United States Patent

Javes

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[45] **May 30, 1972**

[54] CATAMARAN

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[73] Assignee: **Sea and Air Inc.**, Norwalk, Conn.

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[21] Appl. No.: **86,037**

[52] **U.S. Cl.** ..... **114/61**, 114/66.5 R

[51] **Int. Cl.** **B63b 1/10**

[58] **Field of Search** 114/61

[56] **References Cited**

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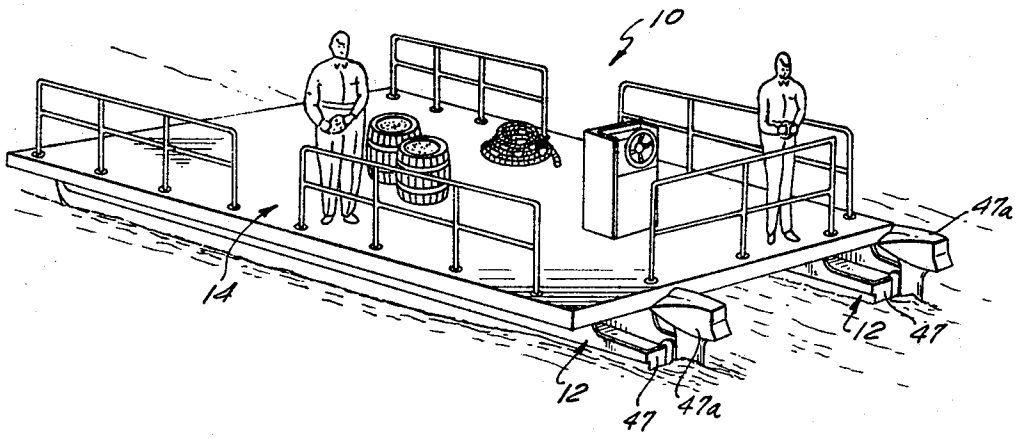
Primary Examiner—Andrew H. Farrell

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[57] **ABSTRACT**

The catamaran has a pair of aligned spaced integrally formed hulls advantageously configured to allow the hulls to pass through the water with relatively little resistance during heavy weather and when a heavy load is being carried by the catamaran. Each of the hulls has a lower bow curving progressively upwardly toward the heads of the hulls and terminating below the top of the hulls. An upper bow advantageously extends above and beyond the lower bow and an upwardly extending downwardly facing generally flat chine is formed between the upper and lower bows. The hulls are bridged and supported in fixed relative positions by a plurality of releasably mounted deck panels forming a flat deck surface providing a convenient working area for pollution control equipment and workers. Releasable fasteners connect the light weight hulls to the flat deck panels and connect the adjacent panels to form a rigid flat deck.

10 Claims, 10 Drawing Figures



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3 Sheets-Sheet 1

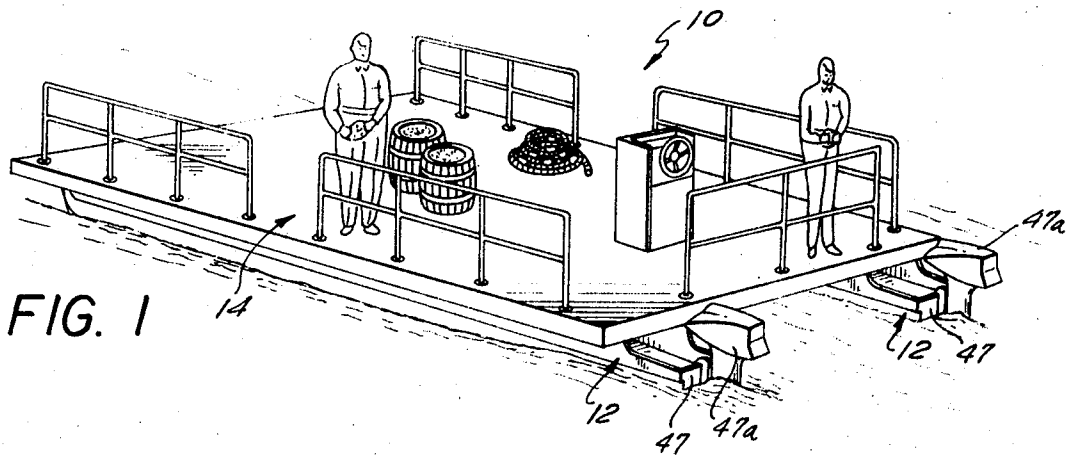
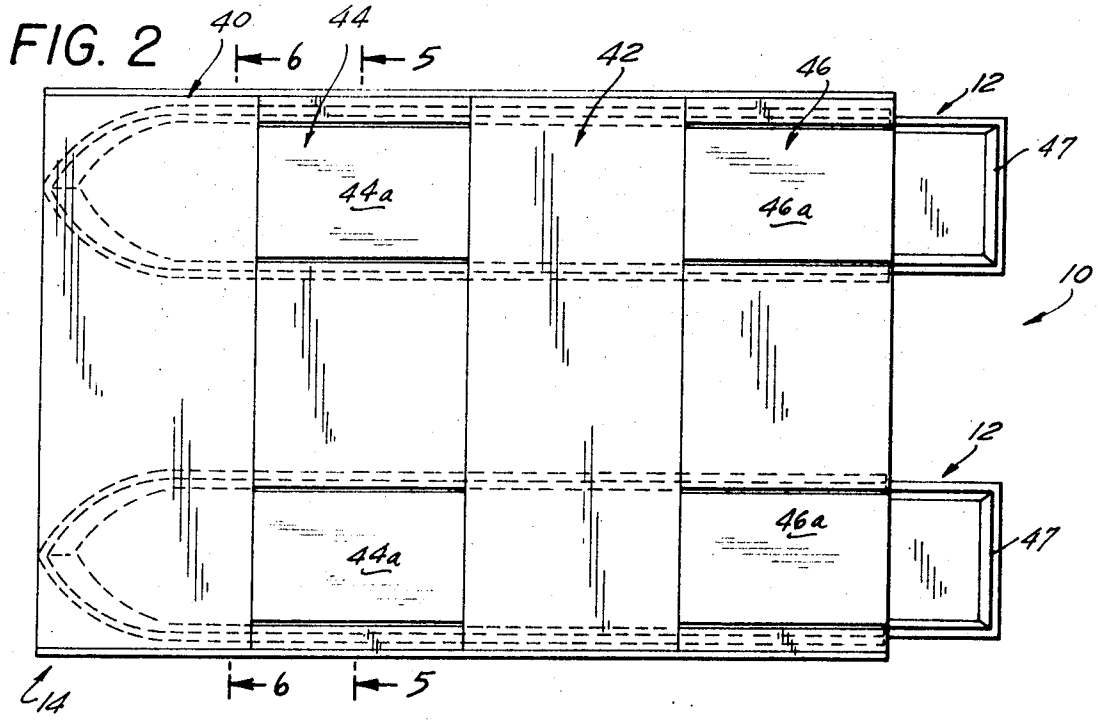


FIG. 1

FIG. 2



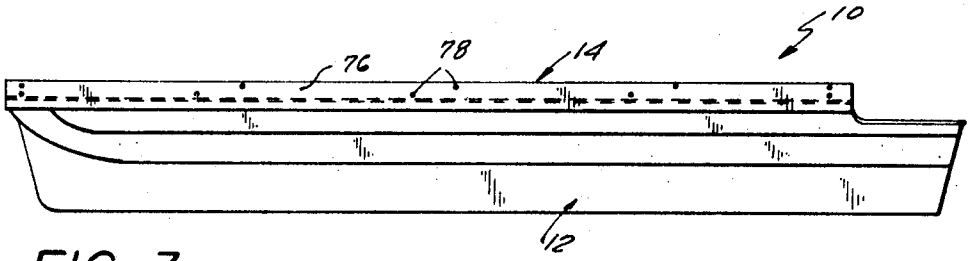


FIG. 3

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FIG. 4

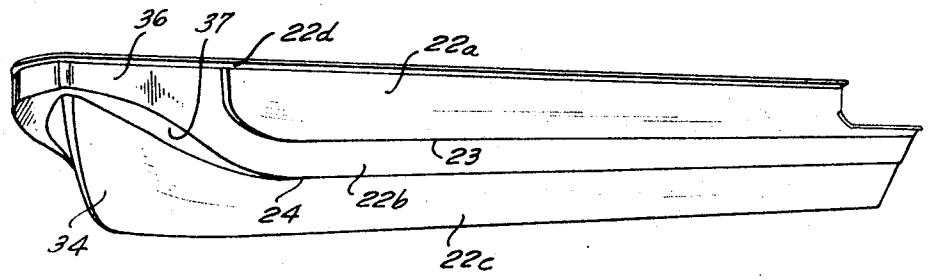


FIG. 5

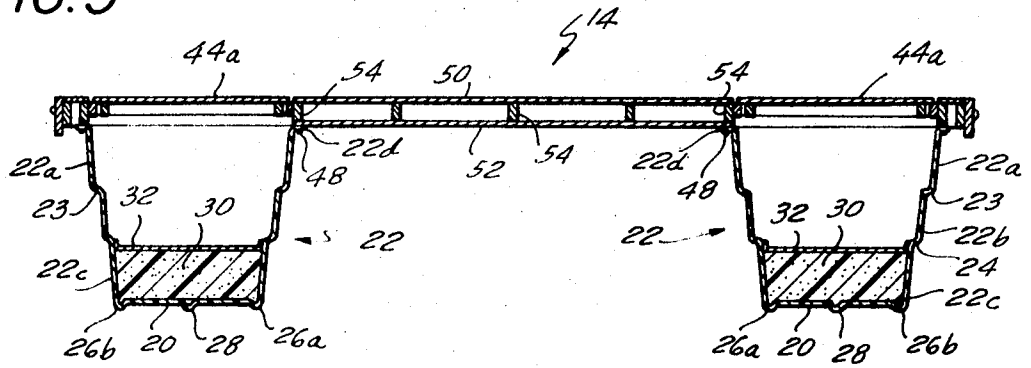
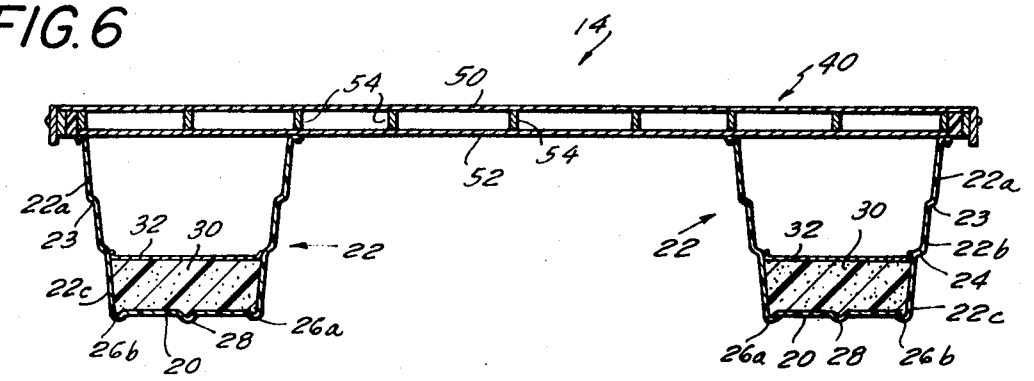


FIG. 6



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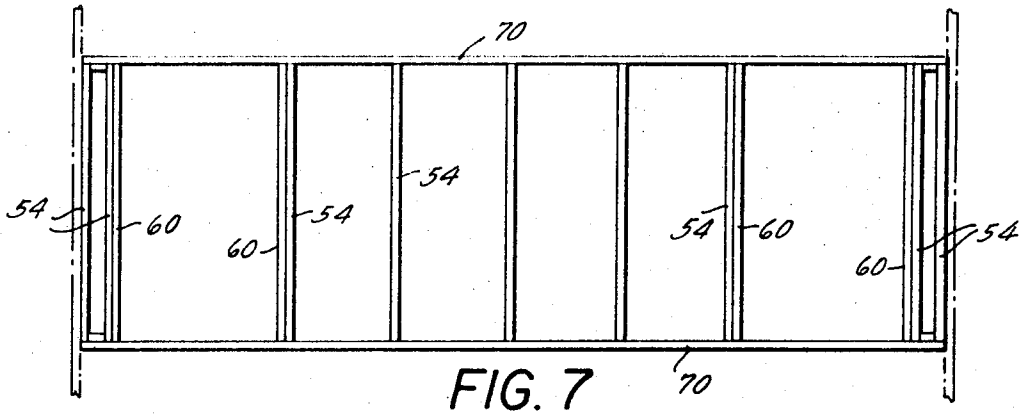


FIG. 7

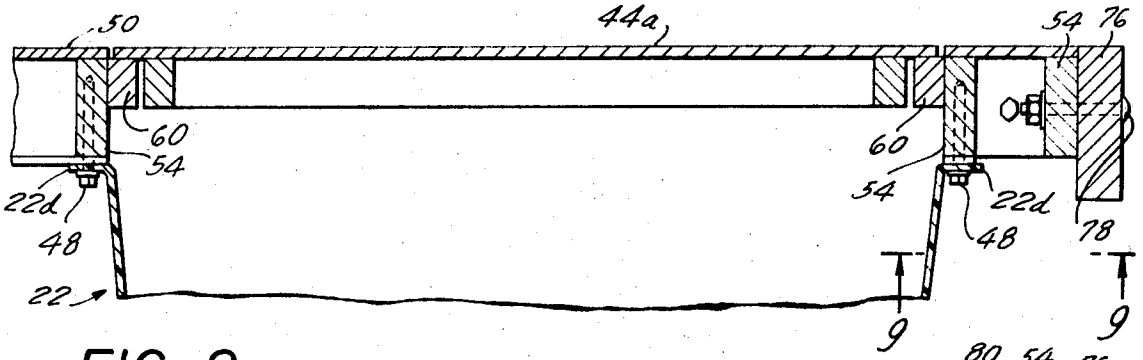


FIG. 8

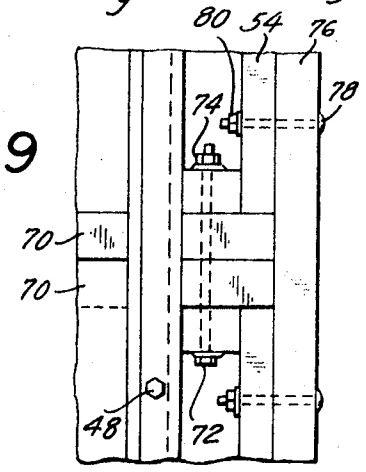
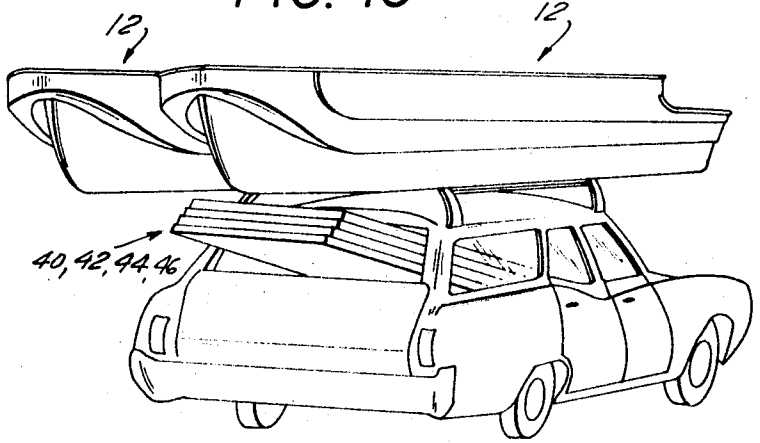


FIG. 9

FIG. 10



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CATAMARAN

SUMMARY OF THE INVENTION

This invention relates to a catamaran and more particularly to a catamaran having a highly desirable hull configuration and an advantageously designed flat deck providing a convenient platform for pollution control equipment and workers.

In the field of pollution control of waterways, especially inland waterways, it is highly desirable to have a flat working area that may be moved on a waterway at a relatively rapid rate to a pollution site in order to provide a working area for pollution control devices and workers. Further, as pollution sites such as oil spills may occur in remote areas, it is desirable to have a water bow vehicle providing a working area that is light in weight so that it may be handled by only a few people, and which may be easily disassembled for transport over land in relatively small vehicles to a point near the pollution site.

Accordingly, it is an object of this invention to provide a novel catamaran construction that provides a convenient flat deck working area for pollution control devices and workers.

Another object of this invention is to provide such a novel catamaran that has a highly desirable hull configuration that allows the catamaran to more rapidly in waterways in rough weather and when carrying heavy loads such as pollution control equipment and workers .

It is also an object of this invention to provide such a novel catamaran which can be readily assembled and disassembled into relatively light weight parts for convenient land transport in conventional relatively small vehicles which can be driven to remote pollution sites.

Still another object of this invention is to provide a catamaran which is relatively economical to construct and operate and which also may be used for recreational purposes.

It has now been found that the foregoing objects and other advantages can be obtained by a novel catamaran which has a pair of aligned spaced integrally formed hulls. Each of the hulls has a lower bow curving progressively upwardly toward the heads of the hulls and terminating below the top of the hulls. An upper bow advantageously extends above and beyond the lower bow and an upwardly extending downwardly facing generally flat chine surface extends between the upper and the lower bows. The hulls are bridged and supported in fixed relative position by a plurality of releasably mounted deck panels. Releasable fastening members connect the hulls to the plurality of flat deck panels and connect the adjacent panel to form a rigid flat deck.

Each of the hulls have oppositely disposed side portions that taper downwardly in a converging direction. The sides are inwardly stepped at spaced intervals in a converged direction forming longitudinally extending chines. The sides terminate in a generally flat bottom. The lower most of opposite side portions curve upwardly toward the heads of the hulls and converge to form the lower bow. The next opposite side portions of the hulls above the lower most opposite side portions converge at the heads of the hulls to form the upper bow which extends above and beyond the lower bow.

DESCRIPTION OF THE DRAWINGS

Various other object and advantages of this invention will become apparent from the detailed description, drawings, and claims appended hereto wherein:

FIG. 1 is a perspective view of the flat deck catamaran of this invention illustrating its use for pollution control;

FIG. 2 is an enlarged top view of the flat deck catamaran of this invention;

FIG. 3 is a side view of the flat deck catamaran of FIG. 2;

FIG. 4 is a perspective view of one of the twin hulls of the flat deck catamaran of this invention;

FIG. 5 is a cross sectional view taken along lines 5—5 of FIG. 2;

FIG. 6 is a cross sectional view taken along lines 6—6 of FIG. 2;

FIG. 7 illustrates the framing plan of a deck panel providing access hatches to the interior of the hulls;

FIG. 8 is an enlarged partial cross sectional view illustrating the details of the deck panel and access hatch over the hull;

FIG. 9 is a view taken along lines 9—9 of FIG. 8;

FIG. 10 is a perspective view illustrating the manner in which the flat deck catamaran of this invention may be readily carried by a station wagon after it has been disassembled.

Referring now in detail to the drawings, the flat deck catamaran of this invention, generally designated by the reference numeral 10, has a pair of identical hulls 12 which are connected by a flat deck 14. As illustrated in FIG. 1, the flat deck 14 provides a useful working area for pollution control equipment and workers. Thus, the flat deck provides workers with a convenient area for operating devices for cleaning adjacent water areas and controlling oil spills. Of course, the flat deck may also be used for transporting other equipment, for recreational purposes and the like.

As best illustrated in FIGS. 3 through 6, each of the identical hulls 12 has an advantageous configuration adopted to allow the hulls to move through the water with the least resistance even during heavy weather or when relatively large loads are carried by the flat deck catamaran. The body portions of each identical hull 12 has a generally flat keel or bottom portion 20 and oppositely disposed sides 22 which taper inwardly from top to bottom in progressive steps similar to a lapstrak construction. The opposite side wall portions 22*a* taper downwardly to the chine 23 where the sides 22 are then stepped inwardly and continue to taper downwardly at side portions 22*b* to the chine 24 where the side walls are again stepped inwardly and continue to taper downwardly at the side wall portions 22*c* to the flat bottom portion 20. For direction control, longitudinal ribs 26*a* and 26*b* are provided along the opposite edges of the bottom portion 20 and a centrally located rib 28 is formed so that it extends longitudinally along the bottom portion 20 parallel to the ribs 26*a* and 26*b*.

The individual hulls 12 are integrally formed in a conventional manner of fiberglass from a glass reinforced polyester resin. For bouyancy, as illustrated in FIGS. 5 and 6, the lower interior portion of the hulls 12 are filled with a polystyrene foam 30 generally in the area defined by the side portions 22*c*. A cover sheet 32 of flexible material is secured by a conventional adhesive to the side walls 22 to hold the foam 30 in place.

The hulls 12 have a highly advantageously designed bow which allows the hulls 12 to pass through the water with relatively little resistance even in rough water or when the hulls 12 are displaced because of a heavy weight on the flat deck 14. As illustrated in FIG. 4, toward the forward portions of the hulls 12 the side portions 22c extend upwardly and converge to form the lower bow 34. The side portions 22*b* also extend upwardly and converge above and forward of the lower bow 34 to form an upper bow 36. Desirably the side portions 22*a* are terminated a distance before the bow with the chine 23 curving upwardly to meet the hull flanges 22 *d*. Advantageously the chine 24 extends between the upper and the lower bows 34 and 36 to provide a generally flat upwardly tapering bow chine that has a relatively large downwardly facing surface area 37.

This highly desirable bow configuration tends to keep the hulls 12 head up during heavy weather and when the hulls 12 are displaced downwardly by relatively heavy weights on the flat deck 14. The water pressure on the bow chine surface area 37 acts to pitch the bow upwardly as the hulls 12 are propelled through the water.

The flat deck catamaran of this invention is advantageously designed so that it may be readily transported, for instance, in a station wagon as shown in FIG. 10. The parts are designed to be relatively light in weight so that they may be easily carried by two people and assembled and disassembled quickly with a crecent wrench or similar simple tool.

The flat deck 14 consists of four panels, as illustrated in FIG. 2, with two deck panels 40 and 42 of identical construction and extending transversely between the hulls 12 at the bow portion and generally at the center portion. The other two deck panels 44 and 46 also extend transversely between

the hulls **12**, and panel **44** being positioned centrally between the panels **42** and **44**, and the panel **46** being positioned to extend between the hulls **12** adjacent the stern thereof. The stern of the hulls **12** extends beyond the panel **46** to leave the hull transom **47** uncovered to allow space for mounting the pair of outboard motors **47***a* thereon.

The deck panels **40**, **42**, **44** and **46** are of similar construction except that the deck panels **44** and **46** have removable hatches **44***a* and **46***a* which may be opened to uncover the interior of the hulls **12** for storage of equipment or other purposes.

The deck panels are advantageously designed as box frames in a manner that gives the necessary strength to bridge and fix the hulls **12** in the desired relative positions and also provides a light weight construction. Each deck panel has a plywood top skin **50** and a plywood bottom skin **52** which are connected by periodically spaced longitudinal beams **54**. For flotation purposes the voids between the skins **50** and **52** may be filled with a polystyrene foam. As illustrated in FIGS. **5**, **6**, and **7** the deck panels are connected to the twin hulls **12** by means of conventional releasable fastening members such as bolts **48** which extend through the flanges **22***d* of the hull side walls **22** to connect the hulls **12** with aligned longitudinal beams **54** positioned adjacent thereto. Accordingly, the hulls **12** may be connected to and released from the deck panels simply by the use of a conventional wrench on the bolts **48**.

The deck panels **44** and **46** are constructed in a manner similar to the deck panels **40** and **42** except that an opening is provided in the top skin **50** over the hulls **12** to receive the hatches **44***a* and **46***a*. As illustrated in FIG. **8**, shoulder blocks **60** are fixedly attached to the adjacent longitudinal beams **54** to support the hatch **44***a* flush with the top skin **50**.

The box frame for the deck panels, as illustrated in FIG. **7**, also has transverse supports **70** which are attached to the ends of the longitudinal beams **54** and transverse the span between the hulls **12**. In order to releasably connect adjacent deck panels, contiguous transverse beams **70** on opposite sides of each panel, as illustrated in FIG. **9**, are connected by releasable fastening means such as by the bolts **72** which pass through the beams **70** and are secured by a nut **74**. To add additional connecting support for the panels, a pair of longitudinal wooden beams **76** are disposed on opposite sides of the panels and extend the length thereof. The beams **76** are fastened on opposite sides to the panels by bolts **78** which extends through the beams **76** and through the adjacent beam **54** and are fastened thereon by the nuts **80**. Accordingly, it may readily be seen that the panels may be easily dismantled and assembled with simple fastening members.

It will be understood that the foregoing description with the details of exemplary structure is not to be construed in any way to limit the invention, but that modifications may be made thereto without departing from the scope of the invention as set forth in the following claims.

Having thus described the invention, the following is claimed:

1. A flat deck catamaran including a pair of aligned spaced integrally formed hulls, each of said hulls having a lower bow curving progressively upward toward the heads of said hulls and terminating below the top of said hulls, an upper bow extending above and beyond said lower bow, an upwardly extending downwardly facing flat chine surface between said upper and lower bow, said hulls being bridged and supported in fixed relative positions by a plurality of releasably mounted deck panels, and releasable fastening means connecting said hulls to said plurality of flat deck panels and connecting adjacent panels to form a rigid flat deck.

2. The flat deck catamaran of claim **1** wherein each of said hulls have oppositely disposed side portions that taper downwardly in a converging direction, said sides being inwardly stepped at spaced intervals in a converging direction forming longitudinally extending chines, said sides terminating in a generally flat bottom, the lower most of said opposite side portions curving upwardly toward the heads of the hulls and converging to form said lower bow, the next opposite side portions of said hulls above said lower most side portions converging at the heads of said hulls to form said upper bow extending above and beyond said lower bow, and said chine between said lower most side portions and said next upper side portions having a generally downwardly facing surface area.

3. The flat deck catamaran of claim **2** wherein floatation material is disposed in the interior of said hulls.

4. The flat deck catamaran of claim **2** wherein said deck panels have a top skin forming a flat deck surface and a lower skin spaced from said top skin by a plurality of longitudinally extending beams.

5. The flat deck catamaran of claim **4** wherein one or more of said panels has an opening in said top skin over said hulls forming an access hatch to the interior of said hulls.

6. A catamaran including a pair of spaced integrally formed hulls, support means securing said hulls in fixed relative positions, each of said hulls having oppositely disposed side portions that taper downwardly in a converging direction, said sides being inwardly stepped at spaced intervals in a converging direction forming longitudinally extending chines, said sides terminating in a generally flat bottom, the lower most of said opposite side portions curving upwardly toward the heads of the hulls and converging to form a lower bow, the next opposite side portions of said hulls above said lower most side portions converging at the heads of said hulls to form an upper bow extending above and beyond said lower bow, and said chine between said lower most side portions having a generally downwardly facing surface area.

7. The catamaran of claim **6** wherein said support means has a plurality of releasably mounted back panels, and releasable fastening means connecting said hulls to said deck panels and connecting adjacent panels to form a rigid flat deck.

8. The catamaran of claim **7** wherein said deck panels have a top skin forming a flat deck surface and a lower skin spaced from said top skin by a plurality of longitudinally extending beams.

9. The catamaran of claim **8** wherein one or more of said panels has an opening in said top skin over said hulls forming an access hatch to the interior of said hulls.

10. The catamaran of claim **9** wherein floatation material is disposed in the interior of said hulls.

* * * * *