Aug. 17, 1943. J. CASIPLE 2,326,757

PROPELLER SAILBOAT MACHINE

Filed April 18, 1942 7 Sheets-Sheet 1

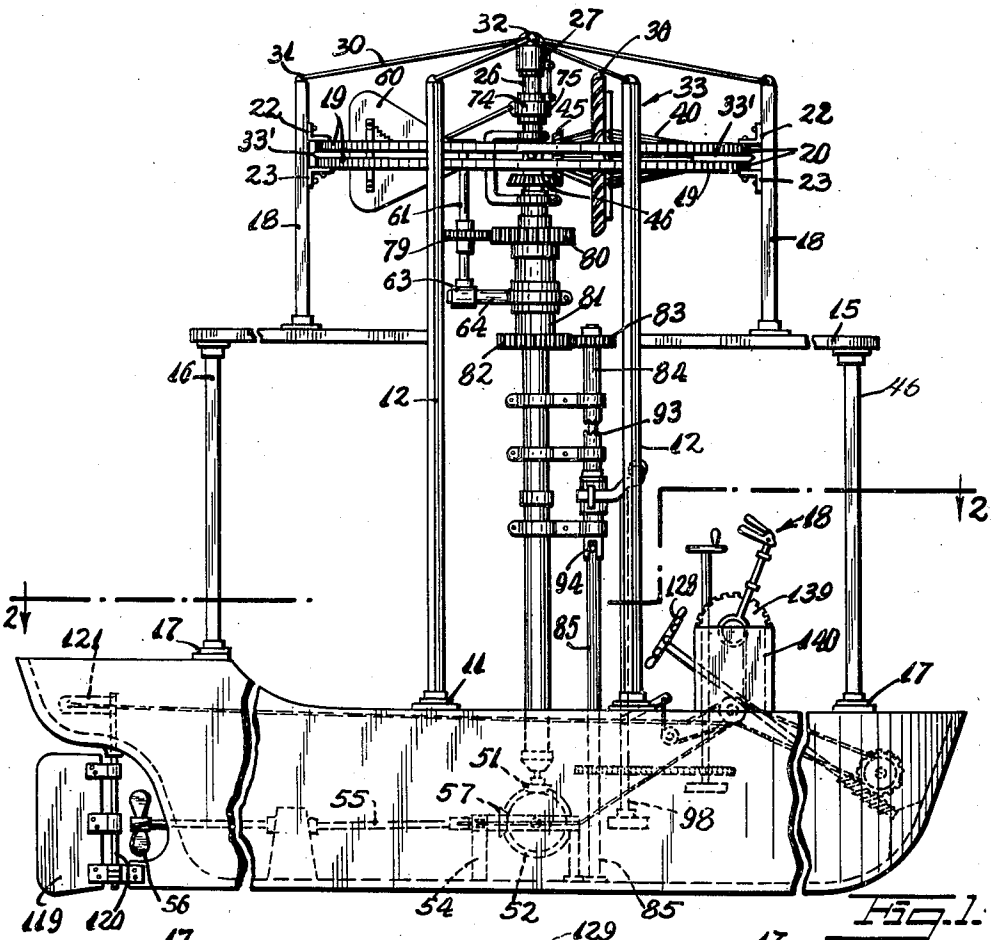


Fig. 1.

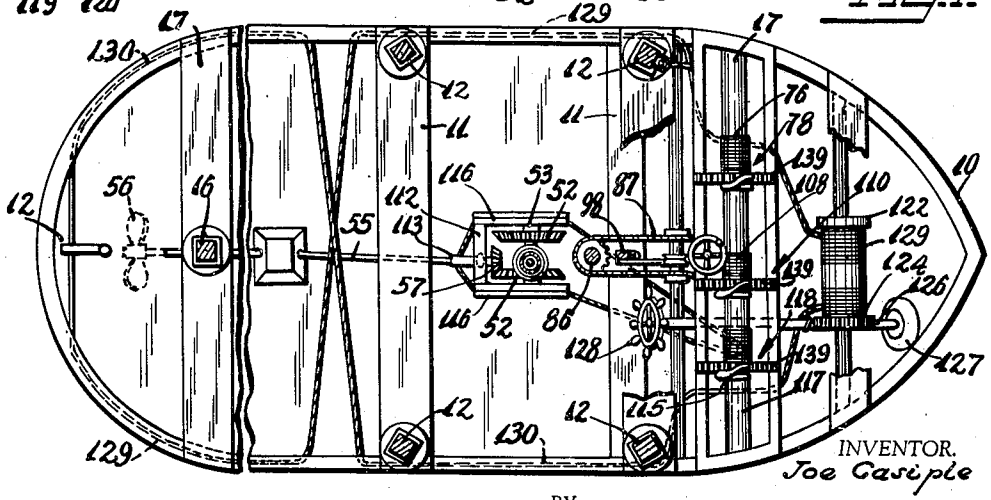


Fig. 2.

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PROPELLER SAILBOAT MACHINE

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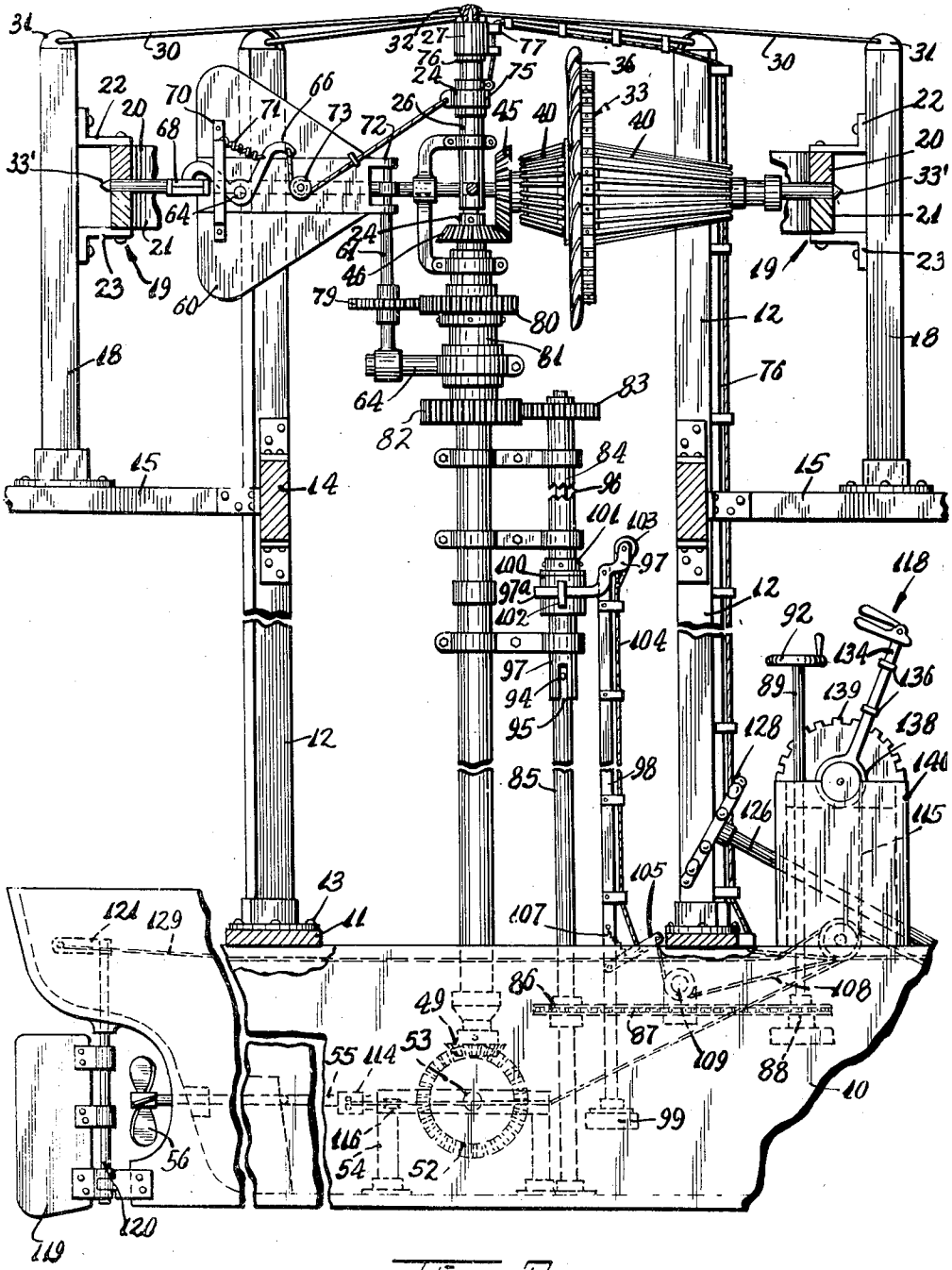


Fig. 3.

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PROPELLER SAILBOAT MACHINE

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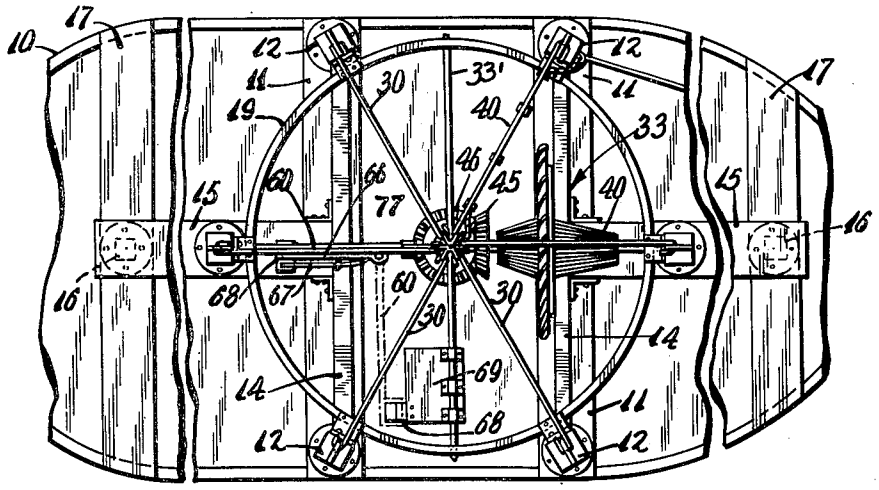


Fig. 4.

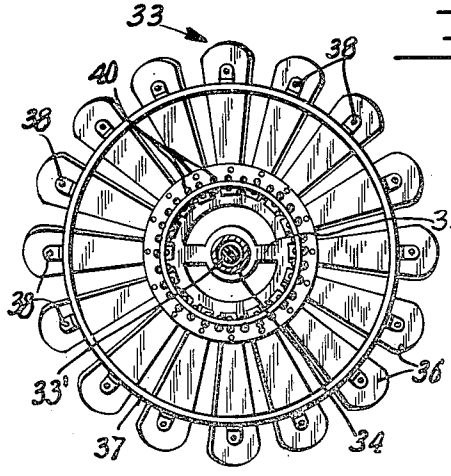


Fig. 8.

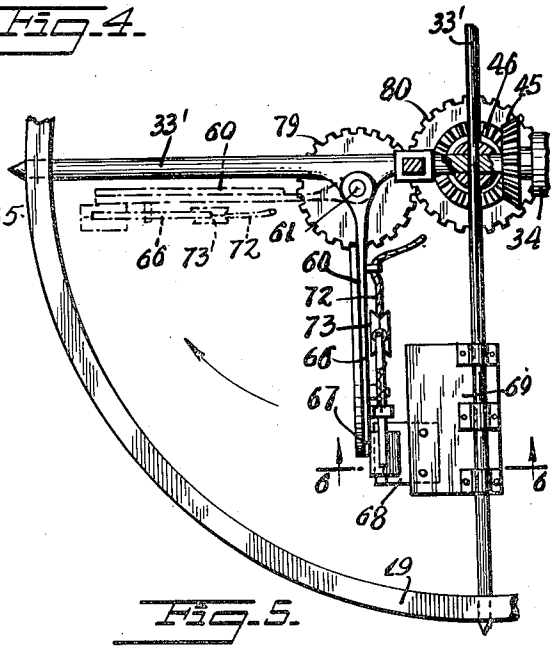


Fig. 5.

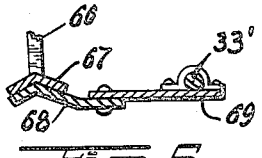


Fig. 6.

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PROPELLER SAILBOAT MACHINE

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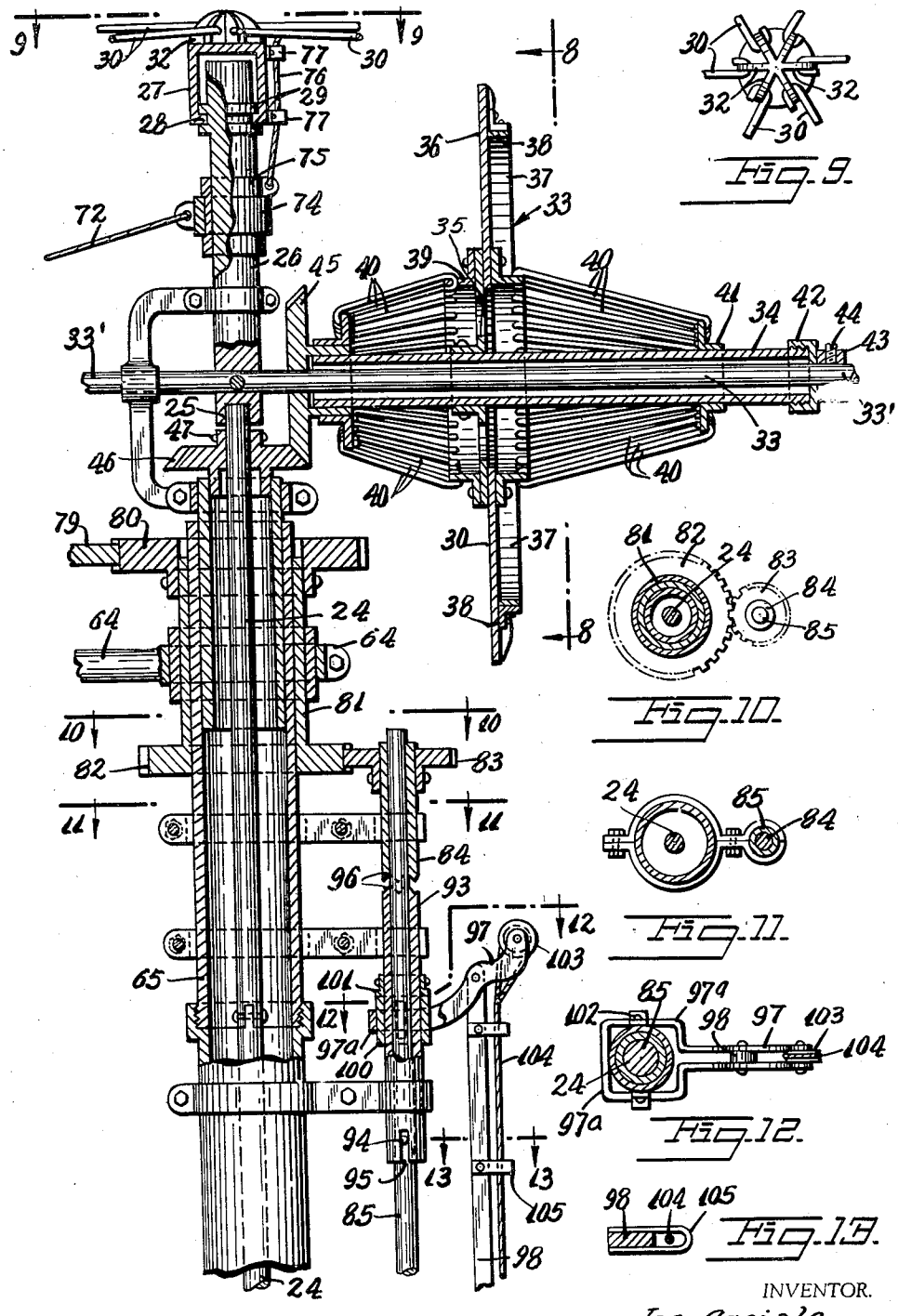


Fig. 7.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

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Aug. 17, 1943. J. CASIPLE 2,326,757

PROPELLER SAILBOAT MACHINE

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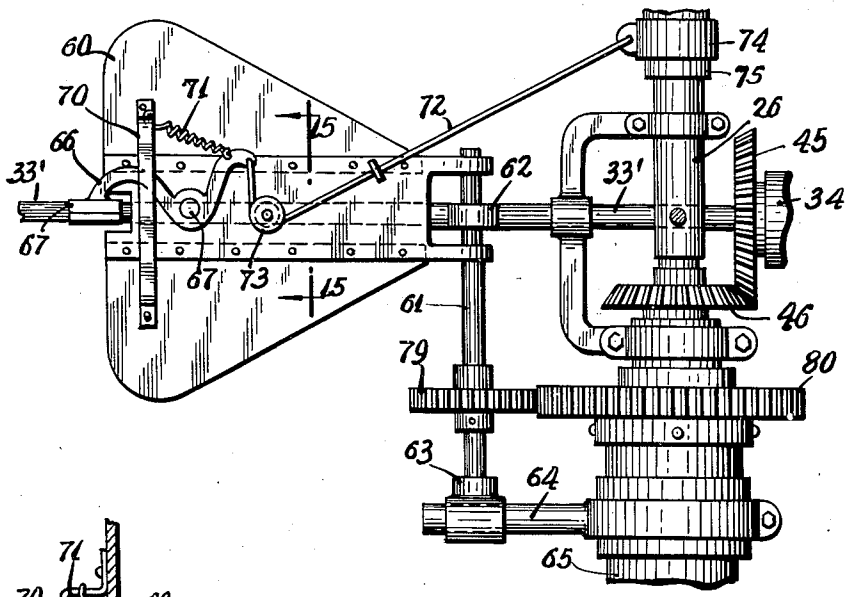


Fig. 14.

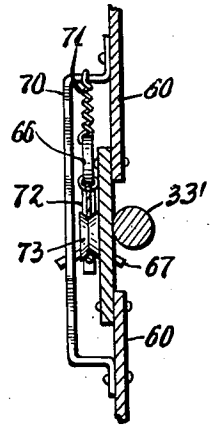


Fig. 15.

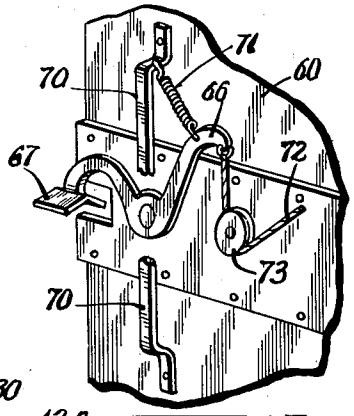


Fig. 16.

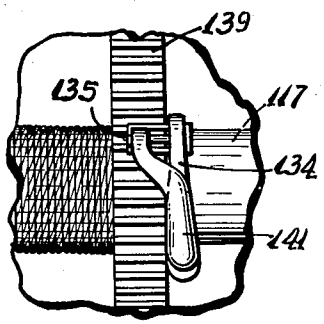


Fig. 29.

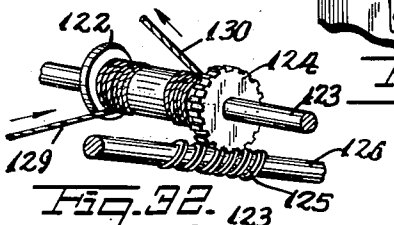


Fig. 32.

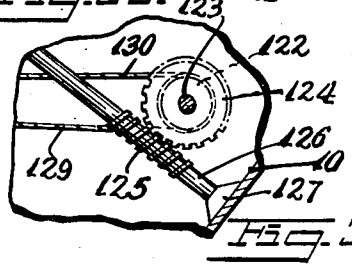


Fig. 31.

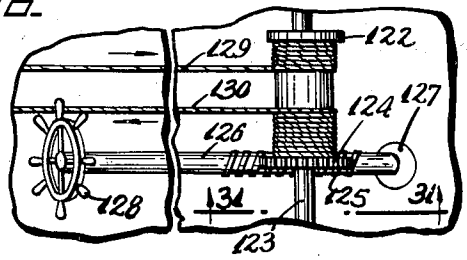


Fig. 30.

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Aug. 17, 1943. J. CASIPLE 2,326,757

PROPELLER SAILBOAT MACHINE

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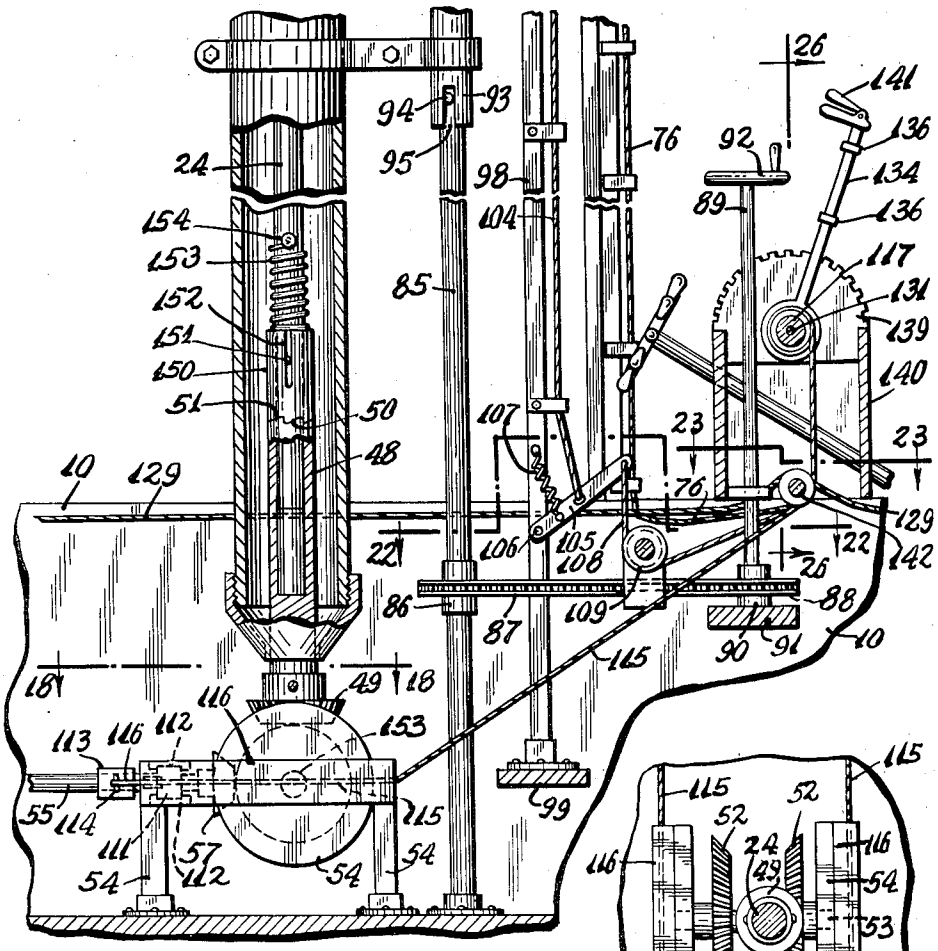


Fig. 17.

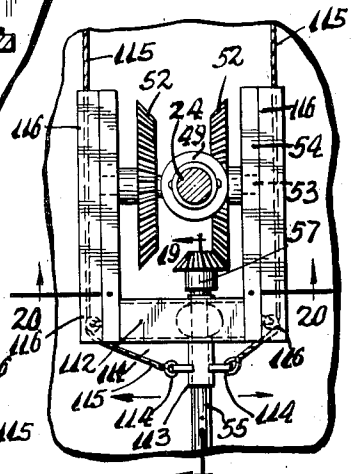


Fig. 18.

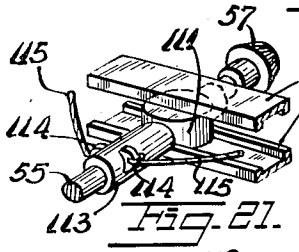


Fig. 21.

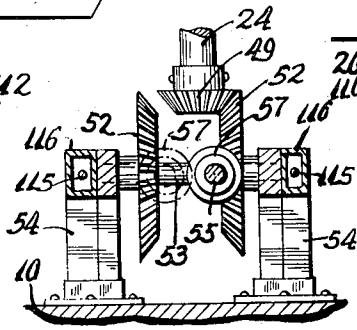


Fig. 20.

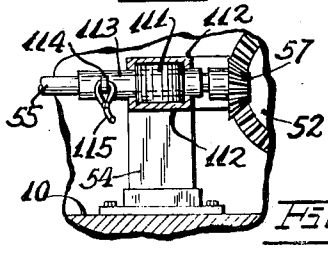


Fig. 19.

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Aug. 17, 1943. J. CASIPLE 2,326,757

PROPELLER SAILBOAT MACHINE

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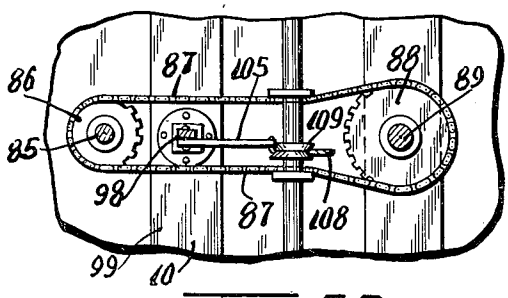


Fig. 22.

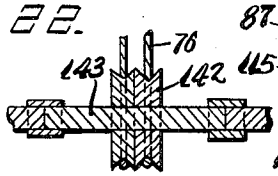


Fig. 24.

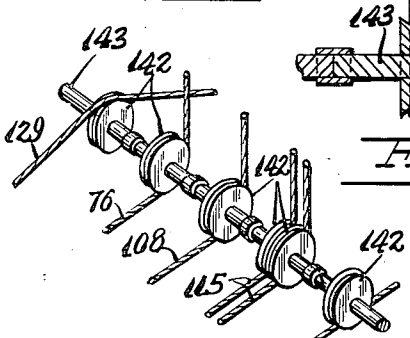


Fig. 26.

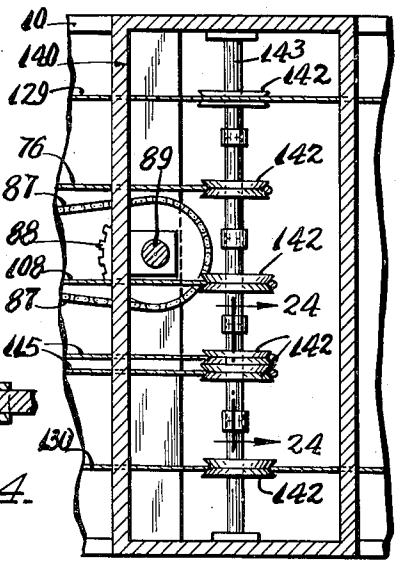


Fig. 23.

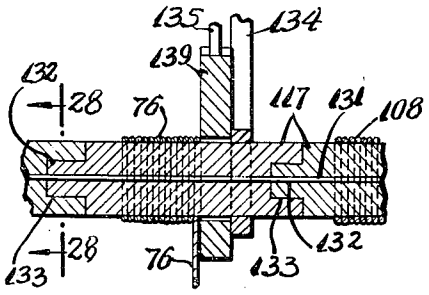


Fig. 27.

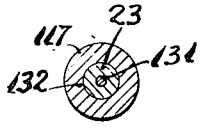


Fig. 28.

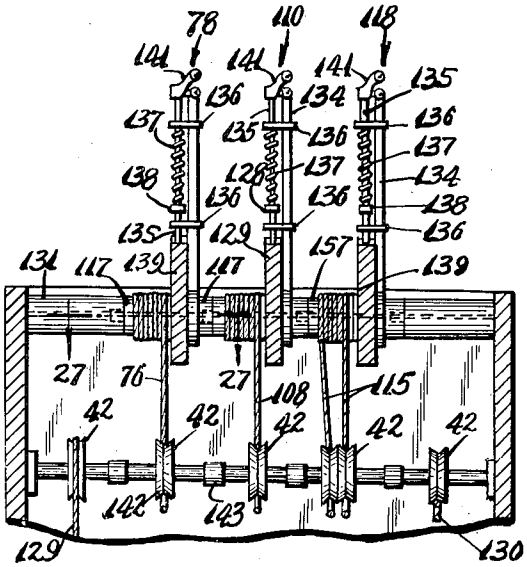


Fig. 26.

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Patented Aug. 17, 1943 2,326,757

UNITED STATES PATENT OFFICE

2,326,757

PROPELLER SAILBOAT MACHINE

Joe Casiple, Providence, R. I.

Application April 18, 1942, Serial No. 439,515

7 Claims. (Cl. 115—3)

This invention relates to new and useful improvements in a propeller sail boat machine.

More specifically, the invention proposes the construction of a propeller sail boat machine characterized by a boat body provided with a conventional screw propeller and a vertical frame supporting a wind propeller and connected by means of a transmission with said screw propeller and arranged in a manner to cause the screw propeller to be rotated to advance the sail boat machine as the wind propeller is rotated.

Still further it is proposed to characterize the screw propeller by a mechanism rotatively supporting it and adjustable in a manner to cause the screw propeller to be rotated in a direction to move the boat forwards or rearwards while the wind propeller continually rotates in one direction.

A further object of the invention proposes the provision of a means in the transmission system for automatically and instantly disconnecting the wind propeller from the screw propeller in the event of a quick change in wind direction causing the propeller to be rotated in a wrong direction.

It is further proposed to provide the frame with a horizontal circular track rotatively supporting a spider having a radially extending propeller support rod upon which said propeller is rotatively mounted.

Still further it is proposed to provide the sail boat machine with a rotative main shaft extending coaxially of the circular track and forming a portion of the transmission system and provided with a gear meshing with a gear on the propeller in a manner to cause the main shaft to be rotated when the propeller is rotated.

A further object of the invention proposes the provision of a wind vane pivotally supported upon the spider and having an initial position capable of heading the wind propeller into a wind current to cause the propeller to be rotated thereby.

It is further proposed to arrange the wind vane so that it may be shifted with relation to the propeller and spider into a second position capable of rotating the spider to move and maintain the wind propeller in a position extended transversely of the wind current in a manner to maintain the propeller in an inoperative position.

It is a further object of this invention to provide the sail boat machine with a novel manually controllable means arranged to retain the wind vane in either of its two positions.

A further object of the invention proposes a manually controllable means for shifting the wind vane from either one of its two positions into the other of its positions when the means for retaining the wind vane in position has been released to have the propeller in either its operative or inoperative positions.

It is further proposed to provide the sail boat mechanism with a manually controllable device controlling the movement of a rudder mounted upon the back of the boat to steer the boat over the surface of the water.

For further comprehension of this 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.

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

Fig. 1 is a side elevational view of a propeller sail boat machine constructed in accordance with this invention.

Fig. 2 is a horizontal sectional view taken substantially on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged detailed elevational view of a portion of Fig. 1 and having portions thereof broken away to reveal rear construction.

Fig. 4 is a top plan view of a portion of Fig. 1.

Fig. 5 is a plan view of the wind vane construction, per se.

Fig. 6 is an enlarged vertical sectional view taken substantially on the line 6—6 of Fig. 5.

Fig. 7 is an enlarged detailed elevational view of a portion of Fig. 1 partially sectioned to reveal the main shaft construction.

Fig. 8 is a vertical sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is a partial plan view looking in the direction of the line 9—9 of Fig. 7.

Fig. 10 is a horizontal sectional view taken on the line 10—10 of Fig. 7.

Fig. 11 is a horizontal sectional view taken on the line 11—11 of Fig. 7.

Fig. 12 is a horizontal sectional view taken substantially on the line 12—12 of Fig. 7.

Fig. 13 is a horizontal sectional view taken on the line 13—13 of Fig. 7.

Fig. 14 is an enlarged elevational view of the wind vane construction.

Fig. 15 is a vertical sectional view taken on the line 15—15 of Fig. 14.

Fig. 16 is a perspective view of the lock mechanism applied to the wind vane.

Fig. 17 is an enlarged vertical detailed sectional view of the bottom portion of the sail boat machine.

Fig. 18 is a horizontal sectional view taken substantially on the line 18—18 of Fig. 17.

Fig. 19 is a horizontal sectional view taken on the line 19—19 of Fig. 18.

Fig. 20 is a vertical sectional view taken on the line 20—20 of Fig. 18.

Fig. 21 is a perspective view of a portion of Fig. 18.

Fig. 22 is a horizontal sectional view taken substantially on the line 22—22 of Fig. 17.

Fig. 23 is a horizontal sectional view taken substantially on the line 23—23 of Fig. 17.

Fig. 24 is an enlarged vertical sectional view taken on the line 24—24 of Fig. 23.

Fig. 25 is a perspective view of the shaft shown in Fig. 23 with the pulleys in position thereon.

Fig. 26 is a vertical sectional view taken substantially on the line 26—26 of Fig. 17.

Fig. 27 is an enlarged horizontal sectional view taken on the line 27—27 of Fig. 26.

Fig. 28 is a vertical sectional view taken on the line 28—28 of Fig. 27.

Fig. 29 is a top plan view of one of the brake mechanisms, per se.

Fig. 30 is a plan view of the steering mechanism of the sail boat machine.

Fig. 31 is a vertical sectional view taken substantially on the line 31—31 of Fig. 30.

Fig. 32 is a perspective view of Fig. 31.

The propeller sail boat machine, according to this invention, includes a boat hull 10 supporting a frame. The frame includes a pair of spaced platforms 11 extended between the sides of the hull 10 (see Figs. 3 and 4). Four vertical posts 12 extend upwards from the platforms 11 and have their bottom ends securely attached to the platforms by means of screws 13. Intermediate of their ends the posts 12 have braces 14 securely extended therebetween at positions superimposed above the platforms 11. Auxiliary platforms 15 extend outwards from the brace 14 and have their free ends supported upon downwardly extending posts 16 (see Fig. 1). The bottom ends of the posts 16 are attached to platforms 17 mounted between the sides of the hull 10 of the boat.

Intermediate of their ends the auxiliary platforms 15 are provided with upwardly extending posts 18 and the posts 12 and 18 adjacent their top ends are arranged to support a horizontal circular track 19. This horizontal circular track 19 comprises a pair of vertically spaced circular track members 20 and 21. Extending from the top face of the track member 20, in aligned positions with the posts 12 and 18, there are angle members 22 secured to the posts. Likewise, extending from the bottom face of the track member 21 adjacent each of the posts 12 and 18 there is an angle member 23 attached to the posts. These angle members 22 and 23 act to support the track members in their horizontal vertically spaced positions with the adjacent faces of the track members being devoid of any connection.

A main shaft 24 is rotatively supported coaxially of the frame and extends vertically therethrough. The top end of the main shaft 24 engages into a socket 25 (see Fig. 7) formed on a stub shaft 26. The stub shaft 26 has its top end rotatively supported in a cap member 27. The cap member 27 is provided with an inwardly directed bottom flange 28 engaging between a pair of spaced flanges 29 formed on the stub shaft 26 adjacent the top end thereof. Means is provided for supporting the cap member 27 in a coaxial position from the top ends of the posts 12 and 18. This means comprises a plurality of rods 30. The outer ends of the rods 30 are bent to engage through openings formed in lugs 31 integrally formed upon the top ends of the posts 12 and 18 (see Figs. 1 and 3).

The inner ends of each of the rods 30 are bent to engage through openings formed in one of a plurality of lugs 32 formed on the top face of the cap member 27. The rods 30 act to maintain the cap member 27 in its coaxial position with relation to the posts 12 and 18 and the circular track 19 and firmly support the stub shaft 26 and maintain its socket opening 25 engaged upon the top end of the main shaft 24. The stub shaft 26 supports a spider consisting of a plurality of radially extending arms or rods 33' (see Figs. 1, 3 and 4) projecting from the stub shaft 26 and having their outer ends freely disposed between the adjacent faces of the track members 19 and 20 forming the circular track 19. With this construction it is possible for the stub shaft 26 and the spider which it supports to rotate independently of the track 19 and the cap member 27 and still maintain its engaged position with the main shaft 24 which is free to be rotated independently of the stub shaft 26.

One of the rods 33' forming the spider acts as a support for a wind propeller 33. This wind propeller 33 (see Figs. 3 and 7) is characterized by a tubular shaft 34 provided intermediate of its ends with a flange 35. The flange 35 supports a plurality of radially extending propeller blades 36 which have their outer ends securely attached to a ring 37. An angle member 38 is provided for attaching the outer end of each of the propeller blades 39 to the ring 37 and is provided for maintaining the outer ends of the propeller blades equally spaced. Intermediate of their ends the propeller blades 36 are provided on opposite sides with angularly shaped rings 39 from which a plurality of radiating rods 40 extend. The outer ends of the rods 40 are attached to angle members 41 securely mounted at spaced positions upon the tubular shaft 34.

The rods 40 are provided for maintaining the propeller blades 36 in their radially extended positions with relation to the shaft 34. The end of the shaft 34 disposed upon the rod 33 is closed by means of a cap 42 which freely encircles the support rod 33. A collar 43 is mounted upon the support rod 33 and prevents outward movement of the tubular shaft 34 with relation to the support rod 33'. This collar 43 is maintained in position upon the support rod 33' by means of a set screw 44. The other end of the tubular shaft 34 is closed by means of a gear 45 which rotatively encircles the support rod 33'. The gear 45 is of the bevel type and meshes with a complementary bevel gear 46 mounted upon the top end of the main shaft 24 immediately below the bottom end of the stub shaft 26. A pin 47 is engaged through a portion of the beveled gear 46 and main shaft 24 for securely mounting the beveled gear 46 in position upon the shaft 24. The construction is such that the propeller 33 is free to rotate upon the support rod of the spider and rotations thereof will be transmitted to the main shaft 24 through the medium of the meshing gears 45 and 46.

The bottom end of the main shaft 24 extends into a tubular shaft 48 which is provided with a small beveled pinion 49 at its bottom end.

The tubular shaft 48 is provided at its top with a cam surface 50 engaged by a complementary

cam surface 51 formed on the bottom end of a tube 150 which is slidably but non-rotatively supported upon the shaft 24 adjacent the end of the tubular shaft 40. A pin 151 is mounted upon the main shaft 24 and slidably extends into a slot 152 extended inwards from the top end of the tube 150. Means is provided for urging the tube 150 downwards to cause the cam surfaces 50 and 51 to be engaged. This means comprises an expansion spring 153 mounted on the main shaft 24 above the top end of the tube 150. This spring 153 has its bottom end bearing against the top end of the tube 150 and its top end securely attached to a pin 154 mounted on the side of the shaft 24. When the wind propeller 33 rotates in a proper direction the cam surface 51 will engage the cam surface 50 and cause the tubular shaft 48 to be rotated. However, if there is a quick wind change causing the wind to strike the propeller from the back and rotate it in the opposite direction, this opposite rotation will cause the cam surface 51 to disengage the cam member 50 and raise the tube 150 to free the main shaft 24 from the tubular shaft 48 and prevent the tubular shaft from being rotated in a wrong direction. The pinion 49 mounted on the bottom end of the tubular shaft 48 continuously meshes with one of a pair of adjacent beveled gears 52 fixedly supported on a shaft 53.

The shaft 53 is fixedly supported by means of a pair of brackets 54 mounted upon the bottom of the hull of the boat 10. A horizontal shaft 55 extends from a position adjacent the beveled gears 52 through the back of the boat and is provided with a screw propeller 56. The front or inner end of the shaft 55 is provided with a pinion 57 selectively engageable with one or the other of the beveled gears 52 for driving the screw propeller 56 in one direction or the other. Mechanism is provided for shifting the position of the shaft 55 to control the engagement of the gear 57 with the gears 52, and the details of this construction will be hereinafter given.

A wind vane 60 is fixedly attached to a shaft 61 adjacent the top end of this shaft (see Figs. 3, 5, 14 and 16). The shaft 61 is rotatively supported in a lug 62 formed on one of the rods 33' of the spider. The bottom end of the shaft 61 is rotatively supported in a lug 63 mounted on the outer end of a bracket 64 securely attached to a tubular shaft 65 encircling the main shaft 24. Means is provided for holding the wind vane 60 in an initial position in which the wind propeller 33 will be faced directly into a wind current. This means comprises a latch lever 66 pivotally supported upon a pin 67 mounted upon one side of the wind vane 60. The outer end of the latch lever 66 is provided with a triangularly shaped latch member 67 engageable upon one of a pair of complementary triangularly formed keeper surfaces 68 mounted upon brackets 69 attached to adjacent rods 33' of the spider supporting the vane 60. A bracket 70 has its ends securely attached to the face of the vane 60. The central portion of the bracket 70 is bulged outwards and engages around the latch lever 66 (see Figs. 14 and 15). A contraction spring 71 operates between the bracket 70 and the free end of the latch lever 66 for continuously urging the latch lever into a position in which the latch member 67 will continuously engage the triangularly shaped complementary keeper member 69.

A flexible cord 72 has one end securely attached to the free end of the latch member 66 and is engaged over a pulley 73 mounted on the face of the wind vane 60. The other end of the flexible cord 72 is securely attached to a collar 74 rotatively but non-slidably supported upon a complementary collar 75 which slidably engages the stub shaft 26. A second flexible cord 76 is securely attached to the collar 75 and extends upwards through loops 77 mounted upon the cap member 27. The free end of the second flexible member 76 extends downwards along one of the posts 12 (see Fig. 3) and connects with a mechanism for pivoting the latch lever 66 for disengaging its latch member 67 from its keeper 68. This latter mechanism comprises a lock mechanism 78, the details of which will hereinafter be given.

Means is provided for turning the vane into either of its two positions when the latch lever has been moved to an inoperative position. This means comprises a gear 79 mounted upon an intermediate portion of the shaft 61. This gear 79 meshes with a complementary gear 80 securely mounted on a tubular shaft 81 mounted upon the tubular shaft 65 which encircles the main shaft 24. The bottom end of the tubular shaft 81 carries a gear 82 which meshes with a gear 83 mounted upon a tubular shaft 84. The tubular shaft 84 is supported upon a rod 85. The tubular shaft 84 is freely mounted upon the rod 85. The bottom end of the rod 85 carries a sprocket wheel 86 over which a chain 87 engages. The chain 87 also engages over a second sprocket wheel 88 securely mounted upon a shaft 89 rotatively supported in a bracket 90. The bracket 90 is mounted on a platform 91 extended between the walls of the hull 10 of the boat. The top end of the shaft 89 is provided with a manually rotatable handle 92 by which the shaft 89 may be turned. The rotations of the shaft 89 are transferred to the rod 85 through the medium of the chain 87 and its respective sprockets.

Means is provided for locking the tubular shaft 84 to the rod 85 to cause this tubular shaft to be rotated when the rod is rotated (see Figs. 3 and 7). This means comprises a tubular shaft 93 slidably but non-rotatively mounted upon the rod 85 below the tubular shaft 84. Pins 94 extend from the rod 85 and engage complementary cutouts 95 in the bottom end of the tubular shaft 93 for connecting the tubular shaft 93 and rod 85. The adjacent ends of the tubular shafts 84 and 93 are provided with inter-engaging teeth 96 which are adapted to engage each other in a raised position of the tubular shaft 93 for connecting these shafts. Means is provided for raising the tubular shaft 93 and is characterized by an arm 97 pivotally supported intermediate of its ends upon a square post 98 supported upon a platform 99 extended between the walls of the hull 10 of the boat. One end of the arm 97 is pivotally attached to a collar 100 which rotatively engages about the tubular shaft 93.

A collar 101 is securely mounted upon the shaft 93 above the top end of the collar 100 and prevents the collar from moving upwards relative to the tubular shaft 93. The end of the arm 97 adjacent the collar 100 is more specifically provided with a portion 97a which encircles the collar 100 and which is attached thereto by means of brackets 102 engaged over opposite sides of the encircling portion 97a and securely attached to the collar 100. The free end of the arm 97 is provided with a roller 103 over which a flexible cord 104 is securely attached. This flexible cord 104 extends downwards and is attached to an intermediate portion of a lever 105 (see Fig. 3) pivotally supported at one of its ends

by means of a pin 106 upon the post 98. A spring 107 operates between the lever 105 and a portion of the post 98 for urging the lever 105 into a raised position in which the shaft 93 will be disengaged from the shaft 84. A flexible cord 108 is attached at one end to the free end of the lever 105 and passes over a roller 109 and has its free end attached to a lock mechanism 110, details of which will hereafter be given.

The construction is such that the lock mechanism may be moved to draw the flexible cord 108 and pivot the lever 105 against the holding action of the spring 107 to draw downwards on the flexible cord 104. This pivots the arm 97 and raises the tubular shaft 93 to engage its teeth with the adjacent teeth 96 of the tubular shaft 84. In this position it is possible to manually rotate the handle 92 to rotate the shaft 93 and similarly rotate the rod 85 through the medium of the chain 87 and its sprockets 86 and 88. Rotation of the rod 85 will be transmitted to the gear 83 through the medium of the inter-engaged tubular shafts 84 and 93 to rotate the gear 82 and tubular shaft 81. As the tubular shaft 81 rotates the gear 80 will be rotated to similiarly rotate the gear 79 and shaft 61 to move the wind vane 60 out of its initial position or back to its initial position, depending upon the position of the vane at the time the handle 92 is rotated.

The means for controlling the engagement of the gear 57 with the gears 52 which was hereinbefore referred to, is characterized by a cylindrical member 111 fixedly mounted on a tube 113 in turn freely mounted upon a portion of the shaft 55 adjacent the gear 47. This cylindrical member 111 is engaged between a pair of superimposed channel members 112 with its flat faces engaging the bases of the members 112. The members 112 have their outer ends supported upon the brackets 54 which support the shaft 53. These channel members 112 have their flanges directed towards each other to limit movement of the cylindrical member 111 to the lateral. The tube 113 is freely mounted upon the shaft 55 and is provided with a pair of oppositely disposed outwardly extending lugs 114. The lugs 114 have the free ends of a pair of flexible cords 115 securely attached thereto. These flexible cords 115 are extended through tubular members 116 mounted upon the brackets 54. The free ends of the cords 115 are then engaged about a drum 117. The ends of the cords 115 are engaged about the drum in opposite directions for causing one end to be wound upon the drum while the other is unwound therefrom, and vice versa.

Rotation of this drum 117 is controlled by a lock mechanism 118 (see Fig. 26), details of which will be hereafter given, for causing the cylindrical member 111 to be shifted along the length of the channel members 112 as the drum 117 is rotated in one direction or the other. As the cylindrical member 111 shifts along the length of the channel members 112 the position of the shaft 55 will be similarly changed to move the gear 57 to engage one or the other gears 52, as shown in Fig. 20. When the gear 57 engages one gear 52 the shaft will be rotated in one direction to similarly rotate the screw propeller 56. However, when the position of the shaft 55 is shifted to cause the gear 57 to engage the other gear 52 the shaft 55 will be rotated in the opposite direction and cause the screw propeller to be similarly rotated in the opposite direction. This changes the movement of the boat to either a forward or rearward direction upon the surface of the water.

Means is provided for steering the hull 10 across the surface of the water and is characterized by a rudder 119 securely attached to a shaft 120 rotatively supported upon the back of the hull 10 adjacent the screw propeller 56 (see Fig. 3). The top end of the shaft 120 is extended into the hull 10 and is provided with a laterally extending lever 121. A drum 122 is rotatively supported upon a shaft 123 mounted between the walls of the hull 10 and is provided at one side with a worm gear 124 meshing with a worm pinion 125, see Figs. 30, 31 and 32. The worm pinion 125 is mounted upon a rod 126 which extends at an inclination to the boat bottom. The bottom end of the rod 126 is rotatively mounted in a socket 127 mounted upon the hull bottom. The top of the rod 126 is provided with a conventional hand wheel 128 by which the rod 126 may be rotated to rotate the drum 122 through the medium of the worm gear 124 and worm pinion 125. A flexible cable 129 has one of its ends rotated about the drum 122 in one direction, and the other of its ends extended to the rear of the hull 10 and connected to the laterally extending lever 121.

A second flexible cable 130 has one of its ends wound upon the remaining portion of the drum 122 in a direction opposite to the direction in which the end of the cable 129 is wound. The free end of the cable 130 is likewise extended to the rear of the hull 10 and is connected to the radial lever 121. The flexible cables 129 and 130 extend to the radial lever 121 from opposite sides thereof, see Fig. 2. This construction is similar to that in conventional use, and as the hand wheel 128 is turned the drum 122 is turned to wind one cable on the drum and unwind the other cable therefrom. This causes one cable to be pulled while the other is slackened, similarly pulling the radial lever 121 and turning the shaft 120 to similarly turn the rudder 119.

Each of the lock mechanisms 78, 110 and 118 is alike in construction and each is characterized by a drum 117 (see Fig. 26). The drum 117 of the lock mechanism 78 has the flexible cord 76 which extends from the lock mechanism of the wind vane 60 wound thereon. The drum 117 of the lock mechanism 110 has the cable 104 of the wind vane turning mechanism wound thereon. The drum 117 of the lock mechanism 118 has the ends of the cables 115 of the screw propeller reversing mechanism wound thereon as was hereinbefore described. Each of the drums 117 is rotatively supported upon a shaft 131 extended between the sides of the hull 10 of the boat. Each of the drums 117 is provided at one end with an outwardly extending projection 132 which engages into a complementary recess 133 formed in the adjacent end of the next adjacent drum. Each drum 117 carries a handle 134. The bottom end of the handle 134 is securely attached to its respective drum 117 and extends upwards to be moved in one direction or the other for rotating its complementary drum to wind or unwind the cable of the drum.

Means is provided upon each of the handles 134 for holding the drums 117 in a position in which the cables are either wound upon or unwound from the drums. This means comprises a rod 135 slidably supported in brackets 136 mounted upon the handle 134. A spring 137 is coaxially mounted upon the rod 135 and operates between the top bracket 136 and a collar 138.

The spring 137 acts to urge the rod 135 downwards to engage the teeth of a segmental rack 139. The segmental racks 139 for each of the lock mechanisms is securely mounted upon a platform 140 built upon a portion of the hull 10. It thus becomes apparent that when the rod 135 is pulled up by gripping the handle 141 mounted upon the top end thereof, against the action of the spring 137, the bottom end of the rod 135 will be disengaged from the teeth of its respective segmental rack 139, permitting the free handle to be pivoted in one direction or the other to similarly turn its respective drum 117 and wind or unwind its respective cable. The cables of the drums 117 after leaving the drums extend downwards and engage over one or a plurality of pulleys 142 rotatively supported upon a shaft 143. The shaft 143 is extended between the sides of the hull 10. The cables after leaving the pulleys 142 continue to their respective mechanisms which they are adapted to control as hereinbefore described.

The operation of this invention is as follows:

Let us assume that all of the operative parts of the device are in the positions shown in Fig. 1, and that a wind is blowing directly at the propeller 33. If the wind strikes the blades 36 of the propeller it will cause the propeller to be rotated to similarly rotate the tubular shaft 34, which rotations will be transmitted to the main shaft 24 through the medium of the gears 45 and 46. Rotations of the main shaft 24 will be transmitted to the shaft 55 through the medium of the gears 52 and 57 to rotate the screw propeller 56 and cause the boat to be moved forward across the surface of the water. Shifting wind directions will contact the wind vane 60 and rotate the spider on the track 19 to maintain the propeller 33 directed into the wind to be constantly rotated thereby. Since the turning of the spider and the main shaft 24 are concentric the spider may turn independently of the main shaft and maintain the inter-engaged positions of the gears 45 and 46 to cause the main shaft 24 to be continuously driven by the propeller 33.

To control the movements of the boat upon the surface of the water the wheel 128 of the drive mechanism may be turned in one direction or the other to similarly rotate the drum 122 and simultaneously wind one cable of the pair of cables 129 and 130 upon the drum while the other is unwound therefrom, causing the lever 121 to be pivoted and similarly turn the shaft 126, carrying the rudder 119. As the rudder 119 is turned it causes the boat to be similarly turned and provides a mechanism for steering the boat on the surface of the water.

If it is desired to reverse the rotation of the screw propeller 56 to cause the boat to move backwards across the surface of the water it is merely necessary to manipulate the lock device 118. If the rod 135 of the lock device 118 is raised the handle 134 of this lock device may be pivoted in a proper direction to rotate its respective drum 117. This causes one of the cables 115 to be wound upon the drum while the other cable 115 is unwound from the drum. This causes the position of the shaft 55 to be shifted, shifting the gear 57 and bringing it out of mesh with one of the gears 52 to bring it into mesh with the other gear 52. Since the gears 52 rotate in opposite directions this shifting of the gear 57 will cause the rotation of the shafts 55 to be reversed and similarly reverse the direction in which the screw propeller 56 is rotated.

To shift the position of the wind vane with relation to the propeller 31 and track 19 to cause the wind vane to be brought into a position to turn the propeller 31 at a position transverse to the wind current to prevent it from rotating the main shaft 24, the lock device 73 must be operated. The handle of this lock device is moved to rotate its respective drum 117 and wind the cable 70 on this drum and raise the collars 74 and 75 upwards on the stub shaft 26 to pull the cable 72. This pivots the latch lever 65 and disengages the latch member 67 from its keeper 68, freeing the wind vane 60. The lock mechanism 110 is then operated by moving its handle 134 to rotate its drum and wind the cable 103 on this drum to pivot the lever 105 downwards against the action of the spring 107. This pulls the cable 104 and pivots the arm 97 to raise the collar 100. As the collar 103 raises, it similarly raises its tubular shaft 93 and engages the teeth 96 of the shaft 93 with the teeth on the adjacent end of the tubular shaft 84 carrying the gear 83. The shaft 93 being locked to the rod 85 the inter-engagement of the teeth 96 also locks the tubular shaft 84 to the rod 85. The wheel 92 on the shaft 89 may then be rotated to rotate the sprocket 88 and advance the chain 87 to rotate the sprocket 86.

Rotations of the sprocket 86 will similarly rotate the rod 85 and the gear 83 mounted on the tubular shaft 84 which is now locked to the rod 85. Rotations of the gear 83 will be transmitted to the gear 79 through the medium of the gears 80 and 82 mounted on the tubular shaft 81. The gear 79 is locked to the shaft 61 carrying the vane 60 and as the shaft rotates the wind vane 60 will be pivoted through substantially 90° to assume a position adjacent the next arm of the spider as shown in full lines in Fig. 5. The dot and dash lines in this figure illustrate the position from which the wind vane 60 has been moved. In this new position the lock mechanism 73 is returned to its normal position to release the latch lever 65 and permit the latch member 67 to engage the latch keeper 68 mounted upon the bracket 69 of the arm of the spider adjacent this new position of the wind vane 60. As wind currents strike this vane in its new position it will tend to rotate the spider and keep the wind propeller 33 in a position in which its blades will be extended parallel to the direction in which the wind currents are traveling, preventing the propeller from being rotated by these currents. This latter position of the propeller prevents the screw propeller 56 from being rotated and permits the vessel to assume a stationary position on the surface of the water.

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. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said

propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said frame being characterized by a plurality of upwardly extending posts positioned adjacent the outer edge of said circular track, said circular track being characterized by a pair of horizontal circular track members vertically spaced from each other and having their outer faces supported upon said posts leaving their inner faces free to receive said spider.

2. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said spider being characterized by a hub attached to a rotatively supported stub shaft having its bottom end rotatively mounted upon the top end of said main shaft, and a plurality of rods extending from said hub and engaging said circular track, one of said rods being said propeller support rod.

3. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said wind propeller comprising a tubular shaft engaging said propeller support rod, a plurality of propeller blades extending from said tubular shaft, means connecting the outer ends of said propeller blades to rigidly mount them in fixed positions with relation to each other, and means for maintaining said propeller blades in their radially extended position with relation to said tubular shaft.

4. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said wind propeller comprising a tubular shaft engaging said propeller support rod, a plurality of propeller blades extending from said tubular shaft, means connecting the outer ends of said propeller blades to rigidly mount them in fixed positions with relation to each other, and means for maintaining said propeller blades in their radially extended position with relation to said tubular shaft, said transmission comprising a bevel gear mounted upon one end of said tubular shaft and engaging a complementary beveled gear mounted upon the top end of said main drive shaft.

5. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said movable mounting of said wind vane comprising a rotative shaft rotatively supported on said spider and having one end of said wind vane securely mounted on the top thereof, a gear mounted on said shaft supporting said wind vane, and a transmission system manually controllable for rotating said gear to similarly rotate said shaft and pivot said wind vane.

6. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said

spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said means for locking said wind vane in its initial or second position comprising a latch lever pivotally mounted on said wind vane, a latch member mounted on one end of said latch lever, keepers mounted upon said spider adjacent said initial and second position of said wind vane to be engaged by said latch member, resilient means urging said latch lever into a position in which said latch member will maintain an engaged position with one of said keepers, and means for pivoting said latch lever to free said wind vane to be moved.

7. A propeller sailboat machine, comprising a frame to be mounted on a boat and having a horizontal circular track portion, a spider rotatively and coaxially mounted on said circular track and having a radial propeller support rod, a wind propeller rotative on said support rod, a rotative main shaft coaxially with said circular track portion, a transmission connecting said propeller and main shaft, a reversible water propeller drive for said boat and operatively connected with said main shaft, a wind vane movably mounted on said spider for rotating said spider to keep said wind propeller headed into the wind when in an initial position and movable to a second position for rotating said spider to move and keep said wind propeller transversely of the wind and thus inoperative, means for moving said wind vane at will into its initial position or its second position, and means for locking said wind vane in its initial or second position, said means for locking said wind vane in its initial or second position comprising a latch lever pivotally mounted on said wind vane, a latch member mounted on one end of said latch lever, keepers mounted upon said spider adjacent said initial and second position of said wind vane to be engaged by said latch member, resilient means urging said latch lever into a position in which said latch member will maintain an engaged position with one of said keepers, and means for pivoting said latch lever to free said wind vane to be moved, said latter means comprising a flexible cord attached to one end of said latch lever and extended to a drum adapted to be rotated for winding the free end of said cord thereon to pull said cord and pivot said latch lever.

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