Dec. 5, 1944. A. L. HOUGHTALING 2,364,072

BUOYANT STRUCTURE

Filed Feb. 25, 1942

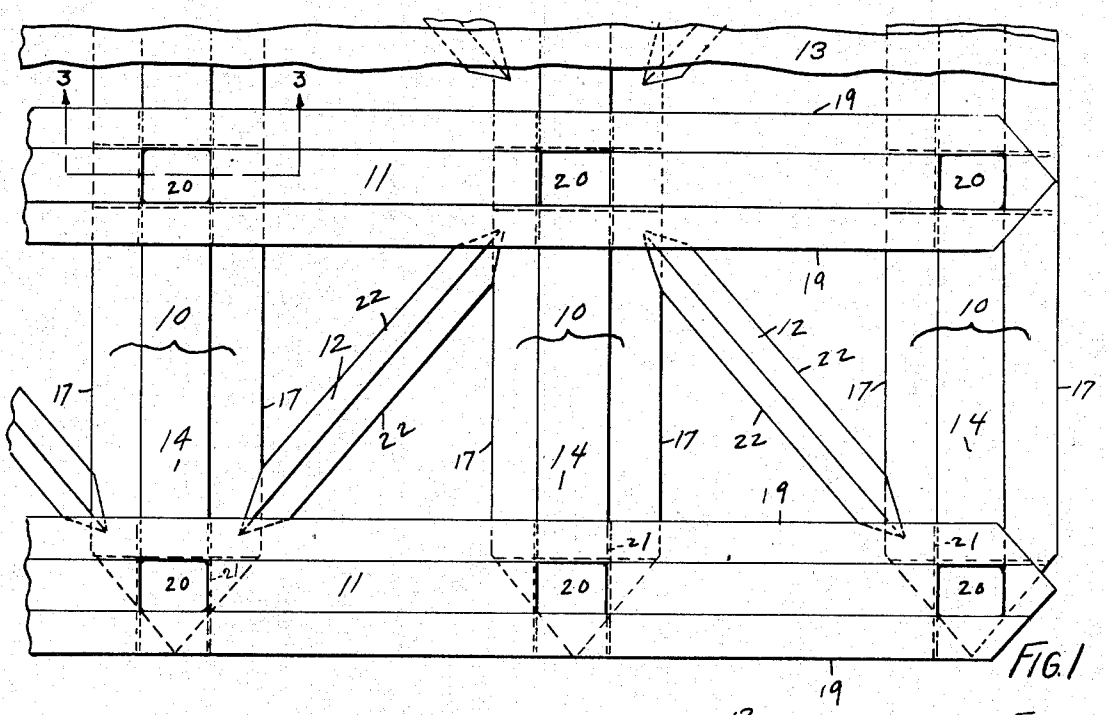


FIG. 1

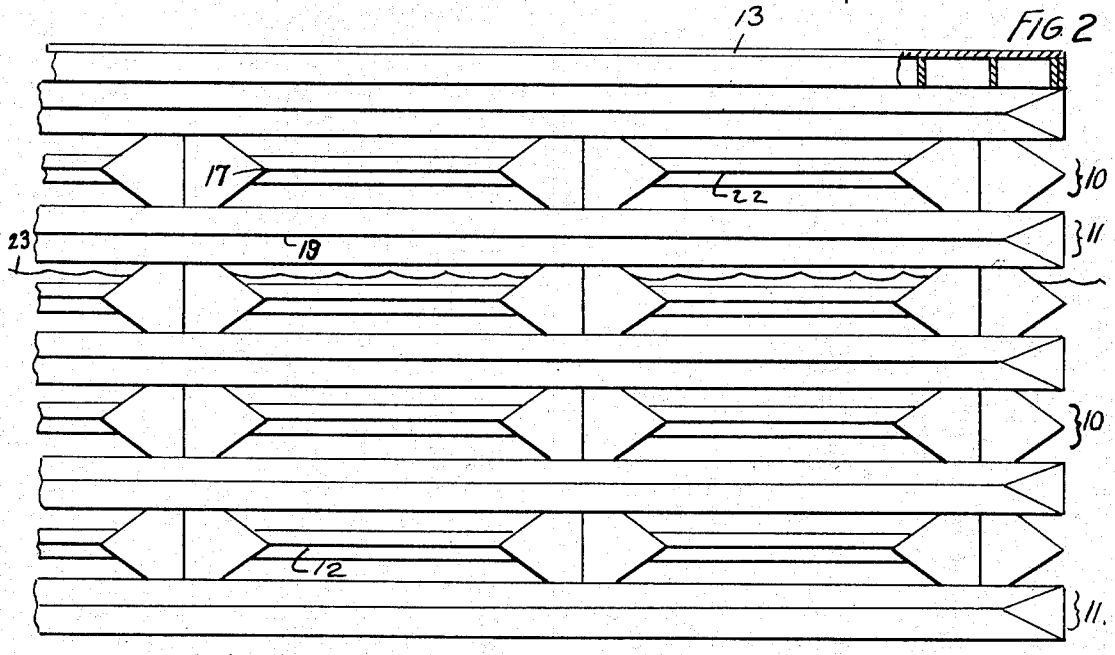


FIG. 2

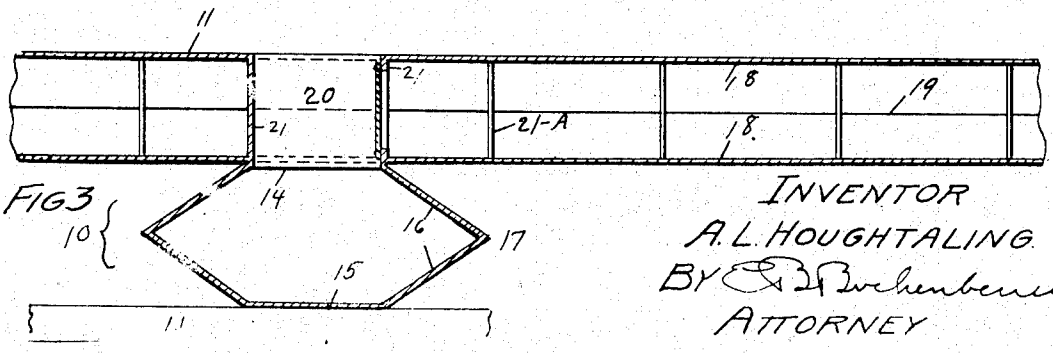


FIG 3

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Patented Dec. 5, 1944 2,364,072

UNITED STATES PATENT OFFICE

2,364,072

BUOYANT STRUCTURE

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Application February 25, 1942, Serial No. 432,227

1 Claim. (Cl. 114—43.5)

This invention relates generally to navigation, and particularly to buoyant structures.

The main object of this invention is to construct a buoyant structure in a form of a crib in which it would be exceedingly difficult to sink or destroy.

The second object is to construct a buoyant structure capable of damping out the wave actions and affording a stabilizing action for the buoyant body in order to hold the deck surface in a relatively stable position.

The third object is to construct a buoyant structure of the class described which will lend itself to modern methods of fabrication and assembling and which, if injured, can be easily repaired.

The fourth object is to so construct the structure, that it will be especially adapted to resist the enormous forces exerted by the wave action, and to construct same in a manner that the maximum amount of strength may be obtained from a minimum amount of material for a given amount of buoyancy.

The fifth object is to construct a device of the class described which can be easily towed by a power vessel or maneuvered in any direction with equal ease.

The sixth object is to construct a buoyant structure especially adapted to provide quiet and stable landing surfaces for hydroplanes on the water and airplanes on the deck thereof, as well as affording a stable foundation for artillery and anti-aircraft weapons, and storage for all types of military equipment.

The seventh object is to construct a device of the class described which, by virtue of its unsinkable nature, gives same a strong offensive and defensive value, and because of its ability to successfully damp out wave actions, it provides quiet water for repair and construction of docks and jetties, and can become a self-fortified harbor for ships at any desired point along a coast.

These and other objects are accomplished in the manner set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary plan showing one corner of the structure.

Fig. 2 is a fragmentary front elevation of Fig. 1.

Fig. 3 is a fragmentary enlarged section taken along the line 3—3 in Fig. 1.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawing, it will be seen that the structure consists mainly of the super-imposed, elongated, buoyant units 10 and 11 which are of streamline form normal to each other and held in such relation by the diagonal brace units 12 which are also buoyant and placed within the plane of the units 10. It will be understood that the members 10 and 11 extend the full length and breadth of the deck 13 which is supported by the uppermost units 11.

The shape of the members 10 and 11 is similar although they may differ in size, therefore only one will be described in detail.

Each member 10 has the horizontal top 14 and bottom 15 and the V shaped sides 16 which terminate in the pointed edges 17. The members 11 have the flat top and bottom sides 18 and the pointed edges 19.

It is desirable to provide wells 20 at each intersection of the members 10 and 11 to provide accessibility to the various units.

Bulkheads 21 are provided at each intersection of the members 10 and 11 to form the wells 20 and for the purpose of subdividing each unit 10 and 11 in order to prevent all from filling with water when one or more of the sections are destroyed or caused to admit water. Braces 21—A are placed as required between the bulkheads 21.

The device has such a wide range of uses that it would be impossible to illustrate all of the forms which it can assume. For example, while primarily used as a landing device for airplanes, it can also be employed as a landing device for troops and munitions, or a dock for loading or transferring supplies, a barrier across rivers and harbors, as well as a wave damper for use around landing sites for sea planes. Its advantageous use in peace time operations are, of course, obvious.

In the normal operation of a device of this kind, suitable ballast pumps (not shown) would be provided in order to trim the structure when not evenly loaded, or when it is desired to bring one side or the other out of the water for repairs. In some cases it will be found desirable to provide propelling mechanisms (not shown) aboard the structure to assist in the maneuvering thereof.

It will be apparent from the drawing that the structure resolves itself into a gigantic truss making same capable of withstanding the stresses from waves, tides, swells and winds; and that when a wave strikes one side of the structure, it is broken up by the edges 17 and 19 and deflected upwardly and downwardly until it strikes the edges 22 of the braces 12, when it will be again broken up and deflected in all directions. Since there are many of the units past which the waves

must travel, it is obvious that the direction of the water is turned so often that its force is dissipated and expended against itself, tending to hold the structure against vertical movement by pushing equally against the top and the bottom sides of the leading edges of the units 10, 11, and 12.

It will be noted that the ends of the units 10, 11 and 12 are pointed, as illustrated, for the purpose of further reducing the resistance to the impact of the water.

It must be understood that while only a few of the units 10, 11 and 12 are shown, they are in sufficient number to bring the lowermost units in the more quiet water below the stronger wave action, and that the height which the deck 13 is placed above the uppermost units 11 will depend upon the particular purpose for which it is intended. For use in mid-ocean, for example, the height of the deck 13 above the water line 23 should exceed the maximum wave height.

While I have shown the members 10 and 11 as normal to the sides and ends of the structure, and the braces 12 as diagonal, it is clear that this condition could be reversed without departing from the spirit of this invention.

I claim:

A wave damping cribbing consisting of a plurality of tiers of vertically and horizontally spaced, longitudinal and transverse buoyant members, of which the members of one tier are normal to the members of the adjacent tiers, characterized by having the transverse sections of said members of streamline form for the purpose of parting the flow of water against the side of the structure and deflecting it upwardly and downwardly, streamline diagonal braces between said longitudinal and transverse members for stiffening the structure and deflecting the water current laterally and vertically and a deck over said cribbing.

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