Sept. 4, 1962 H. K. DEARBORN 3,052,202

PONTOON BOAT

Filed Nov. 20, 1956 3 Sheets-Sheet 1

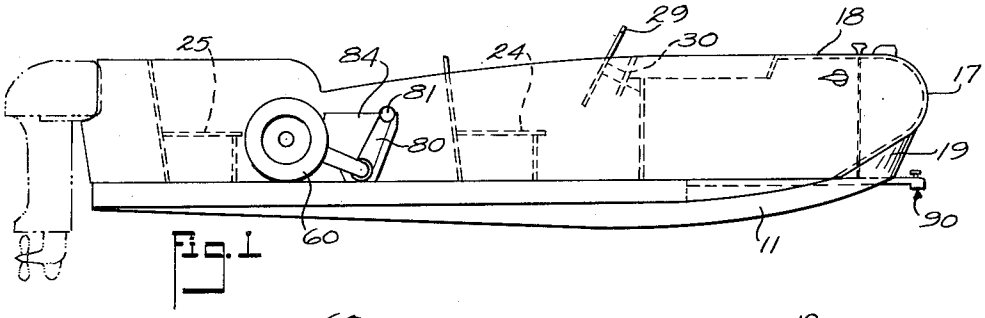


Fig. 1

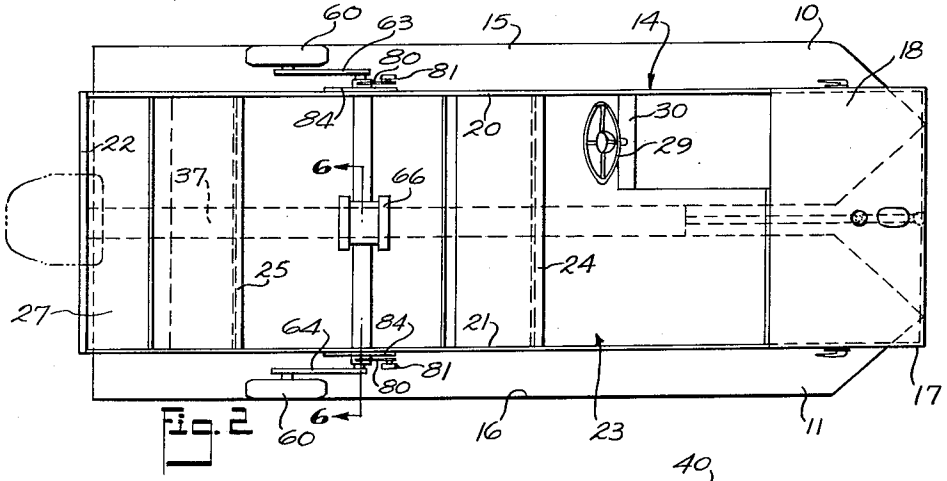


Fig. 2

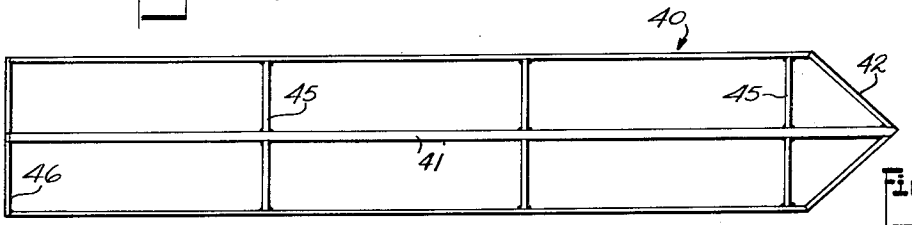


Fig. 4

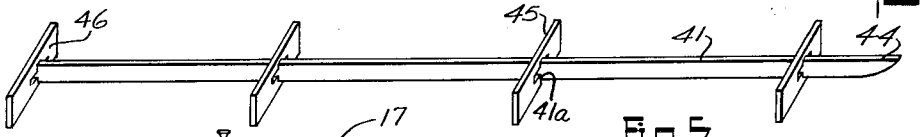


Fig. 5

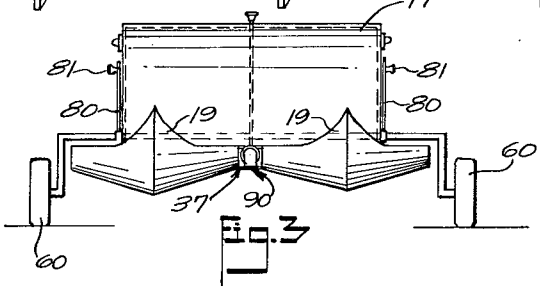


Fig. 3

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PONTOON BOAT

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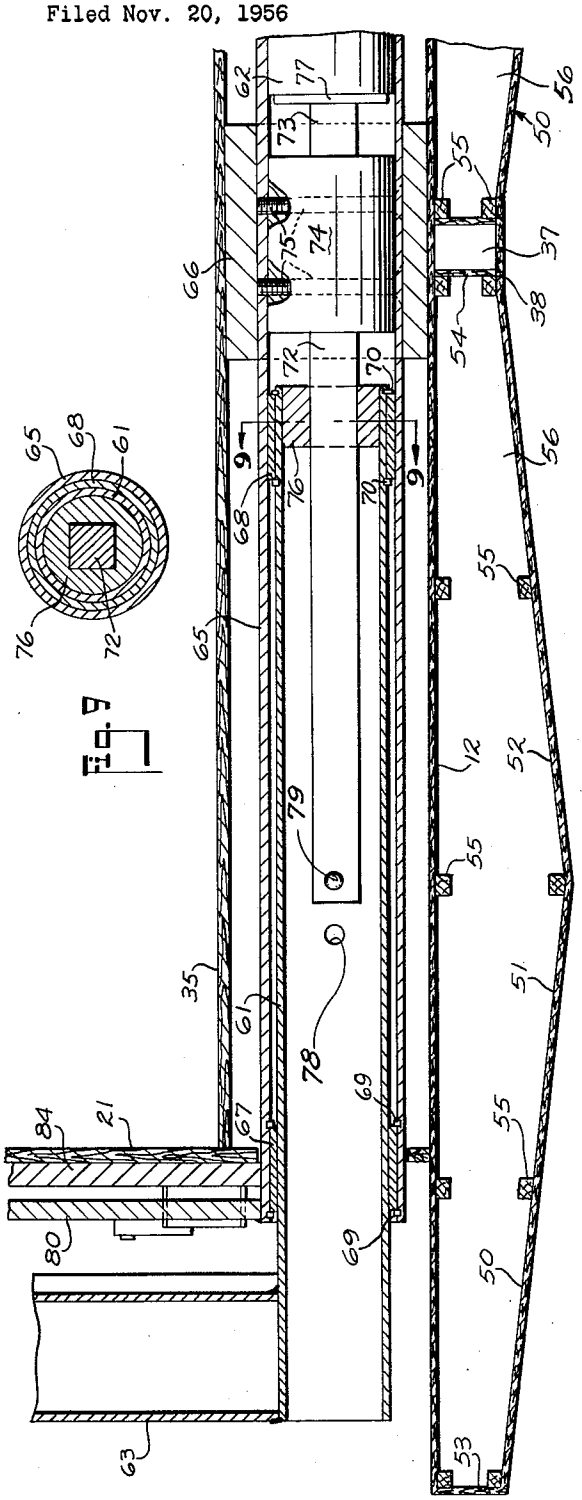


Fig. 6

Fig. 9

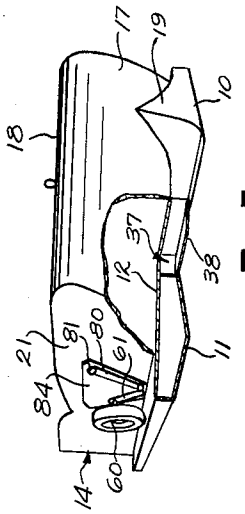


Fig. 8

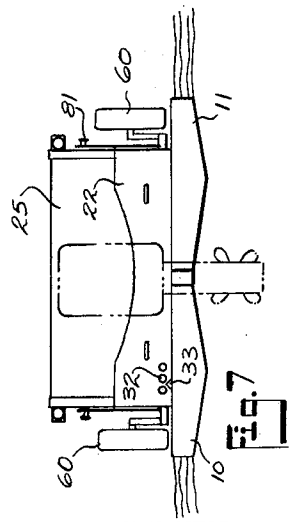


Fig. 7

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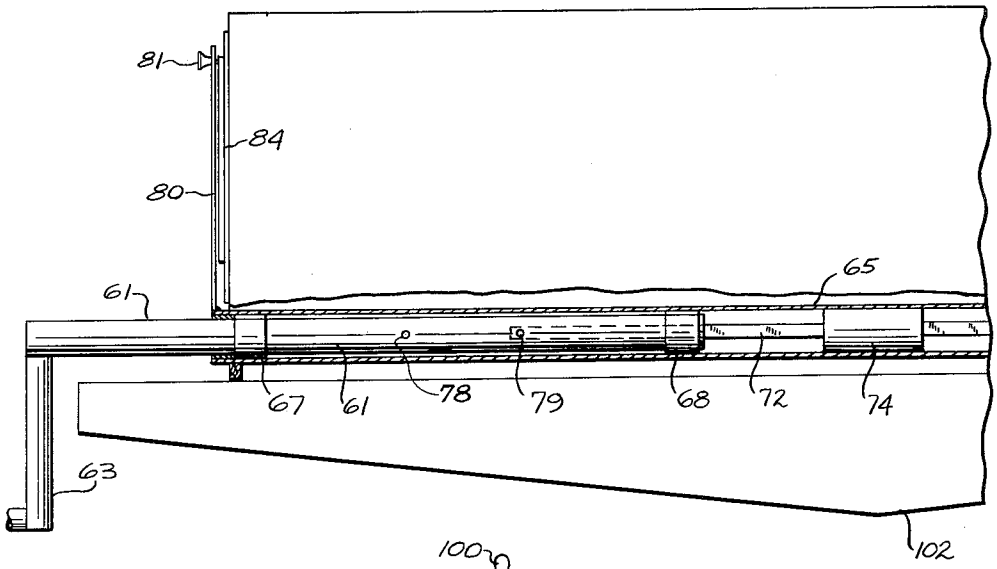
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PONTOON BOAT

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Fig. 10



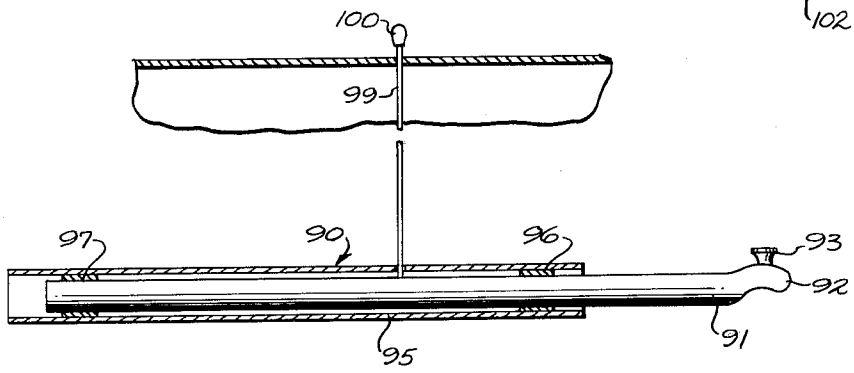


Fig. 11

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3,052,202
PONTOON BOAT

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Filed Nov. 20, 1956, Ser. No. 623,335
8 Claims. (Cl. 114—61)

The present invention relates generally to small water craft and suspension means therefor and is more particularly concerned with novel pontoon hulls and amphibious vessels having unique features and characteristics affording important advantages.

Throughout the relatively long evolution and development of small water craft, such as the outboard motor boat, there have persisted certain important shortcomings and problems. For one thing, the safety factor has not been what has been desired, particularly during the execution of sharp turns, and the general instability of these boats has limited their use. Also, despite their relatively small size these vessels have in general been too cumbersome and heavy for easy handling out of the water. Still another drawback is the fact that these boats require special carrying devices or trailers for transportation on land, representing a substantial additional item of cost tending further to limit their market.

Still other shortcomings of the prior outboard motor boats include their characteristic sloping or rounded deck, the vulnerability of the hull to damage from within as well as outside and the necessity for bailing to maintaining the inside of the boat reasonably free from water accumulations during use. Coupled with these disadvantages is the fact that these conventional vessels are of limited utility, being entirely unsuitable for use as platforms for swimming or diving due to their inherent instability and their tendency to ship water under sudden load exchanges, and because of the swimmer's difficulty in boarding such a boat from the water.

The present invention affords an answer of a highly practical nature to these various shortcomings, problems and difficulties and the boats and hulls of this invention hold additional important advantages over those heretofore known. Thus conveyances of this invention are amphibious and, in fact, they are capable of carrying very heavy loads as trailers and of operating at high speeds under such loads because of their excellent roadability. In addition they have this same high-stability characteristic afloat and therefore uniquely affords a maximum of safety under all conditions of use.

Serving as its own trailer, a boat of this invention can be used much more easily and with greater flexibility as to launching and landing sites than the conventional trailer-boat combinations of the prior art. Also, by thus combining in a single structure a trailer and a boat, manufacturing costs can be substantially reduced.

Another important advantage or characteristic of the vessels of this invention is their freedom from propeller cavitation effects. This advantage is coupled with the freedom in these boats or vessels from spraying or geysering effects characteristic of the higher speed operation of catamaran-type boats.

As a further important advantage of these boats of my invention they are practically capsize-proof, whether standing at rest, or in high-speed turns on the water. Still further they are self-bailing and in the event that any water is shipped either afloat or while they are supported on their wheels, this self-bailing feature operates without power and by virtue of the novel structure and relationship between certain parts of the deck and the hull.

Still another very important advantage of this invention is the novel strength of these vessels and their resistance to the action of waves upon the individual pontoons of their hulls. Hulls of this invention comprising pairs of

pontoons act as unitary structures and by virtue of the spacing of these pontoons and the manner in which they are secured together, they can withstand forces encountered in ordinary service which have proven destructive to pontoon-type hulls heretofore known.

Those skilled in the art will gain a further and better understanding of this invention and the foregoing and additional advantages and novel features thereof upon consideration of the following detailed description, reference being had to the drawings accompanying and forming a part of this specification, in which:

FIG. 1 is a side elevational view of a twin-pontoon hull vessel or vehicle embodying this invention;

FIG. 2 is a top plan view of the vessel or vehicle of FIG. 1;

FIG. 3 is a front elevational view of the vessel of FIG. 1;

FIG. 4 is a top plan view of a metal pontoon, with the deck or top portion removed;

FIG. 5 is a perspective view of the frame of the pontoon of FIG. 4;

FIG. 6 is a transverse sectional view taken on line 6—6 of FIG. 2;

FIG. 7 is a rear elevational view of the vehicle or vessel of FIG. 1;

FIG. 8 is a perspective view of the vessel of FIG. 1, taken from the forward end thereof with parts broken away to show the anticavitation channel between the pontoons;

FIG. 9 is a transverse sectional view of the axle means of the wheel suspension assembly of the boat of FIG. 1, taken on line 9—9 of FIG. 6;

FIG. 10 is a fragmentary, transverse sectional view of a single-pontoon hull vessel or vehicle of this invention, and;

FIG. 11 is a fragmentary, longitudinal sectional view of the vessel of FIG. 1, showing the trailer hitch and locking means thereof.

Described in broad and general terms, a vessel or vehicle of this invention comprises a pontoon and suspension means therefor comprising a wheel assembly including wheels which are disposed outboard of the pontoon on each side of the vehicle, and axle means carried by the vehicle and engaging the wheel assemblies to support the vehicle on its wheels.

In another of its aspects this invention in general comprises a twin-pontoon vessel incorporating anticavitation means and unique stability characteristics. Thus a vessel of this invention suitable for use with an outboard motor comprises a pontoon hull including a pair of pontoons which are disposed side-by-side in spaced parallel relation and with their bows in lateral alignment, a deck secured to and carried by the hull and extending across the space between the pontoons, and anticavitation means between the pontoons, serving to conduct foam and aerated water from the forward portion of the vessel between the pontoons to the stern for discharge at a level above the normal position in use of an outboard motor propeller. This anticavitation means comprises a bridging member which is secured to the opposite side portion of the pontoons and extends from the vessel stern to a location between the midship portion and the bow. Thus, this bridging member cooperates with the deck and with the opposed pontoon side portions to define a central channel running lengthwise of the vessel and open at each end for water flow therethrough.

This bridging member is an important factor in the attainment of high speeds, and sharp turns without tipping. As the speed of the vessel is increased, the leading end of this bridging member rises in the water, less water is engaged by the opposed sides of the hulls in the channel and the drag caused by that water is decreased. Such

decrease continues progressively until the leading edge of the bridging member is above the surface of the water. At that time, the vessel may make a sharp turn without tipping due to the smooth surface connecting the two hulls. Thus, that member acts as a planing member at high speeds.

In still another of its unique aspects, this invention comprises a pontoon vessel having twin pontoons which are spaced apart in parallel and lateral-aligned relation and a deck member which is securely fastened to the two pontoons to produce a rigid box-like construction which has novel resistance to the stresses incident to the use of catamaran-type vessels.

As shown in the drawings, a typical embodiment of my present invention is a twin-hull, outboard motor-type boat of approximately six-passenger capacity. This boat comprises a pair of pontoons **10** and **11** which are joined integrally together in spaced, laterally-aligned relation by a flat deck member **12** extending over the full length and the full width of the pontoon assembly and closing the tops of the pontoons watertightly. A superstructure **14** is mounted on deck **12** and is located inboard of the outer sides of pontoons **10** and **11** to provide outboard platforms **15** and **16** extending over practically the full length of the vessel.

Superstructure **14** includes a bow portion **17** which is shaped to dampen geysering effects which might tend to develop because of the relationship between the pontoon bow portions and the conformation of these bow portions. Thus, bow **17**, as shown in FIGS. 1 and 8, projects upwardly at an angle of about 30° from about the mid-point of the pontoon bows, reaching a point forwardly of the leading ends of the pontoons. Bow **17** is then turned back in a smooth curved contour and carried to a point of maximum elevation of the superstructure where a continuation of the superstructure bow portion defines a cowl **18**.

Bow **17** is joined to the extreme forward portions of pontoons **10** and **11** by wedge-like, bow inserts **19** which are secured to their respective pontoons and to bow **17**, giving the forward end of the vessel a finished appearance and at the same time providing support or reenforcement for the extreme forward portions of the vessel.

Superstructure **14** includes in addition a pair of upstanding side members **20** and **21** and a transom member **22** which together with bow portion **17** cooperate to define a cockpit or passenger compartment **23**. Cockpit **23** is provided with a forward seat **24** and a rear seat **25** disposed transversely of the vessel and extending between and connected to sides **20** and **21** in each instance so that the cockpit is divided into two passenger compartments and a motor compartment **27** disposed between seat **25** and transom **22**. In the forward passenger compartment a wheel **29** is mounted on control panel **30** which will preferably be fitted with navigational and operational aides including motor control and starting levers, compass, and a speed indicator (none of which are herein illustrated).

Seats **24** and **25** are so mounted in the vessel with respect to deck **12** that water within the cockpit may flow freely between compartments for discharge through operation of the self-bailing feature of this vessel as shown in FIG. 7.

The self-bailing feature of this vessel consists of openings **32** and notch **33** which are provided in the after end of the vessel at a point above deck **12**. Openings **32** are formed in transom **22** and in the instance of the lower most opening **33** a notch is provided in the transom so that water may run out of the vessel when there is only the smallest amount of water on deck **12**. Since in normal operation this vessel and vessels of this invention in general will have a water-line below deck **12**, as shown in FIGS. 7 and 8, the cockpit will normally be entirely free of water at all times during use of the vessel. Even when operating at high speeds so that the vessel tends to plane, water cannot reach openings **32** and thereby gain access to compartment **27** and any water in this compartment will flow out through these openings.

As shown in FIG. 6, it may be desirable in some instances to provide a false deck or bottom **35** within the cockpit. This false deck member may be fabricated from a plurality of elements to provide a smooth top surface extending over the entire interior of the superstructure and spaced above deck **12** sufficiently that axle means of the wheel suspension assembly can be housed between these two decks as the drawing indicates.

In twin pontoon vessels of this type in which the pontoons are spaced rather closely together there is a marked tendency toward the development of air and water mixtures in the bow section of the vessel between the pontoons. The resulting foam or froth condition carries the full length of the vessel between the deepest portions of the pontoons and the operation of the motor is adversely affected to a marked degree as a result. This undesirable condition can be remedied to some extent through the use of a pair of outboard motors each of which is disposed away from the longitudinal center line of this vessel, but at certain speeds there is still a definite cavitation effect and loss of power. This situation, however, can be eliminated for all practical purposes without otherwise impairing in any way the operation of the vessels through anticavitation means as mentioned above. Thus in the vessel of FIG. 1 a longitudinal channel **37** is formed or provided in the central portion of the vessel between pontoons **10** and **11**. Channel **37** is defined by portion of deck member **12** bridging the space separating the opposed walls of the pontoons and by a bridging member **38** which is secured to the said opposed side portions of the pontoons at points adjacent to their junctions with the pontoon bottom elements. Since bridging member **38** is spaced uniformly below deck **12** and extends from the stern of the vessel to a point between the midship portion and the bow portion of the vessel, channel **37** is open at its ends and its forward end is located so as to receive the froth and foam formed at the bow of the vessel and to carry off this aerated water for discharge well above the normal position of the propeller of an outboard motor mounted on transon **22**, as indicated in outline in several views. The size or capacity of channel **37** as well as its location is important to the constant prevention or elimination of cavitation effects at the motor propeller. In this particular vessel channel **37** is approximately rectangular in cross-section, pontoons **10** and **11** being spaced 3 inches apart and bridging member being about 7 inches below deck **12**. It will be understood, however, that channel **37** may be of different shape and thus can be either wider or deeper than illustrated without adverse effect on the anticavitation function of the channel. However, it will be understood that there are limits to the height of the pontoon sides as well as to the distance between the opposed sides of the pontoons which must be considered from a practical point of view not only from the standpoint of avoiding cavitation but also to secure other advantages of this invention set forth above, including seaworthiness and general stability in use afloat and on land. It will also be understood that the anticavitation feature channel **37** may take various forms and accordingly may be branched or made in the form of a Y for discharge of aerated water or foam at two points spaced laterally of the vessel and away from the central portion of the stern. Such variations from the basic channel illustrated here and described above will normally involve greater manufacturing costs due to the necessity for forming passageways as channel branches through pontoon sections rather than between spaced pontoons as in this instance.

Pontoons **10** and **11** are preferably constructed of aluminum or similar weldable, relatively inexpensive, and corrosion resistant metal. However, where cost is an impor-

tant factor, it will normally be found advantageous to make these parts of wood, although molded hulls of plastic or plastic and fiber glass may be feasible. As shown in FIGS. 4 and 5, aluminum pontoon 40 made in accordance with this invention comprises a frame 41 and a shell 42 which is open at its top. The frame includes a central member 41 which has notches 41*a* provided at intervals along its length in its bottom edge portions and three ribs or cross members 45 which are provided with slots along their medial lines so that these parts can be assembled in egg-crate fashion with member 44, as indicated in FIG. 5. Frame 41 is inserted in shell 42 and welded thereto at the points of engagement of members 44 and 45 and the stern of the pontoon is closed by member 46 which is welded to member 44 and to the adjacent ends of the shell side and bottom parts. This assembly makes a strong and rigid pontoon which is readily made and maintained watertight. Also, the deck member joining two pontoons of this type together, as previously described, produces a rigid box-like construction having superior strength characteristics and resistance to wave action which would tend to produce independent motion of the two pontoons. As thus constructed the twin-pontoon assembly is watertight and capable of withstanding the roughest kind of service.

The pontoons illustrated in FIG. 6 are of wooden construction, comprising in each instance a shell 50 made up of a pair of bottom members 51 and 52 of plywood and a pair of side members 53 and 54, also suitably of plywood. The bottom and side members of the hull are secured watertightly together and held in rigid relation by means of a plurality of ribs 55 extending lengthwise over the full length of the pontoons and cross-brace members 56 which are disposed transversely of the pontoons at intervals being notched along their edges to receive ribs 55. These wooden pontoons are secured together in pairs, as described above, by deck 12 which is also preferably of plywood construction, ribs 55 assisting to make this rigid connection so that the pontoons are completely closed at their tops and maintained watertight under all conditions of use.

These twin-pontoon vessels, whether of metal or wood construction, preferably are of approximately 5-feet in width in order to conform to trailer requirements for travel over public roads. They may be narrower but they should not be substantially wider because of the outboard wheel feature. The length of these vessels or vehicles may vary to a considerable extent but I have found that a practical length is approximately 12 to 14-feet. The contour of the pontoon, however, should be such that maximum stability, especially under sharp-turn conditions, will be obtained. This necessitates, according to my present invention, the provision of pontoons which are relatively shallow and broad of beam. Also they should taper from a point of maximum depth between the bow and midship portion to the stern, and this taper should be substantially uniform. In a pontoon 11 feet 10 inches long, I have found that best results are obtained where the taper is at the rate of about ½-inch per foot. In other words, in a pontoon having a point of maximum depth of 13-inches, 8-feet from the stern, the stern of the pontoon will have a depth of 9-inches so that there is a taper of approximately ½-inch per running foot of pontoon length distributed uniformly. In this pontoon the width dimension will be a uniform 30-inches. Assuming an anticavitation channel width of about three inches, the over-all width of such a boat will be 63-inches and this has to date been established in actual practice as ideal both from the standpoint of land travel and seaworthiness. There is no tendency for such a boat to capsize on turns at high speed. This may be attributable to a combination of a marked tendency for the shallow pontoons to slip over the water and the compensating or braking effect that the inside pontoon has on a turn as it supports the vessel over the trough produced in the water by the outside pontoon. The fact that this turn stability characteristic can be virtually eliminated merely by the presence of a 3/16-inch thick keel strip running the full length of each pontoon appears to substantiate this hypothesis. In any event, however, this unique advantage is obtained and, as a result, safety of the vessels of this invention stands out as one of their most important features.

The suspension means of this invention for pontoon vehicles or vessels comprises wheels 60 disposed on each side of the boat and a pair of axles 61 and 62 connected to their respective wheels by means of axle arms 63 and 64. Axles 61 and 62 are disposed telescopically in axle tube 65 which is located transversely of the vessel at a point aft of the midship portion so that the wheels in down or ground-engaging position will afford balanced support for the vessel when it is secured as a trailer to an automobile, as will be subsequently described. Axle tube 65 is journaled in bearing 66 for rotation to a limited extent relative to the deck and superstructure so that the wheels may be moved up and down relative to the vessel.

Axles 61 and 62 are mounted on floating bearings 67 and 68 within axle tube 65 for movement axially relative to the axle tube so that the wheels may be disposed inboard of the outer sides of pontoons 10 and 11 when the vessel is afloat and yet may be disposed outboard of the pontoons and below them when the vessel is to be used for overland travel. Bearings 67 and 68 are suitably retained by pairs of snap rings 69 carried by tube 65 and rings 70 carried by the axles.

The assembly incorporates a torsion bar suspension feature by virtue of the fact that axles 61 and 62 are mounted on torsion bars 72 and 73, respectively, the latter being secured in the central portion of axle tube 65 by means of a block 74, locking bolts 75 or equivalent means securing block 74 in tube 65. Torsion bars 72 and 73 have free end portions disposed with axles 61 and 62 and at their inner ends the axles carry blocks 76 and 77, respectively, which are welded in place and provided with square apertures of size and shape corresponding to torsion bars 72 and 73, as indicated in FIG. 9. Axles 61 and 62 have holes 78 in their intermediate portions to receive the rounded surfaces of locating or stop means 79 carried by the torsion bars near their free ends to prevent disengagement of the axles from the torsion bars.

A pair of levers 80 are welded to axle tube 65 at each of its ends and fitted with a screw-operating handle 81 for turning axle tube 65 together with axles 61 and 62 and wheels 60 to lift or lower the wheels in converting the vessel for travel through the water or on land. Thus, when levers 80 are moved from one extreme position to another, wheels 60 are moved through vertical arcs relative to the vessel and depending upon the direction of this travel, the wheels are either raised or lowered. After the wheels are raised, the axles are moved inwardly of the vessel to bring the wheels over the pontoons as seen to good advantage in FIG. 7. On the other hand, when the wheels are to be lowered, the axles are first moved outwardly until this movement is stopped by the stop pin 79 and then wheels are drawn into ground-engaging position.

In order to maintain the wheels in upor down position, locking means are provided in the form of a pair of plates 84 mounted rigidly on the outer surfaces of the superstructure side portions and these plates are provided with recesses to receive a screw actuated by handle 81 so that the wheels are quickly and easily locked in position and likewise are readily released for retraction or extension when it is desired to convert the vessel for use in its other role.

A draw bar assembly 90 is mounted in the forward portion of the boat and comprises a draw bar 91 having a socketed end portion 92 and screw 93. Bar 91 is disposed telescopically within a draw bar tube 95 for lon-

gitudinal movement therein, being carried on bearings 96 and 97 within the tube so that the bar may be extended when the vessel is being used as a trailer and may be sheathed when the vessel is being used on the water. Draw bar tube 95 is secured to deck 12 and disposed therebelow, extending into the open end of channel 27. A draw bar lock comprising a vertically-disposed rod 99 is situated near the forward end of the boat, extending upwardly through cowl 18 and having an operating handle 100 at its upper end. The lower end of lock bar 99 is disposed through an opening provided therefor in draw bar tube 95. Draw bar 91 has an opening in its upper portion which registers with the opening in tube 95 when the draw bar is in fully extended position. When these openings are registered, locking bar 99 will extend into draw bar 91, holding the draw bar in position axially with respect to tube 95. When the draw bar is to be sheathed, it is then only necessary to lift locking bar 99 by means of handle 100 and to move the draw bar 91 to its tube so that the openings in the tube and draw bar are no longer registered. The draw bar may then be moved freely into its retracted position. Another opening may be provided at the upper portion of the draw bar so that locking bar 99 may again be introduced into the bar when it is in fully retracted position so as to lock the draw bar against accidental displacement.

As indicated hereinbefore, the present invention contemplates the use of certain novel aspects and features hereof in single-pontoon vessels. Accordingly, as indicated in FIG. 10, the novel wheel assembly suspension means and the locking means therefor may be used to advantage in a vessel having as a hull only a single pontoon 102. It will be understood, furthermore, that the novel draw bar assembly and locking means might also be used to advantage in a vessel of this single-pontoon type. However, because of the inherently different character of the single pontoon and its behavior in travel through the water, I do not contemplate the provision in such a hull of anticavitation means of the type described hereinabove. Normally, there will be no marked or noticeable tendency for cavitation to result through the normal operation of a single pontoon vessel of this type at normal speeds and under usual operating conditions for motor-powered small water craft.

A single pontoon hull boat such as illustrated in FIG. 10 may advantageously be made in accordance with this invention after the manner described above either through the use of metal or of wood, or possibly with molded plastic and fiber glass.

Having thus described this invention in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, and having set for the best mode contemplated of carrying out this invention, I state that the subject matter which I regard as being my invention is particularly pointed out and distinctly claimed in what is claimed, it being understood that equivalents or modifications of, or substitutions for, parts of the above specifically described embodiments of the invention may be made without departing from the scope of the invention as set forth in what is claimed.

What is claimed is:

1. A vessel for use with an outboard motor comprising a pontoon hull including a pair of pontoons disposed side-by-side in spaced parallel relation with their bows in lateral alignment, a deck secured to and carried by the hull and extending across the space between the pontoons, and anticavitation means comprising a bridging member secured to opposed side portions of the pontoons adjacent to the bottoms of the pontoons and extending from the vessel stern to a point forward of the midship portion and cooperating with the deck and pontoons to define a central channel extending lengthwise of the vessel and open at each end for water flow therethrough, the bridging member serving to reduce drag on the opposed surfaces of the pontoons at intermediate vessel speeds and to serve as a planing member at high vessel speeds.

2. A vessel for use with an outboard motor comprising a pontoon hull including a pair of pontoons disposed side-by-side in spaced parallel relation with their bows in lateral alignment, the pontoons having vertical side portions and being spaced apart a distance approximating the height of said side portions, a deck secured to and carried by the hull and extending across the space between the pontoons, anticavitation means comprising a bridging member secured to opposed side portions of the pontoons adjacent to the bottoms of the pontoons and extending from the vessel stern to a point forward of the midship portion and cooperating with the deck and pontoons to define a central generally rectangular channel extending lengthwise of the vessel and open at each end for water flow therethrough, the bridging member serving to reduce drag on the opposed surfaces of the pontoons at intermediate vessel speeds and to serve as a planing member at high vessel speeds, and superstructure mounted on the deck and including a transom to carry an outboard motor in line with and adjacent to the channel with its propeller disposed below the stern end of the said central channel.

3. A vessel for use with an outboard motor comprising a pontoon hull including a pair of pontoons disposed side-by-side in spaced parallel relation with their bows in lateral alignment, the pontoons having tapered bottom contours and being of uniformly increasing depth from the vessel stern to a point forward of the midship section and having vertical side portions uniformly spaced apart through the center of the hull a distance less than the height of said side portions, a deck secured to and carried by the hull and extending across the space between the pontoons, anticavitation means comprising a bridging member secured to opposed side portions of the pontoons adjacent to the intersection of the side portions and bottom walls of the pontoons and extending from the vessel stern to a point forward of said midship portion and cooperating with the deck and pontoons to define a central channel extending lengthwise of the vessel and open at each end for water flow therethrough, the bridging member serving to reduce drag on the opposed surfaces of the pontoons at intermediate vessel speeds and to serve as a planing member at high vessel speeds, and superstructure mounted on the deck and including a transom to carry an outboard motor in line with and adjacent to the channel with its propeller disposed below the stern end of the said central channel.

4. A vessel having a rigid hull comprising a pair of elongated pontoons disposed in parallel relation with their bows in lateral alignment, and a deck member secured to the pontoons and fluid-tightly closing their top portions, said pontoons being spaced apart a distance between about 5% and about 10% of the overall width of the vessel and said deck member being rigid and effective to hold the pontoons in position relative to each other whereby the pontoons act with the deck member as a unitary hull, and a bridging member joining the pontoon hulls and having a lower surface substantially flush with and constituting a smooth continuation of the adjacent surfaces of the hulls.

5. A vessel comprising a pair of hulls having bows disposed in lateral alignment and opposed sides in spaced parallel relation, a deck secured to the upper portions of said opposed sides and extending across the said space between the hulls and a bridging member spaced below said deck and secured to the said opposed sides of the hulls closely adjacent to the intersection of said sides with the lower surfaces of the hulls and constituting a smooth continuation of the lower surfaces of the hulls, said bridging member extending from the stern of the vessel to a point between the midship portion and the bow of the vessel, said bridging member, deck, and opposed sides of the hulls defining an open ended, central channel extending lengthwise of the vessel from a point

between the bow and the midship part of the vessel to the stern thereof.

6. A vessel comprising a pair of hulls having bows disposed in lateral alignment, opposed sides in spaced parallel relation and bottom elements joined to the lower portions of said opposed sides, a deck secured to the upper portions of said opposed sides and extending across the space between said sides and a bridging member spaced below said deck and secured to the said opposed sides of the hulls adjacent to their junction with the bottom elements of the hulls, said bridging member extending from the stern of the vessel to a point between the midship portion and the bow of the vessel, said bridging member, deck and opposed sides of the hulls defining an open ended, central channel extending lengthwise of the vessel from a point between the bow and the midship part of the vessel to the stern thereof.

7. A catamaran capable of traveling at high speeds and making sharp turns without substantial tipping at such speeds, said catamaran including hulls having opposed, substantially parallel sides, a deck at the upper ends of said sides and a bridging member spanning the space between said sides and connecting their lower portions, said bridging member extending from the stern of the catamaran to a point between the midship portion and the bow thereof, said sides, deck and bridging member defining an open-ended channel containing water when the catamaran is at rest or is moving slowly, containing water, foam and air when the catamaran is traveling at a speed sufficiently high to raise the leading end of the channel partly out of the water, and containing primarily air when the catamaran is moving rapidly enough to raise the leading edge of the bridging member above the surface of the water.

8. A catamaran capable of traveling at high speeds and turning without substantial tipping, said catamaran including hulls having opposed, substantially parallel sides, a deck at the upper ends of said sides and a bridging member spanning the space between said sides and having a smooth lower surface constituting a continuation of the lower surfaces of the hulls, said bridging member extending from the stern of the catamaran to a point between the midship portion and the bow thereof, said sides, deck and bridging member defining an open-ended channel containing water when the catamaran is at rest or is moving slowly, containing water, foam and air when the catamaran is traveling at a speed sufficiently high to raise the leading end of the channel partly out of the water, and containing primarily air when the catamaran is moving rapidly enough to raise the leading edge of the bridging member above the surface of the water, and a motor driven propeller disposed in line with said channel but below its stern end.

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