

[54] HULL CONSTRUCTION FOR WATERCRAFT

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[58] Field of Search 9/6, 310 R, 310 B; 115/70, 115/6.1; 114/56

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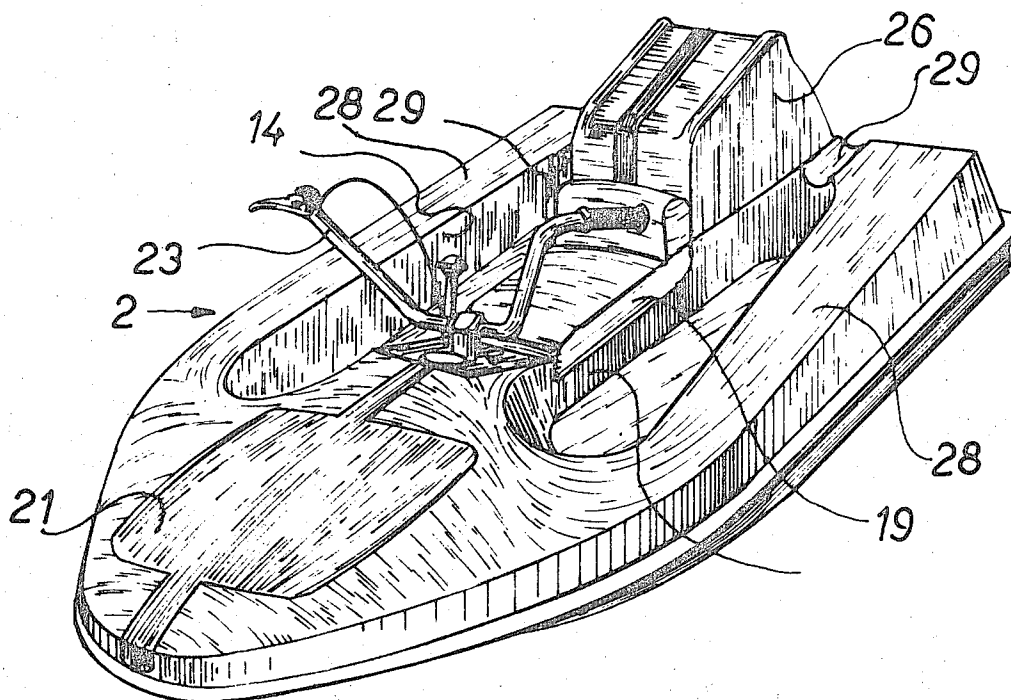
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[57] ABSTRACT

A hull for a watercraft, and in particular for a sport boat, adapted to ally both stability and instability without sacrificing or opposing one to the other; this being achieved by forming a transverse bottom outline which combines typical rounded and substantially planar bottom portions transversely adjacent each other, with the planar outline portions extending on opposite sides of the rounded portion lengthwise of the hull, elevated relative to the rounded portion and forming inflections therewith and longitudinally thereof. The planar outline portions are arranged to provide dynamic sustentation upon impact thereon of waves produced by the suitably shaped bow portion. The hull further includes a top deck forming section defining longitudinally reinforcing wall portions, footrest depressions on opposite sides of a central longitudinal seat supporting boss, and a trench-like depression extending lengthwise of the hull to recess the control links therein.

4 Claims, 9 Drawing Figures



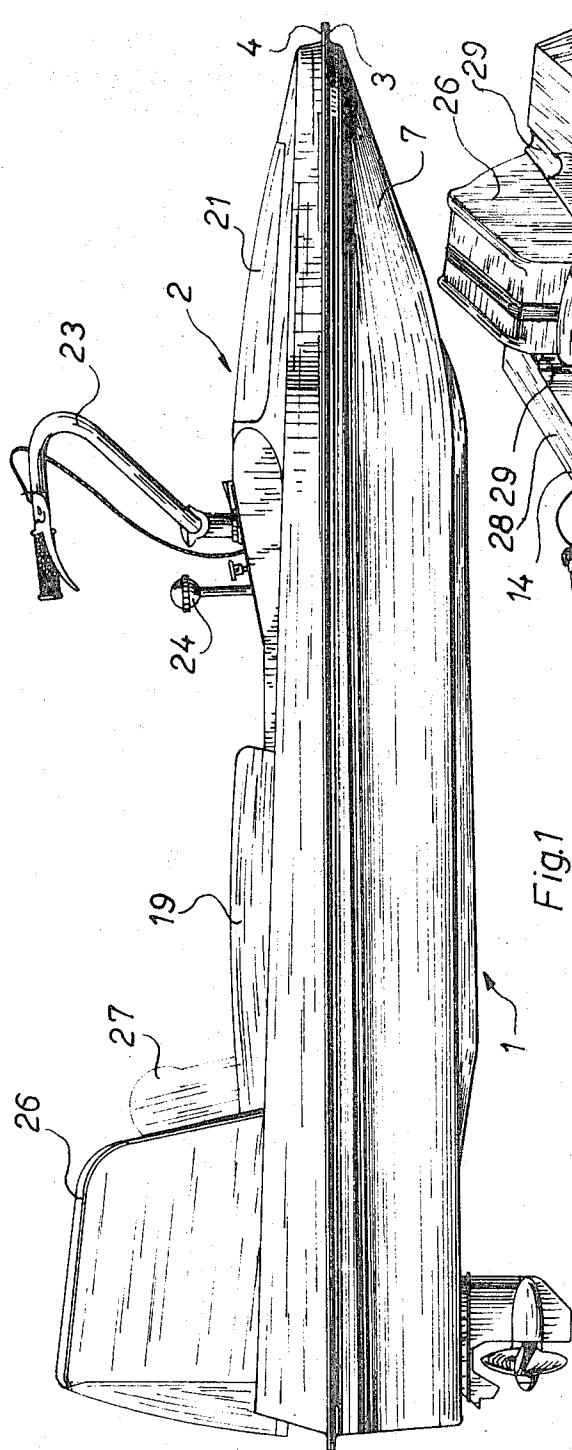


Fig. 1

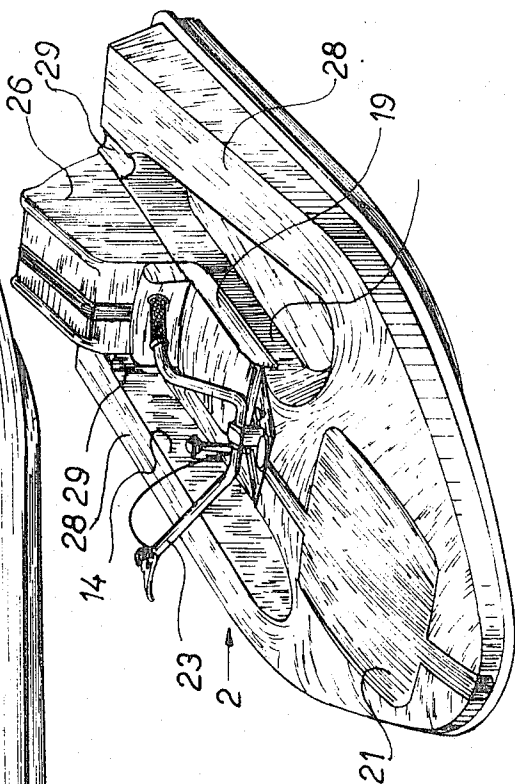


Fig. 2

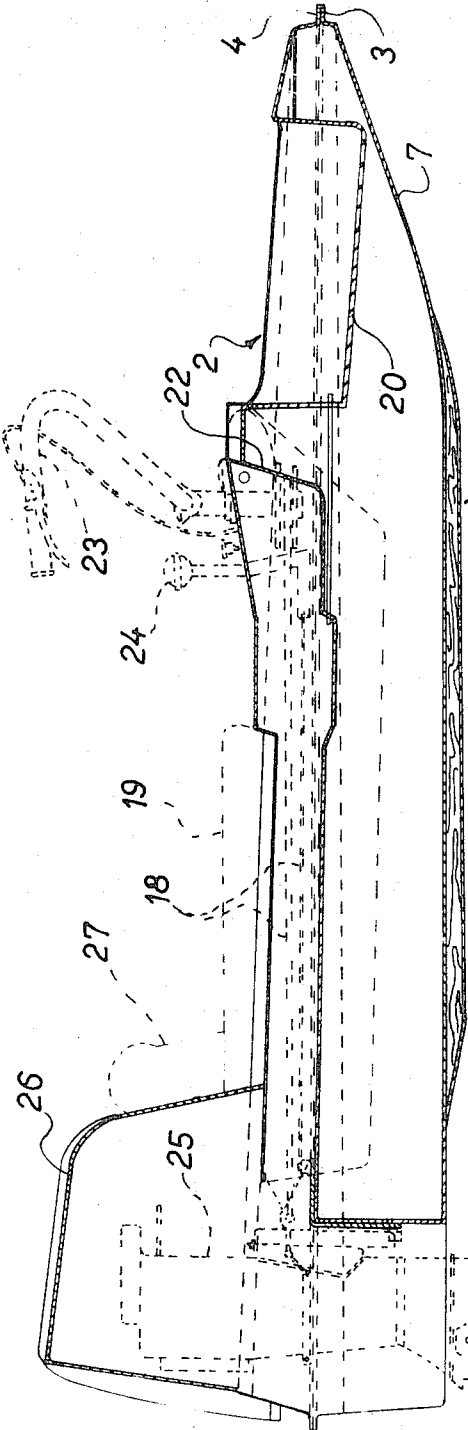


Fig. 3

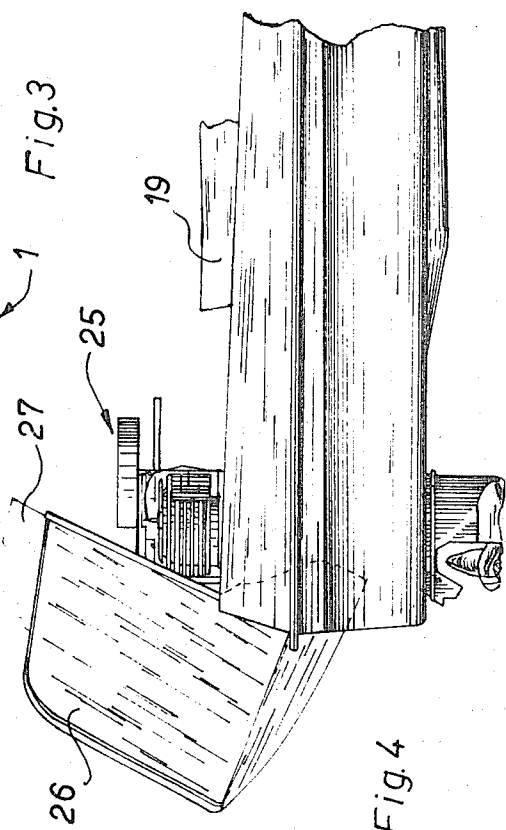


Fig. 4

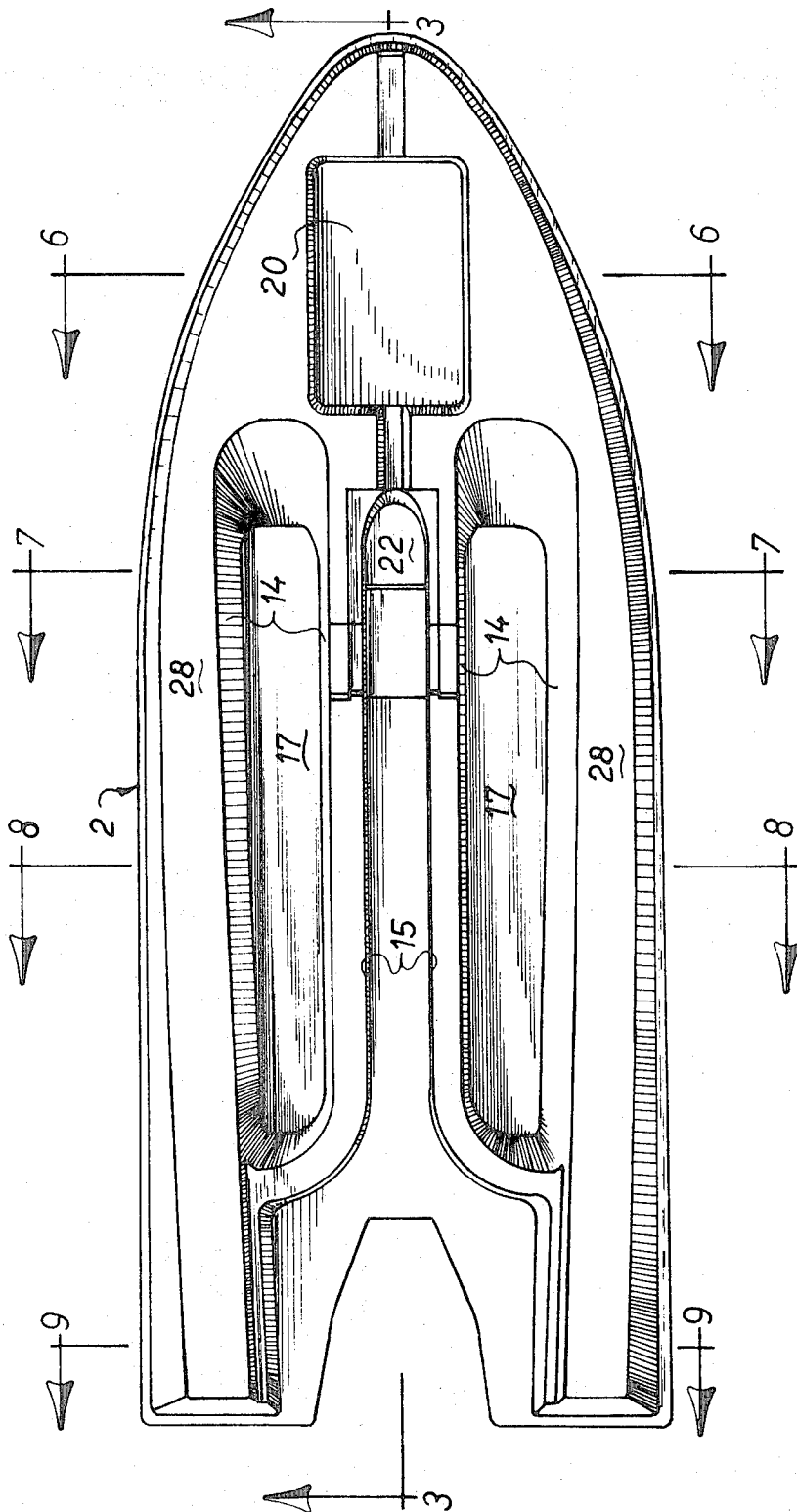
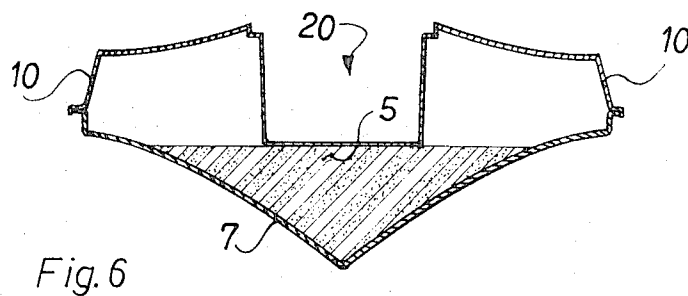
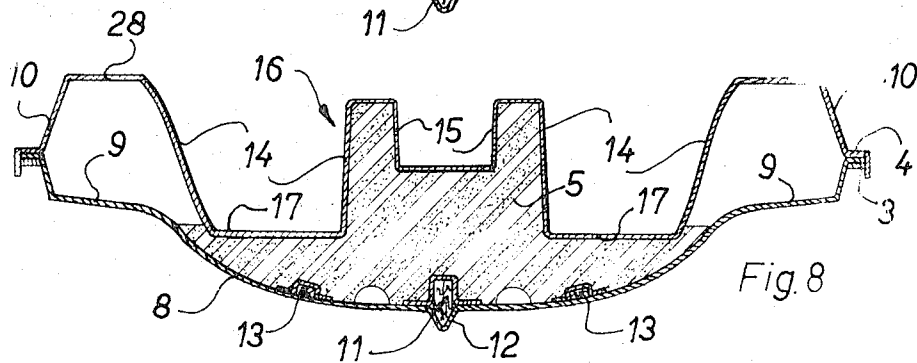
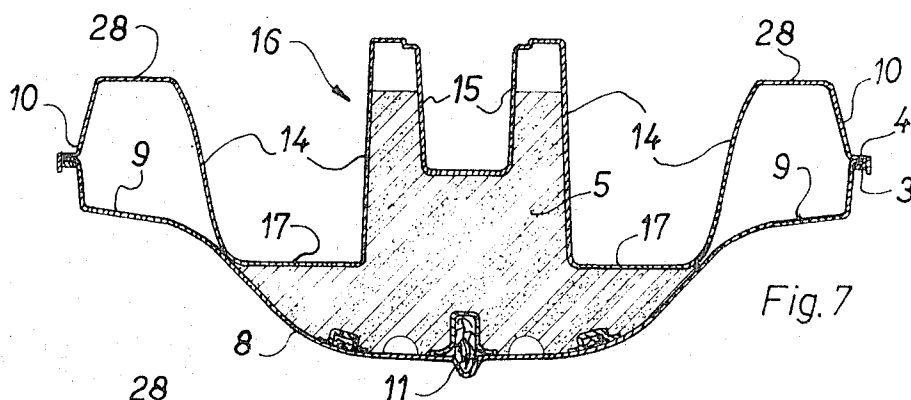
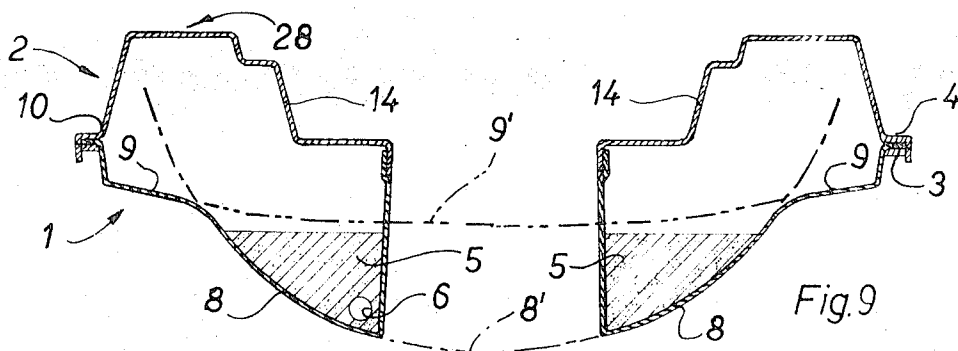


Fig.5



HULL CONSTRUCTION FOR WATERCRAFT

This invention relates to a watercraft, and more particularly to a novel hull construction for a watercraft of the sport boat type.

So far, the hull of a watercraft and in particular of a sport boat has been made of one or another typical transverse cross-sectional bottom outline such as a rounded bottom like a canoe, or a substantially planar bottom.

It is well known that a transversely rounded bottom outline produces a boat with inherent transverse instability while a substantially planar or flat bottom outline produces a boat having essentially transverse stability. As far as we know, nobody has yet proposed to combine a substantially planar bottom outline with a substantially rounded bottom outline, particularly in a sport boat, in a manner to get the benefits of both outlines without substantial counteraction between the two outlines, as far as the transverse stability is involved. Such hybrid combination has apparently been considered as necessarily involving counteraction of one outline on the other as far as transverse stability is concerned and this may explain why nobody resorted to it thus far.

In the art of sport boats, the main object is to challenge the skill of the user thereof. To do so, such boat must besides other things, have substantial instability, or in other words, must be easily rollable to allow maximum maneuverability and to thrill the user. But a sport boat is high-powered and therefore special considerations must be given to obtain sufficient stability for the safety of its users, nearby swimmers, and other boats. So far, all attempts have been unsuccessful to produce a sport boat which is highly maneuverable and thrilling while being also safe against overturning.

The present invention is based on the novel concept of combining the above two typical rounded and substantially planar bottom outlines without adversely affecting or impairing the function of one outline by the other. The above new and unexpected result is achieved by appropriate arrangement of the above outlines one relative to the other to form a bottom hull outline giving both the maneuverability expected from a sport boat and the desired and recommended safety.

It is a principal object of the invention to provide a watercraft having a hull constructed and arranged to allow both stability and instability without sacrificing one to the other.

It is a more specific object of the invention to provide a boat, particularly a sport boat, with a hull having a transverse cross-sectional outline combining both a rounded and a substantially planar bottom outline without substantial counteraction of one on the other as far as transverse stability is concerned.

It is another object of the invention to provide a hull having a suitable outline and lateral planar surfaces arranged to act as wings producing dynamic sustentation of the boat or watercraft.

It is another object of the invention to provide a hull of simple but advantageous construction forming a sealed buoyant enclosure adapted to carry all the power and control components exteriorly thereof and into easily accessible depressions therein to optimize accessibility to those components.

It is still another object of the invention to provide a hull with a suitable transverse cross-sectional outline to

define lateral edges acting as keels upon sharp turning of the boat in one direction or the other.

It is a further object of the invention to provide a watercraft including a hull having a deck forming section made of a single piece defining a plurality of longitudinally reinforcing wall portions forming depressed foot-rest deck portions and a central longitudinal boss arranged to provide a seat and a longitudinal trench-like depression for the control links running fore and aft of the boat.

The above and other objects and advantages of the invention will be more readily understood in the light of the following detailed description of a preferred embodiment of the invention which is illustrated, by way of example only, in the accompanying drawings, in which:

FIG. 1 is a side elevation view of a sport boat having a hull according to the invention;

FIG. 2 is a perspective view of the boat shown in FIG. 1;

FIG. 3 is a longitudinal cross-sectional view as seen along line 3—3 in FIG. 5;

FIG. 4 is a partial view of FIG. 1 illustrating to accessibility to an outboard motor powering the boat;

FIG. 5 is a top plan view of the hull without any powering or control element thereon; and

FIGS. 6 to 9 inclusive are transverse cross-sectional views as seen along lines 6—6 to 9—9 respectively in FIG. 5 to better illustrate the construction of the hull.

Referring in details to the drawings, the sport boat illustrated includes a hull having a bottom section 1 and a top deck forming section 2 which are formed with complementary peripheral edges 3 and 4 respectively which abut and are sealed together by bonding or the like. As will be understood later, each of the two hull sections is made of a single piece suitably molded to cooperate with the other to form a sealed buoyant enclosure having foamed material 5 therein and provided with a drainage opening 6 to drain out any water that might find its way within the hollow hull structure.

The bottom hull section 1 has a bow portion 7 which is tapering forwardly both in height and width and which has a transverse cross-sectional outline of downwardly pointing V shape, as shown in FIG. 6.

The main hull portion extending aftward of the bow portion 7 and merging with the latter includes a transversely rounded bottom outline 8 extending substantially the full length of the main hull portion and centrally thereof. The rounded bottom outline 8 is flanked on opposite sides by a pair of stabilizing portions 9 extending lengthwise of the hull and having substantially planar bottom outlines, as best seen in FIGS. 7, 8 and 9 which illustrate that each of said stabilizing portions has a bottom surface which is flat and straight transversely and longitudinally of the hull and that said bottom surface is substantially parallel to the bottom surface of the main hull portion throughout the length of the latter. It must be noted, as can be seen in these latter Figures, that the planar stabilizing portions 9 are elevated with respect to the rounded portion 8 and merge with the latter forming an inflection line extending longitudinally of the hull on each side of the central rounded portion 8. The inflection line is not shown as such but, as is well known, results at the merging between a convex and a concave surfaces. Obviously, inflection here is meant to extend not only to a merging between a convex and concave surfaces but also to

other types of breaks between the rounded and the substantially planar bottom outlines. Preferably the width of the planar bottom portions is between one-sixteenth and one-twelfth of the overall width of the main hull portion.

From examination of FIGS. 7, 8 and 9, it may be seen that the transverse bottom outline of the main hull portion is a composite outline resulting from superposition of a transverse rounded bottom outline and a substantially flat bottom outline with the latter elevated relative to the former as indicated by the phantom lines 8' and 9' shown in FIG. 9. It can therefore be seen that by arranging the substantially planar bottom portions on opposite sides of the rounded bottom portion and elevated relative thereto, the boat normally floats as a canoe and is relatively unstable and easy to maneuver and as soon as the hull is inclined on one side, the corresponding flat bottom portion 9 dips into the water and the boat becomes stabilized and substantially impossible to be overturned.

The sides 10 of the hull defined by abutting edge portions of the sections 1 and 2 extend substantially orthogonally relative to the planar bottom portions 9 and thence each one acts as a keel with the corresponding planar bottom portion 9 upon dipping of the latter as mentioned above. This becomes particularly useful, when turning in one direction or the other, to prevent overturning of the boat and has been found effective even for the sharpest turns where the boat is so inclined that the shoulder of the user comes to within a few inches from the surface of the water.

A keel 11 of wood or any suitable material is longitudinally secured into a central longitudinal groove 12 into the bottom hull section 1.

Rigidifying bars 13 are preferably also provided to strengthen the bottom surface of the hull.

The top deck forming portion 2 defines a plurality of wall portions or partitions 14 and 15 extending lengthwise of the hull and laterally upwardly thereby forming longitudinal reinforcement of the hull. The wall portions 14 form a central longitudinal boss 16 extending fore and aft and flanked on opposite sides by a pair of depressions each having a footrest deck 17 at the bottom thereof. It will be noted that the footrest decks 17 are arranged near the hull bottom section 1 to obtain a low center of gravity. The wall portions 15 form a trench-like depression into the top of the central longitudinal boss 16 to recess control links 18 therein. A seat 19 is mounted onto the boss 16 and covers the depression therein. A recess or depression 20 is formed into the front of the section 2 and arranged to hold a gas tank recessed therein. A cover or panel 21 is provided to close the cavity 20. Another depression 22 is formed into the section 2 intermediate the depressions for the gas tank and for the control links 18 and is arranged to hold the controls for the boat or watercraft. The trench-like depression extends fore and aft and communicates with the depression 22 for the controls. The latter may include for instance an handlebar 23 of the bicycle or motorcycle type, a clutch lever 24 and suitable indicators and switches which are arranged to control and steer an outboard motor 25 suitably mounted onto the hull structure. The motor 25 and the controls therefor do not form part of the present invention and will not be further defined herein.

It must be appreciated that the top deck forming section 2 is formed such that all controls and the motor are

supported exteriorly thereof and are therefore easily accessible for maintenance. A hood 26 is pivotally mounted to cover the motor 25 and to give access thereto. A backrest 27 is fixed against the front wall of the motor hood 26 to pivot with the latter thereby giving a clear access to the motor 25 from inside the boat for the convenience of the user.

Particularly from FIG. 2, it may be seen that the lateral edge portions of the top hull section 2 forms longitudinal bumps 28 extending lengthwise along the outer edges of the hull. Draining channels 29 are provided on each side of the motor 25 to allow most of the water entering into the depressions for the footrests 17 to escape freely at the rear when the boat is in operation causing the bow to raise.

The boat may be operated by the user either comfortably seated or standing up with one foot onto each footrest deck 17. Upon merely swaying his body right or left, the user may steer the boat without even turning the handlebar 23. As explained before such easy maneuverability is due to the rounded central portion.

We claim:

1. In a watercraft, a hull comprising a bottom section including a bow portion of forwardly tapering shape having a transverse cross-sectional bottom outline of generally V-shape and a main hull portion merging with said bow portion and having a central longitudinal portion of convex rounded transverse cross-sectional bottom outline, and lateral longitudinal stabilizing portions flanking said central longitudinal portion and extending laterally away therefrom on opposite sides thereof respectively, each of said stabilizing portions having a bottom surface which is flat and straight transversely and longitudinally of the hull, said bottom surface being substantially parallel to the bottom surface of the main hull portion throughout the length of the latter, each bottom surface of said stabilizing portions being upwardly inclined transversely of the hull and defining a longitudinally extending inflection with said central longitudinal portion, said bottom surfaces of said stabilizing portions lying above the waterline of the hull, and further including a deck forming section co-extensive with said bottom section peripherally sealed to the latter and forming a fully enclosed fluid-tight buoyant enclosure therewith, said deck forming section forming a central boss extending longitudinally of the hull, a pair of foot-rest depressions extending lengthwise of said central longitudinal boss on opposite sides thereof respectively, and lateral bumps extending lengthwise of said hull along the outer lateral sides thereof, said boss having a trench-like longitudinal depression extending lengthwise thereof to the stern of the hull and adapted for recessing watercraft controls therein exterior of said fluid-tight buoyant enclosure and for exterior connection of the same with an outboard motor at the stern, said deck forming section having a recess therein forward of said longitudinal depression, in communication with the latter and arranged to recess a fuel tank therein on the exterior of said fluid-tight buoyant enclosure, said trench-like longitudinal depression and said recess opening upwardly at the top of said deck forming section in longitudinal alignment with each other, a seat mounted on top of said central boss over said depression and a cover engaging over said recess to close the latter.

2. In a watercraft, a hull comprising a bottom section including a bow portion and a main hull portion merg-

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ing aftward with said bow portion, a deck forming section co-extensive with said bottom section, peripherally sealed to the latter and forming a fully enclosed fluid-tight buoyant enclosure therewith, each of said deck forming section and said bottom section being formed into a single piece and said sections having complementary peripheral edges engaging in sealed abutment against each other, said deck forming section having an upwardly projecting central boss extending longitudinally of said hull and the latter having a trench-like longitudinal depression extending lengthwise thereof to the stern of the hull and adapted for recessing watercraft controls therein on the exterior of said fluid-tight buoyant enclosure and for exterior connection of the

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same to an outboard motor at the stern.

3. A watercraft as defined in claim 2, wherein said deck forming section has a recess therein forward of said depression, in communication with the latter and arranged to recess a fuel tank therein on the exterior of said fluid-tight buoyant enclosure.

4. A watercraft as defined in claim 3, wherein said trench-like longitudinal depression and said recess open upwardly at the top of said deck forming section, a seat is mounted on top of said central boss over said depression and a cover engages over said recess to close the latter.

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