

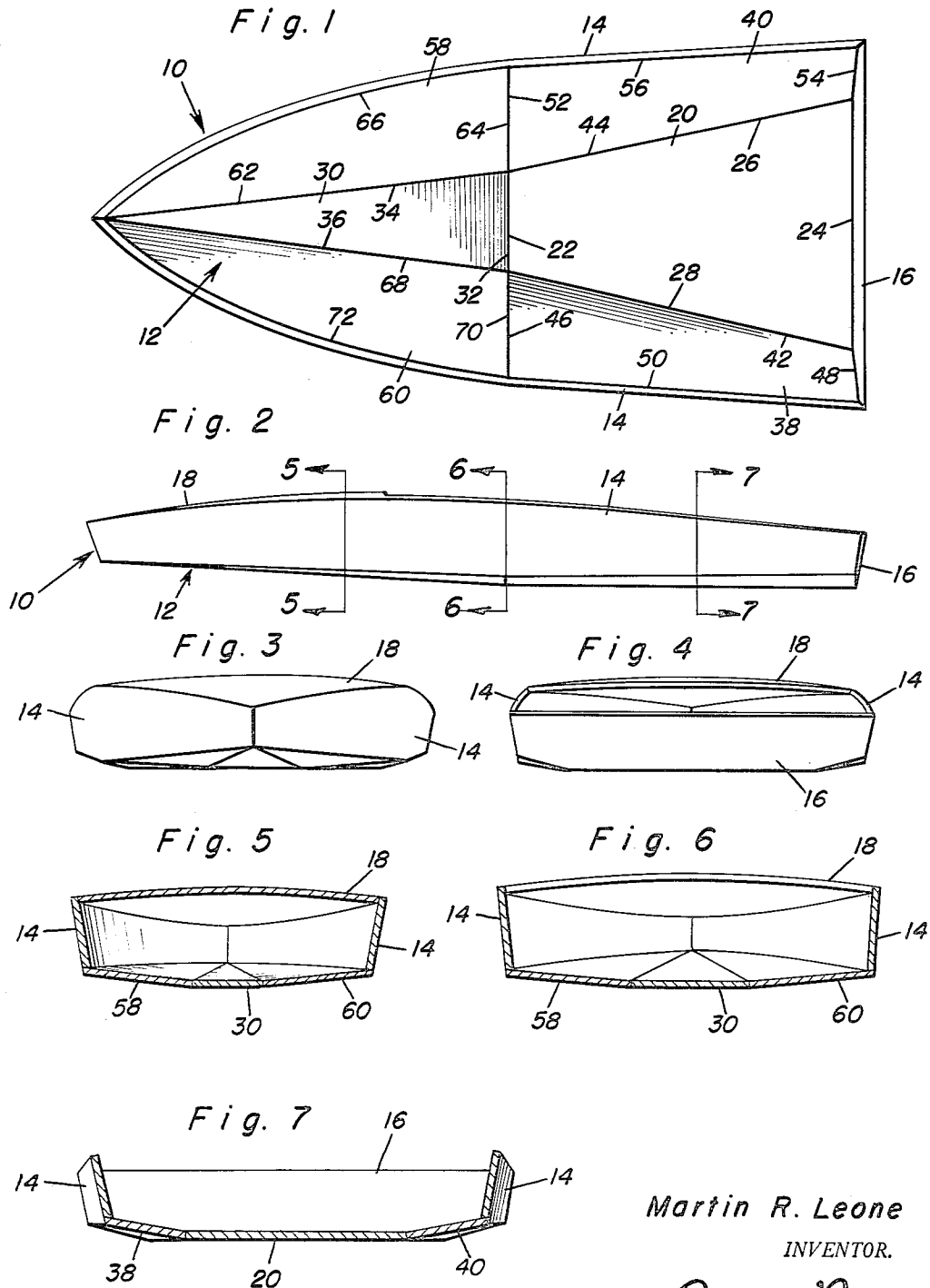
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RACING HULL

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RACING HULL

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This invention relates in general to power boats, and more specifically to a racing hull adapted to have a planing or hydrodynamic lifting reaction when forwardly propelled through the water. The primary object of this invention is to provide an improved racing hull of the planing type which includes a bottom having a new and novel arrangement of hydrodynamic lifting surfaces whereby a minimum of resistance to the forward movement of the hull through the water is effected, and at the same time, the hull is relatively stable.

Another object of this invention is to provide an improved racing hull whose bottom is in the form of a plurality of planar surfaces which may be quickly and easily assembled of conventional boat building materials so as to be economically feasible.

A further object of this invention is to provide an improved racing hull which includes a bottom having first and second central surfaces on which the boat is intended to normally ride, and outer auxiliary surfaces which are adapted to engage the surface of water through which the hull is moving to urge the same to an even keel upon movement of the hull from the same.

A still further object of this invention is to provide an improved hull of the planing type which is adapted to ride on a rear portion of a central bottom surface and which has all of the advantages of a conventional hydroplane without utilizing a stepped bottom construction.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a bottom plan view of the racing hull which is the subject of this invention and shows the general configuration of the various surfaces of the bottom thereof;

Figure 2 is a side elevational view of the hull of Figure 1 and shows the general appearance of the same;

Figure 3 is a front elevational view of the racing hull of Figure 1;

Figure 4 is a stern view of the racing hull and shows the general appearance of the same;

Figure 5 is a transverse vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of Figure 2 and shows the general arrangement of the bottom surfaces adjacent the bow of the hull;

Figure 6 is a transverse vertical sectional view taken substantially upon the plane indicated by the section line 6—6 of Figure 2 and shows the general relationship of the bottom surfaces at the intersection of a forward set of bottom surfaces with an aft set of bottom surfaces; and

Figure 7 is a transverse vertical sectional view taken substantially upon the plane indicated by the section line 7—7 of Figure 2 and shows the general arrangement of the bottom surfaces adjacent the stern of the racing hull.

Referring now to the drawings in detail, it is seen that there is illustrated a racing hull which is referred to in general by the reference numeral 10. The racing hull

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10 includes a bottom, which is referred to in general by the reference numeral 12, sides 14 extending upwardly from the sides and bow edges of the bottom 12, and a stern 16 extending upwardly at the aft end of the bottom 12 and being secured at its outer edges to the aft portions of the sides 14. The hull 10 also includes a deck 18 enclosing the forward portion of the hull, the deck 18 extending between and being secured to the top edges of the sides 14.

It will be understood that the general configurations of the sides 14, the stern 16 and the deck 18 are more or less conventional and may be slightly varied for designs of hulls in order to obtain the desired appearance. It will be also understood that the hull 10 includes internal bracing in the form of transversely extending frames and longitudinal stringers, said frames and stringers being omitted for purposes of clarity.

The bottom 12 includes a substantially horizontal trapezoidal central bottom surface 20 which is planar, the bottom surface extending forwardly from the stern 16 to a medial point of the hull. The central bottom surface 20 has parallel forward and stern edges 22 and 24, respectively, with the stern edge 24 being of a greater width than the forward edge 22. The central bottom surface 20 also includes side edges 26 and 28 which diverge rearwardly.

The bottom 12 also includes a triangular central bottom surface 30 which is also planar and which intersects the central bottom surface 20, the triangular central bottom surface 30 extending forwardly from the forward edge 22 of the central bottom surface 20 to the bow of the hull 10. It will be noted that the triangular bottom surface 30 is bounded by an after edge 32, which is co-extensive with the edge 22 of the bottom surface 20, and forwardly converging side edges 34 and 36 which intersect at the bow of the hull 10. As is best illustrated in Figure 2, the triangular bottom surface 30 also extends upwardly and forwardly relative to the bottom surface 20.

The bottom 12 also includes trapezoidal outer auxiliary bottom surfaces 38 and 40 which are disposed on opposite sides of the central bottom surface 20 and which intersect the same at the side edges 28 and 26, respectively. The outer bottom surface 38 includes an inner side edge 42 which is co-extensive with the side edge 28 of the bottom surface 20 and the outer bottom surface 40 includes an inner edge 44 which is co-extensive with the side edge 26 of the bottom surface 20.

The outer auxiliary bottom surface 38 also includes spaced parallel forward and aft edges 46 and 48, respectively. The aft edge 48 is along a line of intersection of the auxiliary outer bottom surface 38 with a bottom edge portion of the stern 16. The forward edge 46 is in alignment with the edges 22 and 32 of the bottom surfaces 20 and 30, respectively, and lie in a common transverse vertical plane therewith. The outer auxiliary bottom surface 38 also includes an outer side edge 50 along which a bottom portion of one of the sides 14 intersects the outer auxiliary bottom surface 38.

It will be noted that the outer auxiliary bottom surface 40 has a configuration identical to the configuration of the outer auxiliary bottom surface 38 and the same includes spaced parallel forward and aft edges 52 and 54, respectively. The outer auxiliary bottom surface 40 intersects the stern 16 along the aft edge 54 and the forward edge 52 is in alignment with the aforementioned edges 22, 32 and 46, and being disposed in a common transverse vertical plane therewith. The outer auxiliary bottom surface 40 also includes an outer side edge 56 which is disposed at its line of intersection with a bottom portion of one of the sides 14.

Referring now to Figure 7 in particular, it will be seen that the bottom surfaces 38 and 40 are disposed at an

angle to the central bottom surface 20 and extend upwardly and outwardly therefrom. Also, as is best illustrated in Figure 1, the outer auxiliary bottom surfaces 38 and 40 have their side edges converging rearwardly whereas the side edges of the central bottom surface 20 diverge rearwardly. The surfaces 20, 38 and 40 form a first set of surfaces.

Referring once again to Figure 1 in particular, it is seen that the bottom 12 also includes forward generally triangularly-shaped outer auxiliary bottom surfaces 58 and 60, which are disposed on opposite sides of the triangular central bottom surface 30. The outer auxiliary bottom surfaces 58 and 60 are identical and intersect the outer auxiliary bottom surfaces 40 and 38, respectively, at the forward edges of the same. The surfaces 30, 58 and 60 form a second set of surfaces.

The outer auxiliary bottom surface 58 includes an inner side edge 62 which is co-extensive with the side edge 34 of the triangular central bottom surface 30. The outer auxiliary bottom surface 58 also includes an after edge 64 which is co-extensive with the forward edge 52 of the outer auxiliary bottom surface 60. The bottom surface 50 is also bounded by an outer side edge 66 which is disposed along the line of intersection of the bottom surface 58 with the forward portion of one of the sides 14.

The outer auxiliary bottom surface 60 includes an inner side edge 68 which is co-extensive with the side edge 36 of the triangular central bottom surface. The outer auxiliary bottom surface 60 also includes an after edge 70 which is co-extensive with the forward edge 46 of the bottom surface 38. The bottom surface 60 is further bounded by an outer side edge 72 which is disposed along the line of intersection of the outer auxiliary bottom surface 60 with a forward portion of one of the sides 14.

Referring now to Figures 5 and 6 in particular, it is seen that the outer auxiliary bottom surfaces 58 and 60 are disposed at angles to the triangular central bottom surface 30 and extend upwardly and outwardly therefrom. It will be understood that the outer auxiliary bottom surfaces 58 and 60 also extend upwardly and forwardly at an angle to their respective outer auxiliary bottom surfaces 48 and 38, respectively.

While it is preferred that the various bottom surfaces described above be formed of separate panels, such as plywood, etc., it will be understood that if it is desired, the entire bottom 12 may be formed in one or more integral sections.

It is the intention of this invention that the racing hull 10 when normally resting in a body of water will have portions of all of the bottom surfaces in wetting engagement with the water. However, when the racing hull 10 is propelled through the water at a relatively high speed by a suitable power unit (not shown), the intention of this invention is that the triangular bottom surfaces 30, 58 and 60 be lifted out of direct wetting engagement with the surface of the body of water and that only the after portions of the trapezoidal bottom surfaces 20, 38 and 40 be in wetting engagement with the water. It will be understood that during movement of the racing hull 10 through the water, the draft of the same will be reduced to a minimum during the planing action of the same, and that only a very small part of the lower portions of the outer auxiliary bottom surfaces 38 and 40 will be in actual wetting engagement with the water.

It is the intention of this invention that should the hull 10 at any time have a tendency to keel over to either one side or the other, that the outer auxiliary bottom surface at that side have an increased contact with the surface of the body of water with said increased contact resulting in a thrust urging the horizontal trapezoidal central bottom surface 20 back to its normal horizontal position. It is also the intention of this invention that the triangular bottom surfaces 30, 58 and 60 engage the surface of a body of water in such a manner that the hull 10 will be

returned to its normal planing position in the event that the bow portion of the bottom become in engagement with the surface of the water during erratic flotation action of the hull.

A hull of the aforementioned design has been constructed and tested with extremely satisfactory results and has proved highly efficient inasmuch as a minimum drag is effected due to the novel contour of the bottom 12. The hull actually constructed and tested had the following dimensions:

The length of the hull was 108 inches and the width at the stern was 50 inches. The beam at the intersection of the bottom surfaces 20 and 30 was 44 inches.

The trapezoidal central bottom surface 20 had a length of 50 inches and the length of its forward edge 22 was 12 inches. The length of its after edge 24 was 36 inches.

The outer auxiliary bottom surfaces 38 and 40, which are identical, had forward edges, the edges 46 and 52, whose horizontally projected limbs were 16 inches. The horizontally projected lengths of the after edges, edges 48 and 54, of the outer auxiliary bottom surfaces 38 were 7 inches.

The upwardly and outwardly slope of the outer auxiliary bottom surfaces 38 and 40 with respect to the central bottom surface 20 was such to produce a vertical offsetting of $1\frac{3}{4}$ inches at the stern to produce a bevel of 1 in 4. Inasmuch as the triangular outer auxiliary bottom surfaces 58 and 60 intersect the trapezoidal outer auxiliary bottom surfaces 40 and 38, respectively, along common lines, it will be seen that the upwardly and outwardly slope of these bottom surfaces with respect to their associated triangular central bottom surface 30 will also be 1 in 4.

The upwardly and forwardly slope of the triangular central bottom surface 30 with respect to the trapezoidal central bottom surface 20 was such to produce an elevation of 2 inches in the length of the triangular central bottom surface 30 or a bevel of 1 in 24. It will be understood that the outer auxiliary bottom surfaces 58 and 60 had a similar upwardly and forwardly slope.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A boat hull of the planing type including a bottom formed of a plurality of planar surfaces disposed at angles to each other, said surfaces being arranged in sets in longitudinal alignment, central surfaces of each set being disposed normal to a vertical plane passing through a central longitudinal axis of said hull, outer surfaces of each set being disposed at an angle to their respective central surfaces and extending upwardly and outwardly therefrom.

2. A boat hull of the planing type including a bottom formed of a plurality of planar surfaces disposed at angles to each other, said surfaces being arranged in sets in longitudinal alignment, the surfaces of one set being generally triangular in outline, the surfaces of a second set being generally trapezoidal in outline.

3. A boat hull of the planing type including a bottom formed of a plurality of planar surfaces disposed at angles to each other, said surfaces being arranged in sets in longitudinal alignment, central surfaces of each set being disposed normal to a vertical plane passing through a central longitudinal axis of said hull, outer surfaces of each set being disposed at an angle to their respective central surfaces and extending upwardly and outwardly therefrom, the surfaces of one set being generally triangular

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in outline, the surfaces of a second set being generally trapezoidal in outline.

4. A boat hull of the planing type including a substantially horizontal trapezoidal central bottom surface extending forwardly from a stern end of the hull to a medial point of the hull, a generally triangular central bottom surface extending rearwardly from a bow of the hull and intersecting said trapezoidal bottom surface, first outer auxiliary bottom surfaces extending outwardly from said trapezoidal bottom surface, second outer auxiliary surfaces extending outwardly from said triangular bottom surface.

5. A boat hull of the planing type including a substantially horizontal trapezoidal central bottom surface extending forwardly from a stern end of the hull to a medial point of the hull, a generally triangular central bottom surface extending rearwardly from a bow of the hull and intersecting said trapezoidal bottom surface, first outer auxiliary bottom surfaces extending outwardly from said trapezoidal bottom surface, second outer auxiliary surfaces extending outwardly from said triangular bottom surface, said first and second outer auxiliary bottom surfaces being disposed at an angle to their respective central bottom surfaces and extending upwardly and outwardly therefrom.

6. A boat hull of the planing type including a substantially horizontal trapezoidal central bottom surface extending forwardly from a stern end of the hull to a medial point of the hull, a generally triangular central bottom surface extending rearwardly from a bow of the hull and intersecting said trapezoidal bottom surface, first outer auxiliary bottom surfaces extending outwardly from said trapezoidal bottom surface, second outer auxiliary surfaces extending outwardly from said triangular bottom

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surface, said triangular bottom surface extending upwardly and forwardly from its point of intersection with said trapezoidal bottom surface.

7. A boat hull of the planing type including a bottom formed of a plurality of planar surfaces disposed at angles at each other, said surfaces being arranged in sets in longitudinal alignment, central surfaces of each set being disposed normal to a vertical plane passing through a central longitudinal axis of said hull, outer surfaces of each set being disposed at an angle to their respective central surfaces and extending upwardly and outwardly therefrom, said surfaces intersecting one another along straight lines.

8. A boat hull of the planing type including a bottom formed of a plurality of planar surfaces disposed at angles to each other, said surfaces being arranged in sets in longitudinal alignment, central surfaces of each set being disposed normal to a vertical plane passing through a central longitudinal axis of said hull, outer surfaces of each set being disposed at an angle to their respective central surfaces and extending upwardly and outwardly therefrom, said surfaces intersecting one another along straight lines, the surfaces of one set being disposed at an angle to the surfaces of the other set.

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