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(54) **FLOATING SWIMMING POOL APPARATUS**

(57)

**ABSTRACT**

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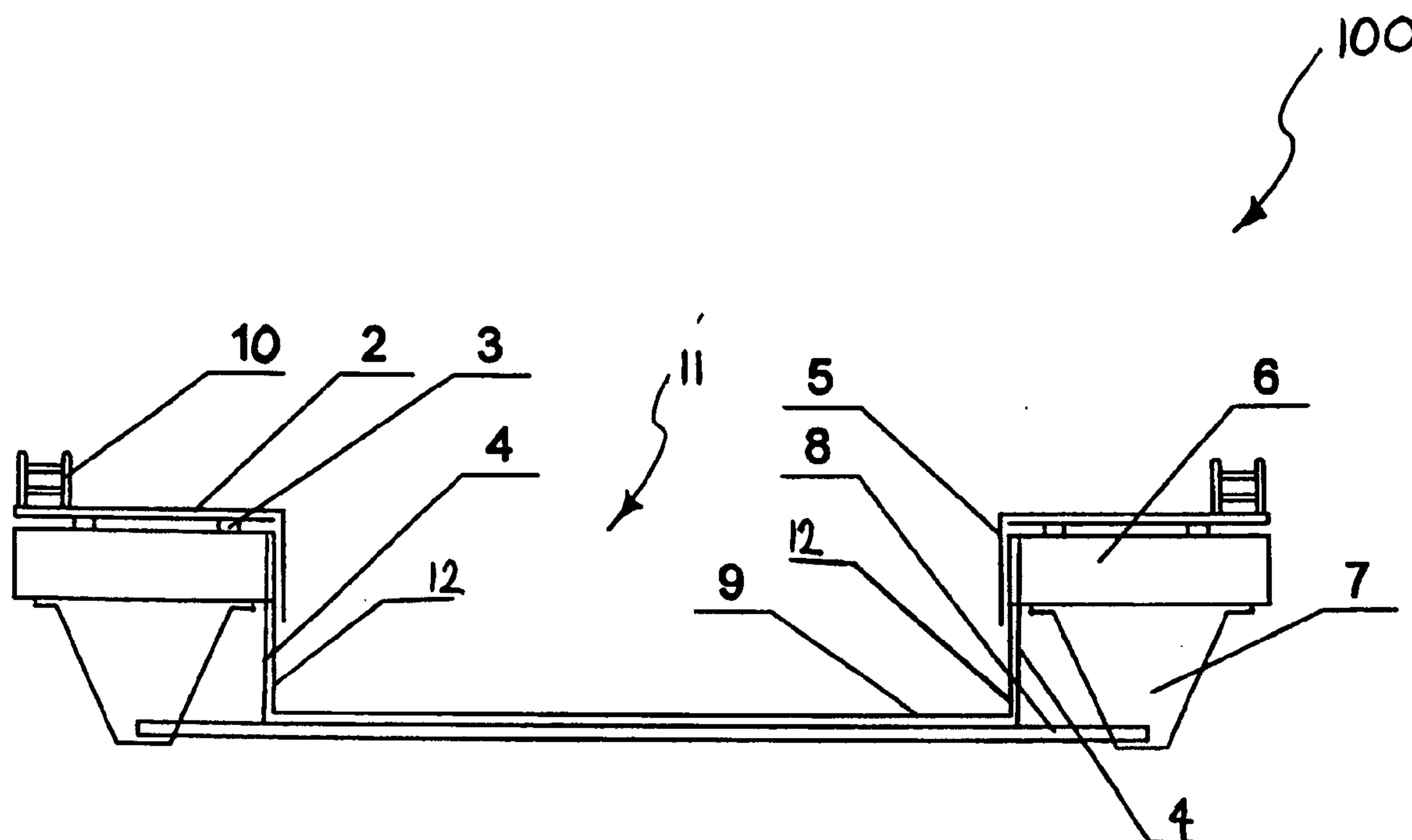
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A floating swimming pool apparatus that is more stable, stronger, and lighter than existing floating swimming pools is provided. In one aspect, the invention is a floating pool comprising a support structure comprising a deck portion forming an opening, a plurality of floater assemblies, a tray extending downward from the deck portion, and one or more transverse rods having a first and second ends, the first and second ends of the transverse rods being supported by opposing sides of the tray so that the transverse rods pass below the opening; and a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the deck portion and the floor rests atop and is supported by the transverse rods. In another aspect, the invention is a floating swimming pool wherein its main structural components are constructed of a water proof glass fiber reinforced plastic.



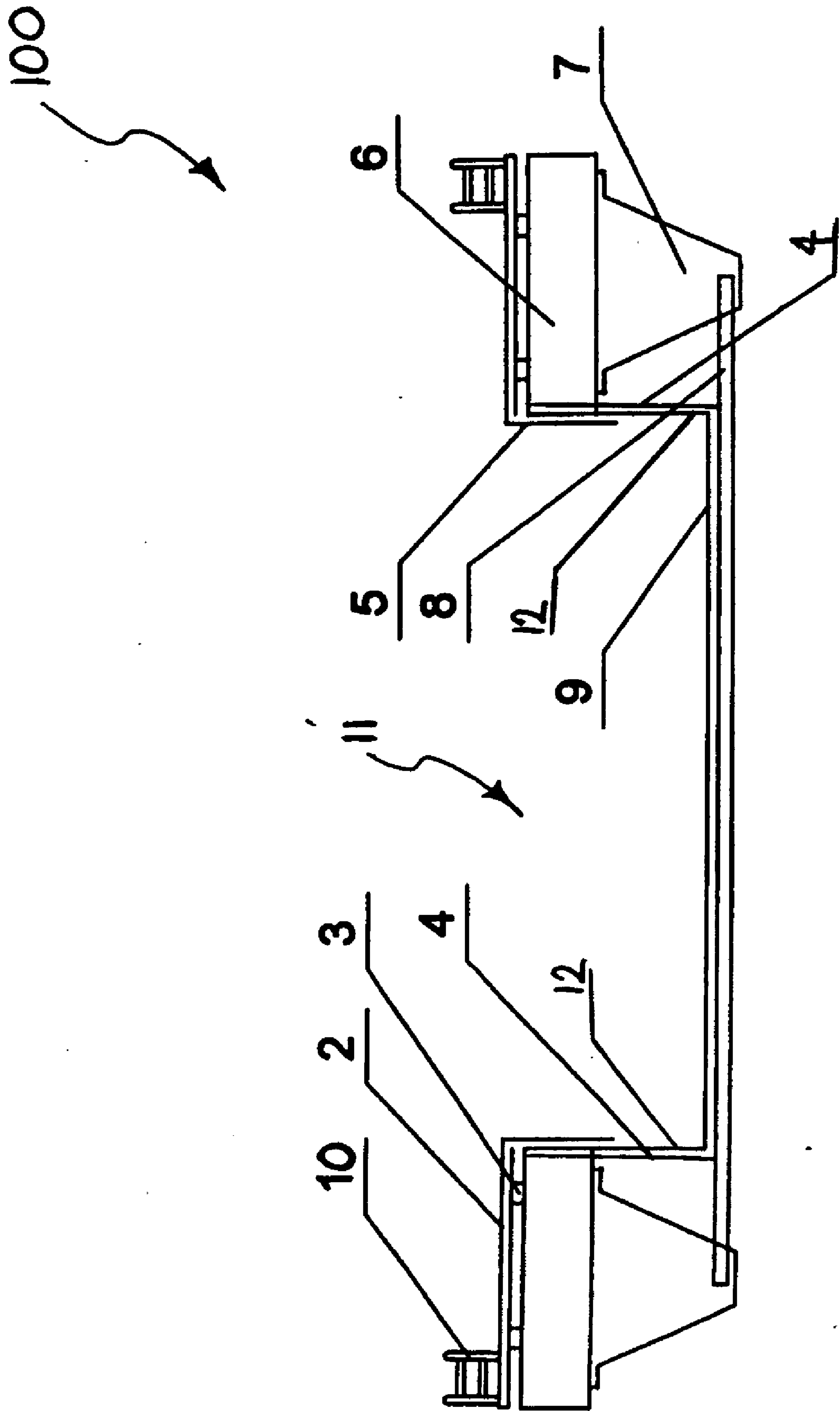


Fig. 1

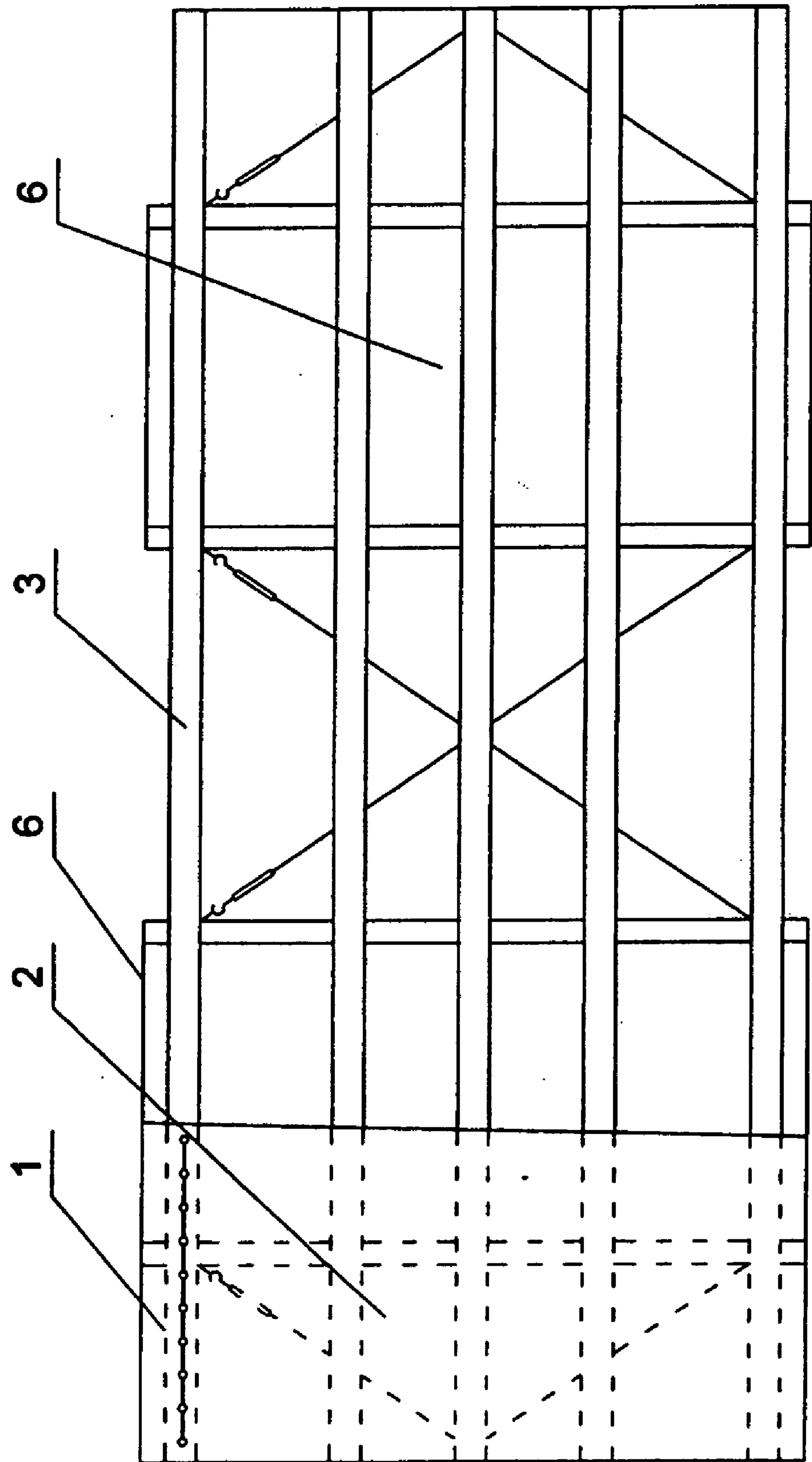


Fig. 2



**FLOATING SWIMMING POOL APPARATUS****CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] The present application claims priority to Chinese Patent Application 2004100063420, filed on Feb. 26, 2004, under 35 U.S.C. § 119, the entirety of which is hereby incorporated by reference.

**FIELD OF THE INVENTION**

[0002] The present invention relates generally to the field of swimming pools, and specifically to the field of swimming pools adapted to float in larger bodies of water.

**BACKGROUND OF THE INVENTION**

[0003] Swimming is a popular sport and is recognized as one of the best exercises for muscle toning, weight loss, and cardiovascular conditioning. As the benefits of swimming have become more widely known, more and more people participate and/or desire to participate in this sport in order to improve their health and wellness. However, many people do not have swimming pools or live near bodies of water that are suitable for swimming as a result of pollution, dangerously strong currents, debris, hazardous underwater topography, and the like.

[0004] One solution to this problem has been the development of floating swimming pools. At the present time, various floating swimming pools exist, such as the one disclosed in Chinese Patent Publication No. 2307876Y, entitled "A knockdown floating swimming pool," which includes a nonmetal floating frame made of pipes, boards, cables, nets or poles. Another example of a floating swimming pool is disclosed in Chinese Patent Publication No. 2279403Y, entitled "A net enclosure floating swimming pool made of bamboo," which includes a frame made of round bamboo and bamboo vine.

[0005] The structures of the floating swimming pools disclosed in the aforementioned Chinese Patent Publications are constructed in a simple manner out of nonmetal materials or bamboo. The floating swimming pools are neither practicable nor stable, not to mention that bamboo becomes rotten, depleted, and/or musty when exposed to water for a long period time. When people swim in water subjected to such a condition, it is not only dangerous, but also raises health concerns. Moreover, the floating swimming pool disclosed in Chinese Patent Publication No. 2279403Y can not be used in deep water because the floating pool is anchored to the ground floor of the body of water by the bamboo poles.

[0006] Further examples of floating pools are disclosed in U.S. Pat. No. 5,638,556, Kipers et al., U.S. Pat. No. 3,555,575, J. D. Schwartz et al., and U.S. Pat. No. 3,099,018, W. A. O'Connell, the teachings of which are hereby incorporated herein by reference in their entireties.

[0007] U.S. Pat. No. 5,638,556 discloses a floating swimming pool apparatus that has a rigid water retaining portion which includes rigid walls and a rigid floor. A peripheral deck portion is connected to top portions of the rigid walls, and a plurality of individually adjustable flotation assemblies are connected to the deck portion to facilitate floating of the apparatus. The individual adjustable flotation assem-

blies are individually adjustable drum-like containers. Each of the drum-like containers includes a fill port through which a quantity of ballast material can be added to or removed from the drum-like container.

[0008] Inner joists connect the deck portion to the rigid walls of the water retaining portion. Outer joists are connected to the deck portion distal to the rigid walls of the water retaining portion. Each of the adjustable flotation assemblies is suspended from the deck portion by a suspension band connected to a respective inner joist and a respective outer joist. First strut assemblies are connected to the rigid walls and are coextensive with portions of the rigid walls. Second strut assemblies are connected between the first strut assemblies and the outer joists. The adjustable flotation assemblies and the second strut assemblies are arrayed along the rigid walls in alternating fashion. The adjustable flotation assemblies and the second strut assemblies are spaced sufficiently close to one another longitudinally to prevent the adjustable flotation assemblies from sliding longitudinally out of contact with the suspension bands. Transverse brace elements are connected between the inner joists and the outer joists.

[0009] While the previously known floating pool assemblies are functional, their structural designs are less than optimal from a stability standpoint. Moreover, previously known floating swimming pools are constructed of materials that either easily erode, are weak, and/or are heavy. Finally, previously known floating swimming pools are bulky and can not be easily broken down for storage, replacement, or transport.

**SUMMARY OF THE INVENTION**

[0010] The present invention solves these and other problems, and in one aspect, provides a floating swimming pool apparatus comprising: a support structure comprising a deck portion forming an opening, a plurality of floater assemblies, a tray extending downward from the deck portion, and one or more transverse rods having a first and second ends, the first and second ends of the transverse rods being supported by opposing sides of the tray so that the transverse rods pass below the opening; and a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the deck portion and the floor rests atop and is supported by the transverse rods. In one embodiment, the tray tapers from top to bottom and is a triangular or truncated-triangular structure.

[0011] By constructing the floating swimming pool apparatus so that the transverse rods support the load of the water retaining enclosure (and the water fill), the floating swimming pool has better capacity and is more secure and stable.

[0012] In another aspect, the invention provides a floating swimming pool apparatus comprising: a support structure forming an opening, the support structure comprising a flat deck, deck girders supporting the flat deck, and a plurality of floater assemblies below the girders; and a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the flat deck; wherein the girders, the floater assemblies, the side walls of the water retaining enclosure, the floor of the water



retaining enclosure are constructed of a water proof glass fiber reinforced plastic ("GRP").

[0013] By constructing the main structural components of the floating swimming pool apparatus out of GRP, the swimming pool apparatus has a greater strength to weight ratio and is more stable.

[0014] In yet another aspect, the invention provides a floating swimming pool apparatus comprising: a support structure forming an opening, the support structure comprising a deck portion and a plurality of floater assemblies; and a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the deck portion; wherein the side walls and the floor of the water retaining enclosure are constructed of a water proof glass fiber reinforced plastic.

[0015] Advantages of the present invention include, without limitation: (1) better stability; (2) ease in breaking down, maintaining, replacing and/or adjusting the swimming pool apparatus because of its assembled structure; (3) increased durability and life expectancy; and (4) increased safety.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is a schematic drawing of a floating swimming pool according to an embodiment of the present invention.

[0017] FIG. 2 is an overhead view of a portion of a deck and a single floater of the floating swimming pool of FIG. 1 according to one embodiment of the present invention.

#### DETAILED DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is a schematic representation of a GRP floating swimming pool 100 according an embodiment of the present invention. As will become apparent from the disclosure below, the floating swimming pool 100 is assembled so that it can be broken down, maintained, replaced, and/or adjusted easily.

[0019] The GRP floating swimming pool 100 comprises a water retaining enclosure 1 and a support structure 11. The water retaining enclosure 1 is surrounded by and supported by the support structure 11.

[0020] The support structure 11 comprises a flat deck 2, deck girders 3, a tray 7, guard boards 5, and a plurality of floater assemblies 6. The deck girders 3 are positioned below and provide structural support for the flat deck 2. The panels that form the flat deck 2 are secured to the deck girders 3 via any means desired, such as, without limitation, adhesion, bolting, welding, etc. The number of deck girders 3 will vary depending on the size of the GRP floating swimming pool 100, desired loading capacity, etc. The number of deck girders 3 should be sufficient to effectuate structural integrity.

[0021] The flat deck 2 forms an opening in its center for receipt of the water retaining enclosure 1. The opening can be any desired shape, including without limitation, square, circular, rectangular, oval, or irregular in shape. Preferably, the shape of the opening will be dictated by and correspond to the shape of the water retaining enclosure 1.

[0022] The floater assemblies 6 are secured intermittently underneath the flat deck 2 along its periphery. If desired, the

floating assemblies 6 can be secured directly to the girders 6. Stretch bands 12 (FIG. 2) can also be used to hold the floaters in proper position.

[0023] The tray 7 is connected to the bottom of the floating assemblies and extends downward therefrom. In other embodiments, the tray 7 can be secured directly to the girders 3 or the flat deck 2. When the GRP floating swimming pool 100 is placed in a body of water, the tray 7 extends to a depth well below the water surface. When the tray 7 is connected to the bottom of the floaters 6, as in FIG. 1, the entirety of the tray 7 will be below the water surface. The tray 7 can extend below the entire length of the deck 2 on all sides of the opening formed by the flat deck 2. In some embodiments, the tray 7 can comprises various segments located at intermittent spaces below the deck's periphery, such as located below each floating assembly 6. In some embodiments, the tray 7, or other structure of the GRP floating swimming pool 100, is anchored to a stabilized body, such as the bottom of the lake, a pier, a tree stump, or the like).

[0024] The tray 7 may be tapered from top to bottom to provide added stability while the GRP floating swimming pool 100 is floating. Preferably, the tray 7 comprises a triangular or truncated triangular frame structure. A triangular tray 7 has increased loading/supporting capacity, provides greater security, and facilitates better stability. The tray 7 can be constructed of A3 steel or other alloys.

[0025] A plurality of transverse rods 8 extend from opposing trays 7 (or from opposing sides of a single tray structure). The ends of the transverse rods 8 are supported by the trays 7. The transverse rods 8 are supported by the tray 7 in such a manner that the transverse rods 8 extend below the opening formed by the deck 2. The number of transverse rods 8 used will depend on loading requirements and will be determined on a cases by case design basis. The transverse rods can be made out of a GRP, such as 189# polyester resin and medium alkali glass-fiber cloth, or from A3 steel or other alloys.

[0026] A lattice fence 4 is provided below the flat deck 2 and surrounds the opening formed by the deck 2. The lattice fence 4 can be secured to or built into one of the girders 3 if desired. The lattice fence 4 extends from the flat deck 2 to at or near the depth of the transverse rods 8. The lattice fence 4 can be constructed of any material, including GRP, such as 189# polyester resin and medium alkali glass-fiber cloth, or metals.

[0027] The water retaining enclosure 1, which comprises a floor 9 and side wall(s) 12, is positioned and lowered into the opening formed by the flat deck 2. The water retaining enclosure 1 is lowered until the floor 9 contacts and rests atop the transverse rods 8. At this point, the top of the side walls 12 are at or near the flat deck 2. The entirety of the load from the water retaining enclosure 1 (and any water fill therein) is transferred to and supported by the transverse rods 8, which in turn transfers the load to the trays 7, which in turn places the load directly on the floating assemblies 6 and pulling in a downward vertical direction straight through the floaters 6. This results in increased floating stability.

[0028] When the water retaining enclosure 1 is fully positioned in the opening and supported by the transverse rods 8, the lattice fence 4 provide lateral support for the side walls 12. The water retaining enclosure 1 is preferably



constructed of a waterproof GRP, such as waterproof 189# polyester resin and medium alkali glass-fiber cloth. The floor **9** and the side walls **12** of the water retaining enclosure **1** are preferably joined so as to be water tight.

[0029] Guard boards **5** extend downwardly from the flat deck **2** inside of the side walls **12** of the water retaining enclosure **1**. The guard boards **5** are located on all sides of the swimming pool volume formed by the water retaining enclosure **1**. The guard boards **5** can also be mounted to the floaters **6**. The guard boards **5** can be constructed of a waterproof GRP, such as waterproof 189# polyester resin and medium alkali glass-fiber cloth.

[0030] In some embodiments, the floater assemblies **6** are constructed of, or at least coated with a waterproof GRP, such as waterproof 189# polyester resin and medium alkali glass-fiber cloth, to avoid potential safety hazards. Preferably, panels used to construct the GRP floating swimming pool **100** are made of a waterproof GRP, such as waterproof 189# polyester resin and medium alkali glass-fiber cloth. User convenience facilities, such as a bathhouse, a lavatory, a tearoom, a dining room and so on, can be mounted atop the flat deck **2** if desired. In such embodiments, the lavatory is automated and waterless.

[0031] In some embodiments, all joints and connections of parts can be accomplished through the use of stainless-steel standard connecting fittings and fasteners, including bolts, angle bars, etc. The main structures of the present invention adopt stainless steel and GRP material, and are all antisepticated. In some embodiments, the structures of the present invention are coated to prevent/inhibit attachment or growth of algae, fungi, and the like. IN some embodiments, the structures are coated to protect the user from sharp and/or abrasive surfaces.

[0032] Referring to **FIG. 2**, an overhead view of a single floater structure **6** of floating GRP swimming pool **100** is illustrated. The floater assembly **6** can be assembled freely to form different dimension swimming pools.

[0033] The primary objective of the GRP floating swimming pool **100** is to provide a floating pool that can be used in rivers, lakes, or seas. The floating swimming pool **100** can be assembled according to an actual length, width, and height. If necessary, the swimming pool **100** can be broken down, maintained, replaced, or adjusted easily.

[0034] While the invention has been described and illustrated in sufficient detail that those skilled in this art can readily make and use it, various alternatives, modifications, and improvements should become readily apparent without departing from the spirit and scope of the invention. All patent applications and references cited herein are incorporated by reference in their entirety.

What is claimed is:

1. A floating swimming pool apparatus comprising:

a support structure comprising a deck portion forming an opening, a plurality of floater assemblies, a tray extending downward from the deck portion, and one or more transverse rods having a first and second ends, the first and second ends of the transverse rods being supported by the tray so that the transverse rods pass below the opening; and

a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the deck portion and the floor rests atop and is supported by the transverse rods.

2. The floating swimming pool apparatus of claim 1 wherein the tray tapers from top to bottom.

3. The floating swimming pool apparatus of claim 2 wherein the tray is a triangular or truncated-triangular structure.

4. The floating swimming pool apparatus of claim 1 wherein the tray is connected to a bottom of the floating assemblies.

5. The floating swimming pool apparatus of claim 1 wherein the tray is connected to a bottom of the deck portion.

6. The floating swimming pool apparatus of claim 1 wherein the floating assemblies are positioned below the deck portion.

7. The floating swimming pool apparatus of claim 1 wherein the deck portion comprises a flat deck supported by girders.

8. The floating swimming pool apparatus of claim 1 having a fission configuration.

9. The floating swimming pool apparatus of claim 1 wherein the water retaining enclosure is constructed of a waterproof glass fiber reinforced plastic.

10. The floating swimming pool apparatus of claim 8 wherein the wherein the water retaining enclosure is constructed of a waterproof polyester resin and medium alkali glass-fiber cloth.

11. The floating swimming pool apparatus of claim 1 wherein the water retaining enclosure, the deck portion, the floater assemblies, and the transverse rods are constructed of a waterproof glass fiber reinforced plastic.

12. The floating swimming pool apparatus of claim 11 wherein the water retaining enclosure, the deck portion, the floater assemblies, and the transverse rods are constructed of a waterproof polyester resin and medium alkali glass-fiber cloth.

13. The floating swimming pool apparatus of claim 1 further comprising guard boards extending downward from the deck portion inside of the side walls of water retaining enclosure.

14. The floating swimming pool apparatus of claim 1 further comprising a ladder secured to the deck portion.

15. The floating swimming pool apparatus of claim 1 further comprising a lattice fence exterior to and surrounding the side walls of the water retaining enclosure, the lattice fence providing lateral support for the side walls.

16. The floating swimming pool apparatus of claim 1 further comprising:

guard boards extending downward from the deck portion inside of the side walls of water retaining enclosure;

a ladder secured to the deck portion;

a lattice fence exterior to and surrounding the side walls of the water retaining enclosure, the lattice fence providing lateral support for the side walls;

wherein the deck portion comprises a flat deck supported by deck girders;

wherein the tray is a triangular or truncated-triangular structure;

wherein the tray is connected to a bottom of the floating assemblies;

wherein the floating assemblies are positioned below and secured to the deck girders; and

wherein the water retaining enclosure, the deck girders, the transverse rods, the guard boards, the flat deck, and the floaters are constructed of a waterproof polyester resin and medium alkali glass-fiber cloth.

**17.** A floating swimming pool apparatus comprising:

a support structure forming an opening, the support structure comprising a flat deck, deck girders supporting the flat deck, and a plurality of floater assemblies below the girders; and

a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the flat deck;

wherein the girders, the floater assemblies, the side walls of the water retaining enclosure, the floor of the water retaining enclosure are constructed of a water proof glass fiber reinforced plastic.

**18.** The floating swimming pool apparatus of claim 17:

wherein the support structure further comprises a tray extending downward from the deck portion and one or more transverse rods having a first and second ends, the first and second ends of the transverse rods being supported by opposing sides of the tray so that the transverse rods pass below the opening; and

wherein the floor of the water retaining portion rests atop and is supported by the transverse rods.

**19.** The floating swimming pool apparatus of claim 18 wherein the transverse rods tapers from top to bottom.

**20.** A floating swimming pool apparatus comprising:

a support structure forming an opening, the support structure comprising a deck portion and a plurality of floater assemblies; and

a water retaining enclosure comprising a floor and side walls, the water retaining portion positioned in the opening so that the side walls of the water retaining enclosure are at or near the deck portion;

wherein the side walls and the floor of the water retaining enclosure are constructed of a water proof glass fiber reinforced plastic.

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