May 23, 1961 R. S. GREGOIRE 2,984,845

COMBINATION BOAT AND TRAILER

Filed June 5, 1959 3 Sheets-Sheet 1

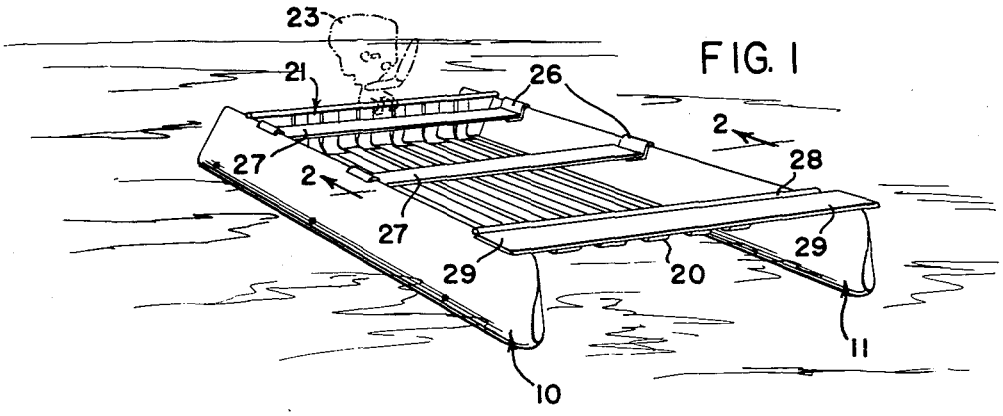

FIG. 1

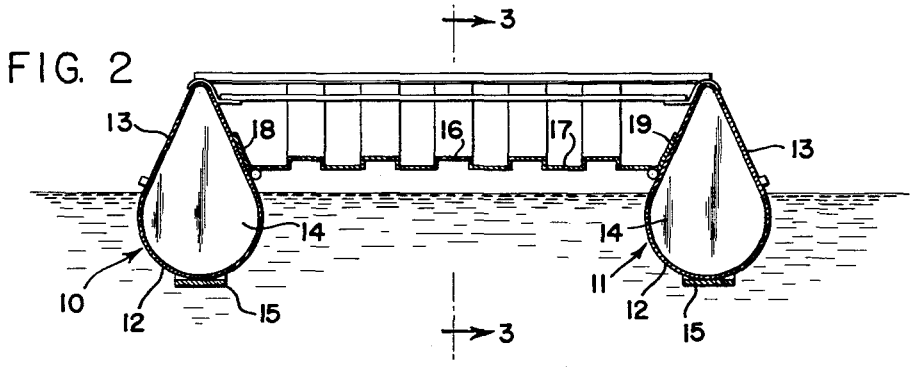

FIG. 2

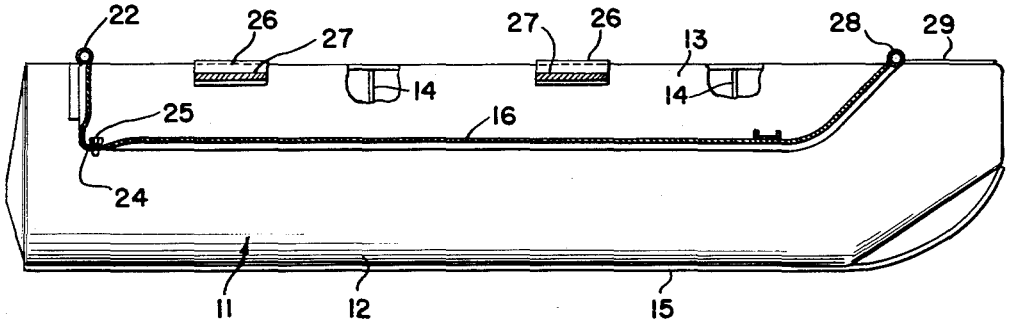

FIG. 3

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COMBINATION BOAT AND TRAILER

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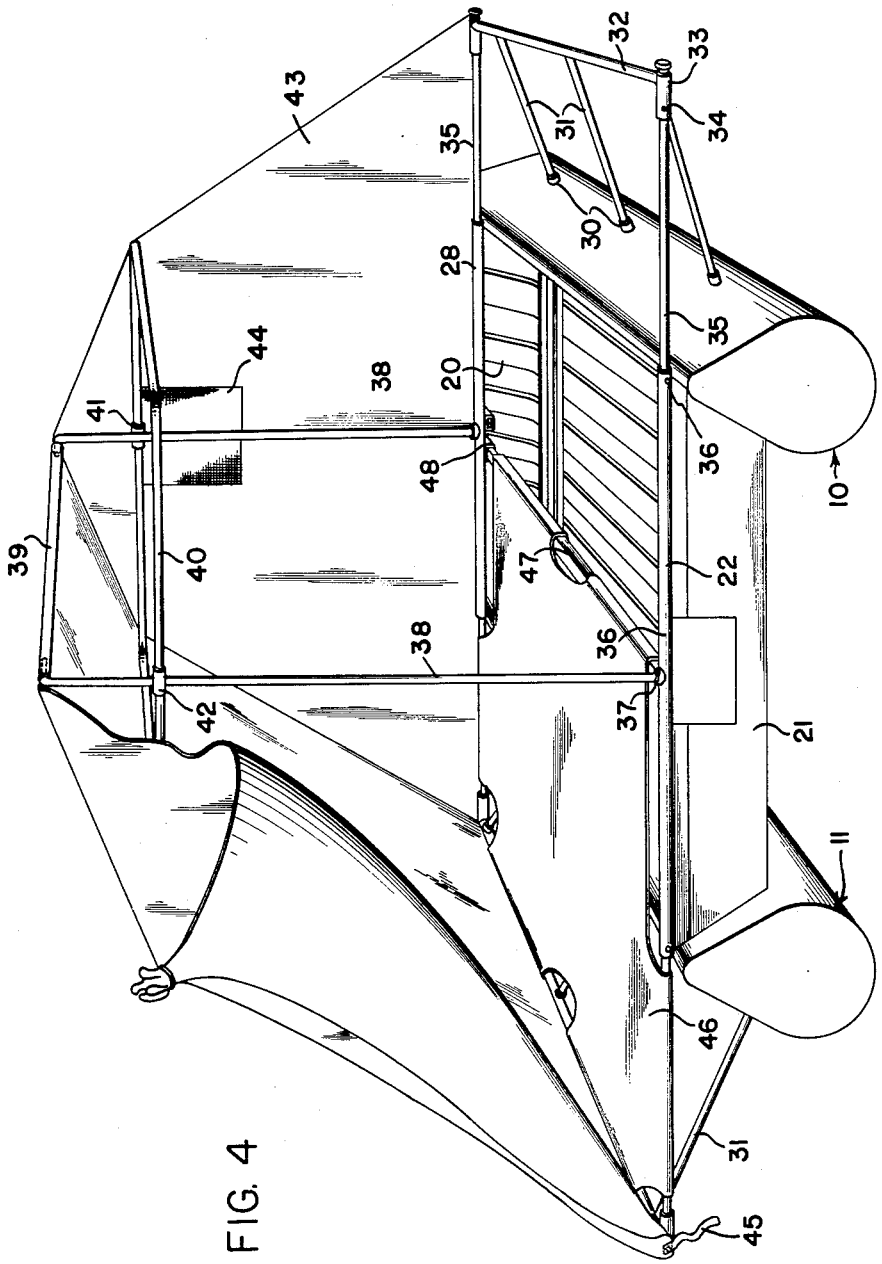

FIG. 4

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COMBINATION BOAT AND TRAILER

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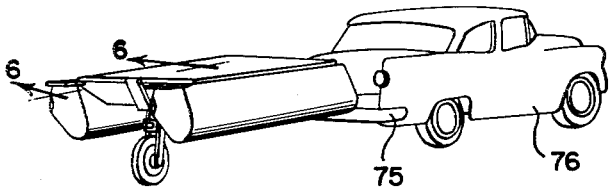


FIG. 5

FIG. 6

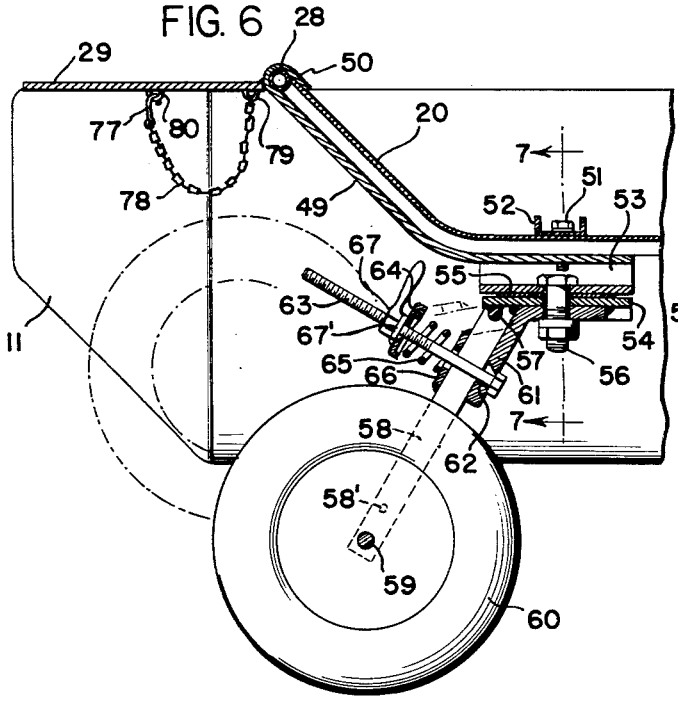
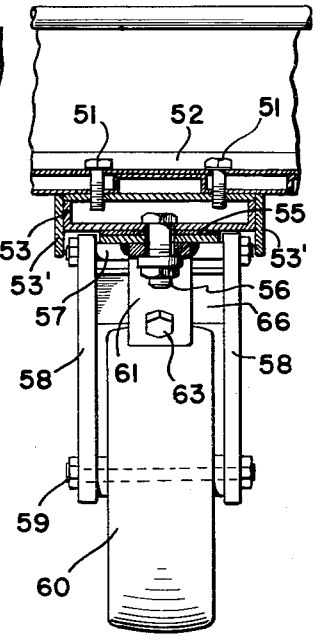


FIG. 7



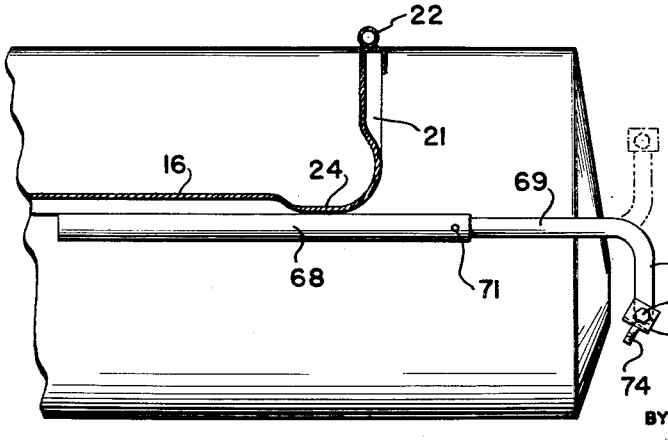


FIG. 8

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United States Patent Office 2,984,845
Patented May 23, 1961

2,984,845

COMBINATION BOAT AND TRAILER

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Filed June 5, 1959, Ser. No. 818,284

7 Claims. (Cl. 9—1)

This invention relates to travel and to equipment by which the same is accomplished including in getting from place to place both by land and sea particularly boats and trailers by which said boats can be transported to and from water.

The invention relates especially to a boat and trailer therefor including means for stabilizing the boat in the water, for converting it into a tent and, for equipping it so that it can be transported easily to and from a body of water and into and from the water by one individual.

Heretofore small boats have encompassed certain design inefficiencies which have been considered necessary in order that a reasonable amount of safety and comfort be included in the design. These inefficiencies included a hull design which was bulky, heavy, difficult to maneuver, difficult to launch and remove from the water and useless when out of the water. The safety of the possengers was endangered in a boat which could be capsized easily in rough water and the passengers often suffered from seasickness due to the rolling of the boat.

Boating equipment has been complicated and expensive and substantial effort and expense has been required in order to have a boat available without keeping such boat on the water. Also, the space within the boats has been extremely limited so that they could not be used for occupancy including sleeping quarters with any degree of satisfaction.

It is an object of the invention to overcome the difficulties enumerated and to provide a boat comprising a floor or deck of substantial length with its front end inclined upwardly and to provide a bow and its rear end extended upwardly to provide a transom and motor mount with a float or pontoon at each side of the floor or deck, such pontoons of a cross-sectional shape so that they will stabilize the craft and prevent tipping, skipping, slipping or sliding even when the rudder is moved 90° and the boat completely turned around.

Another object of the invention is to provide boat structure by which, when the boat is in motion, maximum efficiency of the steering means is attained and when it is moved either to the right or to the left the movement of the water on the floats or pontoons will compensate for any tendency of the boat to tip, skip, slip or slide, such compensation being occasioned by the water rising beyond the right flat upper side portions of such float or pontoon and a suction created on the left upper portion of each float or pontoon. This in effect uses nature's own lines of balance force to maintain stability and procure maximum maneuverability with immediate response to steering operation giving maximum efficiency and safety.

Another object of the invention is to provide a boat of the character described which can be readily used for a float or a tent added to convert it into closed quarters for sleeping or the like.

Another object is to provide a boat which is extremely difficult to capsize or sink.

Another object is to provide a boat which may be easily launched and removed from the water and which has very high maneuverability and safety characteristics.

A further object is to provide a boat which serves as a trailer to carry equipment as well as luggage when used on land.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a perspective of a boat illustrating one application of the invention;

Fig. 2, a transverse section on the line 2—2 of Fig. 1;

Fig. 3, a longitudinal section on the line 3—3 of Fig. 2;

Fig. 4, a perspective of a boat converted into a tent;

Fig. 5, a perspective of a boat utilized as a trailer and being pulled by an automobile;

Fig. 6, an enlarged, fragmentary section on the line 6—6 of Fig. 5;

Fig. 7, a section on the line 7—7 of Fig. 6; and

Fig. 8, an enlarged, fragmentary section of the rear of the boat.

Briefly stated, the boat of the present invention comprises a pair of pontoons or floats which form a hull to support a deck or passenger compartment between such pontoons. Each of the pontoons has a substantially round bottom and a top portion in the form of an inverted V with at least one watertight bulkhead in each pontoon. The pontoons are designed so that the waterline under normal load will be at the tangent point of the rounded bottom and inverted V top to give maximum maneuverability and stability to the boat. A wheel is adapted to be removably mounted on the forward end of the deck or passenger compartment to aid in launching and removing the boat from the water as well as to transport the same on land. When on land, the boat may be converted into a utility trailer and by the addition of a tent and canvas cots it may be converted into closed sleeping quarters.

With continued reference to the drawing the boat of the present invention comprises twin hull-forming floats 10 and 11 of a construction and external configuration to provide both buoyancy and necessary stabilization to permit maximum maneuverability, such twin hulls or floats having relatively round or semi-cylindrical lower portions 12 with upper portions 13 in the form of inverted V's, each of such twin hulls being provided with a series of reinforcing watertight transverse bulkheads 14 and a runner or planing member 15 beneath the exterior of each hull.

The twin hulls support a deck or passenger compartment 16 which may be provided with alternate reinforcing corrugations 17. The deck or floor is provided with upturned sides 18 and 19 welded or otherwise permanently fastened to the twin hulls, the spacing apart of the twin hulls and the elevation of the deck or floor above the bottoms of the same is of utmost importance, it being observed from Fig. 2 that the line of tangency between the semi-cylindrical lower portion 12 and the upper portion 13 of the floats converges substantially at the water line, and the floor or deck is spaced above such water line, the proportions being determined by the estimated displacement under maximum load.

A bow 20 and a transom 21 are provided which may be integral with the floor or deck or separate and attached thereto as desired, the bow preferably may be inclined and the transom or stern may be upright and may have a reinforcing top member 22 on which transom and reinforcing member an outboard motor 23 may be mounted for propelling the craft through the water.

The deck or floor may have a sump 24 and a drain plug 25 to permit self-bailing, since the deck or floor is

above the waterline. Removable seat brackets 26 may be employed for the support of one or more seats 27. The bow of the boat may be provided with a reinforcing member 28 and a splash pan 29 may be attached across the top forward portions of the twin hulls and, for strength, this splash guard may be secured to the reinforcing member 28.

On account of the semi-cylindrical lower portion of each of the twin hulls and the inverted V-shaped upper portion, so that the line in which such portions converge is substantially at the waterline at maximum load or capacity, unusual benefits are obtained resulting in stabilization to such degree that the boat will not capsize and in fact tilting or listing will be greatly reduced and due to the air capacity of the twin hulls which constitute pantoons the boat is practically unsinkable.

Because of the particular shapes of the twin hullforming pontoons and the location of the deck with regard thereto, counterbalancing forces will act upon opposite sides of each of the pontoons while turning or maneuvering the boat by creating a partial vacuum on the side of the pontoons opposite to the direction of travel as the boat moves laterally through the water and a positive pressure force on the other side due to the boat moving against the water to facilitate stability by keeping the twin hulls in the water so that they cannot rise to the surface and tip or slide. Thus, by design, nature's own lines of force are balanced by the vacuum created on one side of each of the pontoons counteracting the positive pressure on the opposite side of each pontoon and permitting maximum efficiency in the act of steering so that it is possible by the use of the same to turn the craft substantially within its own length with little or no listing. Whereas, in turning, conventional hulls will tend to rise and slip or skid while the craft of the present invention will go slightly lower in the water as the pressure of the same reacts against the upper portion 13 of each of the floats thus locking or disposing the craft in a position of immediate maneuverability.

In Fig. 4 the boat is disclosed as converted into a tent by the addition of sockets 30, three on each of the twin hulls or pontoons. An extension beyond the side of each of the twin hulls is provided by means of braces 31 fitting into the sockets 30 such braces being connected to an outboard member 32 having right angular end portions 33 in the form of sleeves the outer ends of which the heads 34 of outrigger supports 35 slidable therein engage, such supports having their opposite ends telescopically received in the tubular reinforcing members 22 and 28 and being adapted to be adjustably secured therein by locking pins 36.

Each of the reinforcing members 22 and 28 is provided with a socket-forming projection 37 for the reception of a post or upright 38 in each of the reinforcing members 22 and 28 and connected by a detachable top bar in the form of a tube 39 in each end of which is fastened one end portion of an elbow rod the other end of which extends into the upright posts 38.

A substantially rectangular upper frame may be provided composed of a pair of substantially U-shaped half sections 40, the ends of which are received in tubes 41 and 42 welded or otherwise fixed to the uprights or posts 38.

A canopy 43 may be provided to fit over the frame just described, such canopy having a light and air admitting window 44. A draw string 45 is located within the hem of the canopy and by tightening such draw string the canopy may be securely fastened in place.

A pair of cots 46 may be mounted on the members 32 and 35 on the outboard side of the boat and with their inner sides attached to an extensible support 47 on the inboard side, such support having a cylindrical portion at one end and a square or polygonal portion at the other end so that the square end may be withdrawn from its square socket 48 and rotated to tighten the cots 46 and may then be reinserted in its square socket where it will be held against turning.

It will be apparent that a tent is thus provided which will permit the sleeping of four people and it may be readily assembled or taken down. Also, the device may be used as a sun deck or diving platform with the canopy removed.

In Fig. 5 the boat is disclosed as being supported by an auxiliary wheel while in Figs. 6 and 7 the method of mounting such wheel is illustrated. In the mounting a plate 49 is provided of substantially the same contour as the bow 20 and having a hook portion 50 engaging and extending around the cross member 28. The opposite end of the plate 49 underlies the deck 16 and is attached thereto by a pair of screws 51 which pass through openings in a reinforcing channel 52 and threadedly engage plate 49.

A channel or box portion 53 is attached beneath plate 49 to form a reinforced box portion. A pivot plate 54 is located beneath the box portion 53 and is spaced therefrom by a bearing plate 55 and is held in close relation to the box portion 53 by a bolt and nut 56 which serves as a pivot between the box portion 53 and the pivot plate 54.

Pivot pin 57 is attached beneath one end of the pivot plate 54 by any desirable means such as welding. The outer extremities of the pivot pin 57 are supported by arms 58 journaled at their lower ends on an axle 59 and a wheel 60.

The remote faces of the arms 58 are spaced according to the length of the box portion 53, and to the latter are connected arms 53' which limit lateral swinging of the arms 58 when they are pivoted. In order to absorb road shock, an angle plate 61 is secured to the lower side of the pivot plate 54 by welding or other suitable means and such plate is provided with an opening 62 for the passage of a relatively long bolt 63. The outer end of the bolt 63 supports a cup 64 which retains a buffer spring 65, the lower end of which rests on a cross plate 66 extending between and welded or otherwise attached to the arms 58. Tension on the spring 65 is adjusted by nut 67 having an operating handle, and being provided with an inexpensive bearing 67' said spring serving to absorb the shock of bumps or depressions in the surface over which the trailer is being transported.

In order to attach the device to a towing vehicle, a pair of hollow cylindrical members 68 are attached to the rear of the deck 16 adjacent the twin hulls 10 and 11. A rod 69 having an end portion 70 disposed at substantially right angles to the rod 69 is telescopically received within the cylindrical member 68 and is held in fixed relation therein by a pin 71. The end portion 70 is pivotally attached to a channel member 72 by a pin 73 and such channel member is provided with a mounting bolt 74 for attachment to a strap carried on the bumper 75 of the towing vehicle 76.

When it is desired to use the device on water, it is detached from the towing vehicle 76 and the rods 69 may be grasped like the handles on a wheelbarrow and the vehicle moved by the wheel 60 into the water. When the device is water borne, the pin 71 may be removed and the end 70 of the rod 69 reversed to point upwardly instread of downwardly and the pin then replaced to hold the rod 69 in such position. Bolts 51 are then taken off and the wheel and its mounting assembly may then be removed from the bow of the device and placed either on land or on the deck 16. If desired, plugs may be provided to close the openings left by the bolts 51.

Instead of removing the wheel and its mounting assembly from the front of the boat, the nut 67 may be unscrewed to relieve the tension on spring 66. The wheel 60 may then be lifted to the position shown in phantom in Fig. 6 and held in such position by a hook 77 adapted to engage an opening 58' in one of the arms 58. The hook 77 is attached to one end of a chain 78 and the

opposite end of such chain is secured by an eye 79 to the splash pan 29. An eye 80 is provided below the splash pan 29 for the reception of hook 77 when not in use.

It will be apparent from the foregoing that an amphibious trailer is provided which may be used to transport loads on land with substantially no whip or sway behind the towing vehicle and which is light enough to launch by one person and to be quickly converted into a virtually non-sinkable, non-capsizable boat having extremely high maneuverability.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawings and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a series of spaced watertight partitions forming individual compartments, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck with alternate reinforcing ribs and grooves and a drainage opening and being supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counterbalancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, a bow at the front and a transom at the rear of said deck, relatively flat transverse members across the top of said pontoons, one of such transverse members forming an extension of the bow and a splash pan, means whereby one end of said combination boat and trailer may be attached to a towing vehicle, a detachable caster-type trailer wheel mounting the other end thereof and movable from a lowered boat supporting position to an elevated inoperative position, and means whereby said wheel may be secured either in its lowered position or in its raised inoperative position.

2. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counterbalancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, a bow at the front and a transom at the rear of said deck, relatively flat transverse members across the top of said pontoons, one of such transverse members forming an extension of the bow and a splash pan, means whereby one end of said combination boat and trailer may be attached to a towing vehicle, a detachable caster-type trailer wheel mounting the other end thereof and movable from a lowered boat supporting position to an elevated inoperative position, and means whereby said wheel may be secured either in its lowered position or in its raised inoperative position.

3. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoons whereby counter-balancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side of each pontoon and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, a bow at the front and a transom at the rear of said deck, means whereby one end of said combination boat and trailer may be attached to a towing vehicle, a detachable caster-type trailer wheel mounting the other end thereof and movable from a lowered boat supporting position to an elevated inoperative position, and means whereby said wheel may be secured either in its lowered position or in its raised inoperative position.

4. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck with alternate reinforcing ribs and grooves and a drainage opening and being supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counter-balancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, a bow at the front and a transom at the rear of said deck.

5. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counter-balancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat.

6. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counter-balancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, and having a reinforcing sleeve across the bow and a second reinforcing sleeve across the stern of the boat, telescopic extensions at opposite ends of said reinforcing sleeves, cross bars applicable to the outer extremities of said telescopic extensions, sockets on the outer V-shaped sides of said pontoons, braces supporting said cross bar detachably in said sockets, and extensible roller means mounted centrally across the boat for rolling a canvas attached to the cross bar for tightening such canvas.

7. A combination boat and trailer comprising a pair of elongated pontoons disposed in spaced relation, each

pontoon having a semi-cylindrical lower portion, an inverted V-shaped upper portion merging therewith and a relatively wide flat planing surface lengthwise beneath the same; a deck supported by and between said pontoons above the waterline when the boat is loaded, such waterline being located along the line of tangency and merger between the semi-cylindrical lower and the inverted V-shaped upper portions of the pontoon whereby counterbalancing forces will be caused to act upon the opposite sides of said pontoons to create suction on one side and positive pressure on the other resisting tipping and adding stability and maneuverability to the boat, and having a reinforcing sleeve across the bow and a second reinforcing sleeve across the stern of the boat, telescopic extensions at opposite ends of said reinforcing sleeves, cross bars applicable to the outer extremities of said telescopic extensions, sockets on the outer V-shaped sides of said

pontoons, braces supporting said cross bar detachably in said sockets, and extensible roller means mounted centrally across the boat for rolling a canvas attached to the cross bar for tightening such canvas, a post for disposition centrally adjacent each side of said boat, a frame applicable to the upper end portions of said posts, an enclosure defining cover for said frame, and means for anchoring said cover at its lower edges.

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