Jan. 27, 1942. F. ROSCHER 2,271,277

SUPERHYDRONE

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Fig. 1.

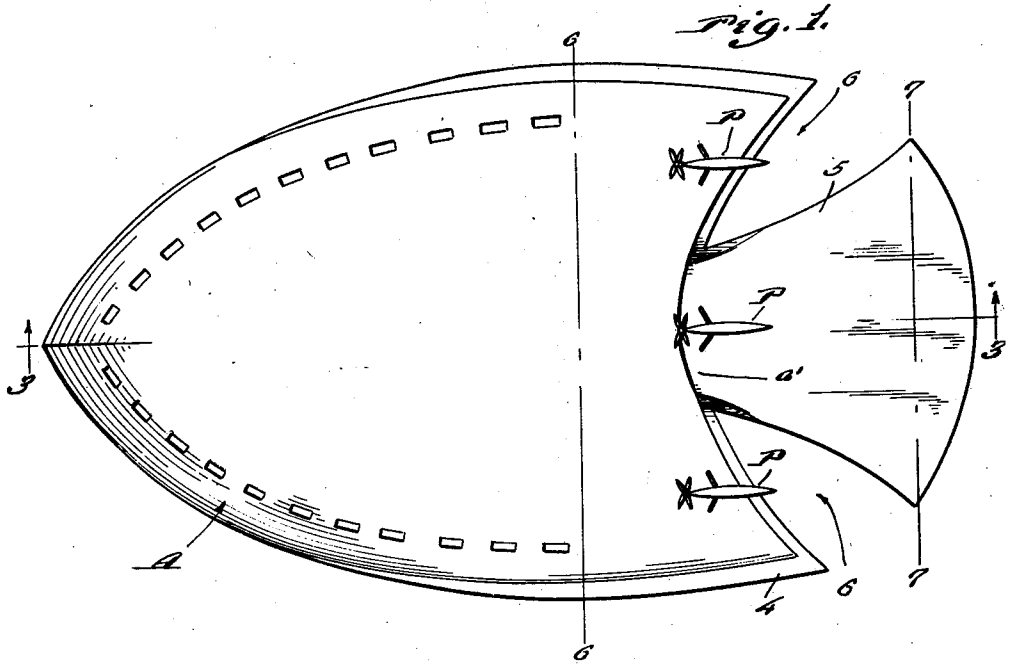
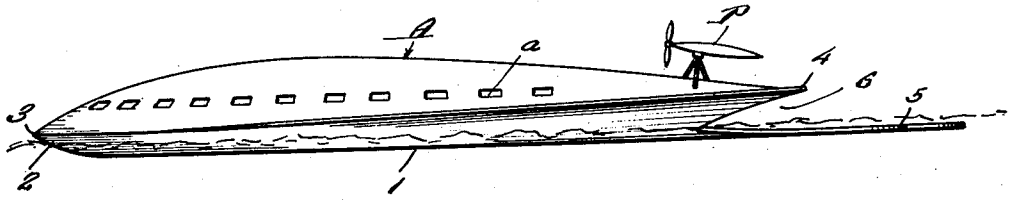


Fig. 2.



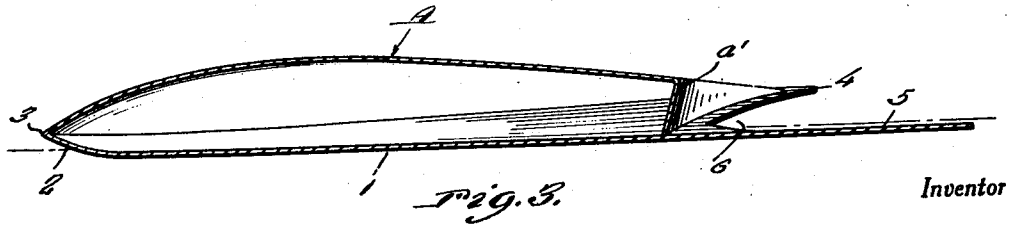


Fig. 3.

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Fig. 4.

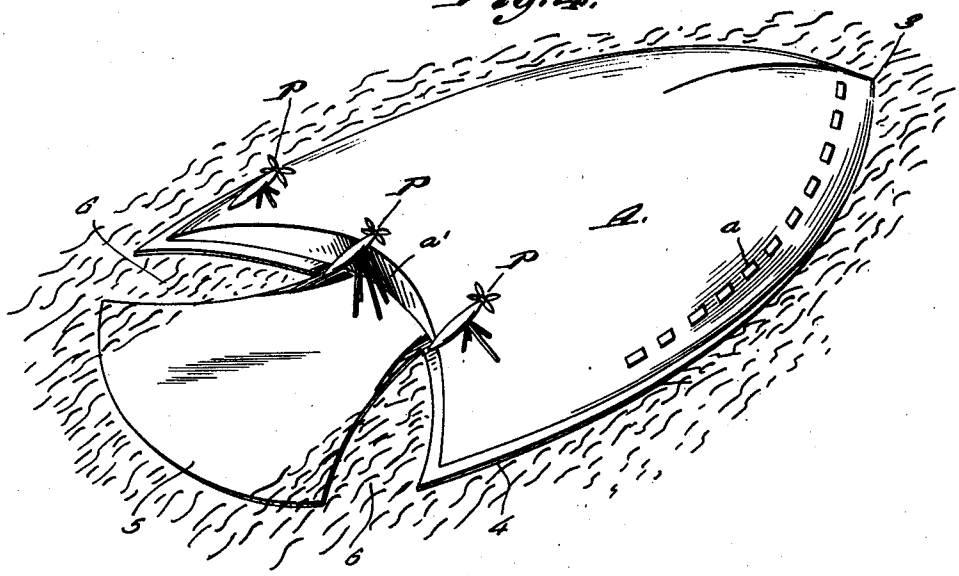


Fig. 5.

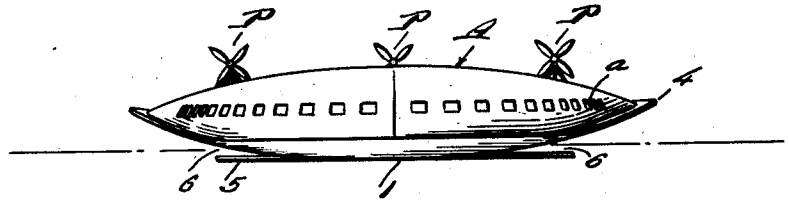


Fig. 6.

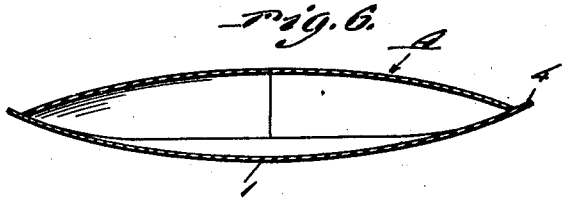
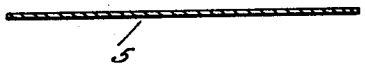


Fig. 7.



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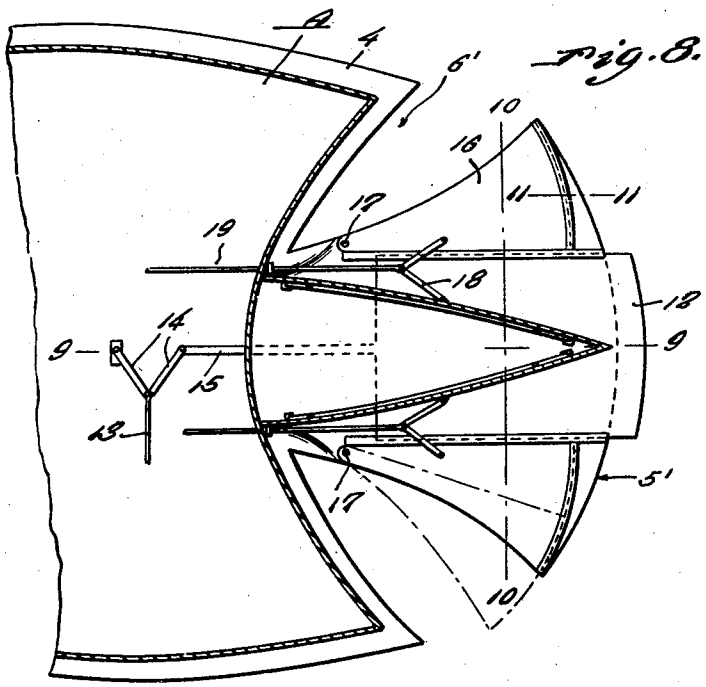


Fig. 8.

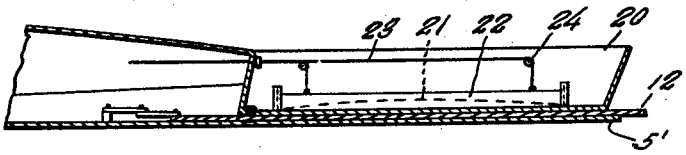


Fig. 9.

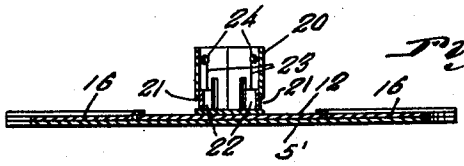


Fig. 10.

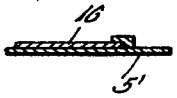


Fig. 11.

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UNITED STATES PATENT OFFICE

2,271,277

SUPERHYDRONE

Frederick Roscher, Boyertown, Pa.

Application October 6, 1939, Serial No. 298,309

4 Claims. (Cl. 114—66.5)

This invention relates to a water craft which I prefer to designate as a "superhydrone," the general object of the invention being to so form, construct and arrange the parts that the craft will travel through the water with the maximum speed for the minimum propulsion action of the propulsion means and the craft will have the maximum riding comfort both in smooth and rough waters and both the construction cost and maintenance cost will be low.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a top plan view largely diagrammatic of a water craft constructed in accordance with this invention.

Figure 2 is an elevational view of the invention.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a perspective view showing the craft in water.

Figure 5 is a front view of Figure 4.

Figure 6 is a section on the line 6—6 of Figure 1.

Figure 7 is a section on the line 7—7 of Figure 1.

Figure 8 is a partial top plan view showing diagrammatically a modification of the invention.

Figure 9 is a section on the line 9—9 of Figure 8.

Figure 10 is a section on the line 10—10 of Figure 8.

Figure 11 is a section on the line 11—11 of Figure 8.

It is to be understood that this water craft can be of any type or kind and constructed for use for different purposes, such as pleasure-craft, cargo-craft, pontoons for hydroplanes and other water crafts, etc. Of course, the upper part of the craft would be constructed in accordance with the use to which the craft was to be put. The drawings show a craft designed for passenger service.

In these drawings the body of the boat is shown at A and the invention lies in the bottom portion of the hull of the boat and as will be seen from these drawings the major portion 1 of said bottom is of downwardly bowed shape in cross section and forms a segment of a large circle. The front portion of the bottom 1 curves upwardly and forwardly as shown at 2 and in plan the body and the bottom have the side portions curving forwardly to a point 3. The body or hull A is of less width and length than that of the bottom so as to leave the projecting parts 4 of the bottom at the sides and rear of the body. These projecting parts form "cat walks" and can be made of any suitable width. Of course, the body will be provided with windows *a* arranged in any suitable manner.

The bottom is also extended at the rear to form the tail part 5 which is substantially flat and has its rear end rounded rearwardly as shown with its sides curving convexly so that the front end of the tail is reduced where it joins the rear end of the major part of the bottom 1 and said rear end of the major portion curves inwardly and forwardly from the edge portions to the points of junction with the tail part so that the side edges of the tail portion and the rear edges of the main bottom part form the openings or incisions 6 between the tail and the rear part of the boat. The rear wall *a'* of the body or hull is curved as shown.

As shown more particularly in Figures 2, 3 and 5 the rear portion of the major part 1 of the bottom bows downwardly transversely and the front portion of the tail 5 is slightly bowed but from this portion the tail gradually flattens until it is practically straight for the major part of its length.

This arrangement of the bottom parts of the craft produces a maximum speed with a minimum power for as the craft passes through the water the major portion 1 of the bottom part forms a trough in the water and the tail occupies this trough with only the wide rear portions of the side parts of the tail passing through the water, as shown in Figure 4 and thus the tail is subjected to the upward pressure of the water in the bottom of the trough and this pressure allows the driving force of the propulsion means to cause the craft to easily pass through the water with what might be termed a "skimming action," with the front of the craft riding on the bow waves.

The power plant should be approximately located two-thirds the length of the boat from the front end thereof and this location of the power plant with the construction of the craft acts as follows: When the craft is idle the tail part is covered by the water but when the craft is in motion the major part of the tail portion is free of water, as shown in Figure 4. The openings or incisions 6 prevent vacuum at the rear of

the craft which tends to hold back the craft and thus reduce its speed.

Figures 8, 9, 10 and 11 show diagrammatically means for increasing the length and width of the tail portion when desired, such means including the length increasing plate 12 supported in any suitable manner for longitudinal sliding movement on the main part of the tail structure 5' and this member 12 can be adjusted in any suitable manner such as by means of a manually operated member attached to a link 13 connected to the toggle links 14, one of which is pivoted to a stationary part and the other of which is connected to a rod 15 which is connected to the front end of the member 12. Thus this member 12 can be adjusted from a position where it entirely rests on a portion of the main part of the tail to various positions projecting from the tail to increase the length of the tail. Side plates 16 are suitably guided on side portions of the tail and are pivoted at the front ends of the tail as shown at 17 and any suitable means can be used for moving the side members from inoperative positions on the tail to projecting position for increasing the width of the tail and decreasing the width of the incisions 6'. Such means are shown as the toggle links 18, one of which is pivoted to a stationary part and the other to a member 16 with the toggle links connected by rods 19 with a manually operated member. Thus the tail can be adjusted as to its length and as to its width to regulate the action of the tail member on the operation of the craft.

Figures 8, 9 and 10 also show a wedge-shaped structure 20 rising from the tail with said structure tapering rearwardly to form vertical walls for dividing the central portion of the tail structure from the side portions thereof and these vertical walls have openings 21 in their lower portions for the admission of water into the structure but these openings 21 can be closed by the gates 22 of any suitable construction and operated in any suitable manner from an interior point of the craft, such as by means of the cables 23 passing over suitable guide pulleys 24 to manually operated means in the structure.

This arrangement permits the craft to rest steadily, when not in motion, by opening the gates and permitting the water to enter the structure 20 so that the entire tail portion is under water and this tends to steady the craft. However, when the craft is in motion the action of the same through the water will cause the water to leave the tail part, as shown in Figure 4 and also to cause the water to flow from the structure through the openings 21. When it is desired to prevent the water flowing into the structure 20 then the gates can be closed as shown in Figure 10.

Any suitable form of propulsion means may be provided for the craft though the drawings show such means as including air propellers P which are suitably supported in elevated position on the craft so that the action of the blades of these propellers on the air will cause the craft to be propelled through the water and if desired the propellers can be arranged at angles which will direct the air downwardly and forwardly against the rear portion of the craft so that this air not only acts to drive the craft forwardly but it also acts to increase the depression of the tail of the craft as the boat passes through the water. Also in some cases it may be desirable to slightly bow the tail instead of having it straight, the bow having its concave face directed downwardly.

Any suitable form of steering means can be used with the craft and the craft can be used with a keel or center board.

As will be seen, as the boat is traveling through the water its front portion will ride over the water and the major portion of the bottom part will pass through the water and form a trough therein which is immediately entered by the tail part so that the tendency of the water in the trough to rise will exert pressure on the tail portion which facilitates the passage of the boat through and over the water and enables the propulsion means to secure the maximum speed with the minimum of power. As will be seen from Figure 5 as the boat is passing through the water only the central portion of the bottom part will be passing through the water as the upwardly curving side portions will be riding above the water.

As the tail portion passes through the trough in the water the wide rear portions of the side portions thereof enter the side walls of the trough so that these side portions have water passing over them and this water acts to hold the tail part, and therefore, the entire boat, steady and true in its course and due to the regulated incisions, or openings 6, the same amount of water will pass over said rear side portions regardless of the water conditions, whether stormy or smooth. In other words these rear side parts act as stabilizers.

Having described the invention what is claimed as new is:

1. A water craft comprising a hull having a pointed bow and said hull gradually increasing in width from the bow to the stern, said hull including a bottom of downwardly bowed shape in cross section, the stern end of the hull and bottom being concave in plane from side to side of the hull, a substantially flat tail extending from the bottom in the longitudinal center of the hull and trailing the stern and having side edges converging toward the stern to provide spaces between the said stern and tail upon opposite sides of the latter to eliminate drag from vacuum occurring at the stern.

2. A water craft comprising a hull having a pointed bow and said hull gradually increasing in width from the bow to the stern, said hull including a bottom of downwardly bowed shape in cross section, the stern end of the hull and bottom being concave in plan from side to side of the hull, a substantially flat tail extending from the bottom in the longitudinal center of the hull and trailing the stern and having side edges converging toward the stern to provide spaces between the said stern and tail upon opposite sides of the latter to eliminate drag from vacuum occurring at the stern, said bottom of the hull having its stern end projecting beyond the stern of the hull and the side edges of said bottom projecting beyond the side edges of the hull from intermediate points at the sides of the hull to the stern.

3. A water craft comprising a hull having a pointed bow and said hull gradually increasing in width from the bow to the stern, said hull including a bottom of downwardly bowed shape in cross section, the stern end of the hull and bottom being concave in plan from side to side of the hull, a substantially flat tail extending from the bottom in the longitudinal center of the hull and trailing the stern and having side edges converging toward the stern to provide spaces between the said stern and tail upon op-

posite sides of the latter to eliminate drag from vacuum occurring at the stern, and means for adjusting the length and width of said tail.

4. A water craft comprising a hull having a pointed bow and said hull gradually increasing in width from the bow to the stern, said hull including a bottom of downwardly bowed shape in cross section, the stern end of the hull and bottom being concave in plan from side to side of the hull, a substantially flat tail extending from the bottom in the longitudinal center of the hull and trailing the stern and having side edges converging toward the stern to provide spaces between the said stern and tail upon opposite sides of the latter to eliminate drag from vacuum occurring at the stern, an upright structure on the tail including side walls which converge from the hull to a point at the rear of the tail, with the rear end of the structure spaced forwardly from the rear end of the tail and said side walls having openings therein for the entrance of water and gates slidably connected with the side walls for opening and closing said openings in the side walls.

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