

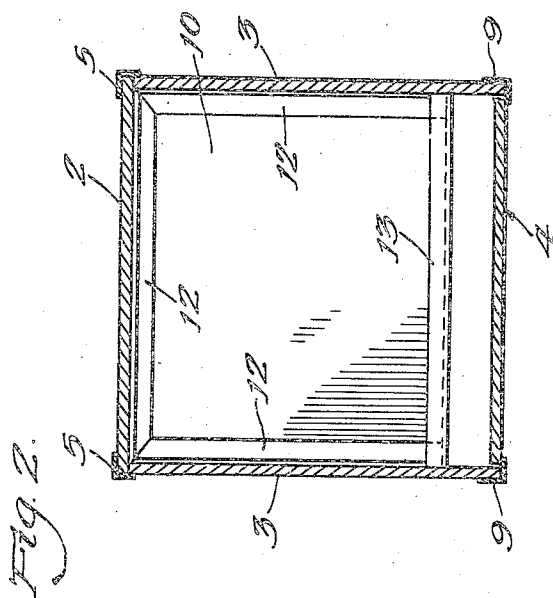
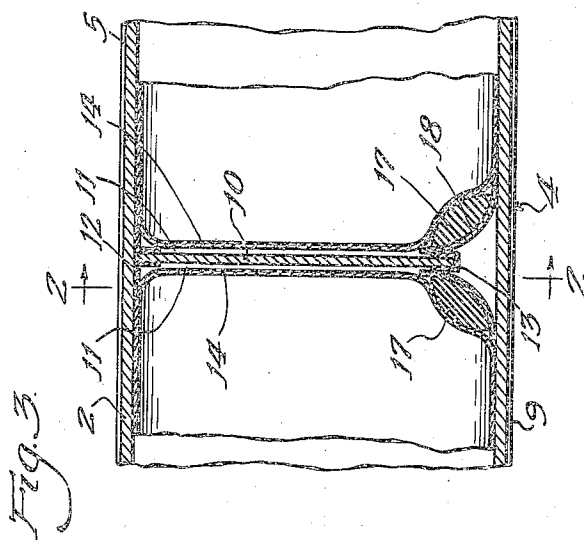
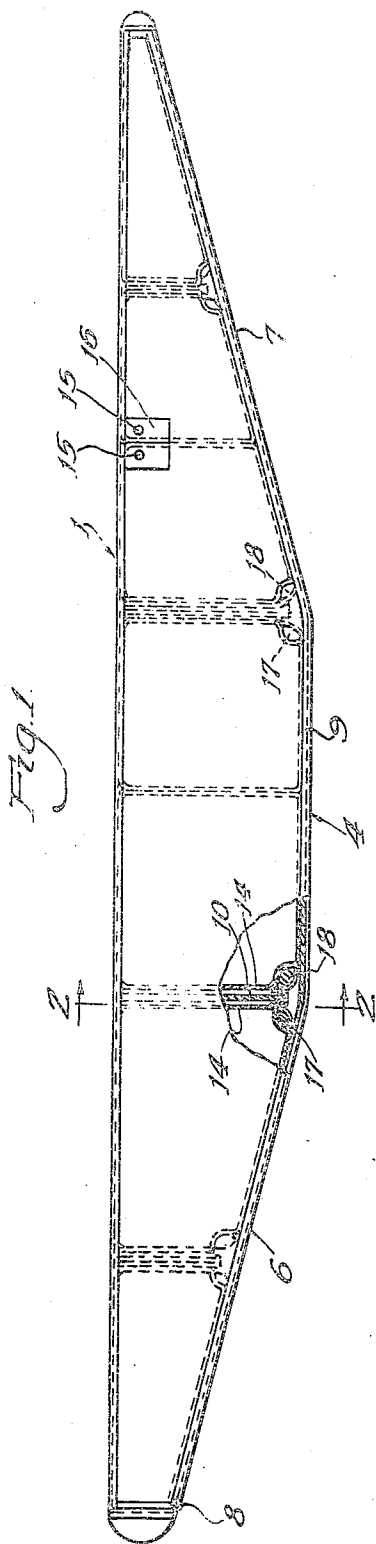
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PONTOON CONSTRUCTION

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PONTOON CONSTRUCTION

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This invention relates to improvements in pontoons for hydro-airplanes or the like, and refers specifically to a pontoon construction which embodies shock absorbing features.

One of the objects of my invention resides in the provision of a pontoon structure having a movable bottom whereby impacts or forces encountered by the pontoon tend to move the bottom against a resilient resisting medium thereby absorbing the impact or shock.

Another object of my invention resides in the provision of a compartmented pontoon structure wherein resilient, buoyant members are carried, each resilient buoyant member serving to cushion the movement of the bottom when the latter is subjected to an impact or shock.

Other objects and advantages of my invention will be apparent from the accompanying drawing and following detailed description.

In the drawings, Fig. 1 is a vertical elevational view, parts being broken away and parts being shown in section of my pontoon construction.

Fig. 2 is an enlarged, transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary, sectional elevation illustrating the cushioning means employed in my pontoon construction.

Referring in detail to the drawing, 1 indicates generally a pontoon constructed in accordance with the concept of my invention. The pontoon may be employed with the usual hydro-airplane in which case two or more of such pontoons would be utilized.

The pontoon 1 comprises a top 2, sides 3 and bottom 4. The top, sides and bottom walls may be constructed of a relatively light weight wood, plastic material, or may be constructed of relatively light weight metal such as aluminum or magnesium.

The walls 2, 3 and 4 defining the pontoon structure are carried by frame members 5 which extend the entire length of the pontoon 1 at its upper corners. The members 5 may be constructed of steel angle irons or said members may comprise aluminum or plastic angles.

The bottom 4 is tapered toward the forward end thereof as indicated at 6 and is also tapered toward the rearward end as indicated at 7. The bottom preferably is constructed of one piece of material but may comprise a number of panels joined together as a unitary structure. By the provision of a unitary structure of this type, that is, where the entire bottom is movable as a unit, shocks received by any portion of the bottom will be uniformly distributed and absorbed by the en-

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tire bottom, as will be hereinafter more fully described. The forward end of the bottom 4 is pivoted as at 8 whereby the entire bottom may be moved through a relatively small angle about said pivot 8, as will be hereinafter more fully described.

Angles 9 extend along the length of the bottom 4 and the bottom 4 including the panels 6 and 7, rest upon one leg of each of the angles 9. Thus, the clockwise movement of the bottom 4 about the pivot 8, as viewed in Fig. 1, is limited by contact of the bottom 4 with the lower legs of the angles 9, as shown best in Fig. 2.

The pontoon 1 is divided by a plurality of partitions 10 into a plurality of compartments or bulkheads 11. The partitions 10 are joined to the top 2 and side walls 3 of the pontoon by means of angle members 12. The lower edge of each of the partitions 10 are protected by a channel member 13. It is to be understood that the angle members 12 and channel members 13 may be constructed of a suitable material such as steel, aluminum, magnesium and the like.

The arrangement is such that counterclockwise movement of the bottom 4 about the pivot 8 is limited by contact of the bottom 4 with the lower edges of the partitions 10. Consequently it can readily be seen that the bottom 4 has a degree of movement defined by the channels 9 and the lower edges of the partitions 10.

In each of the compartments 11 a pair of inflated bladders 14 are positioned. The bladders 14 may be conveniently inflated by means of check valves 15 carried by plate 16 which is mounted upon one side wall 3 of the pontoon. Although only one set of check valves 15 is shown, it is to be understood that the inflated bladders 14 in each compartment may be provided with similar check valves.

The construction of the bladders 14 is such that when the same are inflated they extend beneath the lower edges of the partitions 10, thereby forcing the bottom 4 into resilient contact with the lower legs or flanges of the angle members 9. It can readily be seen that with this arrangement forward movement or downward movement of the pontoon 1 against the water tends to rock the bottom 4 in a counterclockwise direction about the pivot 8, as viewed in Fig. 1. Obviously if the bottom 4 is subjected to an impact or shock due to the forward motion or abrupt downward motion of the pontoon, the bottom 4 will rock about the pivot 8 and such movement will be resiliently resisted by the inflated bladders 4. In this manner a cushioning means is provided which tends to ab-

sorb all shocks encountered by the pontoon in its normal usage.

Referring particularly to Figs. 1 and 3, members 17 are positioned adjacent the lower edges of each of the partition walls 10. The members 17 may be constructed of sponge rubber or other cushioning means which is resistant to water. Resilient protecting corners 18, line the lower surfaces of the cushion members 17 and protect said cushion members. The linking members 18 are preferably secured at their lower edges to the bottom 4.

The arrangement is such that the cushioning members 17 protect the inflated bladders 14 upon swingable movement of the bottom 4 from being pinched between the bottom 4 and the lower edges of the partitions 10. The lining 18 may comprise canvas or other flexible material which has high abrasion resistance.

It is to be understood, of course, that other obvious expedients may be employed without departing from the spirit of my invention. For instance, the inflated bladders 14 may be supplanted by highly porous sponge rubber blocks which are possessed of a high degree of buoyancy and a high degree of resilience. In employing sponge rubber blocks the action upon the bottom 4 when an impact or shock is encountered is the same as that performed by the inflated bladders, that is, the bottom moves against the resilient resisting medium to absorb the impact or shock.

I claim as my invention:

1. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, a bottom pivotally secured at one end to said body to form a closure for all said compartments, resilient members carried in said compartments exerting resilient pressure against said bottom, means for restricting movement of said bottom in response to said resilient pressure, and means permitting movement of said bottom against said resilient pressure.

2. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, the lower edges of said partitions terminating short of said side walls, a bottom pivotally secured at one end to said body and being substantially coextensive in area with said top, said bottom forming a closure for all of said compartments, resilient members carried in said compartments exerting resilient pressure against said bottom, urging said bottom away from the lower edges of said partitions, means spaced from the lower edges of said partitions restricting movement of said bottom in response to said resilient pressure, movement of said bottom against said resilient pressure being limited by contact of said bottom and the lower edges of said partitions.

3. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, a bottom pivotally secured at one end to said body and forming a bottom closure for all of said compartments, said bottom extending substantially the entire length of said body, inflated members carried in said compartments exerting resilient pressure against said bottom, means for restricting movement of

said bottom in response to said resilient pressure, and means permitting movement of said bottom against said resilient pressure.

4. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, the lower edges of said partitions terminating short of said side walls, a bottom pivotally secured at one end to said body and forming a bottom closure for all of said compartments, said bottom extending substantially the entire length of said body, inflated member carried in each of said compartments exerting resilient pressure against said bottom, urging said bottom away from the lower edges of said partitions, means spaced from the lower edges of said partitions restricting movement of said bottom in response to said resilient pressure, movement of said bottom against said resilient pressure being limited by contact of said bottom and the lower edges of said partitions.

5. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, a bottom pivoted at the forward end of said body and forming a bottom closure for all of said compartments, said bottom extending substantially the entire length of said body, resilient members carried in said compartments adapted to exert yieldable pressure against said bottom, and means for permitting limited movement of said bottom about said pivot against said yieldable pressure to absorb shocks encountered by the bottom when said pontoon moves forwardly.

6. A pontoon comprising in combination, a hollow body having side walls and a top, transverse partitions in said body dividing the interior thereof into compartments, the lower edges of said partitions terminating short of said side walls, a bottom pivotally secured at one end to said body and forming a bottom closure for all of said compartments, said bottom extending substantially the entire length of said body, resilient members carried in said compartments exerting resilient pressure against said bottom, urging said bottom away from the lower edges of said partitions, means spaced from the lower edges of said partitions restricting movement of said bottom in response to said resilient pressure, movement of said bottom against said resilient pressure being limited by contact of said bottom and the lower edges of said partitions, protecting means positioned adjacent the lower edges of said partitions to prevent pinching of said resilient members between said bottom and the lower edges of said partitions.

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