

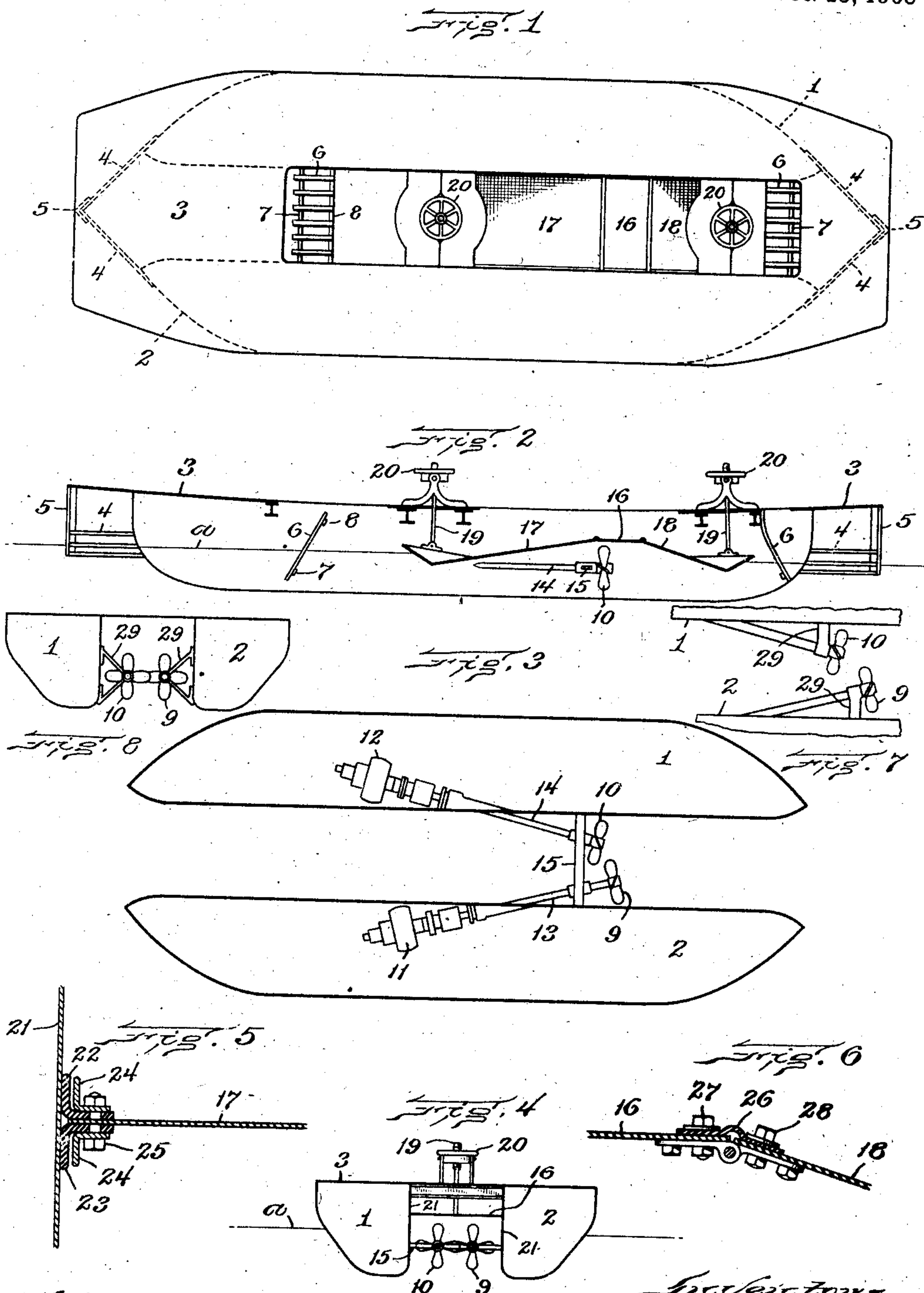
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CATAMARAN POWER BOAT.

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UNITED STATES PATENT OFFICE.

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CATAMARAN POWER-BOAT.

No. 906,901.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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To all whom it may concern:

Be it known that we, JULIUS S. LANE and JOHN L. MATHEWS, respectively of Brooklyn, in the county of Kings and State of New York, and of Billerica, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Catamaran Power-Boats, of which the following is a specification.

10 This invention relates to boats used for towing and guiding cargo boats, and is designed to produce a motor boat for shallow river use which shall have its propelling apparatus so mounted and protected as to draw free water and discharge it without hindrance, without drawing from under the hull, and adapted to work so in either direction parallel with its longitudinal axis.

It consists in a boat having two hulls which are spaced far enough apart to accommodate a propeller or propellers in the space or passage between them, and is constructed so as to be variable in draft when the depth of the water permits or requires.

25 Of the accompanying drawings,—Figure 1 represents a plan view of a boat constructed in accordance with the present invention. Fig. 2 represents a vertical longitudinal section. Fig. 3 represents a sectional plan view taken on the water line of the boat. Fig. 4 represents a stern transverse view. Figs. 5 and 6 are detail views on an enlarged scale, representing the packing means for preventing any leakage of air and water around the adjustable deck which is provided. Fig. 7 represents a detail view showing a means for supporting the propellers independently of each other. Fig. 8 represents an end elevation of the modification shown in Fig. 7.

40 The same reference characters indicate the same parts in all the figures.

As shown in the drawings, the boat constituting our invention is of the catamaran type having twin hulls 1 and 2 from which extends a partial deck 3. The deck overhangs at both ends of the boat, and is formed with square ends which are adapted to be used as abutments in pushing. At the bow and stern of the boat are horizontal bars 4 converging on the center line and secured together by stem and stern posts 5. These bars 4 are located both somewhat above and below the water line, and serve to deflect logs

and heavy floating matter so that the same will not enter the space between the hulls 55 and foul the propellers. Between the hulls near the bow and stern respectively, are racks 6 for collecting wood and such other floating matter as may find its way past the deflector bars 4. These racks consist of upwardly inclined bars connected to transverse braces 7 8. The deck 3 is open above the racks so that the rubbish collecting on them may be removed from time to time.

The driving instrument consists of propellers 9 and 10 located in the space or passage between the hulls. These propellers are driven by motors 11 and 12 within the hulls, with which they are connected by shafts 13 and 14. These shafts diverge and pass through the inner or adjacent walls of the hulls so as to be as nearly parallel as possible with the axis of the boat. It is possible to use only one propeller and motor, but in order to drive the boat straight ahead or astern, it is better to have two arranged at opposite inclinations so that the angularity of one will offset that of the other. Each screw, driving the water toward the center slantingly, reacts with the thrust of the other screw to give a resultant motion of the water straight astern, obtaining higher efficiency than results when the screws are directed outwardly so as to drive the water away from each other and from the boat. The outboard ends of the propeller shafts are held in bearings in a transverse brace 15, or the transverse brace may be omitted and the ends of the outboard bearings extended to the screws and held by braces, as shown at 29. The motive power employed may be electricity, steam, or the combustion of gases, and may be developed in the boat itself, or in an external power plant and transmitted to the boat by suitable means. 95

As the hulls are built comparatively wide and with little draft, the location of the propellers may cause their upper blades to project above the surface of the water, as will be seen from Fig. 2, where the normal water line is represented by the line *a*. 100

In order to enable the propellers to work in water their full diameter when the boat is at light draft, we provide an air-tight and water-tight deck or bridge extending across between the hulls directly above the pro-

pellers. The deck is composed of a central section 16 affixed to the hulls directly above the propellers, and adjustable forward and after sections 17 and 18. These adjustable sections are hinged to the forward and rear sides of the stationary deck and are connected with adjusting screws 19 passing through the swivel nuts 20, so that their swinging ends may be raised or lowered. When the motors are in operation, the adjustable deck sections dip into the water before and behind the propellers. To prevent water washing over the deck, the extreme forward and rear edges are bent upward as shown in Fig. 2. When the propellers are set into operation and the boat started, the air is churned into the water and driven out and the water is caused to rise and fill the space under the decks, so that the propellers are fully submerged in unbroken water. This condition is secured by having the deck practically water and air-tight so that a partial vacuum may be obtained by the driving out of the air with the water.

The means for securing this result while still permitting the adjustment of the deck is shown in Figs. 5 and 6. In the former, 21 represents the inner wall of one of the hulls. These inner walls are vertical and parallel, as shown in Figs. 3 and 4, so that they are the same distance apart except near the ends, which are rounded to facilitate the passage through the water. On the edge of each adjustable deck section next to either hull, are fastened strips of rubber 22 23 secured by angle irons 24 clamped by bolts 25. The edges of these strips are turned up and down respectively, and press against the hull in such a way that the pressure of the water and air increases their tightness. The spaces between the fixed central portion of the deck and each hinged portion are covered by a strip 26 of rubber which is secured by clamps 27 and 28. These strips extend entirely across the propeller space and press their ends against the hulls. It will thus be seen that every joint is suitably packed so that no water can leak out or air leak in.

In places where the depth of the water is sufficient, the draft of the vessel is increased, so as to lower the propellers entirely below the surface of the water. This result is produced by admitting water in some of the compartments in the hulls. When thus the draft is increased, the end sections of the deck are raised entirely above the water line so as to afford no hindrance to the motion of the boat.

It is to be understood that we do not limit ourselves to the specific details of construction shown and described, since the adjustable deck sections may be raised and lowered bodily instead of swinging, or may be made to slide in grooves, or both the end sections of the deck between the hulls may be riveted

to the hulls, and many other modifications may be made without departing from the spirit of our invention.

We claim:—

1. A boat having two connected hulls, a propeller shaft passing through the inner wall of each hull on an angle toward the center line, propellers on the outboard end of the shafts in the space between the hulls, and engines or motors in the hulls connected to drive the shafts; the shafts being convergent so that the water displaced by the propellers is given a resultant motion directly astern.

2. A boat consisting of a plurality of connected hulls spaced a suitable distance apart, a shaft passing on an angle through the inner wall of a hull into the intermediate space, a propeller mounted on the shaft and located between the hulls, and means for rotating the shaft; said shafts converging toward the center line of said space, whereby the thrust of the propellers produces a resultant motion of the water straight astern.

3. A boat consisting of a plurality of connected hulls spaced a suitable distance apart, a shaft passing on an angle through the inner wall of a hull into the intermediate space, a propeller mounted on the shaft and located between the hulls, means for rotating the shaft, and an air-tight deck extending between the hulls above the propeller, adjustable so that its fore-and-aft ends may lie below the water level, or be lifted clear of the water at will.

4. A boat consisting of a plurality of connected hulls spaced a suitable distance apart, a propeller located between the hulls, means for rotating the propeller, an air-tight deck arranged between the hulls above the propeller, said deck having adjustable end sections, and means for raising or lowering said adjustable end sections, so that the outer ends thereof may dip below the surface of the water.

5. A boat consisting of a plurality of connected hulls spaced a suitable distance apart, a shaft passing on an angle through the inner wall of a hull into the intermediate space, a propeller mounted on the shaft and located between the hulls, means for rotating the shaft, a deck extending from hull to hull and consisting of a fixed central section directly above the propeller and hinged end sections extending respectively forward and aft from said central section, and adjusting means for raising and lowering the swinging ends of said hinged sections so as to enable the same to dip a sufficient distance below the surface of the water when the draft of the boat is such as to lift the propeller partly above the water level.

6. A boat consisting of two connected hulls suitably spaced apart, a propeller located in the space between the hulls, and a deck above the propeller adjustable verti-

cally so as to cause the water to entirely submerge the propeller when the latter is in operation.

7. A boat consisting of two connected hulls suitably spaced apart, a propeller located in the space between the hulls, and a deck above the propeller, making water and air-tight connection with the adjacent hulls, adjustable vertically so as to enable its forward and aft ends to extend below the water surface, whereby the water may be lifted above the normal level to cover the propeller when the latter is in operation.

8. A boat consisting of two connected hulls suitably spaced apart, a propeller located in the space between the hulls, a deck above the propeller extending from one hull to the other and adjustable vertically, and packing between the edges of the deck and sides of the hulls, making the same air and water-tight while permitting adjustment thereof.

9. A boat consisting of two connected hulls suitably spaced apart, propellers located in the space between the hulls, a deck above the propeller having a fixed central section and hinged forward and rear sections, means for inclining the hinged sections more or less, and flexible packing strips overlying the hinge joints to prevent leakage of air and water through the same.

10. A boat consisting of two connected hulls suitably spaced apart, propellers located in the space between the hulls, a deck above the propeller extending from one hull to the other and adjustable in height, and strips of flexible impervious material secured tightly to the side edges of the deck projecting therefrom so as to press against the adjacent sides of the hulls, whereby to prevent leakage of air and water between the deck and hulls.

11. In a catamaran boat having a continuous fore-and-aft passage from bow to stern between the hulls, a driving propeller

located in said passage, and trash racks consisting of a series of upwardly directed bars extending across the passage to prevent fouling of the propeller by small pieces of wood and other floating obstructions, said racks being accessible from above to permit removal of the rubbish collected thereby.

12. In a catamaran having a continuous fore-and-aft passage between the hulls and a driving propeller located in said passage, trash-racks located somewhat aft of the bow and forward of the stern, extending across the passage, and each consisting of horizontal cross-bars above and below the water, and bars lying upon said cross-bars, the latter bars being inclined upwardly and inwardly from the nearest end of the boat, so that the rubbish collected thereby may be accessible from either hull for removal.

13. A boat consisting of two hulls having a continuous passage from end to end between them, a propeller located in said passage, and parallel horizontal bars extending forward and rearward respectively from the bow and stern of each hull on a lateral inclination toward the other hull, and stem and stern posts connecting said bars together at their meeting ends, whereby log fenders are provided.

14. A boat consisting of two hulls having a continuous passage from end to end between them, a propeller located in said passage, and horizontal log fenders at each end of the boat converging outwardly from the ends of the hulls, and trash racks between the log fenders and propellers, consisting of upwardly extending bars.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

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Witnesses:

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