

Feb. 11, 1930.

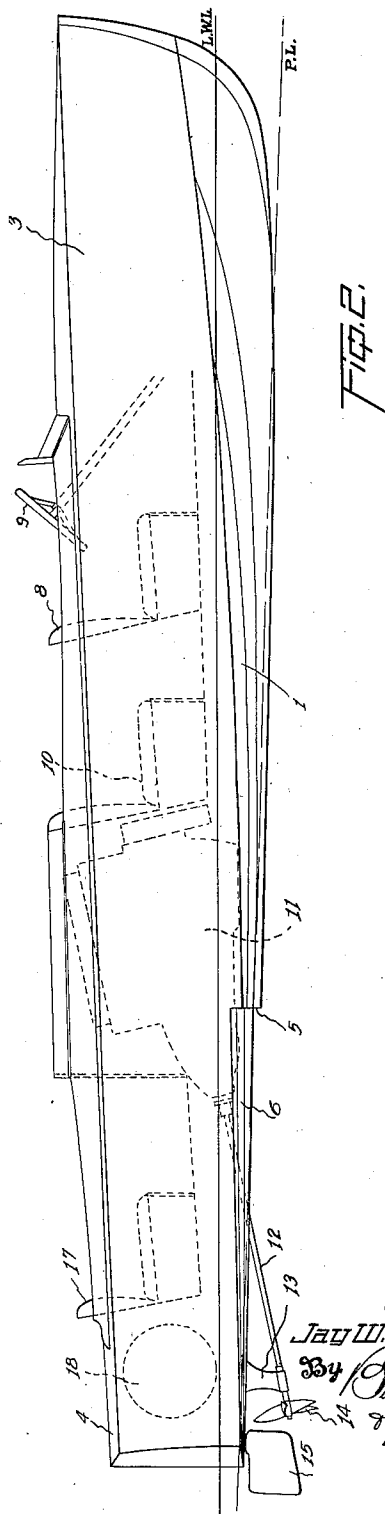
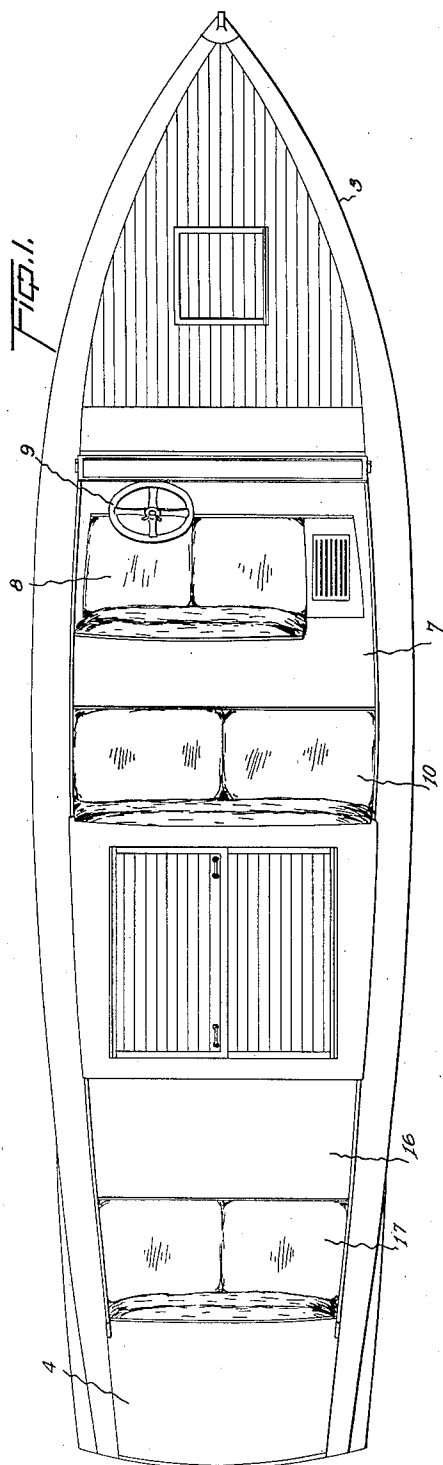
J. W. SMITH

1,746,912

SINGLE STEP BOAT

Filed Aug. 15, 1927

2 Sheets-Sheet 1



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SINGLE STEP BOAT

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2 Sheets-Sheet 2

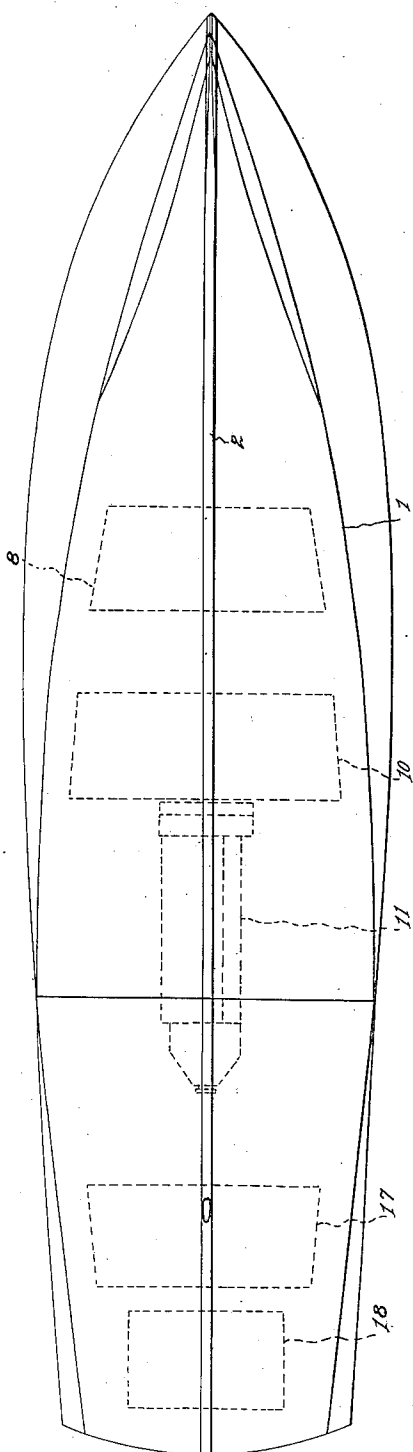


FIG. 3.

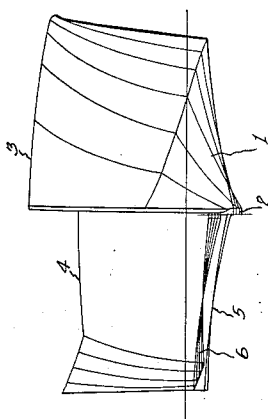


FIG. 5.



FIG. 4.

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SINGLE-STEP BOAT

Application filed August 15, 1927. Serial No. 213,069.

The present invention pertains to a novel style of motor boat and the principal object is to provide a motor boat construction wherein certain characteristics of the hydroplane type may be used in a motor boat body of the run-about or mono-plane design. One of the important characteristics of the run-about design is that the forward portion of the vessel contains the steering mechanism and a spacious seating compartment. The desirability of a seating compartment in the forward portion of the vessel has long been recognized, whereas the hydro-plane style of vessel has its main seating compartment in the stern and is formed with one or more steps across the keel for improving the speed. In accordance with the present invention, the general body lines and the seating arrangement of the run-about are maintained, and the keel is formed with a step which increases the speed about fifteen per cent for a given style and weight of vessel.

Another feature of the present invention contributing to increased speed is the apportionment of weights along the vessel in such a manner that the planing line is only two degrees to the load water line, whereas this angle in the conventional monoplane is approximately six degrees. It has been found that this angle of two degrees between the planing line and the load water line is attained if the sum of the moments of force of the various weights in the vessel when loaded is approximately divided forward and aft of the step in the ratio of 2:1.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings, in which

Figure 1 is a plan view of a motor boat constructed according to the invention;

Fig. 2 is a side elevation thereof showing the load members and seats in dotted outline;

Fig. 3 is a bottom plan view showing the load members and seats in dotted outline;

Fig. 4 is a cross section of the vessel at the step, and

Fig. 5 is a combination bow and stern and view.

Reference to these views will now be made by the use of like characters which are em-

ployed to designate corresponding parts throughout.

The hull of the vessel is of the run-about or monoplane design having a bottom 1 which extends to the keel. The flaring bow 3 is pointed in the usual manner, and the stern 4 is short or broad to reduce the surface of contact with the water.

Across the bottom is formed a step 5, the location of which is approximately two-thirds the distance from bow to stern. The bottom 6 of the step is gradually reduced in depth towards the stern as clearly shown in Fig. 2. The object of this step is to break the vacuum beneath the vessel, and since the theory and operation thereof is already understood in the art, no further discussion of the step is required.

In the bow of the boat is a seating compartment or forward cockpit 7 containing a driver's seat 8 in front of which is a steering wheel 9. In a boat of the size illustrated the seat 8 usually accommodates three persons, and behind this seat is a longer seat 10 for about four persons also disposed in the forward cockpit. The motor 11 is positioned directly astern of the forward cockpit or immediately forward of the step 5. A propeller shaft 12 extending from the motor has its free end supported in a strut bearing 13 and provided with a propeller 14. The rudder 15 swings on the stern of the vessel in the usual manner.

Behind the engine compartment is formed another seating compartment or aft cockpit 16 in which is arranged a seat 17 of sufficient size to accommodate usually two or three persons. In the stern of the vessel, behind the seat 17, is disposed a fuel tank 18, having a capacity of about thirty gallons.

The load water line at rest and the planing line are shown in Fig. 2 and are designated by the characters LWL and PL respectively. The angle between these lines is approximately two degrees and is attained by the apportionment of weights, including passengers, in such a manner that the moments of force forward of the step 5 are approximately double the moments aft of the step.

It has been found that this ratio results

in the small angle of about two degrees between the planing line and the load water line as distinguished from an angle of approximately six degrees between these lines on a conventional monoplane.

proximately 2:1 forward and aft of the step respectively.

In testimony whereof I affix my signature.

JAY W. SMITH.

A run-about or monoplane model capable of making thirty-three miles per hour has been found to attain a speed of thirty-eight miles per hour when formed with the step in the relation described and having its moments distributed in approximately the ratio of 2:1 forward and aft of the step, with no changes in body lines except the step; and no changes whatever in seating capacity and constant load. The tendency of the propeller 14 is to rise out of the water and to effect a decrease in the wetted surface of hull. The result of the construction described herein is that the speed of a run-about may be increased about fifteen per cent without altering the seating arrangement thereof and at the same time considerably reducing the angle between the planing line and the load water lines.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:—

1. In a motor boat hull of run-about design having steering means and seating capacity in the forward portion thereof, a step formed transversely of the keel and aft of said steering means and seating capacity, and substantially constant load members distributed with respect to said seating capacity in such a manner that the sum of the moments of force, when the seating capacity is occupied, is divided in a ratio of approximately 2:1 forward and aft of the step respectively.

2. In a motor boat hull of run-about design having steering means and seating capacity in the forward portion thereof, a step formed transversely of the keel and aft of said steering means and seating capacity aft of said step, and substantially constant load members distributed with respect to said seating capacity in such a manner that the sum of the moment of force, when the seating capacity is occupied, is divided in a ratio of approximately 2:1 forward and aft of the step respectively.

3. A motor boat having a step approximately two-thirds the distance from bow to stern, an engine, seating capacity and steering means forward of said step, and seating capacity and a fuel tank aft of said step, said engine, seating capacities, steering means and fuel tank being distributed in such a manner that the sum of moments of force, when the seating capacity is occupied and the tank substantially filled, is divided in a ratio of ap-