

July 21, 1931.

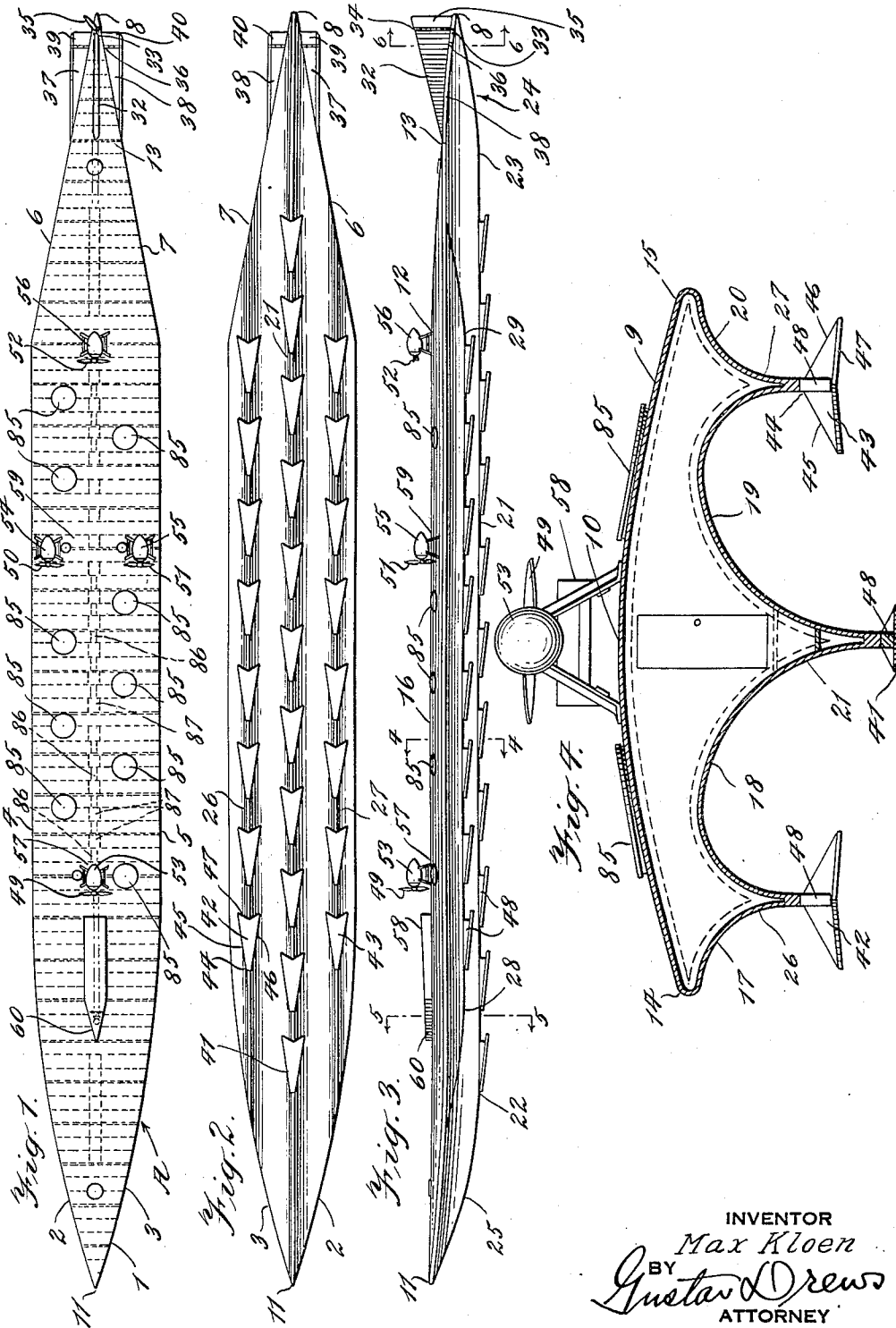
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1,815,303

HYDRO SPEED SHIP

Filed Aug. 28, 1929

2 Sheets-Sheet 1



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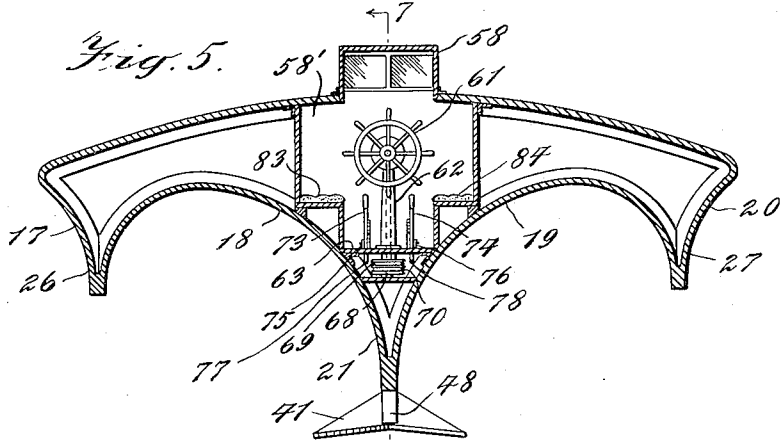


Fig. 6.

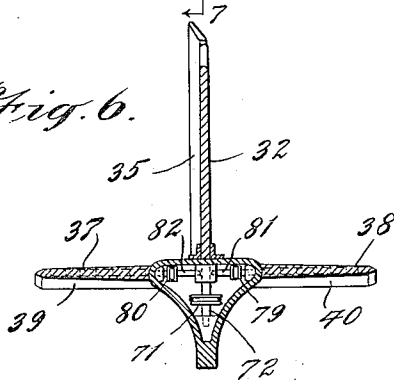
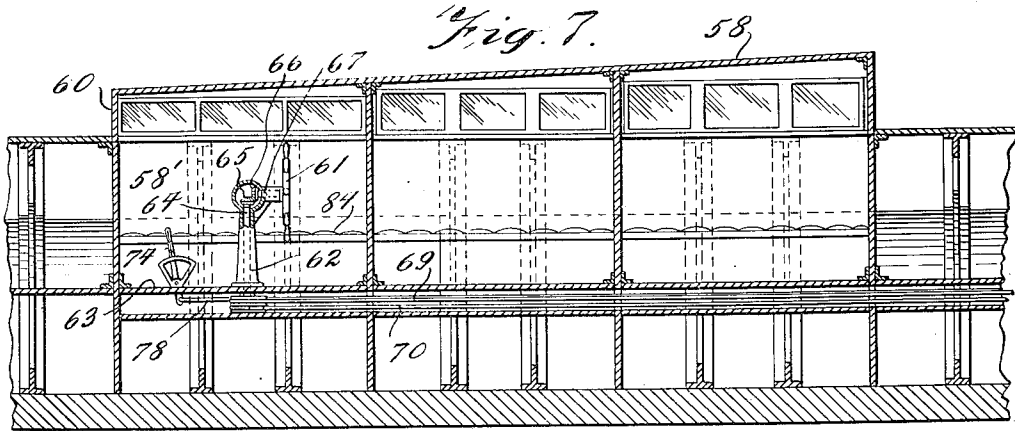


Fig. 7.



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HYDRO-SPEED SHIP

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This invention relates to speed boats in particular and especially to speed boats adapted for oceanic travel.

Among the objects of the present invention it is aimed to provide an ocean-going vessel which can travel at approximately one hundred knots an hour.

It is a further object of the present invention to provide an ocean-going vessel which is constructed to merely skim across the upper surface of the water thereby to reduce the resistance offered by the water to a minimum.

To this end the present invention aims more particularly to provide an ocean-going vessel which is propelled by air power, that is, by means of air propellers, and in which the control or guiding elements, such as the rudder and stabilizer, are also disposed to cooperate with the air rather than with the water.

It is still a further object of the present invention to provide an improved construction of ocean-going vessels in which the resistance produced by the water is reduced to a minimum and such a relation of the parts to one another that the surface of the water will merely serve as a partial support for the weight of the vessel.

These and other features, capabilities and advantages of the invention will appear from the subjoined detail description of one specific embodiment thereof illustrated in the accompanying drawings in which—

Figure 1 is a top plan view of a vessel made according to the present invention;

Fig. 2 is a bottom plan view of the same;

Fig. 3 is a side elevation of the same;

Fig. 4 is a transverse section on the line 4—4 of Fig. 3;

Fig. 5 is a transverse section on the line 5—5 of Fig. 3;

Fig. 6 is a section on the line 6—6 of Fig. 3; and

Fig. 7 is a longitudinal section substantially on the line 7—7 of Fig. 5.

In the embodiment illustrated, there is provided a hull A, the bow 1 of which is tapered as shown and has arcuate lateral faces 2 and 3 merging into the parallel straight faces 4

and 5 of the middle elongated portion of the boat, which straight lateral faces 4 and 5 merge into the rear inclined faces 6 and 7 of the stern of the boat which incline to one another to the rear point 8 of the stern.

The upper face 9 of the hull along the section 4—4, see Fig. 4, is arcuate, a line through the center 10 being substantially straight from the point 11 of the bow to the area 12 and then tapers downwardly to the area 13 where it substantially aligns with the edges 14 and 15 of the central area 16 and then inclines still further below such level with the edges 14 and 15 terminating in the point 8 below the level of the area 13.

The edges 14 and 15 incline upwardly in their direction forwardly to the level of the center line 10, terminating in the point 11, the arcuate surface 9 remaining substantially the same except that its area of course diminishes in its forward extent on account of the forward convergence of the edges 14 and 15.

The lower surface of the hull, see particularly Figs. 2, 3 and 4, is formed by four curved faces 17, 18, 19 and 20. The curved faces 17 and 20 are described by similar but opposite arcs, and similarly the curved faces 18 and 19 are described by similar but opposite arcs. The curved faces 18 and 19 form a large downwardly extending fin member 21, the lower edge of which is substantially straight from the area 22 adjacent the bow 1 and extending rearwardly to substantially the area 23 adjacent the stern 24. The lower edge of the fin 21 in its forward direction thereupon gradually curves upwardly into the point 11, as indicated at 25 in Fig. 3, and similarly from the area 23, the fin 21 gradually inclines upwardly to the point 8, as indicated in Fig. 3.

The faces 17 and 18 as one pair and the faces 20 and 19 as another pair form shorter lateral fins 26 and 27, the lower edge of which is substantially straight from the area 28 to the area 29, see Fig. 3. From the area 28 in its forward direction, the lower edge of the fins 26 and 27 incline upwardly gradually to the level of the edges 14 and 15 at the area 22 and in their rearward extent the lower edge of the fins 26 and 27 incline upwardly grad-

ually to the level of the edges 14 and 15 at the area 13.

The proportion of the vessel is substantially as follows:

5 For a length of substantially two hundred and eighty (280') feet, the width would be about twenty-seven (27') feet and the depth along the section 4—4 from the center line 10 to the bottom of the fin 21 would be about ten and one-half (10½') feet.

10 From the area 13 of the upper surface of the hull, there is formed a vertically extending fin 32 which extends rearwardly to the point 33 adjacent the rear end 8 of the stern 15 24, the upper edge of the fin 32 forming a straight upwardly inclining edge terminating in a vertical line which extends down to the point 33. The rear edge 34 of the fin 32 has secured thereon a rudder blade 35. The 20 edges 14 and 15 beginning at the area 13 diverge to the bottom, and extend parallel to one another to the point 36 to form the stern platform portions 37 and 38. To the rear edge of the platform portions 37 and 38, 25 there are pivotally secured the guiding blades 39 and 40 which terminate in a line extending through the point 33.

The present vessel is intended to use the surface of the water merely as an aid in supporting it at such level. To this end, the fins 10 21, 26 and 27 are provided with blades 41, 42 and 43 respectively which are substantially alike in conformation and dimensions, each having, see Fig. 2, a forward converging 35 portion 44, two rearwardly diverging lateral faces 45 and 46 and a rear recessed edge 47. The blades, as shown in Fig. 3, preferably incline downward in a rearward direction and are secured to their fins by inclined supports 48. While these blades 41, 40 42 and 43 are substantially identical in dimension and size, the blades 41 of the fin 21 perform a slightly different function during the travel of the boat than the blades 42 and 43 45 of the fins 26 and 27 respectively.

The blades 41 serve as stabilizers to extend beneath the surface of the water and thus serve in effect as anchors to anchor the boat to the water. The blades 42 and 43, on the 50 other hand, being disposed at a higher level, serve more as the supporting elements which are intended to rest on the upper surface of the water or to skim across the upper surface of the water and act as a series of paddles to 55 strike the upper surface of the water and cooperate with the water to maintain the boat at a level where these two rows of blades 42 and 43 just graze or skim the water. The inclination of the blades 41, 42 and 43 downward in a rearward direction of course also 60 cooperate with the water to maintain the boat at its highest level, that is, where the blades 42 and 43 just graze or skim the surface of the water.

65 For propelling this vessel through the

water, it is preferred, as illustrated in the present instance, to use aeroplane propellers. In the present instance, four such aeroplane propellers 49, 50, 51 and 52 are provided connected to suitable aeroplane motors 53, 54, 55 70 and 56 respectively. The motor 53 is preferably disposed at the area 57 on the upper surface of the hull of the vessel just to the rear of the cabin extension portion 58. The motors 54 and 55 are preferably disposed 75 alongside of one another and the area 59 on the upper surface of the hull about two-thirds from the front of the hull, and the motor 56 is disposed about midway between the area 59 and the area 13 at the area 12. 80

For piloting the boat, there is provided a pilot location at the front end 60 of the cabin 58' where there is located a wheel 61 which is supported on an upright 62 secured to the flooring 63 of the cabin, which floor is dis- 85 posed below the surface 9 of the hull and preferably, as illustrated, extends from one wall 18 to the other wall 19 of the bottom of the hull.

The support 62, as illustrated in Fig. 7, is 90 preferably provided with a shaft 64 having a beveled gear 65 formed at the upper end thereof in mesh with the beveled gear 66 on the end of the shaft 67 to which the wheel 61 is 95 fixed. The lower end of the shaft 64 is preferably connected to a drum 68 to which are secured the cables 69 and 70, the cable 69 extending rearwardly and being connected to the drum 71 fixed on the pin 72 extending 100 downwardly from and fixed to the rudder 35.

For controlling the guiding blades 39 and 40, there are provided two levers 73 and 74 105 pivotally connected to the brackets 75 and 76 respectively formed on the floor 63 to the front of the support 62. The lower ends of the levers 73 and 74 are connected by cables 77 and 78 with the drums 79 and 80 respectively mounted on the shafts 81 and 82 respectively and formed in the hull adjacent to the 110 pin 72. The ends of the shafts 81 and 82 are respectively connected to the supporting blades or flappers 40 and 39 respectively.

The cabin 58', as particularly shown in Fig. 5, may be provided with bunks or 115 benches 83 and 84 to either side of the floor member 63 and at an upper level thereto and preferably outwardly of the cabin roof portion 58.

Outside of the cabin portion 58' to the front of the motor 53 no other space is preferably reserved for passenger accommodation. 120 However, throughout the hull, freight and supply rooms are preferably distributed, terminating in the hatchway openings 85. Along the side of the fin 21 the gas and oil 125 tanks to be used as fuel are preferably distributed. In the present instance, the oil tanks 86 are indicated as disposed adjacent to the gas tanks 87.

From the foregoing it will be seen that the 130

hull of the vessel is greater in width than in depth and consequently causes a water displacement which is greater in width than in depth, and that the several fins, blades and the shape of the hull intimately cooperate to exercise a lifting action on the hull so as to cause a water displacement that is greater in width than in depth and which will cause the vessel substantially to glide or skim on the surface of the water.

It will also be seen that the passages or funnels formed by the arcuate faces 18 and 19 serve not only as water passages to reduce the water resistance but also as air passages in that the water displacement of the hull, as above described, will be such that the upper part of the faces 18 and 19 and of course also the upper part of the faces 17 and 20 will be disposed above the level of the water normally, and consequently air as a result will pass through such upper portion and thus still further reduce the resistance to travel which would result if such portions of the faces were engaged by the water.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. A vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull composed of a longitudinally extending upper face convex in cross section, a plurality of longitudinally extending lower faces concave in cross section to form a deep centrally extending stabilizing fin, two lateral fins of less depth, the concave faces which form the outer faces of the lateral fins forming with said upper face diminished longitudinally extending lateral edges, air propellers for propelling said vessel, and means for guiding said vessel.

2. A vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull composed of an upper face, a plurality of lower faces concave in cross section to form a deep longitudinally extending stabilizing fin, two longitudinally extending lateral fins of less depth, the concave faces which form the outer faces of the lateral fins forming with said upper face sharp wave-cutting longitudinal edges, air propellers for propelling said vessel, and means for guiding said vessel.

3. A vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull having an upper face, two outer longitudinally extending lower faces concave in cross section forming sharp wave-cutting longitudinal edges with said upper face, two inner longitudinally extending lower faces concave in cross section forming a deep longitudinally

extending central stabilizing fin, two longitudinally extending lateral fins of less depth, said inner concave faces having arcs described of greater radii to form the outer faces of said central fin and graduating into arcs of less radii to form the inner faces of said lateral fins, and air propellers for propelling the vessel.

4. In a vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull having an upper face, a plurality of lower faces forming a longitudinally extending central stabilizing fin and two longitudinally extending lateral fins, and blades formed on the lower edges of said fins, each blade having a front converging portion and a rear recessed edge.

5. In a vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull having an upper face, a plurality of lower faces forming a longitudinally extending central stabilizing fin and two longitudinally extending lateral fins, and blades formed on the lower edges of said fins, each blade having forwardly converging lateral edges to form a front diminished edge and having a recessed rear edge.

6. In a vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull having an upper face, a plurality of lower faces forming a longitudinally extending central stabilizing fin and two longitudinally extending lateral fins, and blades formed on the lower edges of said fins, each blade having forwardly converging lateral edges to form a front diminished edge having a recessed rear edge, and being inclined upwardly in a forward direction.

7. A vessel having a hull of greater width than depth forming a water displacement of greater width than depth, said hull composed of an upper face, a plurality of lower faces concave in cross section to form a deep longitudinally extending stabilizing fin, two longitudinally extending lateral fins of less depth, the concave faces which form the outer faces of the lateral fins forming with said upper face sharp wave-cutting longitudinal edges, the sides of the hull tapering to a point as they approach the bow, the central fin tapering upwardly and diminishing into the extremity of the bow and the lateral fins tapering upwardly and diminishing into the upper sides of the hull remote from the extremity of the bow, air propellers for propelling said vessel, and means for guiding said vessel.

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