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PONTOONS

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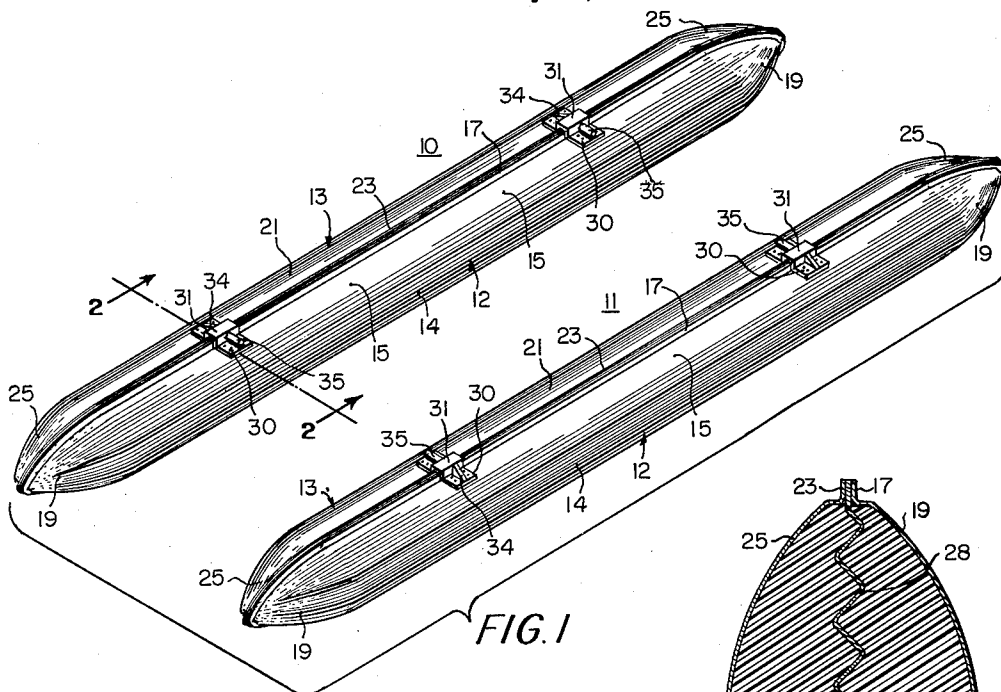


FIG. 1

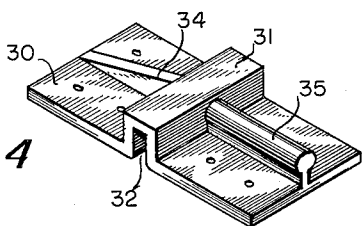


FIG. 4

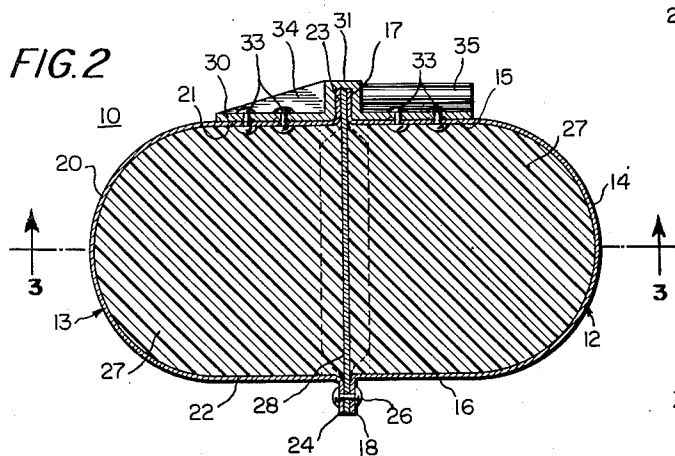


FIG. 2

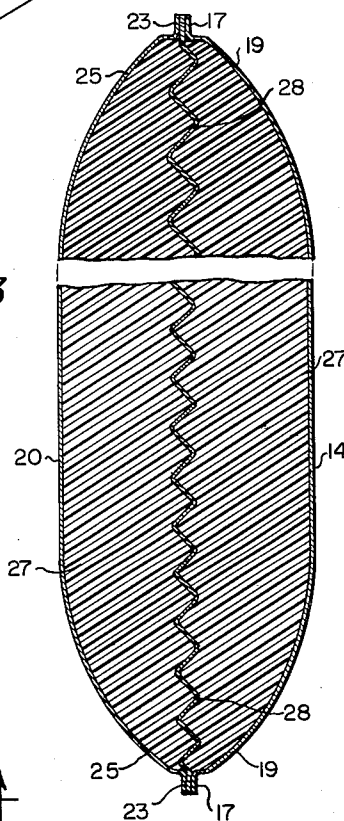


FIG. 3

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3,063,398 PONTOONS

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The present invention relates to passenger-carrying vehicles used on water, snow and ice, and more particularly to a pontoon for attachment beneath the body of the vehicle.

Pontoons of the type to which this invention relates, as heretofore constructed, are cumbersome, often including inflatable floats, are expensive to manufacture, and generally are lacking in engineering design to compensate for the shocks incident to landing upon water. Further, such pontoons are primarily floatable supports, subject to puncturing and collapse, and in addition fail to function where the supporting surface is snow or ice. Such water surface pontoons act as drags, when snow or ice becomes the supporting surface, and lose the necessary gliding action with the result the airplane is overturned and damaged. Further, when taking off on ice, the large contact areas introduce retarding friction which at least delays and impedes the desired rapid lift of the vehicle.

It is an object of the invention to provide a pontoon which overcomes the foregoing disadvantages.

Another object is to provide a pontoon which functions efficiently when used on water, snow or ice.

Another object is to provide a pontoon which can be readily attached to the underside of a passenger-carrying body.

Another object is to provide a pontoon wherein an axially disposed strengthening member is so assembled as to form a lower projecting fin which in water can serve as a keel or which on ice will function as a runner to thereby maintain large contact area surfaces spaced from the ice surface.

A further object is to provide a pontoon wherein the body, or hull, is unsinkable if punctured.

A still further object is to provide a pontoon that is capable of "planing" on water at moderate speeds and having the same surface adaptable to glide on snow.

Generally, therefore, the pontoon of the invention is symmetrical in design, which eliminates excessive die cast, is contoured to reduce surface drag on water, and forms a projecting axial fin with the dual function of a keel or a runner for ice. The pontoon body is formed by two shell parts connected in back-to-back relation to thereby encircle a cavity which may be filled with a foam plastic material so that if the assembled shell is pierced or punctured the material provides the desired floatation.

In the accompanying drawings:

FIG. 1 is a perspective view of a pair of pontoons ready for attachment to the underside of a passenger-carrying vehicle, such as a boat, airplane, helicopter, or other vehicle for landing on water, ice or snow, such pontoons embodying the preferred form of the invention, and each being a duplicate of the other;

FIG. 2 is an enlarged sectional view on line 2—2 of FIG. 1;

FIG. 3 is a broken sectional view on line 3—3 of FIG. 2; and

FIG. 4 is a perspective view of any one of the several anchoring plates to be engaged by suitable body attaching means.

Referring to the drawings, a complete pontoon assembly is shown in FIG. 1 comprising two pontoons 10 and 11 arranged in parallel spaced apart relation ready for attachment beneath the body of a passenger-carrying vehicle or other suspended body, each of such pontoons

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being of like construction and embodying the present invention. This construction is illustratively shown in FIGS. 2 and 3 as a transverse section of the pontoon unit 10, comprising two elongated half shells 12 and 13, preferably of relatively light metal, assembled back-to-back to form a housed cavity. The half shell 12 is of U-shape having a substantially semi-circular bridge 14 with upper and lower flat extensions 15 and 16, which terminate respectively in outwardly disposed flanges 17 and 18 in the same plane and running lengthwise of the half shell. Particularly it should be noticed that the ends of the bridge 14 respectively taper on an arc 19 to form a part of a pontoon nose at one end, and a part of the pontoon tail at the other end.

Likewise the half shell 13 is of U-shape having a substantially semi-circular bridge 20, with upper and lower flat extensions 21 and 22 which terminate respectively in outwardly disposed flanges 23 and 24 in the same plane and running lengthwise of the half shell. The ends of the bridge 20 respectively taper on an arc 25 to a point as a part of each pontoon nose, while the flanges 23 and 24 follow the arc 25 to merge at the same point as the pontoon tail. The two half shells have identical dimensions and contours so that when united the complete pontoon is symmetrical with plane top and bottom surfaces merging into semi-circular sides which terminate in converging compound curves to form respective nose and tail ends. The flat or plane lower surface functions for "planing" when the vehicle is on water, and also for gliding when the vehicle is used on snow.

When the two half shells are brought together with the respective flanges of each in back-to-back relation, each mating pair of flanges is riveted, as shown at 26, or spot welded together to form a housed cavity to receive a buoyant material 27, preferably a closed cell foam plastic, such for example as styrofoam. The jointing between the mated flanges can be sealed with a suitable compound, such as epoxy.

As a means for stiffening and strengthening the unit it is preferable to interpose and clamp a substantially rigid plate 28 between the half shells, the same being riveted or otherwise fastened between the projecting top and bottom mating flanges. Preferably this plate 28 is corrugated lengthwise, as shown in FIG. 3, to provide efficient reinforcement. The top mating flanges form a continuous rib which serves as a rigid mount for whatever type of vehicle body is to be used, while the bottom mating flanges form a continuous lengthwise rib or fin which acts as a keel when the vehicle is on water, and as a runner when the vehicle is on ice.

As an example of vehicle attaching means, brackets can be mounted at suitable places along the top rib, such brackets here comprising a plate 30 having a transverse upstanding body 31 with an undercut slot 32 for telescopic reception of the top flanged rib. The plate 30 seats upon the plane upper face of the assembled shell where it is made fast by rivets 33. At one side of the body 31 the plate 30 has an integral web 34, and at the other side there is an integral T-shaped lug 35, the head of which, in this instance, is in the form of a cylinder. This lug 35 serves to interfit with and anchor a suitable clamp carried by the vehicle body. The web 34 and lug 35 lie in a plane perpendicular to the body 31. As here illustratively shown there are two brackets for each pontoon unit and these are lengthwise spaced for best supporting action.

It will now be apparent that a complete unitary pontoon has been devised wherein exceptional strength is inherent with surprising light weight construction coupled with a novel axially projecting top rib suitable to mount any type of body and provide extra strength and

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rigidity. Also the semi-circular sides of the unit lessen the drag when used on water while the compound curved symmetrical nose surface causes water to be parted in such a manner that a smooth bow wave is formed. Also the compound curved symmetrical tail forms an effective trailing off of such wave. These nose and tail surfaces allow the pontoon to rise and plane at relatively low speed. While the assembly forms a complete, efficient pontoon as an air filled unit, it is preferable to substitute a foam material to ensure flotation should the shell be pierced or punctured.

What is claimed is:

1. A pontoon for attachment beneath the body of a vehicle comprising: two similarly shaped trough-like half shells; each of said shells being formed by an elongated member substantially U-shaped in cross-section having at least a lower flat surface, said member having oppositely positioned spaced edges terminating in a common plane and having its opposite ends similarly curved inwardly with edges also terminating in said common plane continuous with said spaced edges, and a planar flange extending outwardly from and bounding said edges, the lower flat surfaces of the said two members cooperating when joined together at their flanges to form an elongated planar surface upon which the pontoon can plane or glide; and means sealing the flanges of said shells together to form an elongated water-tight enclosure having similarly shaped opposite end sections.

2. A pontoon for attachment beneath the body of a vehicle comprising: two symmetrical and similarly shaped trough-like half shells; each of said shells being formed by an elongated member U-shaped in cross-section and having upper and lower flat surfaces, said member having oppositely positioned spaced edges terminating in a common plane and having its opposite ends similarly curved inwardly with edges also terminating in said common plane continuous with said spaced edges, and a planar

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flange extending outwardly from and bounding said edges, the said upper and lower flat surfaces of the said members cooperating to form upper and lower elongated planar surfaces upon the lower of which the pontoon can plane or glide; and means sealing the flanges of said shells together, to form an elongated water-tight enclosure having similarly shaped opposite end sections.

3. A construction according to claim 2 and further including a rigid stiffening member fastened between said flanges and extending across the opposite spaced edges of said shells.

4. A construction according to claim 3 wherein said stiffening member is corrugated substantially throughout its length with the axes of the corrugations parallel and extending transverse to the direction of the opposite spaced edges of said members.

5. A construction according to claim 4 and further including a foam material filling said enclosure, and means straddling said flange and secured to each of said shells to provide means for securing said pontoon to a vehicle or the like.

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