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(54) **SUPER DIVE TANK**

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(57) **ABSTRACT**

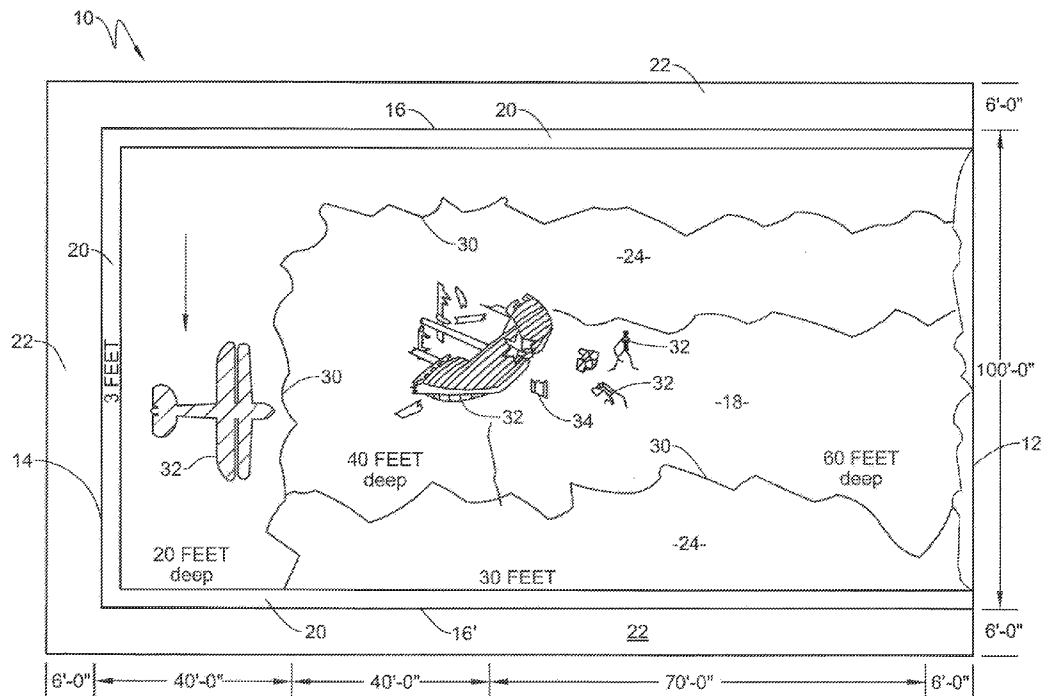
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The present invention provides an enclosed, in-ground, temperature-controlled super dive tank for recreational diving and/or dive training purposes. The super dive tank has a length ranging between about 100 to about 200 feet long and a width ranging between about 50 to 150 feet wide. The depth of the tank ranges between about 50 to 80 feet deep. The present invention also provides a method for simulating open water diving by a diver, comprised of diving in an enclosed, in-ground, temperature-controlled super dive tank up to depths ranging between 50 to 80 feet. The present invention thus provides a diver with as natural a diving experience as one would have if one were diving in a coral reef in an ocean.

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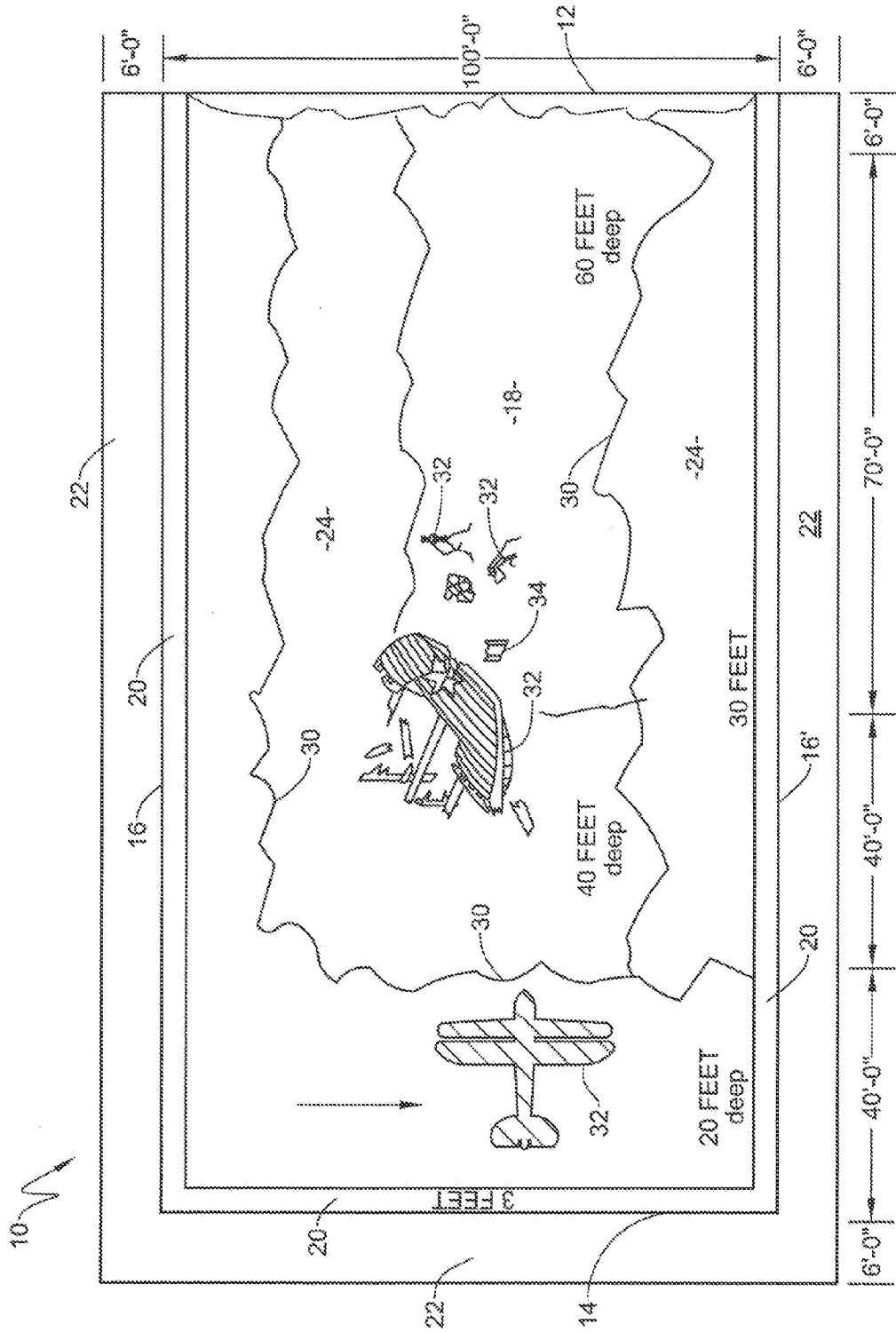


FIG. 1

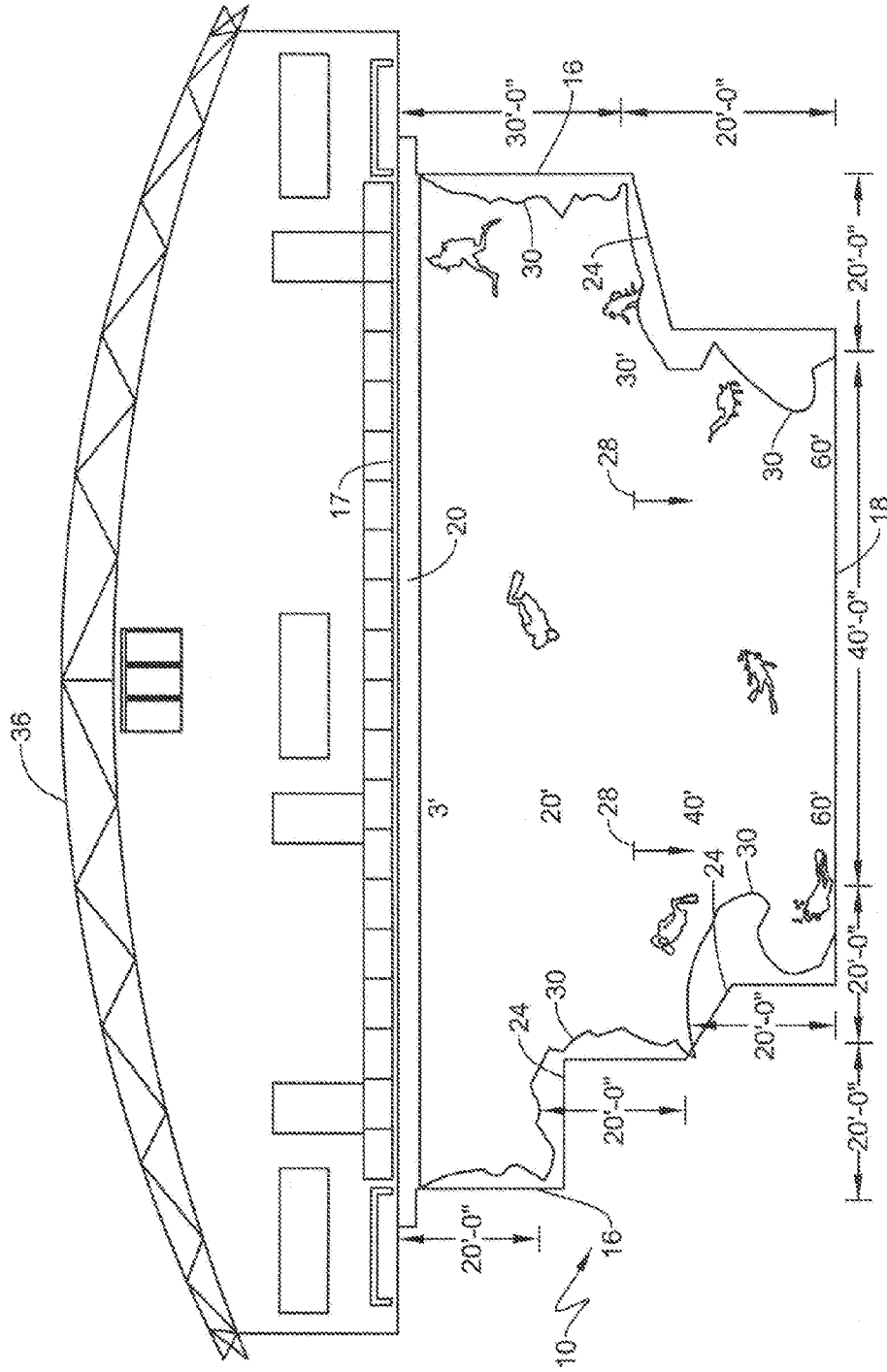


FIG. 2

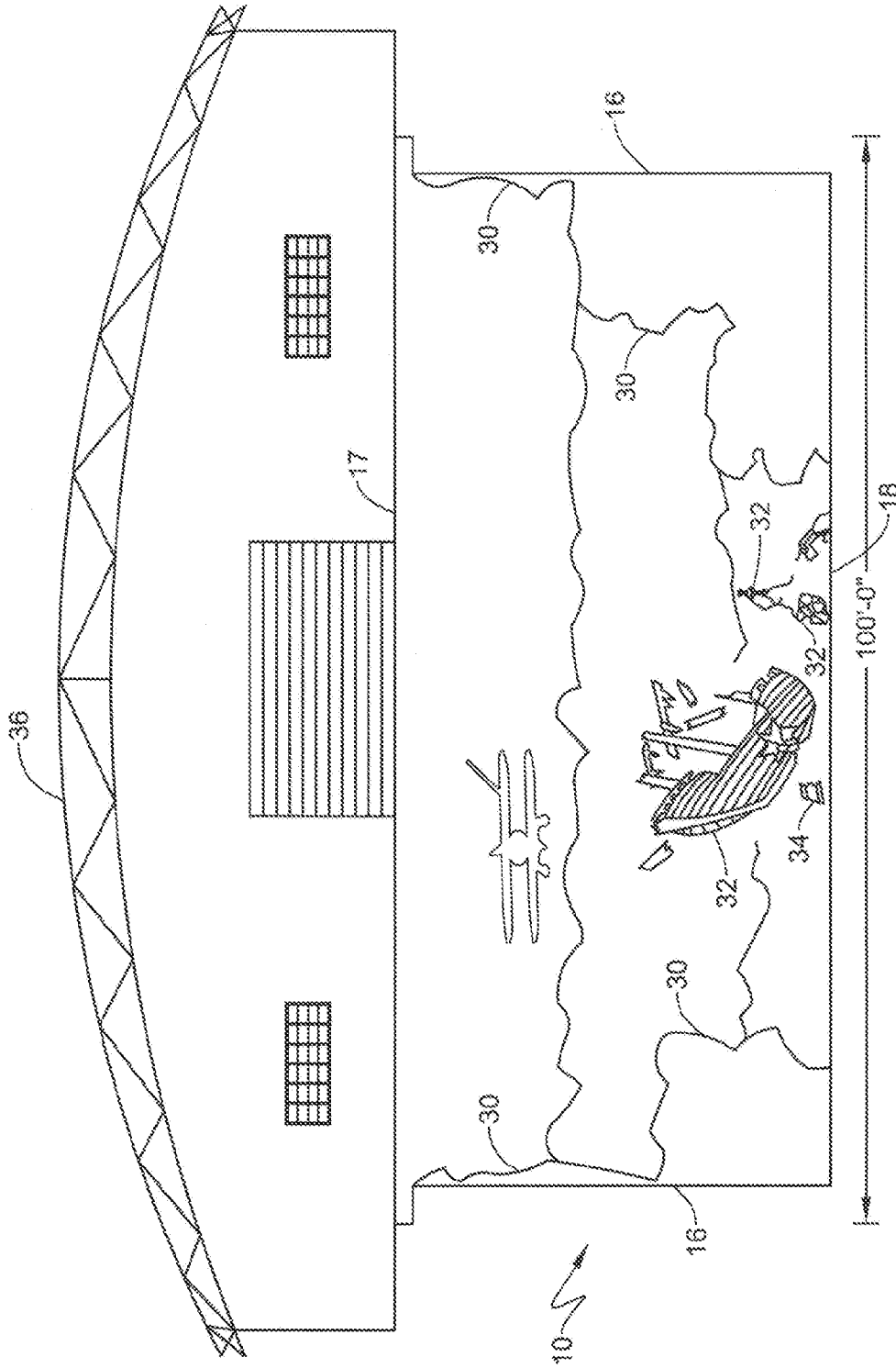


FIG. 3

SUPER DIVE TANK

FIELD OF THE INVENTION

[0001] The invention relates to dive tanks and, more particularly, to an in-ground, enclosed, temperature-controlled super dive tank for recreational and/or training purposes.

BACKGROUND OF THE INVENTION

[0002] Every year more than 140,000 new divers are certified in the United States. Divers that dive recreationally or for training purposes need to dive on a regular basis in order to maintain their certification. Divers have limited options to address this need. These options include going to above-ground tanks or to rivers, lakes or quarries where visibility for diving is minimal and, in both cases, only during those time of the year when the weather is favorable for such diving. Divers, of course, have the option of traveling to favorable diving venues, such as the Caribbean and other open water warm climates, but this typically entails much time and expense.

[0003] There exists, therefore, a need for a super dive tank that can be used for recreational and/or training purposes which is easily accessible, large enough to simulate the pleasures and rigors of open water diving, and which can be used all year round.

SUMMARY OF THE INVENTION

[0004] The invention fulfills this need by providing an enclosed, in-ground, temperature-controlled super dive tank and methods for simulating open water diving by a diver using the super dive tank of the invention. The super dive tank of the invention is capable of providing a diver with as natural a diving experience as one would experience if one were diving in a coral reef in an ocean.

[0005] In particular, the super dive tank of the invention has a front end, a rear end, a top end, a bottom end and two sides. The distance between the front end and the rear end of the tank, i.e. the length of the tank, ranges between about 100 feet to about 200 feet long. The distance between the two sides of the tank, i.e. the width of the super dive tank, ranges between about 50 feet to about 150 feet wide. The distance between the top end and the bottom end of the tank, i.e. the depth of the tank, ranges between about 50 feet to about 80 feet deep.

[0006] The super dive tank of the invention is rectangular or elliptical in shape.

[0007] The super dive tank of the invention has an entry ledge at the rear end and the two sides of the tank. The width of the entry ledge is about 3 feet.

[0008] The super dive tank of the invention has a walkway adjacent to the entry ledge of the tank. The walkway has a width of about 6 feet.

[0009] Each of the two sides of the super dive tank has one or more ledges which is located at a different depth level in the tank such as, for example, at about 20 feet deep, at about 30 feet deep or at about 40 feet deep. Each one of the underwater ledges has a width of about 20 feet.

[0010] It is contemplated that the super dive tank of the invention having the above-described dimensions can accommodate up to about 30 divers comfortably and safely at any given time.

[0011] The super dive tank of the invention is filled with at least about 1×10^6 to about 3×10^6 gallons of clear water and maintained at a temperature of about 80 degrees F.

[0012] The bottom of the super dive tank of the invention may be filled with sand or any other suitable material which simulates the bottom of a natural waterway.

[0013] The super dive tank may contain a plurality of artifacts including, without limitation, underwater landscaping such as artificial reef or coral, a sunken pirate ship, a treasure chest, one or more skeletal remains, a small aircraft or other objects to enhance recreational use of the tank by a diver.

[0014] The super dive tank may contain a plurality of objects including, without limitation, underwater video cameras, a submerged vehicle for rescue, a section of steel beams and girders welded together for underwater welding, bolting and inspection exercises or other objects useful for training exercises by a diver in the tank.

[0015] The invention also provides a method for simulating open water diving by a diver. The method comprises diving in the enclosed, in-ground, temperature-controlled super dive tank of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] A full understanding of the invention can be gained from the following description of the preferred embodiments when read in conjunction with the accompanying drawings in which:

[0017] FIG. 1 is a top view of the super dive tank according to the embodiments of the invention;

[0018] FIG. 2 is a front view of the super dive tank according to the embodiments of the invention; and

[0019] FIG. 3 is a rear view of the super dive tank according to the embodiments of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring to FIGS. 1, 2 and 3, the super dive tank 10 of the invention has a front end 12, a rear end 14, a top end 17, a bottom end 18 and two sides 16, 16'. The distance between the front end 12 and the rear end 14 of the tank 10, referred to herein as the length of the tank 10, ranges between about 100 feet to about 200 feet long. In an embodiment, the length of the super dive tank 10 is about 150 feet. The distance between the two sides 16, 16' of the tank, referred to herein as the width of the super dive tank 10, ranges between about 50 feet to about 150 feet wide. In an embodiment, the width of the super dive tank 10 is about 100 feet wide. The distance between the top end 17 and the bottom end 18 of the tank 10, referred to herein as the depth of the tank 10, ranges between about 50 feet to about 80 feet deep. In an embodiment, the depth of the super dive tank 10 is about 60 feet deep.

[0021] The super dive tank 10 of the invention may be rectangular or elliptical in shape. In one embodiment, the super dive tank 10 is rectangular.

[0022] The super dive tank 10 of the invention has an entry ledge 20 at the rear end 14 and at the two sides 16, 16' of the tank. The width of the entry ledge 20 is about 3 feet wide.

[0023] The super dive tank 10 of the invention has a walkway 22 adjacent to the entry ledge 20 of the tank. The walkway 22 has a width of about 6 feet wide.

[0024] As can be seen in FIG. 1, the front end 12 of the super dive tank is comprised of a solid wall. In an embodiment, the front end 12 and/or each one or both of the two sides 16, 16' may contain therein a below-water observation window (not shown).

[0025] Each of the two sides 16, 16' of the super dive tank 10 has one or more underwater ledges 24, in which each

underwater ledge **24** is which are located at a different depth level in the tank **10**. In an embodiment, one of the two sides **16** of the tank contains two underwater ledges **24**. The first underwater ledge **24** is located at a depth level of about 20 feet. The second underwater ledge **24** is located at a depth level of about 40 feet. The second of the two sides **16** contains one underwater ledge **24** located at a depth level of about 30 feet. Each one of the underwater ledges **24** has a width of about 20 feet. The underwater ledges **24** thus allow a diver to dive to different depths by descending from a particular underwater ledge **24** located at the above-described depth level.

[0026] It is contemplated that the super dive tank **10** of the invention having the above-described dimensions can accommodate up to about 30 divers comfortably and safely at any given time.

[0027] The super dive tank **10** of the invention can be filled with at least about 1×10^6 to about 3×10^6 gallons of clear water. In an embodiment, the super dive tank **10** is filled with over 2.5×10^6 gallons of clear water and the water temperature in the super dive tank is maintained at about 80 degrees F. The bottom end **18** of the super dive tank of the invention may be filled with sand.

[0028] In an embodiment, the super dive tank **10** may contain a plurality of artifacts **32** including, without limitation, underwater landscaping such as artificial reef or coral, a sunken pirate ship, a treasure chest, one or more skeletal remains, a small aircraft or other objects to enhance recreational use of the tank by a diver. The artifacts may be fabricated from suitable materials used by those skilled in the art of manufacturing artifacts such as these. For example, artificial reef or coral may be fabricated from plastic casts or moldings.

[0029] In another embodiment, the super dive tank **10** may contain a plurality of objects **34** including, without limitation, underwater video cameras for viewing divers in action, a submerged vehicle for rescue, a section of steel beams and girders welded together for underwater welding, bolting and inspection exercises or other objects useful for training exercises by a diver in the tank.

[0030] The super dive tank **10** of the invention is fabricated as an in-ground tank, so that divers will experience increasing atmospheric pressure at increasing diving depths. In particular, the super dive tank **10** of the invention is deep enough to allow divers to train in compression dives, defined as diving at depths over 33 feet. Compression dives consist of "atmospheres of pressure." The air pressure at sea level is defined as one atmosphere of pressure (1 ATM). Pressure increases at a rate of 1 ATM every 33 feet of water depth. Thus, at 33 feet, a diver is at 2 ATM; at 66 feet a diver is at 3 ATM, and so on. When a diver descends over 33 feet, i.e., compression dives, the time spent at such depths as well as the ascent from the dive needs to be strictly timed and regulated. The super dive tank **10** of the invention allows for such deep-water diving training as well as for regular diving sessions in order to maintain diving certification by a diver.

[0031] The super dive tank **10** of the invention may be fabricated from all suitable materials well known by those skilled in the art of manufacturing in-ground aquatic structures including, without limitation, concrete blocks, form and pour concrete columns and beams, tank concrete, concrete slabs with steel, steel footers, underground plumbing, a water filtration system, a water heater, and electrical wiring for underwater lighting.

[0032] It is envisioned that the super dive tank **10** of the invention is contained within an enclosed diving facility. The facility may be enclosed with any suitable enclosure **36** to ensure that the temperature of the water in the super dive tank **10** as well as the diving facility is maintained at warm temperatures to allow divers **26** to use the super dive tank **10** for recreational and/or dive training all year round in any climate. **[0033]** It will be appreciated by those skilled in the art that changes could be made to the embodiments described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but it is intended to cover modifications that are within the spirit and scope of the invention, as defined by the appended claims.

What is claimed is:

1. A super dive tank, comprising an enclosed, in-ground, temperature-controlled tank having a front end, a rear end, a top end, a bottom end, and two sides, wherein the distance between the front end and the rear end of the tank, or length of the tank, ranges between about 100 feet to about 200 feet long, the distance between the two sides of the tank, or width of the tank, ranges between about 50 feet to about 150 feet wide, and the distance between the top end and the bottom end of the tank, or depth of the tank ranges between 50 feet to about 80 feet deep.

2. The super dive tank according to claim 1, wherein said tank is about 150 feet long, about 100 feet wide, and about 60 feet deep.

3. The super dive tank according to claim 1, wherein said tank has an entry ledge at the rear end and at the two sides of the tank, said entry ledge having a width of about 3 feet, and wherein said tank has a walkway adjacent to the entry ledge, said walkway having a width of about 6 feet.

4. The super dive tank according to claim 1, wherein each of the two sides of the tank has one or more underwater ledges, each one of the underwater ledges being located at a different depth level in the tank.

5. The super dive tank according to claim 4, wherein one of the two sides of the tank contains a first underwater ledge located at a depth level of about 20 feet, and a second underwater ledge located at a depth level of about 40 feet, wherein the second one of the two sides of the tank contains one underwater ledge located at a depth of about 30 feet, and wherein each of the underwater ledges has a width of about 20 feet.

6. The super dive tank according to claim 1, wherein said tank has a shape selected from the group consisting of rectangular and elliptical.

7. The super dive tank according to claim 6, wherein said tank is rectangular in shape.

8. The super dive tank according to claim 1, wherein said tank has a sand-filled bottom.

9. The super dive tank according to claim 1, wherein the tank contains clear water.

10. The super dive tank according to claim 9, wherein the tank contains over 2×10^6 gallons of clear water.

11. The super dive tank according to claim 9, wherein temperature of the clear water is maintained at about 80 degrees F.

12. The super dive tank according to claim 1, wherein said tank can accommodate up to about 30 divers.

13. The super dive tank according to claim 1, wherein the tank contains a plurality of artifacts selected from the group consisting of underwater landscaping such as artificial coral,

a sunken pirate ship, a treasure chest, one or more skeletal remains, a small aircraft, and other objects to enhance recreational use of the tank.

14. The super dive tank according to claim **1**, wherein the tank contains a plurality of objects selected from the group consisting of underwater video cameras, a submerged vehicle for rescue, a section of steel beams and girders welded together for underwater welding, bolting and inspection exercises, and other objects useful for training exercises in the tank.

15. A method for simulating open water diving by a diver, comprising diving in an enclosed, in-ground, temperature-controlled super dive tank, said tank being rectangular or elliptical in shape, about 100 feet to about 200 feet long, about 50 feet to about 150 feet wide, and about 50 feet to 80 feet deep.

16. The method according to claim **15**, wherein said tank is rectangular in shape and is about 150 feet long, about 100 feet wide, and about 60 feet deep.

17. The method according to claim **15**, wherein said tank has one or more underwater ledges, each one of the underwa-

ter ledges located at a different depth level selected from the group consisting of about 20 feet, about 40 feet, and about 60 feet.

18. The method according to claim **15**, wherein said tank contains over 2×10^6 gallons of clear water which is maintained at about 80 degrees F.

19. The method according to claim **15**, wherein said tank can accommodate up to about 30 divers.

20. The method according to claim **15**, wherein said tank contains a plurality of artifacts and/or objects selected from the group consisting of underwater landscaping such as artificial reef or coral, a sunken pirate ship, a treasure chest, one or more skeletal remains, a small aircraft, underwater video cameras, a submerged vehicle for rescue, a section of steel beams and girders welded together for underwater welding, bolting and inspection exercises, and other artifacts and/or objects to enhance recreational use or to aid training exercises in the tank.

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