

Feb. 12, 1952

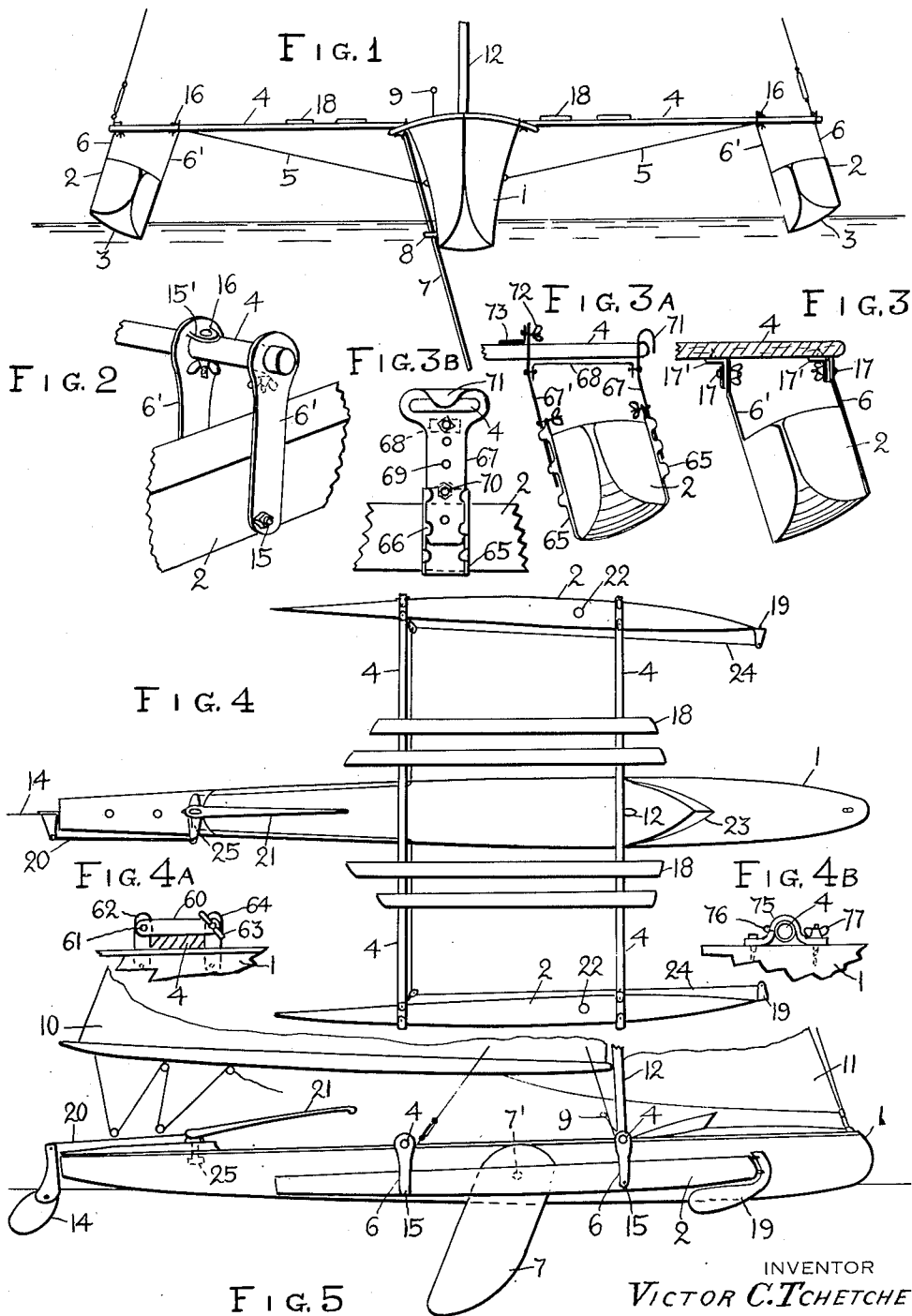
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2,585,599

SPACED HULL ARRANGEMENT FOR SAILBOATS

Filed Nov. 23, 1945

3 Sheets-Sheet 1



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SPACED HULL ARRANGEMENT FOR SAILBOATS

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3 Sheets-Sheet 2

FIG. 6

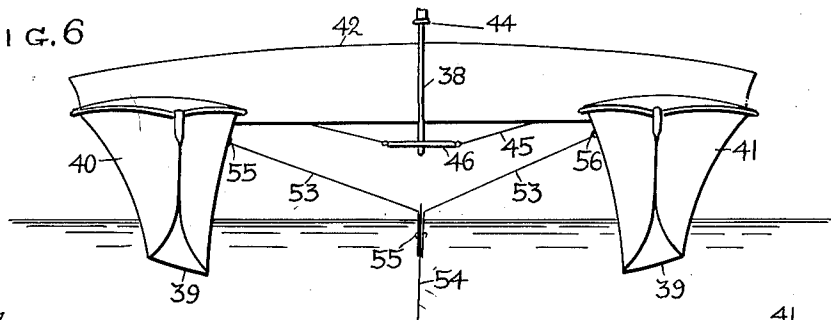


FIG. 7

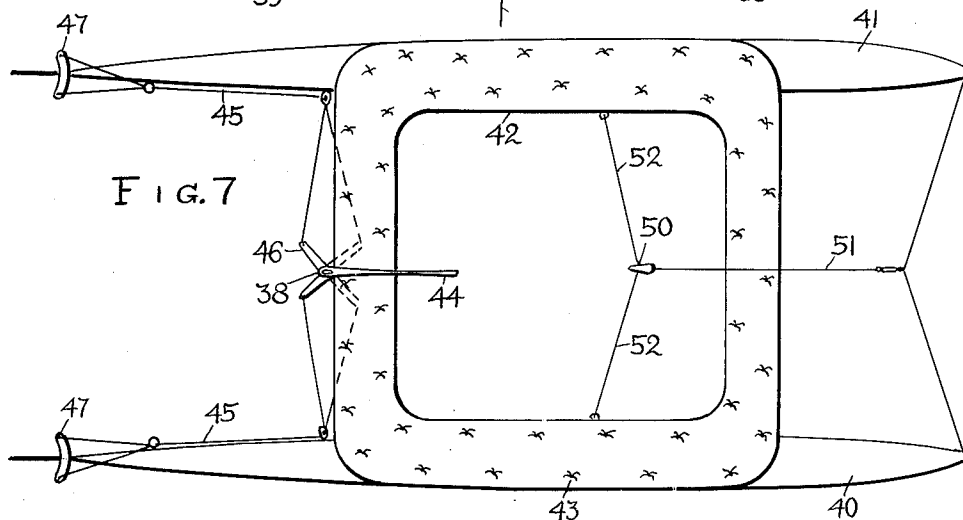


FIG. 8

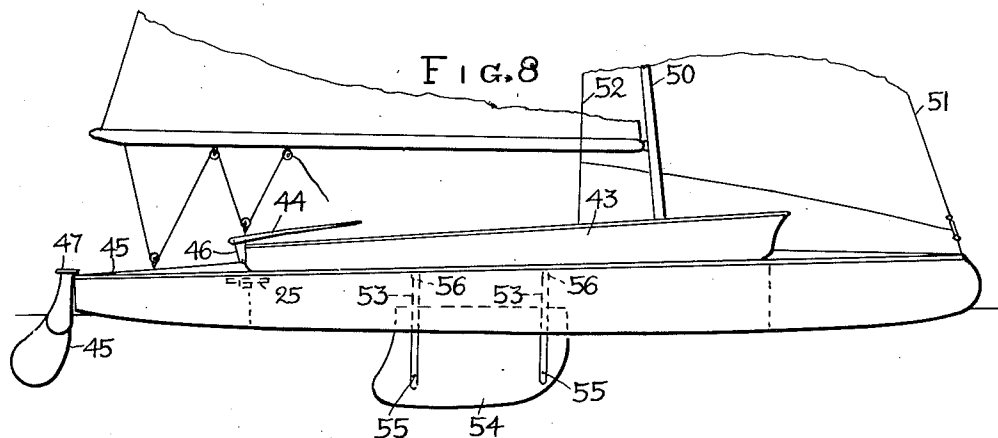


FIG. 9

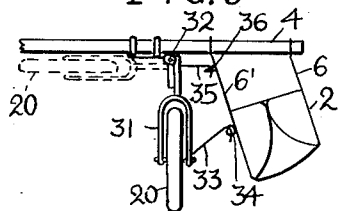
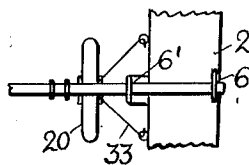


FIG. 10



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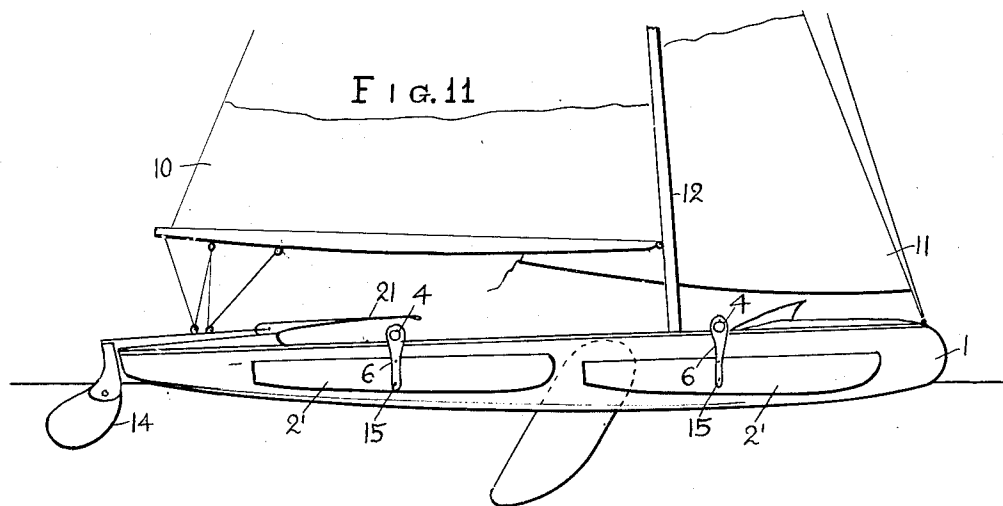
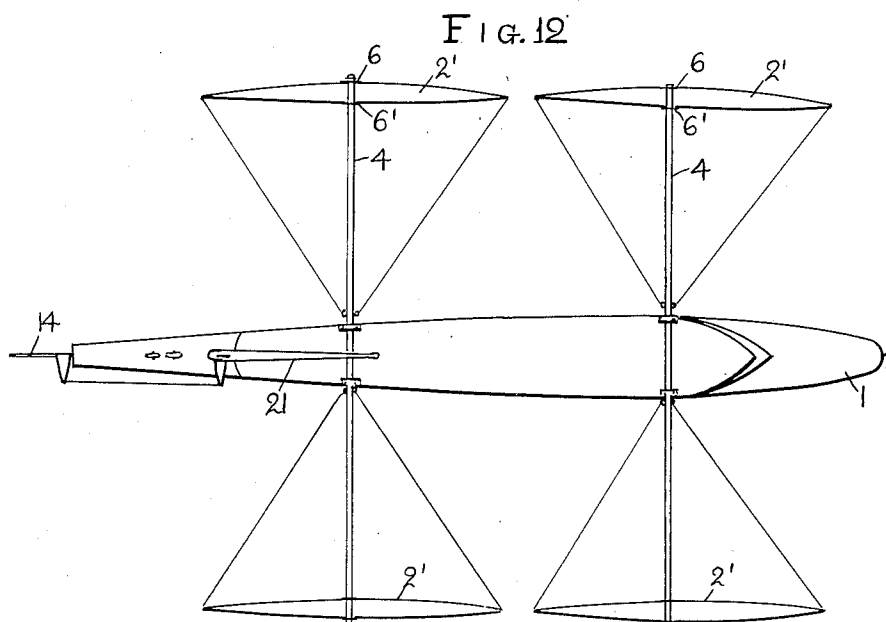
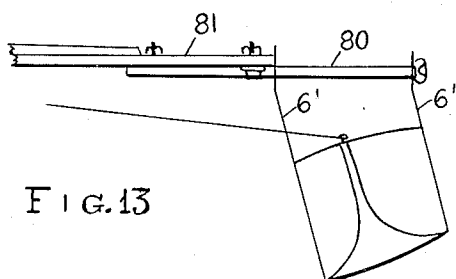
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## SPACED HULL ARRANGEMENT FOR SAILBOATS

Filed Nov. 23, 1945

3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

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SPACED HULL ARRANGEMENT FOR  
SAILBOATS

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Application November 23, 1945, Serial No. 630,160

4 Claims. (Cl. 114—61)

1

My invention relates to racing boats and has particular reference to racing sailboats.

It has for its object to provide an extremely fast racing boat which will be substantially non-capsizable and non-sinkable.

An allied object of my invention is to provide a racing boat so constructed that it can be easily disassembled for shipment or storage.

These and other objects and advantages are obtained in my invention by providing a main hull of very high speed characteristics, with additional pontoons, also designed for high speed.

In another form of my invention I eliminate the central hull, having instead two spaced hulls connected by suitable boards or bars, on which a cockpit can be built.

In either case, I provide the pontoons, or the hulls, with inclined converging bottoms, preferably of an asymmetrical form, which design greatly increases tendency of the boat to swing to windward, as will be more fully explained hereinafter.

The foregoing and other objects, features and advantages of my invention are more fully described in the accompanying specification and drawings in which two modified embodiments of my invention are disclosed, by way of illustration:

Fig. 1 is a schematic front view of one embodiment of my invention in which three hulls are used;

Fig. 2 is a detail view of an arrangement for securing cross beams to pontoons;

Fig. 3 is a similar view of another type of the cross beam and its attachment;

Fig. 3A is a view of a modified attachment;

Fig. 3B is a detail side view of the same;

Fig. 4 is a top plan view of a boat shown in Fig. 1;

Fig. 4A is a detail view of a cross plank shown in Fig. 4;

Fig. 4B is a similar detail view of a modification;

Fig. 5 is an elevational view of the same;

Fig. 6 is a schematic front view of another embodiment of my invention in which two hulls are used;

Fig. 7 is a top plan view of the same;

Fig. 8 is an elevational view of the same;

Fig. 9 is a detail view of a folding wheel attachment;

Fig. 10 is a top plan view of the same;

Fig. 11 is an elevational view of a modified boat having four pontoons;

2

Fig. 12 is a top plan view of the same;

Fig. 13 is a fractional detail view of a modified attachment of a pontoon.

My sailboat is an embodiment shown in Figs. 1, 3, 4 and 5, consists of a main hull 1 of a streamlined shape, relatively narrow and long. At the sides of this hull are located two pontoons 2 at a substantial distance therefrom and connected to the main hull by cross beams 4 secured to the upper deck of the main hull. Cross beams 4 can be made of metal pipes as shown in Fig. 2 having their ends inserted in corresponding holes in posts or brackets 6, pivotally connected to the pontoons at 15. The brackets 6 are provided with tongues 15' with holes for bolts 16 with wing nuts so that the pontoons can be easily removed for disassembling the boat.

Crossbeams can be made of wood boards 4 as shown in Fig. 3. The boards are provided with angle irons 17' secured to the ends of brackets 6a, 6a' by bolts 17 with wing nuts. Sitting boards 18 are fastened to the cross beams 4. A wooden cross plank may be provided if desired.

Brackets 6' are substantially longer than the brackets 6 so that the pontoons are inclined downwardly and outwardly as shown. The bottoms 3 of the pontoons are further inclined upwardly and outwardly. To prevent the vessel from burying the bow when going before the wind, pontoons are placed forward as shown in Fig. 4.

The inclined bottoms and asymmetrical design tend to increase the pressure of water from the leeward thus bringing the vessel automatically to the windward. This is a very important factor in sailing.

The tendency of the boat to swing to the windward is further increased by toeing in the pontoons as shown in Fig. 4. In addition to the foregoing features, both pontoons are mounted higher at their bows as shown in Fig. 5 to provide a planing action, thus decreasing the submersion of the leeward pontoon, thereby also decreasing the amount of the wetted surface, and consequently the total friction.

To increase the maneuverability of the vessel, if necessary, two small rudders 19 are provided on the bows of the pontoons, operated by cables 24 simultaneously with the main rudder 14 at the stern of the main hull, the main rudder 14 preferably folding, being operated by a tiller 21 connected to the rudder by a rod 20. With this arrangement the working surfaces of all three rudders exert pressure on the extreme ends of

3

the bow and stern levers. An underdeck tiller 25 is shown in dotted lines.

The main hull is provided with a lee board 7, pivoted at 7' and sliding in a slotted bracket 8. Revolving raked mast 12 is posted on the cross plank and supports the main sail 10 and jib 11.

The pontoons may be provided with hatches 22 for ventilating purposes and in case of leak to facilitate the pumping. A suitable coaming 23 may be provided on the main hull 1 if desired.

The main hull and the pontoons are built in conformity with the lines of the least resistance. I have found that good results are obtained when the main hull has the length-beam ratio from about 1:10 to 1:14, and the pontoons from about 1:10 to 1:18. The lines of the bow of the main hull are flared and have wide spray board to prevent the vessel from burying when going before the wind.

The brackets may be provided with a suitable mechanism for raising or lowering the pontoons in accordance with the load (number of persons aboard, for instance) and condition of the sea.

Such a detachable pontoon is shown in Figs. 3A and 3B. The pontoon 2 is provided with posts 65 with flanges or tongues 66 in which slide brackets 67, 67' joined at the top by a brace 68. The braces are provided with holes 69 for bolts 70 which make it possible to adjust the height of the pontoons. The upper end of the bracket 67' has an opening for the plank 4 and is bolted at 72 to a bracket 73. The bracket 67 has also an opening for the plank 4 and is provided with a lip 71 engaging the end of the plank 4.

The adjustment of the pontoons is useful to take care of the added weight, for instance, or of the particular weather condition. Thus in a choppy sea it is desirable to lower the pontoons all the way down, or all the way up, according to the height of the waves, to avoid slipping.

The boat can be conveniently made amphibious by adding collapsible landing gear as shown in Figs. 9 and 10. The wheels 30, which can be of a pneumatic type, are supported in fork-shaped brackets 31 pivoted at 32 to cross beams. The brackets are normally folded as shown in dotted lines in Fig. 9 but can be opened for moving the boat on a solid ground. In the opened or operative position the bracket 30 is held in its position by hooks 33 engaging eyes 34 on the pontoon 2, with additional hooks 35 engaging eyes 36 on the bracket 6'.

The pontoons and the rudder can be replaced with steel runners for converting the craft into an ice boat.

The entire construction may be readily dismantled in a matter of minutes by disconnecting pontoons from the cross planks (or pipes) and cross planks from the main hull. The rigging may be detached by disconnecting snap hooks at shrouds and stays. Fig. 4A shows a quick detachable mounting for planks 4, which is clamped by an arm 60 pivoted at 61 on a post 62n and held by a wing bolt 63 on a second post 64. The hull 1 is attached to the rod 4 by a clamp 75 hinged at 76 and held by a wing nut 77.

My boat can be also built with two hulls as shown in Figs. 6 to 8 inclusive. The hulls 40, 41 are provided with outward inclined inboard surfaces and inclined bottoms 39, being similar in this respect to the pontoons of the modification shown in Fig. 1. The hulls support a cockpit 42 with passenger seat 43 arranged around the cockpit. A tiller 44 is provided at the rear of the cockpit on a post 38 with control cables

4

45 extending from the arms 46 to rudders 47 with folding portions 48 in the sterns of the hulls 40, 41. A streamlined revolving mast 50 is mounted in the cockpit, with a headstay 51 and shrouds 52. Metal braces 53 extend between the hulls under the cockpit for a centerboard 54 supported between the braces on pivot bolts 55. The centerboard can be raised or lowered by suitably arranged ropes (not shown) operated from the cockpit, the braces 53 being pivotally supported on the hulls by pivot bolts 56.

In larger sizes of the boat the hulls can be made with cabins, lavatories, galleys, etc.

The boat may be provided with four pontoons 2' as shown in Figs. 11 and 12. Two pontoons can be mounted over one side only, a single pontoon being on the other side. The pontoons can be secured to short pipes 80 attached to planks 81 extending from the main hull.

It will be understood that various features and principles of each of the embodiments of the invention above described or referred to may be utilized or substituted in the other embodiments.

While the invention has been described in detail with respect to certain particular preferred examples, it will be understood by those skilled in the art after understanding the invention, that various changes and further modifications may be made without departing from the spirit and scope of the invention, and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent is:

1. A boat comprising two side hulls in spaced relation to each other; a main hull positioned centrally between the side hulls; cross beams secured to the main hull at their middle portions; means to support the ends of the cross beams on the side hulls, the bottoms of the side hulls being inclined with the outer edges of the hulls at a higher elevation than the inner edges; and means to adjust the height of the side hulls relative to the height of the main hull.

2. A boat comprising two side hulls in spaced relation to each other, each said side hull including sides and a bottom; a main hull positioned centrally between said side hulls; the bottoms of said side hulls being inclined with the outer edges thereof at a higher elevation than the edges adjacent the main hull and the sides of said side hulls adjacent the main hull being inclined downwardly and outwardly with respect to said bottoms; beams extending outwardly from said main hull and positioned in spaced apart fore and aft relation at their outer ends and brackets adjacent said outer ends and interconnecting said beams and said side hulls and of a length to maintain said beams and said side hulls in spaced relationship, the bottom surface of each of said side hulls being inclined downwardly from the forward to the after end thereof.

3. In a boat defined in claim 2 said brackets being formed for lengthwise adjustment and means securing each of said brackets in adjusted position whereby the inclination of said side hulls can be pre-set to meet sailing conditions.

4. In a boat as defined in claim 2 the sides of said side hulls remote from said main hull curving outwardly from the forward end thereof to generally amidships and curving back inwardly from said amidships position to the after end of said side hull.

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