamp device 122 is connected to the end of cantilever beam 118. Clamp device 122 comprises a unitary handle end 124 and a bifurcated end 126, the distal ends of which are formed in the shape of hooks 128 which are spaced apart to straddle cantilever beam 118. The bottom side of cantilever beam 118 is provided with a transverse rib 130 contoured to matingly receive therein cleat 106 connecting the gunwale of motor boat 26. Clamp device 122 is pivotally connected to the sides of cantilever beam 118 by pin 132 projecting therefrom and are vertically aligned with transverse recess 130 so that the load of motor boat 26 dependently supported by the hooks 128 have no moment arm spaced therefrom. Pin 132 connecting clamp device 122 to cantilever beam 118. Therefore, the load of motor boat 26 will not operate to pivot hooks 128 open. The distal end 134 of cantilever beam 118 is shaped with a radius or truncated to allow clearance thereover of bifurcated end 126 of clamp device 122 when pivotally moved thereover. Beam 118 is also provided with locking detents 136 and 138 for retention of clamp device 122 in a cleat clamp and unclamp position, respectively, by mechanically engaging therein pin 140 which is axially movable in hole 142 provided in the crotch of bifurcated end 126 of clamp device 122. I provide a coil spring 144 in hole 142 to provide a resilient bias to the movement of pin 140.

In the operation of my invention motor boat 26 is utilized to transport passengers to and from pontoon boat 10 when it is necessary to moor the pontoon boat off-shore or away from the dock if the docking facilities are not designed to handle a large craft such as a pontoon boat. Motor boat 26 may also be used for any other nearby inlets and waterways or even left to drift while the passengers thereon carry on the activity of fishing or other activity that may be engaged in while motor boat 26 is separated from the pontoon boat and used for exploring other nearby inlets and waterways or conduct any other activity that may best be performed by a motor boat. When it is desired to combine both crafts, that is motor boat 26 and pontoon boat 10, crank handle 88 is manually rotated to actuate drive means 80 which causes the rotation of shafts 58 and 60 as hereinabove described to unwrap nylon belts 92 and 94 and cause the portion therebetweeen to lower into the water sufficiently to reach below the bottom of the hull of motor boat 26. Motor boat 26 is driven or pulled into opening 24 in deck 16 of pontoon boat 10 and the bow 32 thereof is abutted against bumper plate 30 on pontoon boat 10.

Belt shaft drive means 80 is caused to rotate in the opposite direction which operates to wrap thereon belts 92 and 94. This causes motor boat 26 to be cradled by belts 92 and 94 and thereby lifted from the water to its incapsulated position. Hitch bar 116 of each gunwale hitches 102 and 104 is allowed to drop downwardly in bar guide frame 110 by pulling out notch pin 146 from hole 148 of each guide frames 110 sufficiently to release its engagement with notches 150 formed in the side of hitch bar 116. I prefer to form the end of the notch pin 146 with an incline side 152 as illustrated in FIG. 6. I prefer to provide pin 146 with a coil spring 154, one end of which is connected to pin 146 and the other end thereof is connected to guide frame 110. Pin 146 is manually rotatable in hole 148 for the purpose of facing the incline side 152 downwardly or upwardly against notches 150 of hitch bar 116 so as to urge pin 146 into hole 148 against notches 150 and to provide the flexibility for allowing ratchet like movement for pin 146 as the multiple ridge and notch configuration of hitch bar 116 moves against the incline side 152 of pin 146. Pin 146 is either pulled out through hole 148 sufficiently to release the hitch bar 116 and allow it to move downwardly or pin 146 is pulled sufficiently to rotate the pin 146 that it mates with the incline side 152 thereof is facing upwardly. Hitch bar 116 may then be pushed downwardly causing the pin 146 to be wedged passed each notch 150. When motor boat 26 is elevated by belts 92 and 94 a sufficient distance so that the cantilever beams 118 of the lowered hitch bars 116 can reach the level of cleats 106 and 108 on the gunwale of motor boat 26, the clamp devise 122 on each cantilever beam 118 is pivoted to hook under the rope cleats 106 and 108 aligned therewith to bring them in connecting engagement in the cleat contoured recesses 130 formed in the underside of cantilever beams 118. Pin 146 of each clamp devise 122 engages the detent in the top side of cantilever beam 118 and is retained therein by means of spring 144 which serves to retain clamp devise 122 in a cleat holding position. With cleats 106 and 108 of motor boat 26 in position against the underside of cantilever beams 118 of hitch bars 116, further lifting of motor boat 26 by belts 92 and 94 will be constrained by the guided movement of hitch bars 116 in guide frames 110. Hitch bars 116 are elevated in guide frames 110 by the lifting movement of motor boat 26. The incline side 152 of each pin 146 connecting guide frames 110 is faced downwardly to meet the upwardly travelling notches 150 of hitch bars 116. Ridges and notches 150 of hitch bar 116 proceed past the end of pin 146 by riding against the incline side thereof moving pin 146 outwardly against the urging of spring 154. When motor boat 26 is lifted to its incapsulated position shaft drive means 80 for belts 92 and 94 is stopped and the motor boat 26 is supported by belts 92 and 94 and rigidly connected to bar hitches 116 to which are clamped rope cleats 106 and 108 of motor boat 26. Bar hitches 116 are retained in their elevated positions by pins 146 engaging the notches 150 in the side of hitch bars 116. This lifting apparatus stabilizes motor boat 26 in a raised fixed position out of the water. Belts 92 and 94 are tightly stretched across the bottom of the hull of motor boat 26 by belts 92 and 94 and rigidly connected to bar hitches 116 are raised until adequately positioned stop collar 156 provides on the bottom end of each bar hitch 116 by means of a bolt 158. Motor boat 26 is now in an incapsulating position, removed from the water and outboard motion 50 is lowered by extensi-
ble movement of linkage means 98 connecting the outboard motor 50 to the transom 96 of the motor boat 26. This allows the screw propeller to descent deeper into the water to compensate for the raising of motor boat 26 to its incapaculating position. The end hooks 59 of control cable 48 connecting pilot wheel 44 are hooked to each side of outboard motor 54 so that the steering of outboard motor 54 may be controlled by pilot wheel 44. The motor boat 26 incapaculated in the structure of the pontoon boat 10 of my invention is now utilized to drive pontoon boat 10 by utilizing the propelling means of motor boat 26 as the propelling means for pontoon boat 10 when the motor boat is not used as a tender craft.

Though I have shown and described a particular construction and arrangement of parts and portions, I do not wish to be limited to this particular construction and arrangement but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

I claim:

1. A pontoon boat comprising:
spaced apart parallel hulls and a deck spanning said hulls above the water line;
said deck having a longitudinal opening between said hulls for longitudinally receiving therein a single hull pivotally movable outboard motor boat;
sleeve members rotatably supported from said deck;
a belt means between said sleeve members laterally spanning said opening gripping below said single hull outboard motor boat;
drive means on said deck for rotating said sleeve members to convolutey wrap thereover said belt means to vertically move said single hull boat;
hitch means on said deck for releasably connecting said single hull boat;
steering means on said deck;
link means supported from said deck connecting said steering means for actuation thereby; and
said link means connected to said pivotally movable outboard motor of said single hull boat for controlling said pivotal movement by said steering means.

2. The pontoon boat of claim 1 wherein said opening in said deck is further characterized as being in the stern end thereof and equidistant between said hulls.

3. The pontoon boat of claim 1 wherein said rotatable support of said sleeve member are further characterized as being connected to longitudinal shafts adjacent the longitudinal sides of said opening.

4. The pontoon boat of claim 2 wherein said rotatable support of said sleeve members are further characterized as being connected to longitudinal shafts adjacent the longitudinal sides of said opening.

5. The pontoon boat of claim 1 wherein said hitch means are further characterized as comprising; upright guide members connected to said deck adjacent said opening; adjustably positioned bars movable in said guide members; and means at the upright end of said bars to releasably connect to means on said single hull motor boat.

6. The pontoon boat of claim 1 wherein said deck is further characterized as having connected adjacent the forward end of said opening therein, a vertically disposed plate for buttly receiving the bow end of said single hull motor boat.

7. The combination of:
a pontoon boat comprising,
spaced apart parallel hulls,
a deck spanning said hulls above the water line,
said deck having a longitudinal opening between said hulls;
a single hull boat having a movable outboard motor, detachably connected to said deck in said opening to maintain said hull above said water line, the propelling member of said motor below said water line, and the bow of said hull against said pontoon boat; and
steering means on said deck linked to said outboard motor to move said outboard motor.

8. A pontoon boat comprising:
spaced apart parallel hulls,
a deck spanning said hulls above the water line,
said deck having incapaculating means between said hulls;
a single hull outboard motor boat longitudinally positioned in said incapaculating means of said deck;
said incapaculating means having belt members for raising said motor boat above said water,
said incapaculating means being provided with laterally inflexible upright member for transmitting the thrust of said motor boat to said pontoon boat;
fastening means on said incapaculating means for detachably connecting said motor boat to said pontoon boat; and
steering means on said deck connecting the steering means on said motor boat.

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