



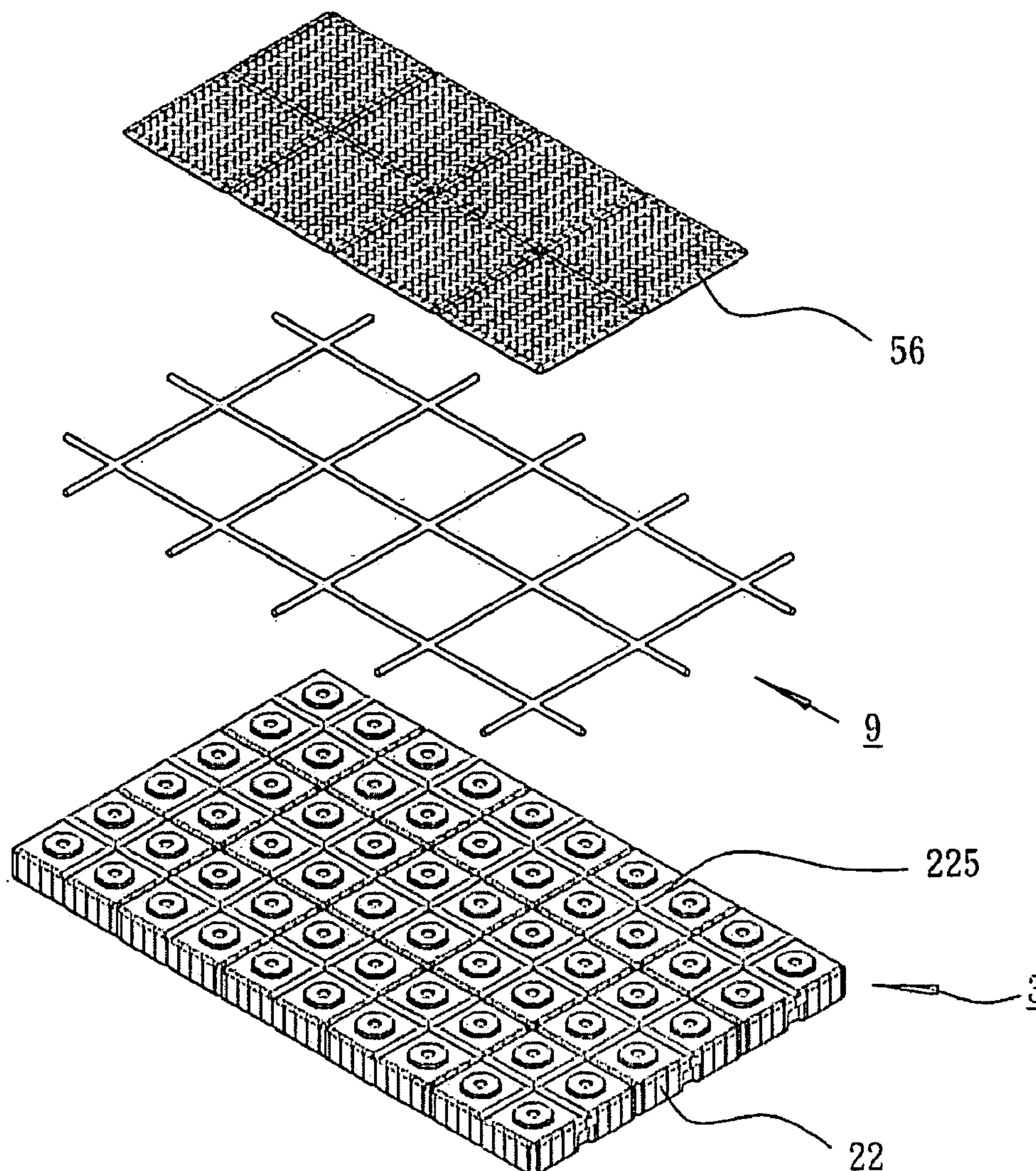
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## Publication Classification

(57) **ABSTRACT**

A float assembly means that includes platform consisting of a plurality of floats adjoined to float on the surface of a body of water; a bottom base below the water surface consisting of a plurality of floats adjoined that are submerged in the water; and a surrounding wall disposed between the platform and the bottom base consisting of a plurality of floats stacked together that are submerged in the water. The surrounding wall is formed of a plurality of wall surfaces, each wall surface collectively closing off a sealed area. The sealed area, at its lower extent, is closed by the bottom base and an opening is formed over the recess in its upper extent. The resulting structure is capable of, on a water surface, covering a specific body of water to form a safe swimming and water recreation area.

(22) Filed: **Jun. 6, 2007**





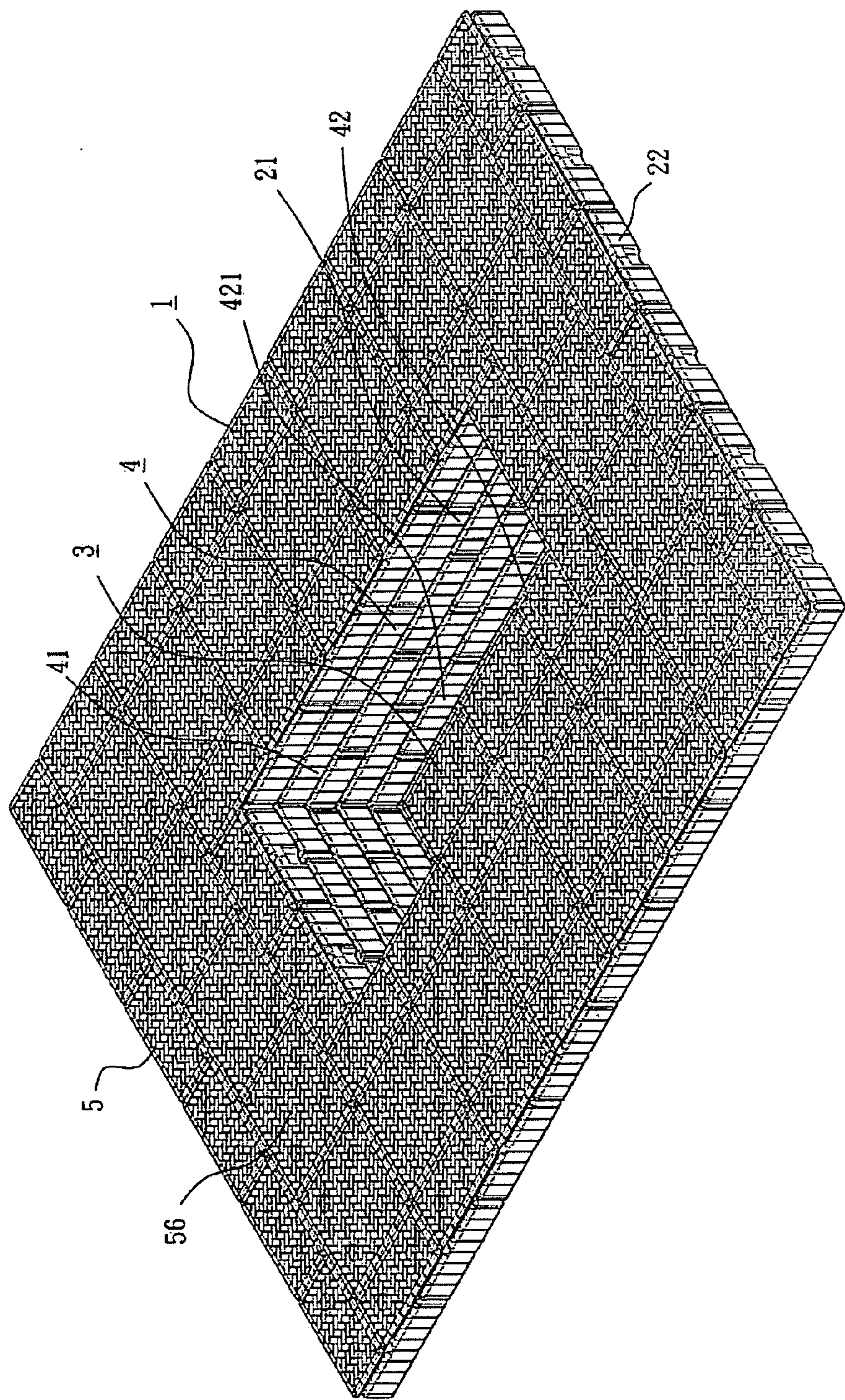


FIG. 1

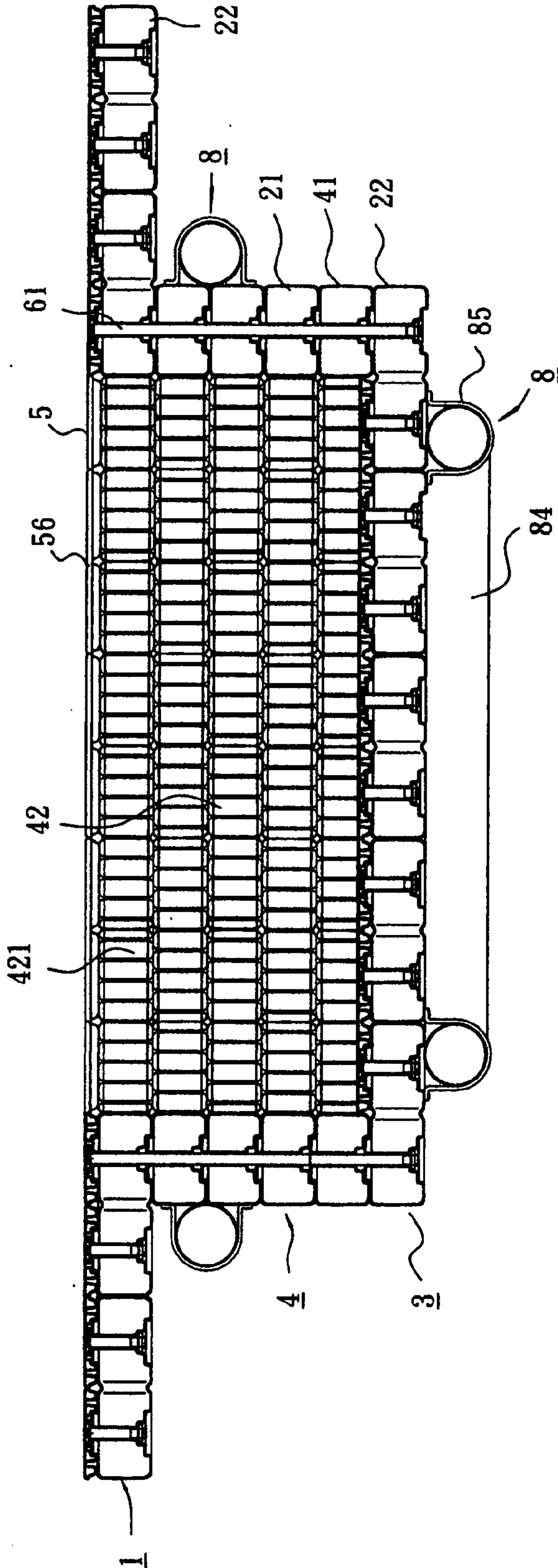


FIG. 2



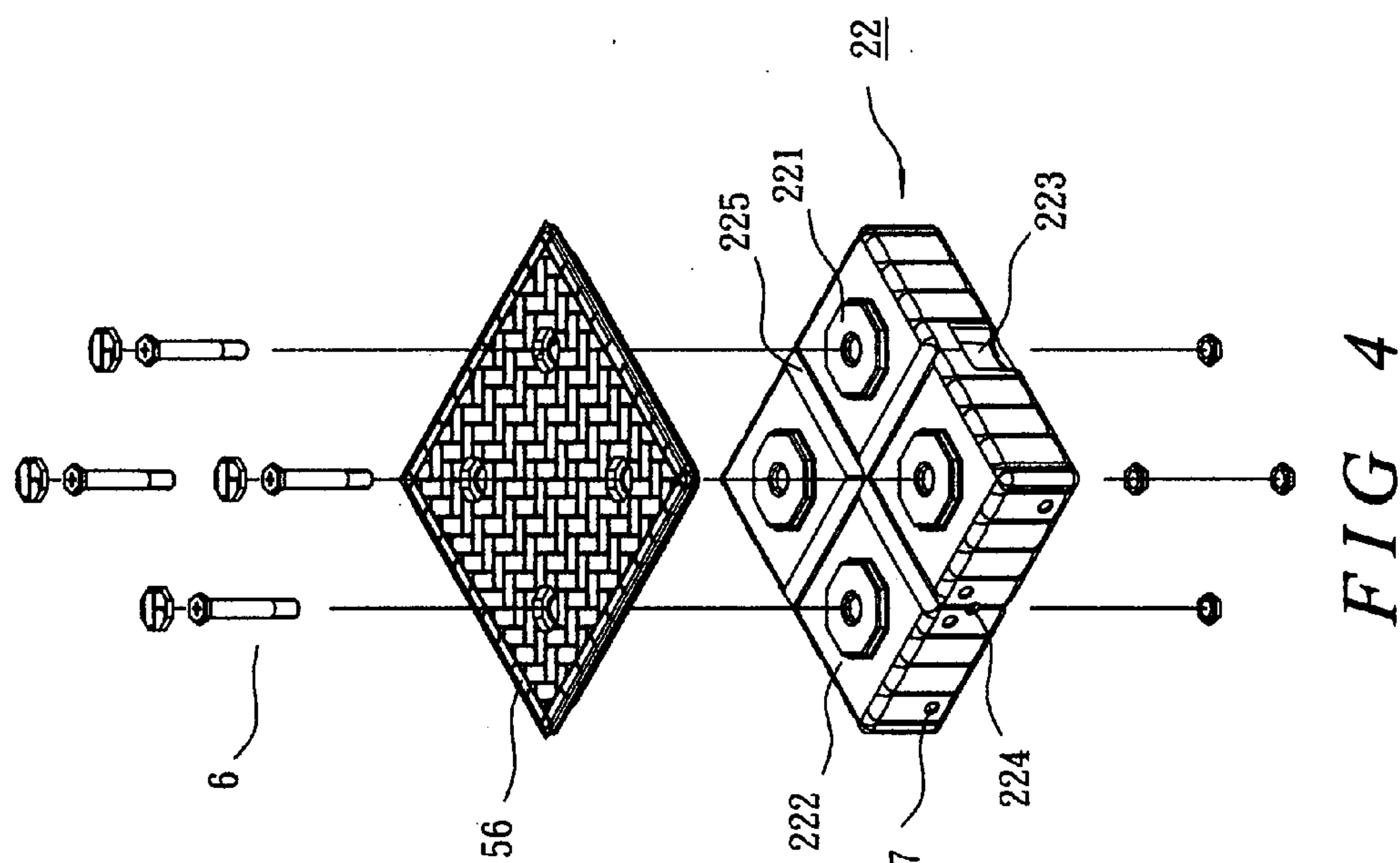
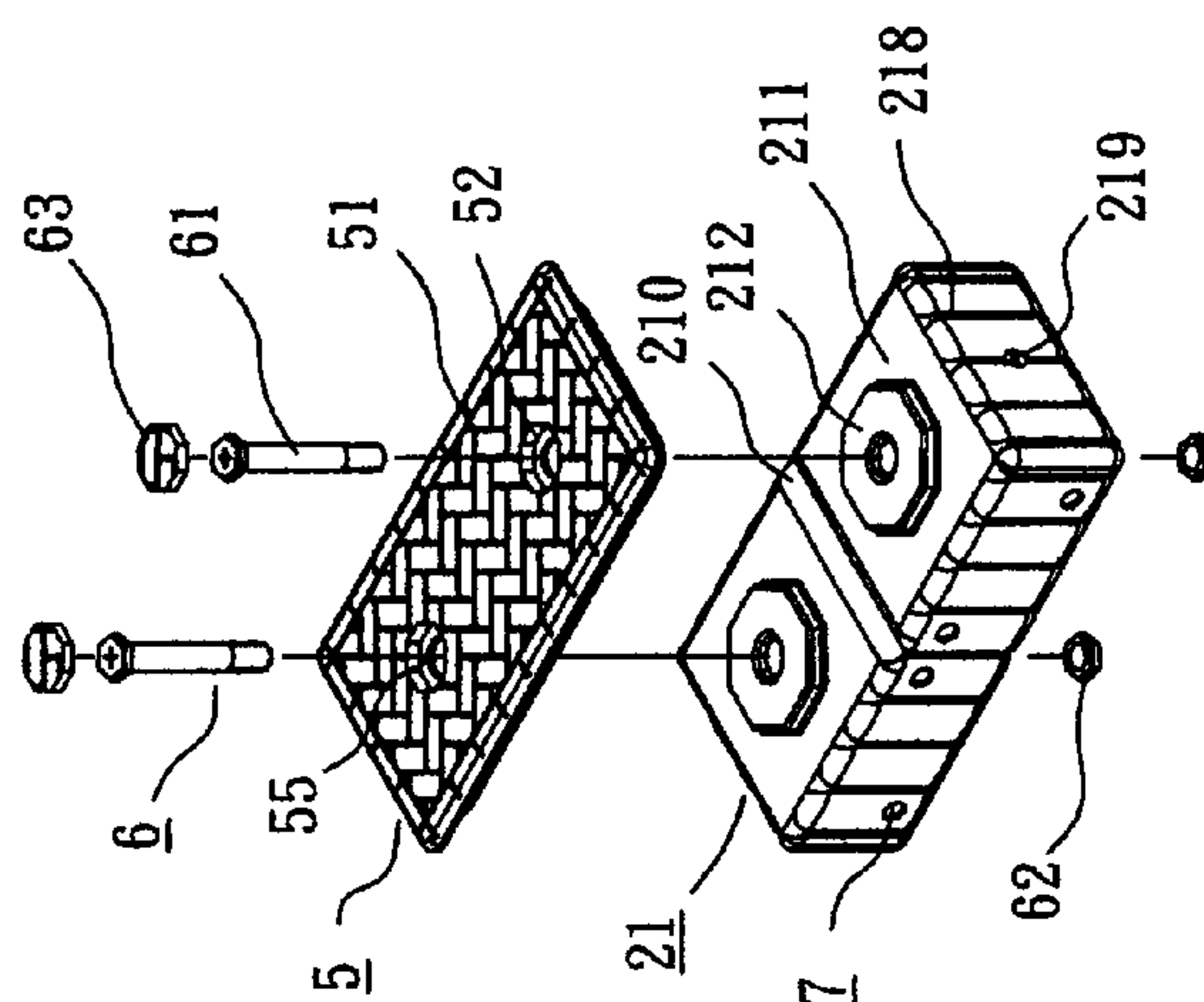
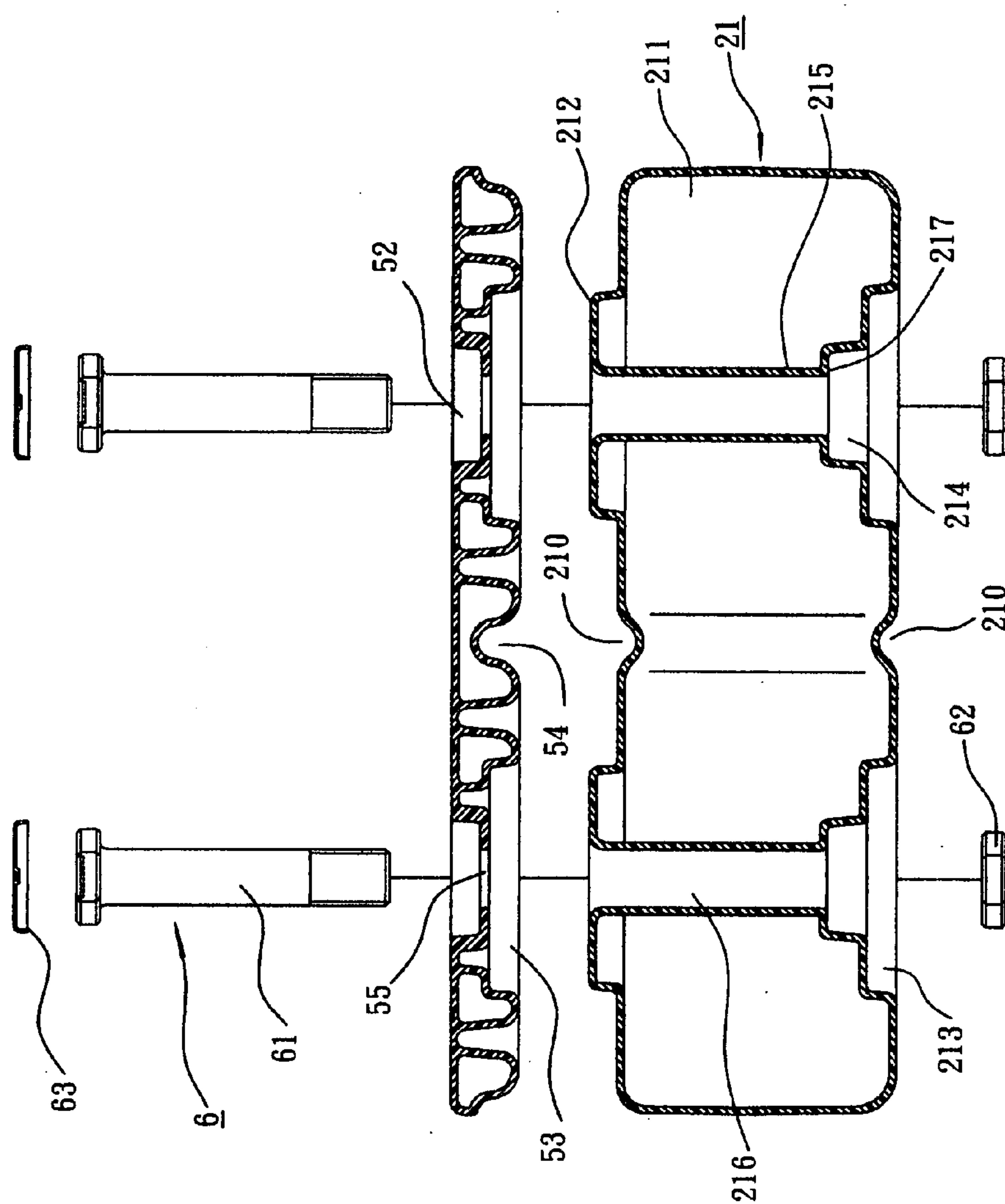


FIG 3





**FIG 5**

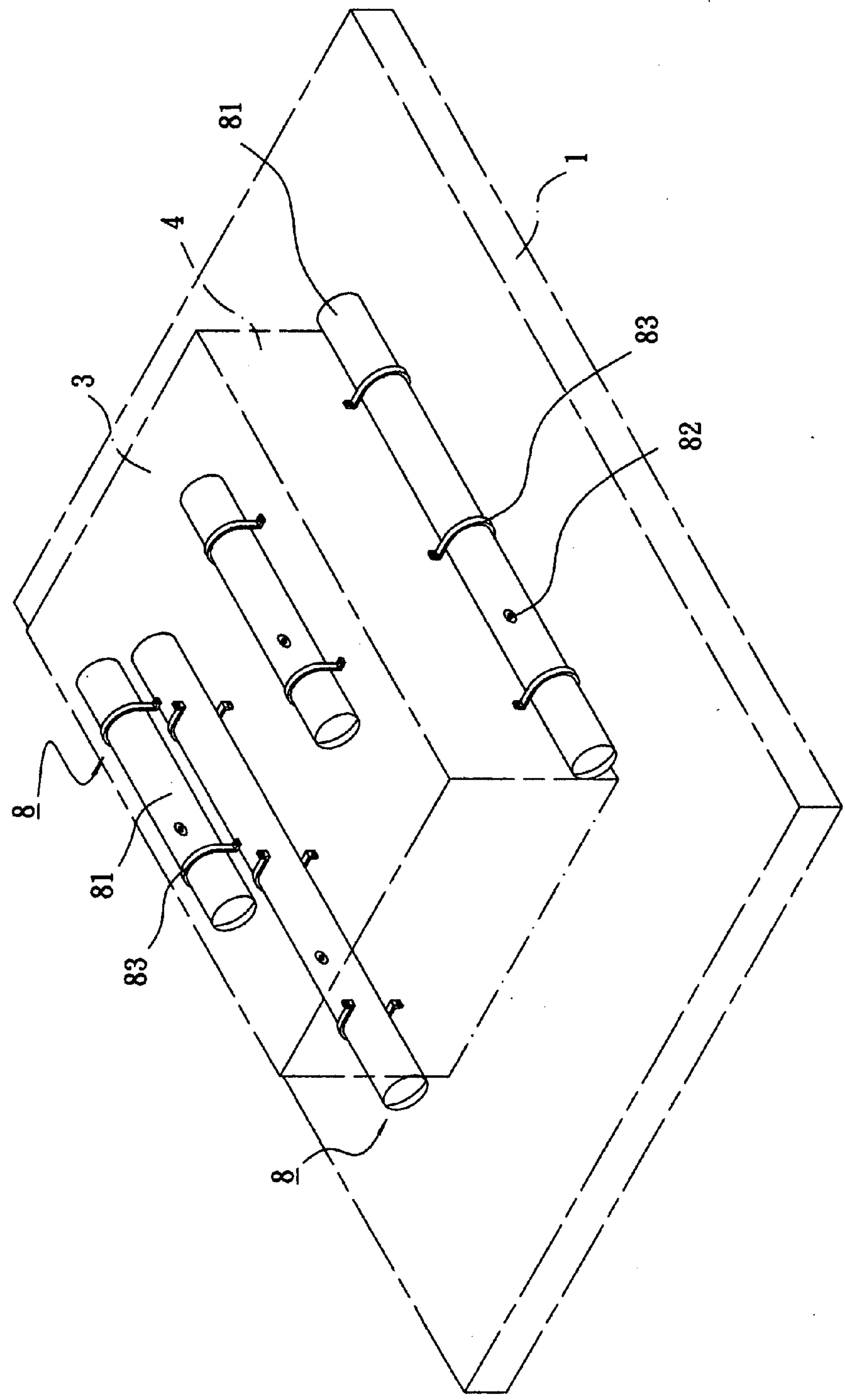


FIG 6

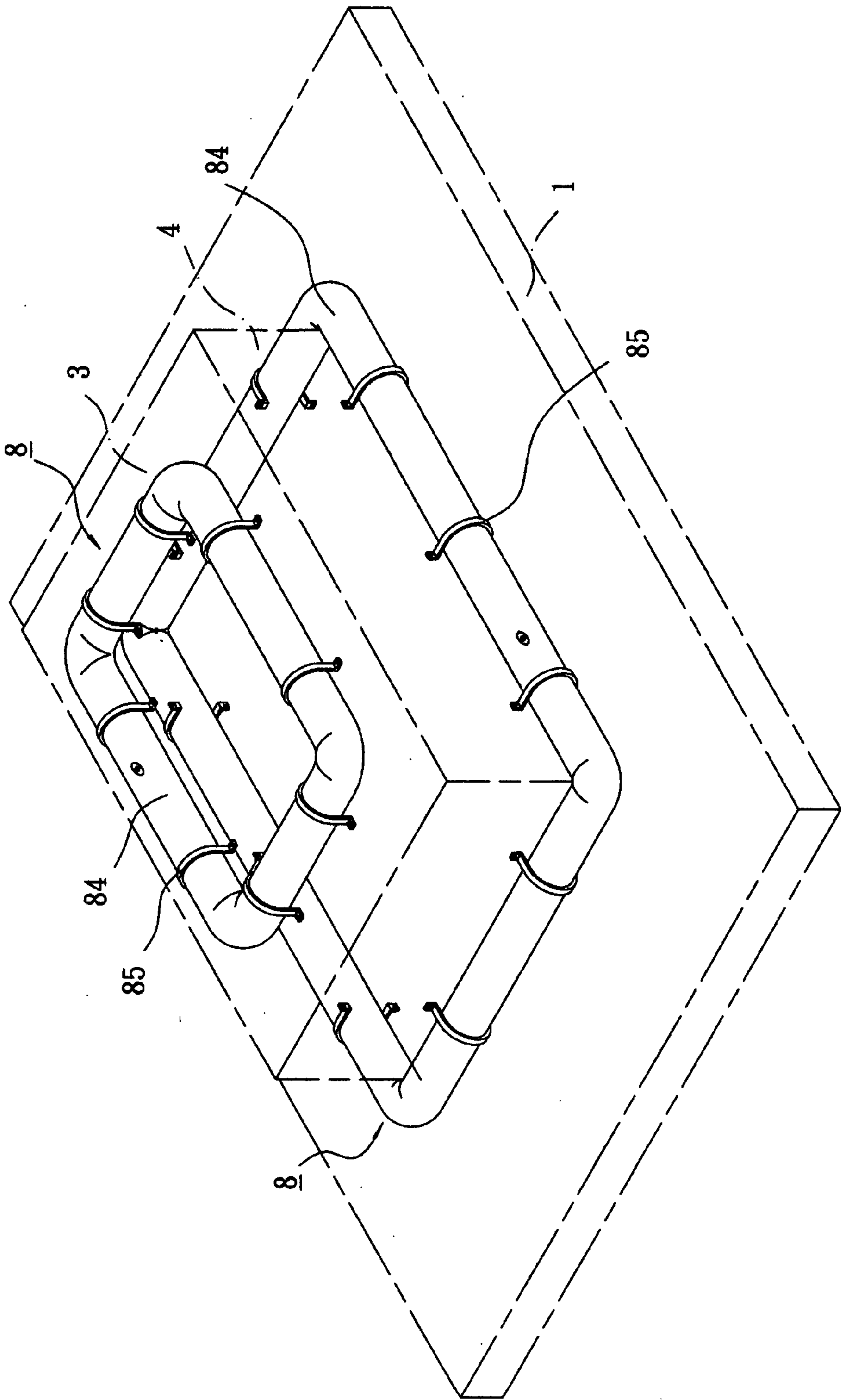


FIG 7

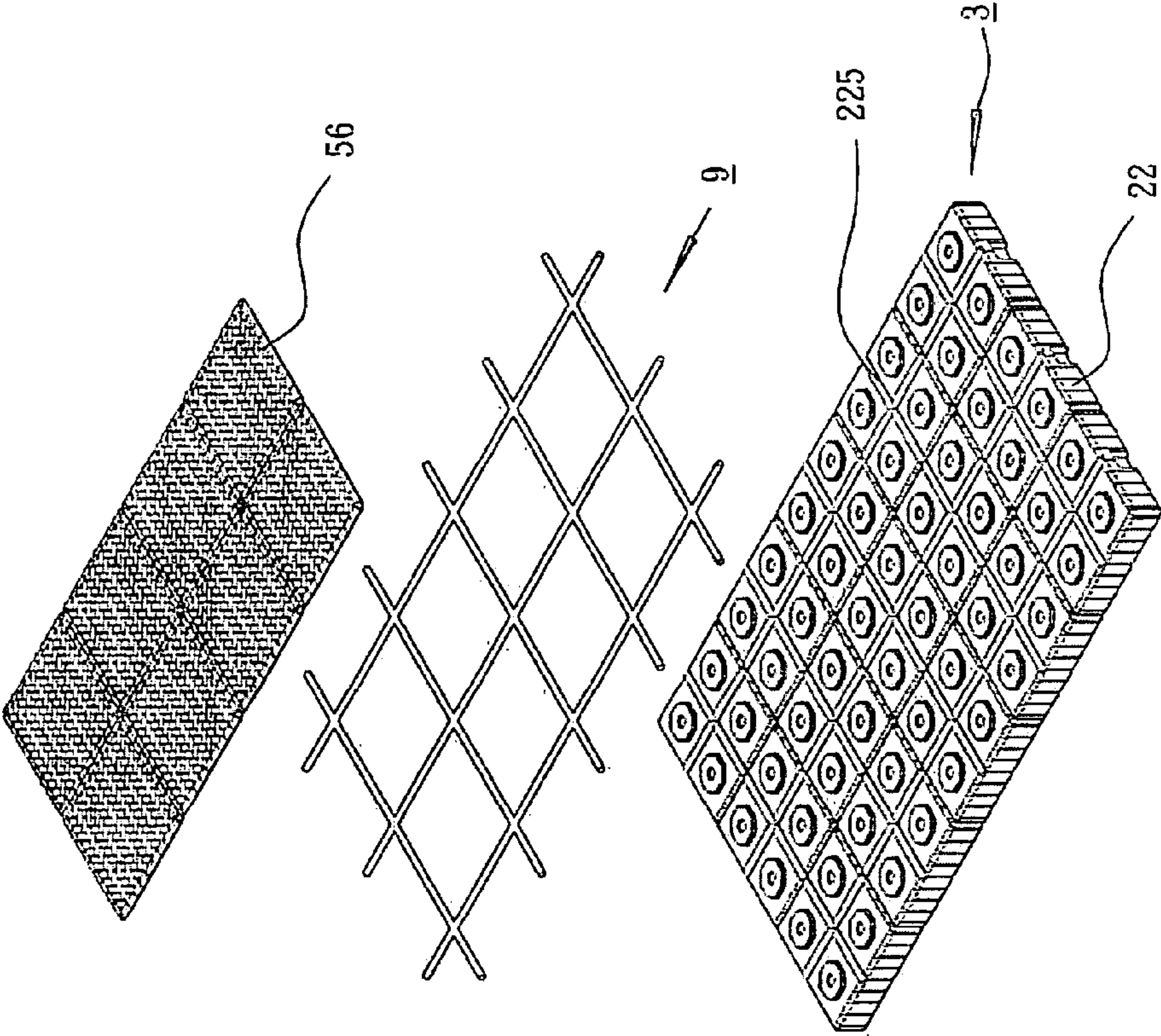


FIG 8



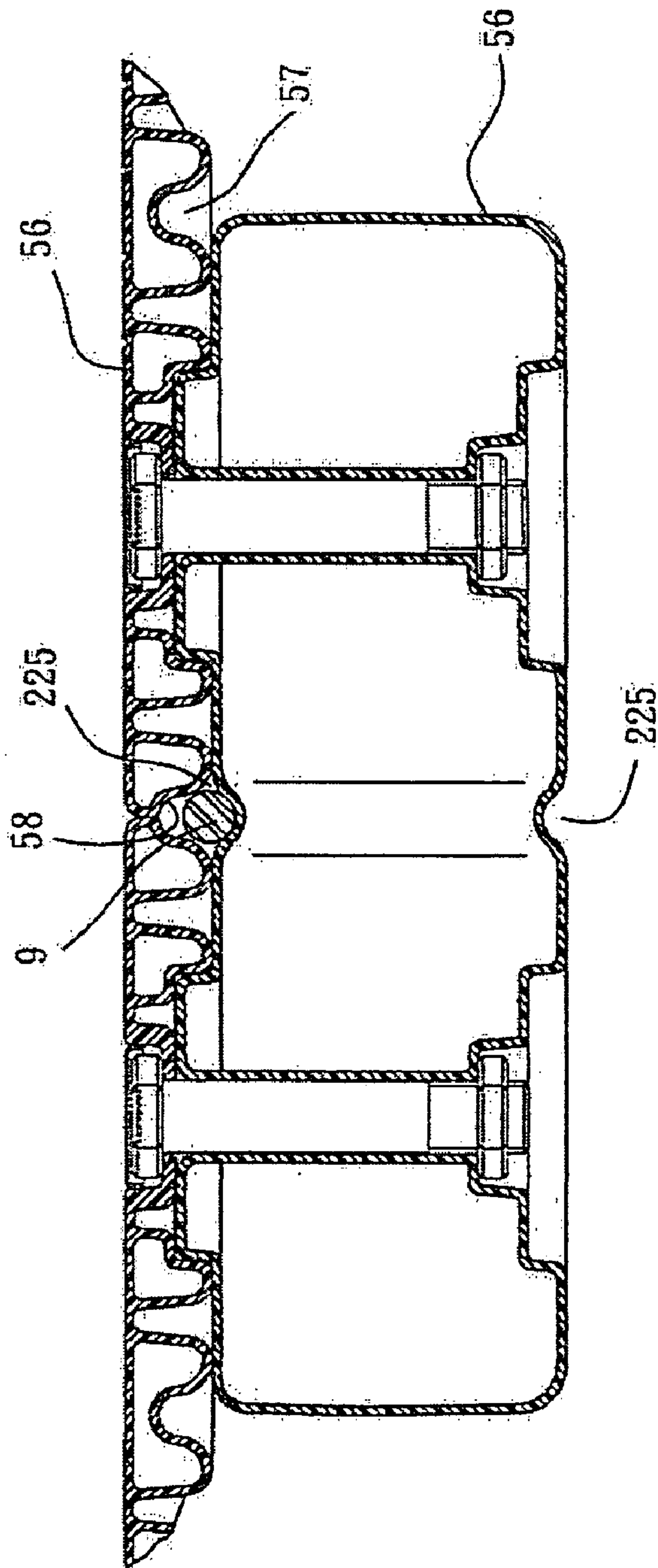


FIG 9

## FLOAT ASSEMBLY MEANS

### BACKGROUND OF THE INVENTION

[0001] 1) Field of the Invention

[0002] The invention relates to a float assembly means capable of, on a water surface, covering a specific body of water to form a safe swimming and water recreation area, its structure also capable of adjustment in the water for buoyancy and appropriate positioning on the water.

[0003] 2) Description of the Related Art

[0004] Many float patents are presented under the Taiwan Patent Bulletin numbers 254801, 259076, 259077, 260135, 287513, 315829, 329080, 370072, 370958, and 0358452. Said float patents generally disclose an identical type of hollow cavity float structure, but the float-to-float connective means consists of a tab disposed at the four corners of each float, with a mounting hole in each tab, such that when the tabs of two floats are stacked one above the other, their mounting holes aligned, a fastening rod is inserted through the two stacked mounting holes to thereby enable the coupling of the two floats; while such float structures are admittedly practical, the hollow cavities are excessively large, thereby providing a gross buoyancy of a greater degree even though the tabs at the corners are relatively thin and, as a result, as the float is subjected to center-of-pressure stress to the extent that the tabs are driven apart due the moment of force exerted, the connective stability of the floats is less than optimal; furthermore, such floats are more suited for horizontal connection and although they may be in an upper and lower connective arrangement, this is achieved by the insertion of a cord from top to bottom through the float tabs, however, since the cord is typically of a small diameter and the tab mounting holes are larger (since they originally provide for the insertion of fastening rods), following upper and lower routing and given the in-water forces of floatation, shifting instability is even higher; furthermore, said conventional floats are only capable of being assembled into two-dimensional water surface platforms and since it is not possible to solve, when numerous floats are assembled together, the enormous gross buoyancy and the problem of how to achieve submersion, therefore, on-water three-dimensional platforms cannot be utilized.

### SUMMARY OF THE INVENTION

[0005] The objective of the invention herein is to provide an improved float assembly means which includes: a platform consisting of a plurality of floats adjoined to float on the surface of a body of water; a bottom base below the water surface consisting of a plurality of floats adjoined that are submerged in the water; a surrounding wall disposed between said platform and bottom base consisting of a plurality of floats stacked together that are submerged in the water, said floats, after stacking, form a multiple faceted, suitably angled, and vertical wall surface, each wall surface collectively closing off a sealed area; the sealed area at its lower extent is closed by said bottom base and an opening is formed over the recess in its upper extent; said structure capable of, on a water surface, covering a specific body of water to form a safe swimming and water recreation area.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Other features and advantages of the present invention shall become apparent in the following detailed description of the preferred embodiments, with reference to the accompanying drawings, in which:

[0007] FIG. 1 is an isometric drawing of the preferred embodiment of the invention herein.

[0008] FIG. 2 is a cross-sectional drawing of the preferred embodiment of the invention herein (the drawing showing the buoyancy augmenting device in FIG. 7).

[0009] FIG. 3 is an exploded drawing of the preferred embodiment float assembly means of the invention herein.

[0010] FIG. 4 is an exploded drawing of another preferred embodiment float assembly means of the invention herein.

[0011] FIG. 5 is a cross-sectional drawing of the float assembly means preferred embodiment shown in FIG. 3.

[0012] FIG. 6 is an isometric drawing of the preferred embodiment buoyancy augmenting device of the invention herein, turned over to show its rear side.

[0013] FIG. 7 is an isometric drawing of another preferred embodiment buoyancy augmenting device of the invention herein.

[0014] FIG. 8 is an exploded drawing of the preferred embodiment bottom base net entity of the invention herein.

[0015] FIG. 9 is a cross-sectional drawing of the preferred embodiment bottom base net entity of the invention herein.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] In the detailed description of the preferred embodiments, it should be noted that similar elements are indicated by the same reference numerals throughout the disclosure.

[0017] Referring to FIG. 1 and FIG. 2, the preferred embodiments of the invention herein consist of floats assembled into a swimming pool preferred embodiment, that in its entirety can be employed in lakes, oceans, marshes, reservoirs, and other bodies of water; the assembled arrangement of which is not limited to the dimensions and shape of preferred embodiments herein; the preferred embodiments of the present invention comprised of:

[0018] A platform 1 consisting of a plurality of floats 22 adjoined to float on the surface of a body of water; the float 22 quantity is based on swimming pool dimensions, and the enlargement of the platform 1 accomplished as required by adjunction of more rows of floats 22; a bottom base 3 below the water surface consisting of a plurality of floats 22 adjoined that are submerged in the water; a surrounding wall 4 disposed between said platform 1 and bottom base 3 consisting of a plurality of floats 21 stacked together that are submerged in the water, said floats 21, after stacking, form a multiple faceted, suitably angled, and vertical wall surface 41, each wall surface 41 collectively closing off a sealed area 42; the sealed area 42 at its lower extent is closed by said bottom base 3 and an opening 421 is formed over the recess in its upper extent, with said platform 1 disposed around the exterior sides of the sealed area 42 opening 421 and including provisions for the wall surface 41 upward and outward extension; said platform 1, bottom base 3, and surrounding wall 4 all utilize in common the float 21 shown in FIG. 3 or the structure shown in FIG. 5; the float 21 in FIG. 5 is used for the preferred embodiment surrounding wall 4 in FIG. 1 and the float 22 in FIG. 4 for the platform 1 and the bottom base 3.

[0019] Referring to FIG. 3 and FIG. 5, said float 21 has a cavitory body 211, generally in the shape of a rectangular solid, the interior space of which is of soft plastic construction, the cavitory body 211, at its upper extent, has a first conjoinment structure raised seat 212, with a total of two such raised seats 212 disposed, each raised seat 212 of an octagonal shape; at the cavitory body 211 lower extent and in vertical alignment with said raised seat 212 is a second conjoinment structure recessed seat 213, with a total of two such recessed seats 213, each recessed seat 213 of an octagonal shape and having disposed within a inset hole 214; the cavitory body 211 has disposed through its center a plurality of tubular



entities **215**, each tubular entity **215** having internally formed through it a passage **216**, one end of each passage **216** contiguous to the raised seat **212** at the upper extent, with the opposite end contiguous to the recessed seat **213** inset hole **214**; the passage **216** hole diameter through the inset hole **214** is smaller than the width of the inset hole **214** and, as a result, each inset hole **214** has formed at its bottom section a shoulder section **217**; the cavitory body **211**, along the periphery of its lateral sides, has disposed a plurality of top to bottom juxtaposed, shallow grooves **218**; the cavitory body **211** along the periphery of its lateral sides at the same time has disposed, left during hollow forming, a mold junction opening **219**, which is plugged by means of a filler and thereby sealed; and the cavitory body **211** along each of its upper and lower extent surfaces has correspondingly disposed a guide slot **210**.

[0020] The float **21**, at its upper extent, can have disposed a step pad **5**, the top surface of which features a plurality of incised patterns **51**, thereby forming an anti-slip surface; the step pad **5** top surface, in line with the position of the raised seat **212** on said cavitory body **211**, has recessively disposed a sunken hole **52**; the step pad **5** bottom surface, in line with the position of the raised seat **212** on said cavitory body **211**, has recessively disposed, and also matching the raised seat **212** octagonal shape, a sunken hole **53**; in line with the float **21** guide slot **210**, is disposed a matching slot **54**; and between the sunken hole **52** and the sunken hole **53** is formed a through-hole **55**.

[0021] Between the step pad **5** and the float **21**, included screws **61** and nuts **62** of two fastening components **6**, provide for conjoinment, and after the fastening components **6** affix the step pad **5** to the float **21**, in the step pad **5** sunken hole **52** is placed a cap **63**.

[0022] Referring to FIG. 4, the float **22** has two times the physical bulk of the float **21** and, therefore, its conjoinment arrangement results in the disposing of four raised seats **221**, their interior section and bottom section structure and material are generally identical to that of the float **21** in FIG. 3 and thus for the same reason do not require further elaboration; however, since its physical bulk is larger, in line and at each of the two sides is recessively disposed a holding place **223**, which enables the entry of two hands to facilitate moving; additionally, since the holding place **223** occupies the cavitory body **222** at two sides, a mold junction opening **224** left during hollow forming is disposed at the holding place **223** outside its other side; its step pad **56** accords identically with that of the arrangement shown in FIG. 3, but the physical bulk is increased by a factor of one; the accompanying fastening component **6** quantity, relative to that in FIG. 3, is increased by a factor of one; and the cavitory body **222** along each of its upper and lower extent surfaces has correspondingly disposed, in a criss-cross incised arrangement, a guide slot **225**.

[0023] Referring to FIG. 3 and FIG. 4, a port **7** constituting a submergibility augmenting structure, which can be disposed in the swimming pool platform **1** of FIG. 1, or on the bottom base **3** or the surrounding wall **4** of any float **21** or **22**, enables the admittance of water into the float **21** or float **22**, with whether several or just one float **21** or float **22** have the port **7** disposed, as well as the total quantity of ports **7**, determining the overall degree of submergence.

[0024] Referring to FIG. 6, a buoyancy augmenting device **8** can be disposed on said platform **1**, bottom base **3** or surrounding wall **4**, the drawing herein respectively showing that at the platform **1** lower extent, that along two sides of the surrounding wall **4**, and that at the lower extent of the bottom base **3**, the two do not have to be in place at the same time, and can, according to overall swimming pool volume and gross buoyancy (sea water and fresh water buoyancy differ), be

disposed in one or more groups, the drawing herein depicting two as one group disposed in a parallel arrangement; the structure consists of a soft material, such as a rubber, construction hollow tubular entity **81**, its upper extent having disposed an air nozzle **82**, with its shape of an appropriate length and, by a plurality of U-shaped mounting brackets **83** at suitable intervals apart, that is attached to the outside of the surrounding wall **4** or beneath the bottom base **3**.

[0025] Referring to FIG. 7, said buoyancy augmenting device **8**, based on swimming pool shape, can also be formed around the surrounding wall **4** or circumferentially disposed at the bottom base **3** lower extent as an annular hollow tubular entity **84** and, by a plurality of U-shaped mounting brackets **85** at suitable intervals apart, that is attached thereon.

[0026] In the preferred embodiment swimming pool structure of the invention herein, first by means of float **22** (or the float **21**) adjoinment a predetermined shape and size bottom base **3** is built, then on the bottom base **3** around the perimeter by means of float **21** (or the float **22**) stacking a surrounding wall **4** is built, each wall surface **41** of which forms a sealed area **42**; the sealed area **42** opening **421** outer side, consists of, at the wall surface **41** upper extent, floats **22** that are stacked such that they extend towards the wall surface **41** exterior, the extension width determined by the platform **1** size required; on the platform **1** and each wall surface **41** surrounding the sealed area **42** as well as the lower extent bottom base **3**, is disposed the step pad **5** or step pad **56**, and affixed into position by the fastening components **6**; wherein, the step pad **5** or step pad **56** is in principle spread against the differing adjoined float **22** intervals to minimize, between any two floats **22**, shifting when subjected to water surface undulation, thereby increasing stability. Additionally, the surrounding wall **4** upper and lower individual floats **21** are higher in terms of length and, therefore, from the platform **1** floats **22** through the surrounding wall **4** and each of its floats **21** to the lower extent bottom base **3** and its floats **22**, longer screws **61** of the fastening components **61** affix them into position. In consideration of overall swimming pool volume, if the surrounding wall **4** is quite high and the sealed area **42** is not large, then in a certain quantity of floats **21** and **22**, the ports **7** constituting the submergibility augmenting structure, enables at minimum for a platform **1** floating on the water surface under the conditions previously stated, the admittance of water into the ports **7** to achieve sinking in a body of water to an appropriate degree of submergence; said ports **7**, when so required, can be drilled directly in floats **21** and **22** lacking ports **7**.

[0027] If the surrounding wall **4** is relatively shallow but the sealed area **42** is comparatively large, then the gross buoyancy may be of a lesser magnitude; when building, at the buoyancy augmenting device **8** disposed on the bottom base **3** or the surrounding wall **4**, a gas is pumped into the tubular entity **81** or **84** to increase the total buoyancy.

[0028] Said ports **7** constituting the submergibility augmenting structure and the buoyancy augmenting device **8** are both at the same time disposed in the swimming pool structure, but the disposing of one or another of the two is a selectable option that is wholly determined by the situation at the time of construction.

[0029] Referring to FIG. 8 and FIG. 9, on the bottom base **3**, the guide slot **220** of each float **22** accommodates the installation of a metal or other suitable material net entity **9** after which the step pad **56** is inserted, and since the step pad **56**, in addition to having the channels **57**, also has the channels **58** formed along the two sides at its lower extent, therefore, two step pads **56** have channels **58** that together form with the channels **57** identically sized grid areas and, there-



fore, can, with the float **22** guide slots **220**, all accommodate the net entity **9**; the net entity **9** is capable of protecting swimming pools from incidents due to excessive user presence, thereby averting accidents.

**[0030]** In summation of the foregoing section, since the structural design of the preferred embodiments not only provides a float assembly means capable of, on a water surface, covering a specific body of water in a three-dimensional spatial arrangement to form a safe swimming and water recreation area, its structure is also adjustable in the water for buoyancy and appropriate positioning on the water.

**[0031]** While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that the invention herein is not limited to the disclosed embodiments, but is intended to cover various arrangements included within the spirit and scope of the broadest interpretations and equivalent arrangements.

I claim:

**1.** A float assembly means that includes: a platform consisting of a plurality of floats adjoined to float on the surface of a body of water; a bottom base below the water surface consisting of a plurality of floats adjoined that are submerged in the water; a surrounding wall disposed between said platform and bottom base consisting of a plurality of floats stacked together that are submerged in the water, said floats, after stacking, form a multiple faceted, suitably angled, and vertical wall surface, each wall surface collectively closing off a sealed area; the sealed area at its lower extent is closed by said bottom base and an opening is formed over the recess in its upper extent; said structure capable of, on a water surface, covering a specific body of water to form a safe swimming and water recreation area.

**2.** A float assembly means as claimed in claim **1**, wherein said platform is disposed around the exterior sides of said sealed area opening and includes provisions for said wall surface upward and outward extension.

**3.** A float assembly means as claimed in claim **1**, wherein said platform, each said wall surface collectively enclosing said sealed area, and the lower extent said bottom base have disposed over them a step pad.

**4.** A float assembly means as claimed in claim **3**, wherein said step pad has recessively disposed a sunken hole; and the step pad bottom surface has recessively disposed a sunken hole; and between the former said sunken hole and the latter said sunken hole is formed a through-hole.

**5.** A float assembly means as claimed in claim **3**, wherein said step pad has on its top surface a plurality of incised patterns, thereby forming an anti-slip surface.

**6.** A float assembly means as claimed in claim **1**, wherein said step pad and said float are respectively conjoined by fastening components.

**7.** A float assembly means as claimed in claim **6**, wherein said fastening components include screws and nuts.

**8.** A float assembly means as claimed in claim **1**, wherein said floats have disposed on them a port that constitutes a submergibility augmenting structure.

**9.** A float assembly means as claimed in claim **8**, wherein said port is disposed in said wall surface of a certain quantity of said floats.

**10.** A float assembly means as claimed in claim **1**, wherein said platform, said bottom base, or said surrounding wall is additionally disposed a buoyancy augmenting device.

**11.** A float assembly means as claimed in claim **10**, wherein said buoyancy augmenting device consists of a soft material construction hollow tubular entity, said tubular entity attached by mounting brackets.

**12.** A float assembly means as claimed in claim **10**, wherein said tubular entity is disposed in groups of two at said bottom base lower extent or along two sides of said surrounding wall.

**13.** A float assembly means as claimed in claim **11**, wherein said tubular entity can also be formed around the surrounding wall or circumferentially disposed at the bottom base lower extent.

**14.** A float assembly means as claimed in claim **11**, wherein said float has a cavitory body, the interior of which is hollow; said cavitory body, at its upper extent, has a first conjoinment structure, and at the cavitory body lower extent and in vertical alignment with said first conjoinment structure is a second conjoinment structure.

**15.** A float assembly means as claimed in claim **14**, wherein said first conjoinment structure is a raised seat and said second conjoinment structure is a recessed seat.

**16.** A float assembly means as claimed in claim **15**, wherein said raised seat and said recessed seat are each disposed such that two form one group.

**17.** A float assembly means as claimed in claim **16**, wherein said raised seat and said recessed seat are disposed in two groups.

**18.** A float assembly means as claimed in claim **1**, wherein said float has a cavitory body, the interior of which is hollow; said cavitory body has disposed through its center a tubular entity, each said tubular entity having internally formed through it a passage.

**19.** A float assembly means as claimed in claim **18**, wherein said passage has one end contiguous to said raised seat at the upper extent of said cavitory body that constitutes said first conjoinment structure, with its opposite end contiguous to said recessed seat at the lower extent of said cavitory body that constitutes said second conjoinment structure.

**20.** A float assembly means as claimed in claim **1**, wherein said float, along the periphery of its lateral sides, has disposed a plurality of top to bottom juxtaposed, shallow grooves.

**21.** A float assembly means as claimed in claim **1**, wherein said float has at each of its two sides a recessively disposed a holding place, which enables the entry of two hands to facilitate moving.

**22.** A float assembly means as claimed in claim **1**, wherein said float has guide slots disposed on it.

**23.** A float assembly means as claimed in claim **1**, wherein on said bottom base, said guide slot of each said float accommodates the installation of a net entity.

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