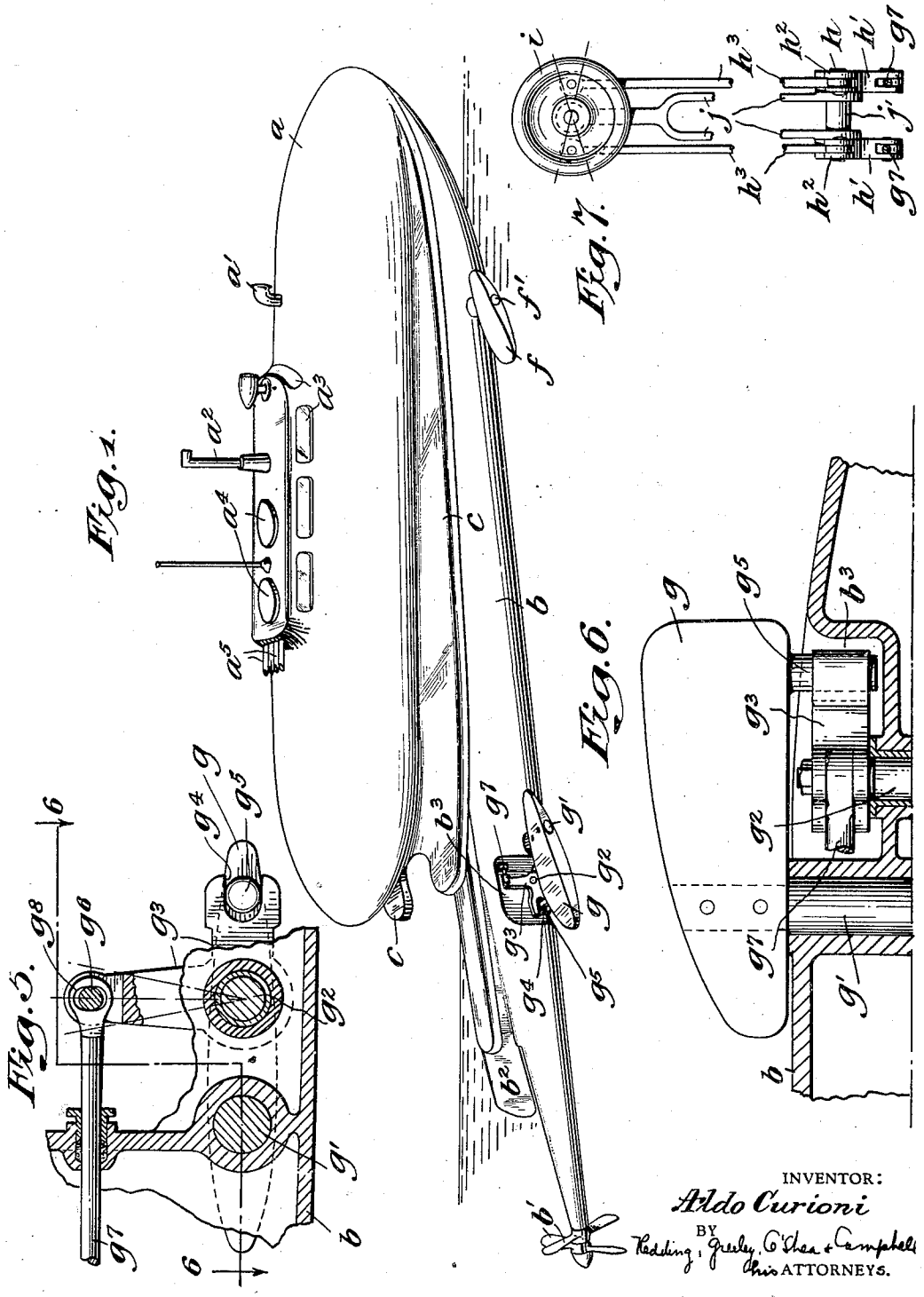
Nov. 11, 1930. A. CURIONI 1,780,998

BOAT

Filed May 29, 1928 2 Sheets-Sheet 1



INVENTOR:
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Nov. 11, 1930. A. CURIONI 1,780,998

BOAT

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Fig. 2.

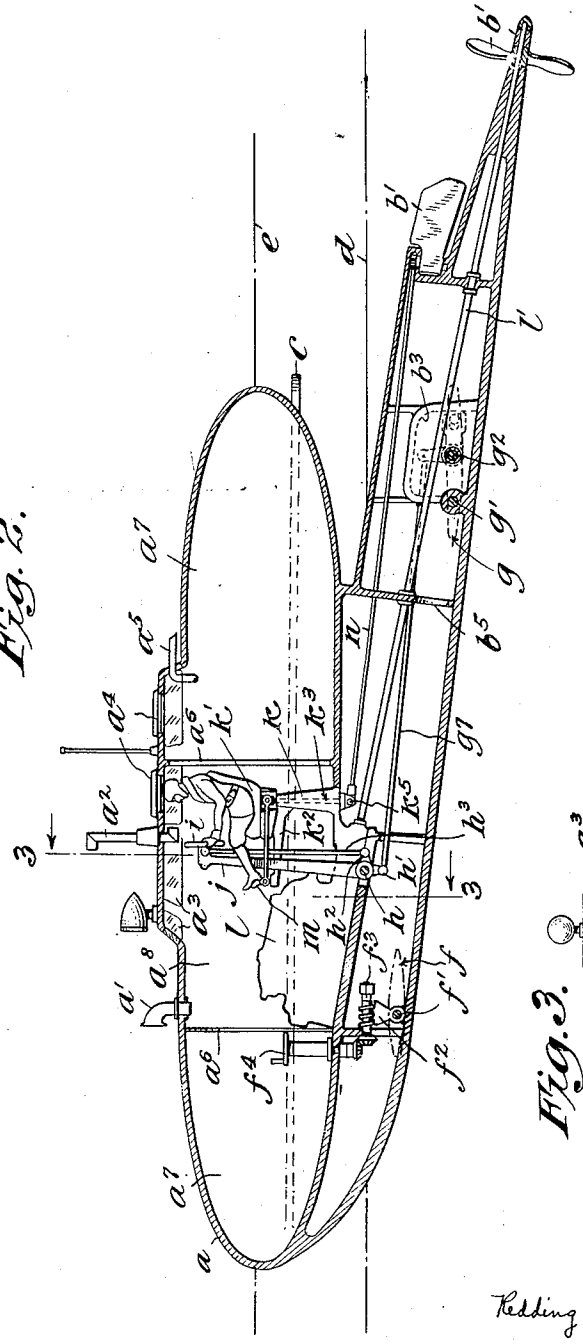


Fig. 4.

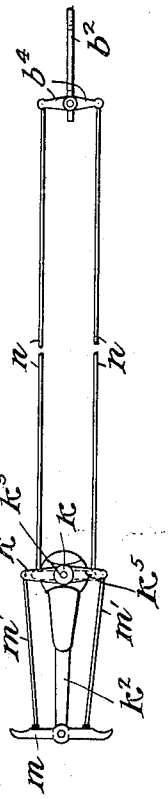
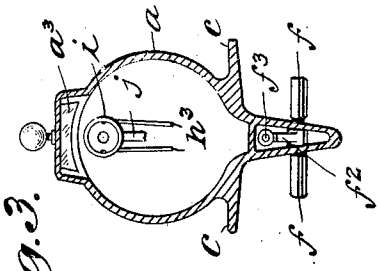


Fig. 3.



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UNITED STATES PATENT OFFICE

ALDO CURIONI, OF LARCHMONT, NEW YORK, ASSIGNOR OF ONE-HALF TO JOHN R. HINCHCLIFFE, OF CAROLINA, RHODE ISLAND

BOAT

Application filed May 29, 1928. Serial No. 281,507.

This invention relates to an improved form of boat combining the qualities of high speed and small size with those of seaworthiness and relatively large capacity for carrying cargoes. Small boats are generally unseaworthy by reason of the fact that they cannot successfully ride large waves and for the further reason that only a moderately rough sea will cause sufficient pitching of the boat to raise the propeller out of the water. As the boat bottom is smooth and unbroken in its surface contour, the boat rides lightly upon the water and is quite susceptible of violent rolling.

The present invention has for an object the provision of a relatively small boat, preferably with no decks, and almost fully enclosed, which will be extremely seaworthy and have the ability of maintaining high speeds for a great number of hours. By virtue of its keel construction, the propeller is maintained at a considerable depth in the water and suitably formed fins are mounted so that changes in their angularity afford changes in the height at which the boat rides through the water. By maintaining these fins under the surface while the boat is moved, there is pressure above as well as below the fins, thus preventing excessive rolling of the hull.

Further objects and advantages of the invention will appear as the description proceeds, and reference will now be had to the accompanying drawings, wherein:

Figure 1 is a perspective view of a boat built in accordance with this invention.

Figure 2 is a view in section taken in a vertical plane passing through the longitudinal axis of the boat.

Figure 3 is a view in section, upon a reduced scale, and taken on line 3—3 of Figure 2.

Figure 4 is a plan view showing the rudder control used on the boat.

Figure 5 is a segmental view in section showing a portion of the controlling means for the rear fins.

Figure 6 is a view in section taken on line 6—6 of Figure 5.

Figure 7 is a view, partly broken away, showing the control for the rear fins.

Referring to the above drawings, a indicates the hull of a boat, in the form shown, being totally enclosed and provided with ventilator a', periscope a^2, windows a^3, manholes a^4 and exhaust ports a^5. Obviously, the number and character of this apparatus may be varied to suit the requirements of various types of service and constitute no part of the present invention. The hull a is provided with a downwardly and rearwardly extending hollow keel b, at the end of which are propellers b' and a rudder b^2. Above the keel b, and adjacent the lower portion of the hull a, stationary wings c are formed. These wings have stream lines and serve as vanes against which the spray of the boat strikes, thus tending to lift the hull from the water when the boat is under way. At such time, the wings c are above the water line, indicated by the dot and dash line d in Figure 2. When the boat is lying at rest, the water line is indicated at e in Figure 2, in this position the wings c being submerged as clearly apparent from Figure 2.

Disposed on either side of the keel and adjacent the front and rear extremities thereof are lateral fins f and g, respectively. Fins f are mounted upon a shaft f' which extends transversely through the keel of the boat and carries a worm sector f^2 within the keel. A worm shaft f^3 carrying a worm engaging the sector f^2 is turned by means of capstan f^4. This enables the angularity of the forward fins f to be varied and, in service, it is contemplated that these fins will be adjusted to an appropriate position for a given set of conditions and only varied when the conditions necessitate it. The rearward fins g are pivoted on stub shaft g' which are mounted in the keel b. Rearwardly of the stub shaft a recess b^3 is formed in the keel and a second stub shaft g^2 mounts a crank g^3 in the recess b^3. One arm of the crank is provided with an open slot g^4 for receiving a pin g^5 carried by the fins g, and the other arm of the crank is provided with a pin g^6. Extending rearwardly from the control room, and disposed within the keel, are shafts g^7. These shafts pass through suitable bearings in the walls of the recesses b^3 and are provided with elon-

gated slots g^8 for receiving pins g^6. It will be apparent that axial movement of shafts g^7 results in a change in the angularity of the fins g. Mounted in the control room, is a shaft h upon which are pivoted cranks h', the lower arms of which are connected to shafts g^7. The horizontal arms h^2 are connected to the extremities of the shafts h^3 and these shafts are pivoted to the control wheel i. Control wheel i is mounted upon standard j which is pivoted to the shaft h at j'. When the angularities of both fins are to be changed simultaneously, the control wheel i and standard j is moved forwardly or rearwardly by the operator. When the relative angularities of the fins g are to be changed, the control wheel i is turned in either direction to provide the desired adjustment.

Within the hull, partitions a^6 provide compartments a^7 for the storage of merchandise, mail, etc., and a control room a^8 is provided between these partitions. In the form shown, a vertical pedestal k carries an operator's seat k' and an engine l. The seat is formed with a forward extension k^2 which carries the rudder operating gear. Pivoted cross bar m is provided with foot notches and is connected to rods m' carried by the standard k. Within the standard, a vertical shaft k^3 is mounted, each end being connected to cross arms k^4 and k^5 at the top and bottom, respectively, and rearwardly extending shafts n connect the rudder arms b^4 with the lower cross arm k^5. Movement of the foot control lever m causes a corresponding movement of the rudder as clearly shown in Figure 4.

The propellers b' are driven by rearwardly extending shaft and sleeve l' within the keel. The specific transmission between the engine and propellers forming no part of the present invention, these elements will suffice for the purposes of illustration.

Within the keel, partitions b^5 provide compartments for the storage of fuel and oil, thus serving as a greater stabilizer to the boat by reason of the added weight at this point.

When the boat is started, the angularity of the rear fins g is gradually varied to lift the hull of the boat above the surface of the water and bring the water line to the position indicated by the dot and dash line d in Figure 2. In this position, both the forward and rear fins are submerged and there is a considerable static as well as dynamic force exerted upon both the upper and lower surfaces of the fins. Any lateral force exerted upon the hull of the boat, such as the impact of the wave, etc. is opposed by the upwardly and downwardly exerted forces upon the submerged fins. In this manner, the boat is rendered quite stable and extremely seaworthy. Extending rearwardly and downwardly as it does, the keel of the boat is always maintained under water and its lateral surfaces provide an additional stablizing medium against disturbing forces exerted upon the hull.

Although the invention has been described with particular reference to the specific form of hull shown in the accompanying drawings, it is not to be limited, save as defined in the appended claims.

I claim as my invention:

1. In a power driven surface vessel, a hull, a keel, submerged vanes carried by the keel upon either side and forward and aft thereof, and means to vary the relative angularities of one set of vanes.

2. In a power driven surface vessel, a hull, a keel extending aft and downwardly, a propeller at the stern of the keel, submerged vanes carried by the keel upon either side and forward and aft thereof, and means to vary the relative angularities of one set of vanes.

3. In a power driven surface vessel, a hull, a keel extending aft of the hull, a propeller at the stern of the keel, submerged vanes carried by the keel upon either side and forward and aft thereof, and means to vary the relative angularities of one set of vanes.

4. In a power driven surface vessel, a hull, submerged vanes carried by the hull, means to vary the angle of the vanes with respect to the horizontal, and hydroplaning surfaces carried by the hull, said surfaces lying above the surface of the water when the boat is under way to receive the impact of the wash of the hull.

5. In a power driven surface vessel, a hull, submerged vanes carried by the hull, means to vary the angle of the vanes with respect to the horizontal, and hydroplaning surfaces carried by the hull, said surfaces lying below the water level when the boat is at rest, and above the water level when the boat is under way.

6. In a power driven surface vessel, a hull and a keel extending from a point of minimum depth adjacent the bow downwardly and aft to a point of maximum depth abaft of the stern of the hull.

7. In a power driven surface vessel, a substantially closed hull and a keel extending from a point of minimum depth adjacent the bow downwardly and aft to a point of maximum depth abaft of the stern of the hull.

8. In a power driven surface vessel, a hull having hydroplaning surfaces and a keel extending from a point of minimum depth adjacent the bow downwardly and aft to a point of maximum depth abaft of the stern of the hull.

9. In a power driven surface vessel, a hull of generally circular cross section, hydroplaning surfaces extending laterally from the hull adjacent the bottom thereof, and a keel below said surfaces.

10. In a power driven surface vessel, a hull of generally circular cross section, hydroplan-

ing surfaces extending laterally from the hull adjacent the bottom thereof, and a keel extending from a point of minimum depth adjacent the bow downwardly and aft to a point of maximum abaft of the stern of the hull.

11. In a power driven surface vessel, a hull of generally circular cross section, hydroplaning surfaces extending laterally from the hull adjacent the bottom thereof, a keel below said surfaces, fins on the keel, and means within the hull and keel to vary the angles of the fins.

This specification signed this 9th day of May, A. D. 1928.

ALDO CURIONI.