

Oct. 7, 1969

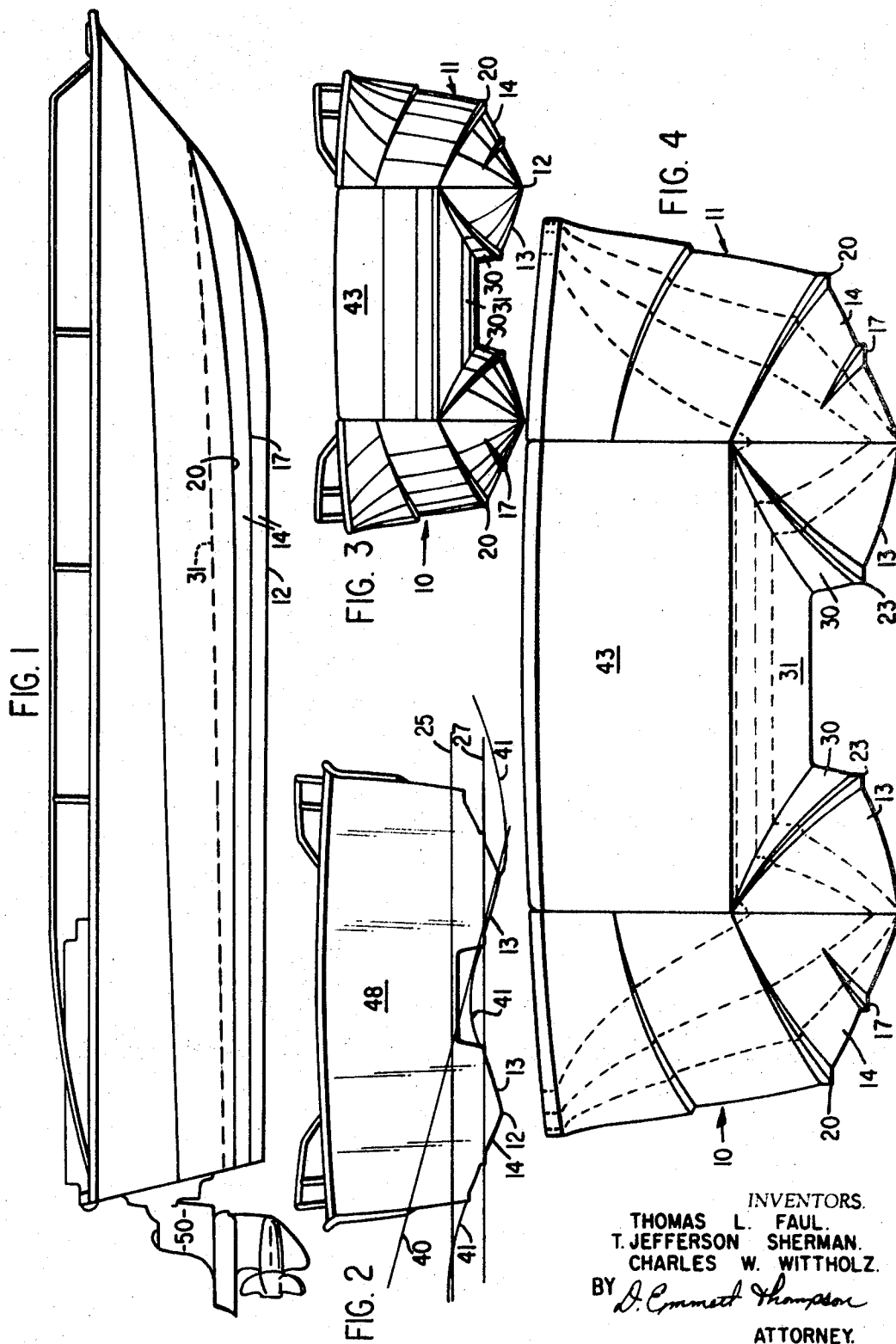
T. L. FAUL ET AL

3,470,839

TWIN HULL BOAT

Filed Oct. 31, 1967

3 Sheets-Sheet 1



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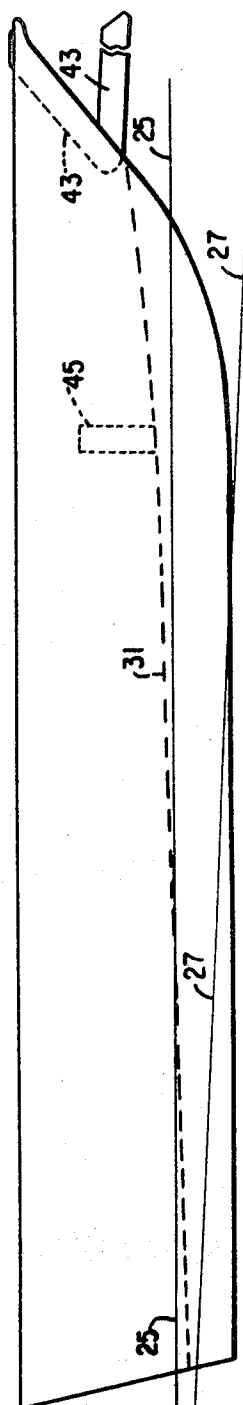
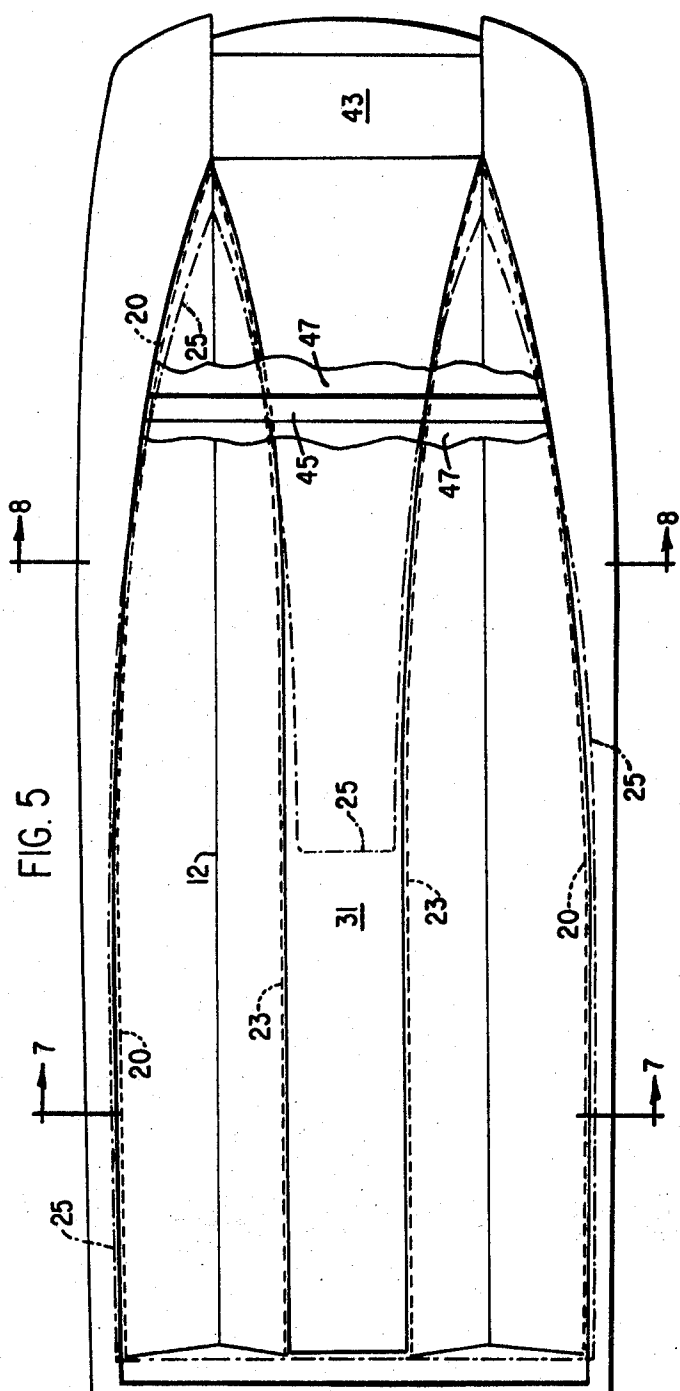
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3 Sheets-Sheet 3

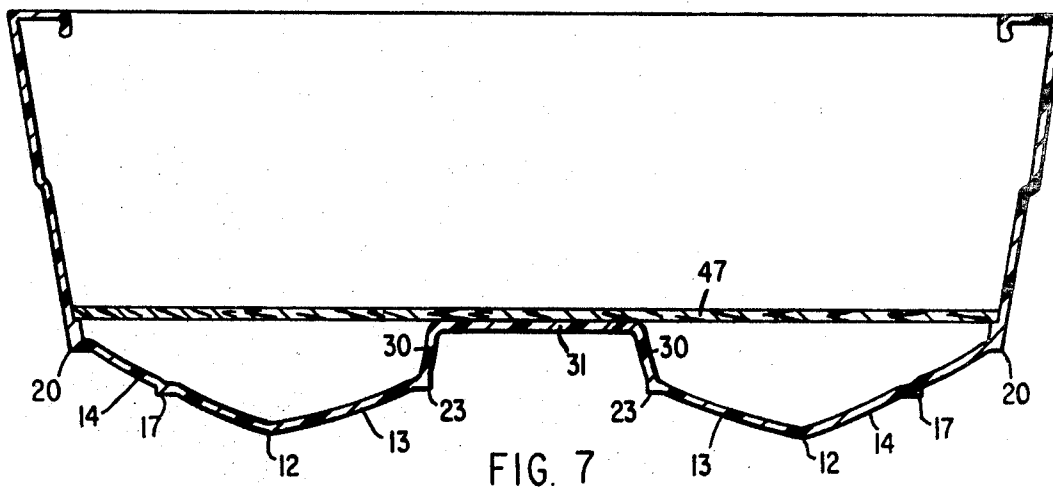


FIG. 7

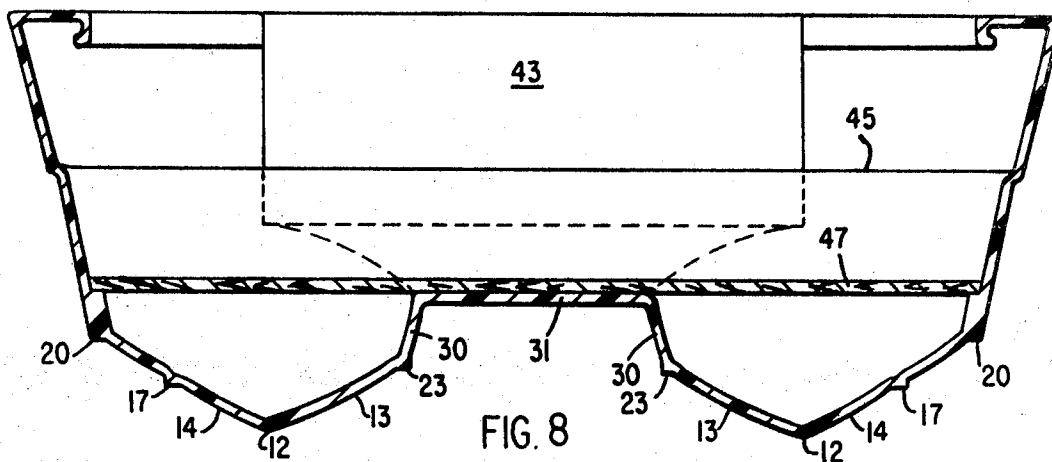


FIG. 8

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TWIN HULL BOAT

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Filed Oct. 31, 1967, Ser. No. 679,440
Int. Cl. B63b 1/10

U.S. Cl. 114-61

5 Claims

ABSTRACT OF THE DISCLOSURE

Twin hulls of like V-bottom structure spaced relatively close together, the inboard confronting running bottoms of the hulls incline upwardly at an angle of deadrise less steep than the outboard running bottoms, the inboard running bottoms being of less width in a beamwise direction than the outboard running bottoms.

BACKGROUND OF THE INVENTION

To a great extent, the performance of a board depends upon the type of hull. For example, a deep V-bottom hull has good capabilities in rough water. The catamaran has high stability. The flat bottom hull has low draft. The V-bottom hull with low deadrise has high efficiency from the standpoint of power consumption. A hull long compared with its width has better antipounding characteristics than the short broad hull.

Each type of craft has its disadvantages. The deep V-bottom hull rocks badly at rest, or at low speed. The catamaran, while having the greatest degree of stability in respect to rocking, has extremely bad turning characteristics. They bank outwardly in a turn. Also, if turned at high speed, they have tendency to skip and jump, and the turning radius has to be very substantial. The broad beam flat bottom hull also does not perform well on turns, and is subject to heavy pounding.

BRIEF SUMMARY OF THE INVENTION

Our boat is of the twin hull type. The hulls are relatively narrow compared to the length, and are relatively closely spaced. The hulls are of like V-bottom structure and are connected together by a bridge structure which forms the top wall of a tunnel extending fore and aft between the hulls. The arrangement is such that the rear end of the tunnel top wall is disposed for a distance forward of the stern below the static load water line of the boat. This tunnel top wall is inclined upwardly and forwardly at an angle between 2° and 10°. It separates from the surface of the water at approximately midships.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a side elevational view of a boat embodying our invention.

FIGURE 2 is a rear elevational view.

FIGURE 3 is a front elevational view.

FIGURE 4 is an enlarged front view with the body plan stations shown in dotted lines.

FIGURE 5 is a top plan view of the boat.

FIGURE 6 is a side view outline of the starboard hull and including the static load water line, the trim line at a speed of 30 knots, and the tunnel top wall.

FIGURE 7 is a sectional view taken on line 7-7, FIGURE 5.

FIGURE 8 is a sectional view taken on line 8-8, FIGURE 5.

DETAILED DESCRIPTION

Referring to FIGURES 2, 3 and 4, the general structure of the boat consists of twin hulls 10, 11, and a bridge structure connecting the hulls in side by side arrangement. The hulls are relatively narrow compared to their length, and are relatively closely spaced apart compared to the conventional catamaran type of boat. Each hull is of V-bottom structure, but are not symmetrical in that the keels 12 are offset inwardly from the center of the hulls. The inboard running bottoms 13 have less, or lower, deadrise than the outboard running bottoms 14, which incline upwardly from the keels 12 at a steeper angle than do the inboard running bottoms 13. A spray strip 17 is formed on the outer bottoms 14 about half way between the keels 12 and the heavy spray chine 20. The hulls and bridge structure may be advantageously formed of fiber glass for strength, rigidity and light weight. The spray strips 17, chines 20, and also the chines 23, at the upper edges of the inner running bottoms 13, are formed integral with the hull structure.

The running bottoms 13, 14, are substantially straight and constant in the aft portions in a lengthwise direction of the hulls, see FIGURE 5. The forward portions of the running bottoms converge on a carefully calculated curve to provide a convex form. This arrangement provides a maximum bottom surface area in the aft portion of the boat for the support of the engines and fuel supply therein with unusual low draft. Also, the running bottoms 13, 14, extend upwardly from the keels 12 and are slightly convex in cross section, see FIGURES 7 and 8.

This hull structure results in our boat having the advantageous operating characteristics of all other hull shapes without the disadvantages thereof. For example, our boat has the stability of the catamaran. However, it will turn at high speed on a radius within twice its length, and while turning it banks inboard after the manner of a normal single hull V-bottom boat. It also has the advantage of the low draft flat bottom boat. Most deep V-bottom hulls start out under power at a relatively steep trim angle with practically all of the hull, except the stern portion, out of water. They then slowly level out as they reach cruising speed. Our boat trims substantially level indicated by the static load water line 25, FIGURE 6. There is substantially no change in trim from low speed to cruising speed. Line 27, FIGURE 6, indicates the trim at a speed of 30 knots. Also at cruising speed, the boat requires substantially less power than deep V hulls due to a much more favorable length-beam ratio.

The particularly advantageous trim of the boat results partially from the configuration of the hulls, as above described, and to a great extent to the connecting bridge structure. The inner running bottoms 13 merge at their upper edges with walls 30, which are inclined slightly toward the center of the boat. The walls 30, in turn, merge with a wall 31. The inner running bottoms 13, walls 30 and wall 31, form a tunnel extending fore and aft between the hulls, the wall 31 forming the top wall of the tunnel. This top wall, see FIGURE 6, inclines upwardly from the stern. The rear end of the top wall 31 is located a short distance below the static load water line 25. The inclination is such that the top wall 31 separates from the static load water line at approximately midships, the forward portion of the top wall terminating in upwardly spaced relation from the static load water line. It will be apparent that this formation of the tunnel also adds to the buoyancy of the weighted stern portion of the boat, with the result that it trims in substantially level position.

Upon operation of the engines, the stern portion of the boat is quickly elevated a slight amount and, as indicated in FIGURE 6, at a speed of thirty knots, the top

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wall 31 of the tunnel is positioned slightly above the surface of the water and accordingly, the only drag on the boat is that resulting from engagement of the running bottoms with the water.

Referring to FIGURE 3, it will be seen that the running water line 27 is at the plane extending through the chines 17 on the outer running bottoms 14 and the chine 23 at the joinder of the inner running bottoms 13 and walls 30.

Accordingly, with only the running bottoms of the hulls which have a substantial length-beam ratio engaging the water at cruising speed, power requirement is reduced to a minimum—actually, much less than a single V-bottom hull.

Referring to FIGURE 2, line 40 indicates the bank angle of the boat in a sharp turn at cruising speed. Line 41 indicates the flow of water under the hulls with engagement on the inboard running bottom surface 13 of the starboard hull, and with engagement with both the inboard and outboard running bottoms of the port hull.

Due to the unusual stability and maneuverability of the boat, it is particularly well adapted for use by skin and scuba divers. For that purpose, the boat is provided with a ramp 43 extending between the hulls at the stems thereof. The ramp 43 is pivotally mounted at its lower edge so it can be swung downwardly, as shown in full line, FIGURE 6. A half bulk head 45 is located aft of the ramp and extends upwardly from the floor 47 intermediate the sides of the boat. The boat may be propelled by outboard or inboard motors. In FIGURE 1, 50 indicates the outboard portion of an outboard-inboard motor.

What we claim is:

1. A twin hull boat, the hulls embodying like V-bottom structures and their keels being spaced apart a distance approximately one and one-half times the beam of

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each hull, the confronting inboard running bottoms of the hulls being more narrow in a beamwise direction than the outboard running bottoms, and the inboard running bottoms inclining upwardly from the keel at an angle of deadrise less steep than the angle of deadrise of said outboard running bottoms.

2. A boat as defined in claim 1, wherein the keel of each hull is offset inwardly from the center of the hull.

3. A twin hull boat as set forth in claim 1, wherein said hulls are connected by a bridge structure, said bridge structure forming a tunnel extending fore and aft between said hulls.

4. A twin hull boat, the hulls embodying like V-bottom structures and being connected by a bridge structure, said bridge structure forming a tunnel extending fore and aft between the hulls, said tunnel having a top wall inclining continuously upwardly from the stern and with the forward portion of said wall terminating in upwardly spaced relation from the static load water line, the aft portion of said top wall being disposed below the static load water line of the boat.

5. A twin hull boat as defined in claim 4, and including a ramp positioned between the stems of said hulls and being pivotally mounted at its lower edge to the forward end of said tunnel top wall.

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