Oct. 10, 1967

T. R. SWEET

3,345,967

MULTIPLE HULLED BOAT

Filed May 2, 1966

2 Sheets-Sheet 1

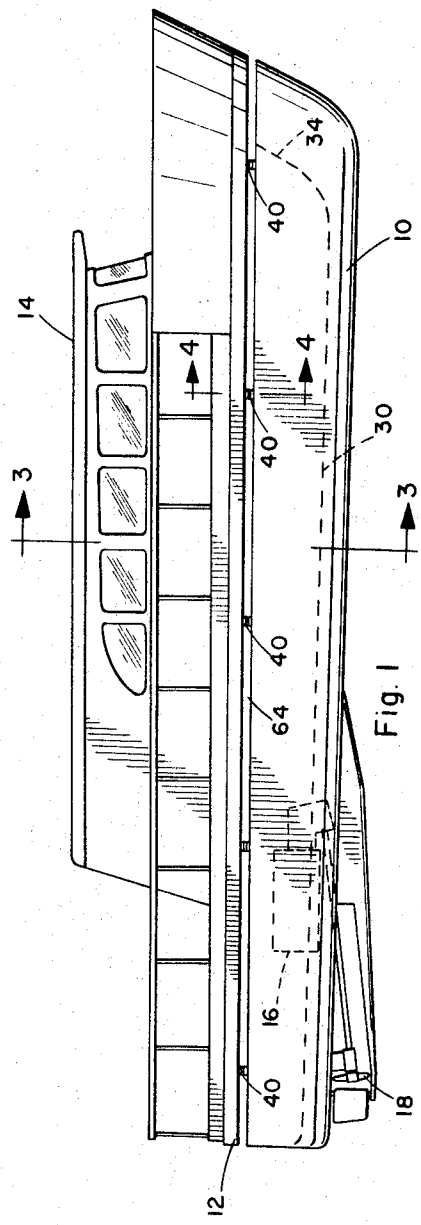


Fig. 1

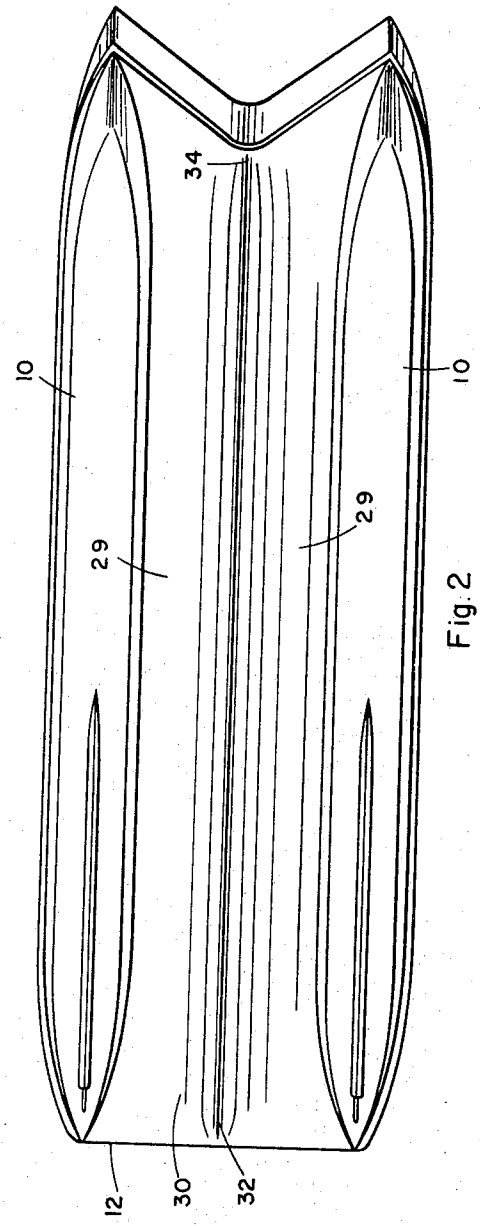


Fig. 2

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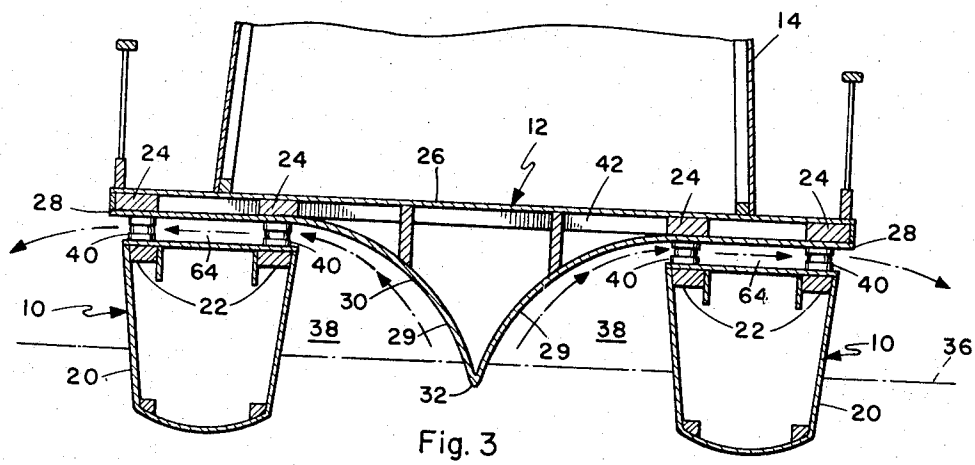


Fig. 3

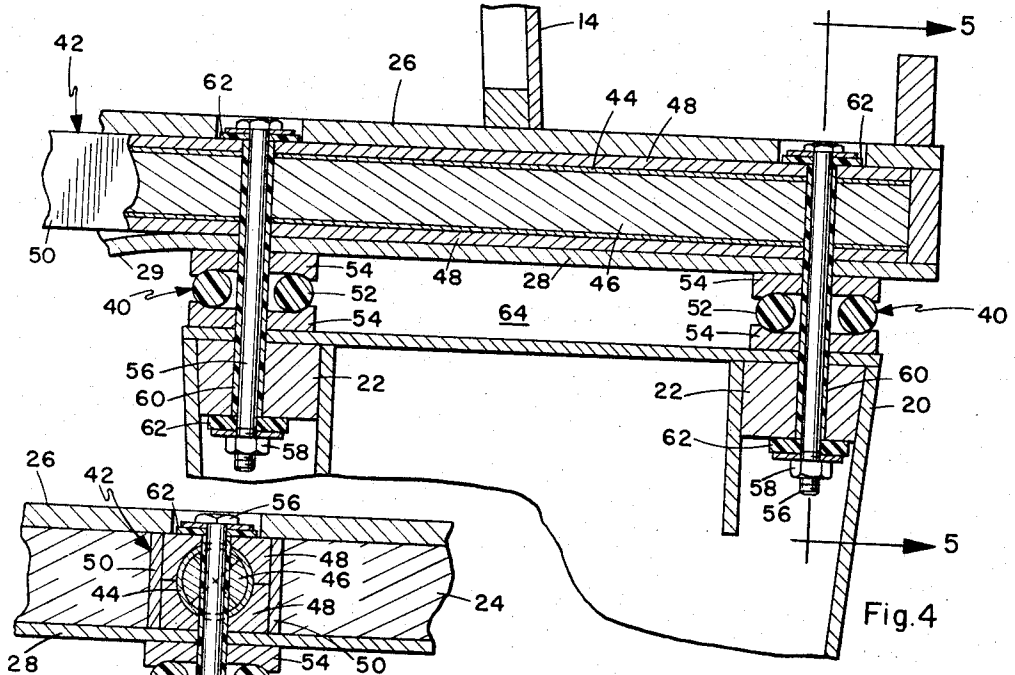


Fig. 4

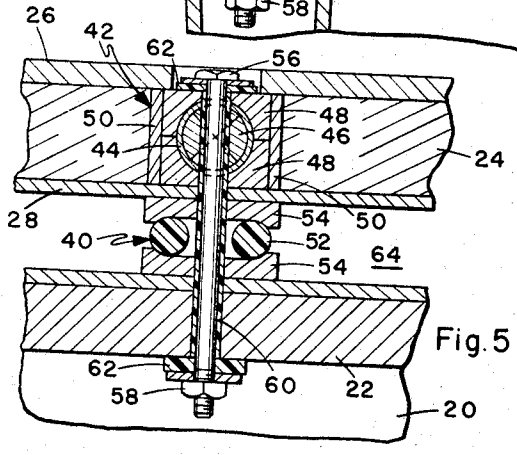


Fig. 5

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MULTIPLE HULLED BOAT

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6 Claims. (Cl. 114—61)

The present invention relates to boats and specifically to a multiple hulled boat.

Catamaran type boats are very stable in the water but are prone to damage in a rough seat due to the pounding of waves in the underside channel between the hulls. The structure must be extremely rigid to resist the pounding, or have designed flexibility to absorb the motions incurred, the latter being impractical in large boats.

The primary object of this invention, therefore, is to provide a multiple hulled boat having the desirable features and characteristics of a catamaran, but incorporating a central water deflecting hull which deflects water laterally through channels along the sides of the boat, so relieving the excess of water caused by wave action between the supporting hulls and preventing pounding on the structure.

Another object of this invention is to provide a multiple hulled boat wherein the deck and superstructure is substantially a separate unit carried on the supporting hulls by resilient mountings, which space the deck from the hulls to leave the lateral flow channels for excess water, the primary stresses being carried by transverse beam members incorporated into the deck structure.

A further object of this invention is to provide a multiple hull structure which is adaptable to boats in a very wide range of sizes, from small outboard driven or sailing types to large ocean going vessels.

A typical boat and the novel structural details are illustrated in the drawings, in which:

FIGURE 1 is a side elevation view of the boat;

FIGURE 2 is a bottom plan view thereof;

FIGURE 3 is an enlarged sectional view taken on line 3—3 of FIGURE 1;

FIGURE 4 is an enlarged sectional view taken on line 4—4 of FIGURE 1; and

FIGURE 5 is a sectional view taken on line 5—5 of FIGURE 4.

Similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawings.

The boat comprises basically a pair of similar buoyant hulls **10** in spaced parallel relation, supporting a deck **12** on which is the superstructure **14**. As illustrated, the boat is a large cabin cruiser type, in which each hull contains a suitable power unit **16** driving a propeller **18**, but many other arrangements may be used. The construction of the hulls may vary and is shown as a suitably formed closed shell **20** with reinforcing stringers **22** along the upper sides.

Deck **12** is a hollow structure built up in a suitable manner on a frame which includes longitudinal stringers **24** spaced to correspond with the stringers **22** of hulls **10**. The deck is covered by substantially flat top decking **26** on which the superstructure **14** is mounted. The underside of deck **12** has generally flat side portions **28** above the hulls **10**, with curved walls **29** extending downwardly between the hulls to form a central hull **30**, having a V-shaped lower edge **32** with an upwardly curving bow **34**. Hull **30** extends parallel to hulls **10**, substantially the full length of the deck **10**, the lower edge **32** projecting slightly below the normal water line, indicated at **36** in FIGURE 3. Thus hull **30** does not contribute to any extent to the buoyancy of the vessel, but merely enters the water sufficiently to separate the space beneath the vessel into two channels **38**.

The deck **12** is attached to hulls **10** by resilient mountings **40** spaced longitudinally in pairs along each hull. Deck **12** contains transverse cross beams **42** at each location of resilient mountings, each cross beam carrying a pair of the resilient mountings at each end.

Each cross beam **42** is a primary structural member and, while various types of construction may be used, a particularly effective arrangement is shown in FIGURES 4 and 5 which is suited to the particular resilient mounting structure. The cross beam contains a metal tube **44**, preferably high tensile steel, in which is a wooden core **46** composed of four lengths of quarter round section bonded to each other and to the tube. The tube is held between upper and lower beam members **48** grooved to fit around the tube closely, and the assembly is boxed in between side plates **50**. All of the structure extends for the full length of the beam.

Each resilient mounting **40** includes a resilient cushion ring **52** of toroid form held between a pair of cup members **54**. A bolt **56** passes downwardly through cross beam **42**, through the axis of cushion ring **52** and through stringer **22**, the bolt being held by a nut **58** with suitable locking means to prevent loosening. A sleeve **60** of resilient plastic material encloses the bolt **56** and sealing washers **62** are used at the head and nut ends to ensure a watertight connection. The cup members **54** are preferably secured to the deck and hull surfaces to prevent lateral displacement. The heads of bolts **56** are recessed in top decking **26** and suitable covers may be provided if necessary.

Cushion rings **52** and the cup members **54** form spacers between the deck **12** and hulls **10**, leaving lateral slots **64** extending from channels **38** to the outside of the vessel. The depth of the slots, governed by the total thickness of each cushion ring and its cup members, is designed to provide adequate passage of water thrown out through the slots from channels **38**.

In normal operation the boat has the characteristics of a conventional catamaran, the central hull **30** just penetrating the water and having little or no effect. In rough water which causes pitching and rolling of the boat, with resultant up and down motion, the water between the hulls in the channels **38** is deflected by the curved walls **29** and ejected through slots **64**. In actual practice the water emerges from the slots in a generally flat sheet and is carried clear of the boat. As the water level rises between the hulls an increasing portion of the central hull is submerged adding to the buoyancy and further damping out vertical motion. The major portion of the pounding and strain on the structure is thus eliminated and motion of the boat is greatly reduced, since the wave action is effectively subdued. Buffetting from waves outside the hulls and minor loads on the structure are absorbed by the resilient mountings **40** and carried between the hulls by cross beams **42**, so that strain on the deck and superstructure is minimized.

It has been found that the boat has exceptional stability in rough seas and will maintain a higher speed than is usual due to the smoother ride, as compared to conventional catamarans or other boats.

Due to the relief of water through the lateral slots it is practical to reduce the spacing of the deck above the water line from that usually considered necessary, making the boat low in the water and consequently more stable.

It is understood that minor variation from the form of the inventiion disclosed herein may be made without departure from the spirit and scope of the invention, and that the specification and drawings are to be considered as merely illustrative rather than limiting.

I claim:

1. A multiple hulled boat, comprising:
a pair of spaced, parallel, buoyant hulls;
a deck structure;
a plurality of mountings securing said deck structure on top of said hulls in vertically spaced relation thereto, and providing substantially transversely extending slots between the hulls and deck structure and opening laterally of said hulls;
a central hull depending from said deck structure between said buoyant hulls, said central hull having side walls extending from substantially the water line to the lower portion of the deck structure adjacent said slots, whereby water rising between said hulls is deflected outwardly through the slots.

2. A boat according to claim 1, wherein said central hull has a substantially V-shaped lower edge parallel to said buoyant hulls, said side walls curving smoothly from said lower edge to said deck structure.

3. A boat according to claim 1, wherein said lower edge depends slightly below the normal water line of the boat.

4. A boat according to claim 1, wherein said mountings are resilient.

5. A boat according to claim 1, wherein said mountings each include a resilient cushion ring between said hull and said deck structure, and a bolt passing through said deck structure and said cushion ring into said hull.

6. A boat according to claim 1, wherein said mountings are in pairs spaced longitudnially along the hulls, said deck structure having transverse load carrying cross beams to which said mountings are secured.

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ANDREW H. FARRELL, *Examiner.*