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PATENTS ACT, CAP 314

(Section 43; Regulation 26 (3))

NOTICE OF GRANT OF PATENT

Volume 8 No: 26

TAKE NOTICE that the following Patent has been granted:

Title: **Floating Lake System And Methods of Treating Water Within A Floating Lake**

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Priority Country:	United States of America
Priority Number:	61/900,308 & 14/531,395
Priority Date:	5th November, 2013 & 3rd November, 2014

Documents/ References Cited of Prior Arts:

- US 2011/210076 A1
- US 2013/264261 A1
- US 2012/024796 A1
- US 2012/024794 A1

Effective Date of Grant
of Patent: 26th October, 2023

Abstract:
The present invention relates to floating lakes and to the treatment of the water in such lakes. The present invention further relates to large floating lakes that can be installed within a natural or artificial water body to improve water conditions that are unsuitable for recreational uses. The floating lake can be provided with a chemical application system; a filtration system including a mobile suctioning device and filters; a skimmer system, and optionally a coordination system.

Claims

1. A method for treatment of water in a floating lake for recreational purposes, wherein the floating lake is installed within a water body selected from an ocean, river, lake, reservoir, lagoon, pond, canal, estuary, stream, ocean bay, river bay, dam, pond, harbor, and bay, the floating lake having a surface area larger than 5,000 m2 and including walls and a bottom, and wherein the bottom of the floating lake is constructed of a flexible material having a Young's modulus of up to 20 GPa, wherein the method comprises:

a. applying an oxidant to the water in the floating lake to maintain an ORP level of at least 550 mV for a minimum of about 10 to about 20 hours within a 52-hour cycle;

b. applying a flocculant to the water in the floating lake before the turbidity of the water in the floating lake exceeds 5 NTU;

c. activating operation of one or more mobile suctioning devices before a black color component of the bottom of the floating lake exceeds 30% on a CMYK scale, wherein the CMYK scale denotes a Cyan, Magenta, Yellow, and Black color scale, wherein the one or more mobile suctioning devices suctions a portion of the water from the bottom of the floating lake containing settled solids;

d. filtering the water suctioned by the one or more mobile suctioning devices and returning the filtered water to the floating lake, thereby providing for removal of settled solids from the water in the floating lake without filtering the total volume of water in the floating lake; and

e. supplying replacement water to the floating lake to maintain a positive pressure against an inner surface of the walls and bottom of the floating lake, wherein the positive pressure is at least 20 Newtons per square meter of a surface area of the floating lake, wherein the replacement water has a true color of up to 35 Pt—Co and less than 2,000 CFU/ml of bacterial count, wherein the positive pressure is maintained for at least 50% of the time within 7-day intervals, and wherein the replacement water is supplied to the floating lake at a replacement rate according to the following equation:

Floating Lake Replacement Rate≥Floating Lake Evaporation Rate+Floating Lake Cleaning Rate+Floating Lake Leakage Rate.

2. The method of claim 1, wherein the bottom and walls of the floating lake are constructed of non-permeable materials that are capable of maintaining a body of water inside the floating lake and essentially separate the water on the inside of the floating lake from the surrounding artificial or natural body of water.

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3. The method of claim 1, wherein the bottom of the floating lake comprises systems that provide stability for the operation of a suctioning device, selected from cushion-type systems, structural frames, a plurality of layers, chambers, and combinations thereof.

4. The method of claim 1, wherein the oxidant is selected from the group consisting of an halogen-based compound, a permanganate salt, a peroxide, ozone, sodium persulfate, potassium persulfate, an oxidant produced by an electrolytic method, and combinations thereof.

5. The method of claim 1, wherein the flocculant is selected from the group consisting of a cationic polymer, anionic polymer, aluminum salt, aluminum chlorhydrate, alum, aluminum sulfate, quaternary ammonium-containing polymers, polyquaternium, calcium oxide, calcium hydroxide, ferrous sulphate, ferric chloride, polyacrylamide, sodium aluminate, sodium silicate, chitosan, gelatin, guar gum, alginate, moringa seed, starch derivatives, and combinations thereof.

6. The method of claim 1, wherein the color of the bottom of the floating lake provides a specific coloration to the water in the floating lake.

7. The method of claim 6, where the bottom has a white, yellow, or blue color, or combinations thereof.

8. The method of claim 1, wherein the application of the oxidant is activated by a coordination system.

9. The method of claim 1, wherein the operation of the one or more suctioning devices is activated by a coordination system.

10. The method of claim 1, wherein the one or more mobile suctioning devices are able to clean the flexible bottom of the floating lake.

11. The method of claim 1, wherein the one or more mobile suctioning devices comprise a magnetic system capable of maintaining the mobile suctioning device along the flexible bottom of the floating lake.

12. The method of claim 1, wherein the one or more mobile suctioning devices comprise a flexible device.

13. The method of claim 1, wherein the filtering of step d is carried out by a filtration system located in a floating facility or on land.

14. The method of claim 1, wherein the replacement water is fed into the floating lake through a pumping system.

15. The method of claim 1, wherein the application of the flocculant is activated by a coordination means.

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FIG. 1

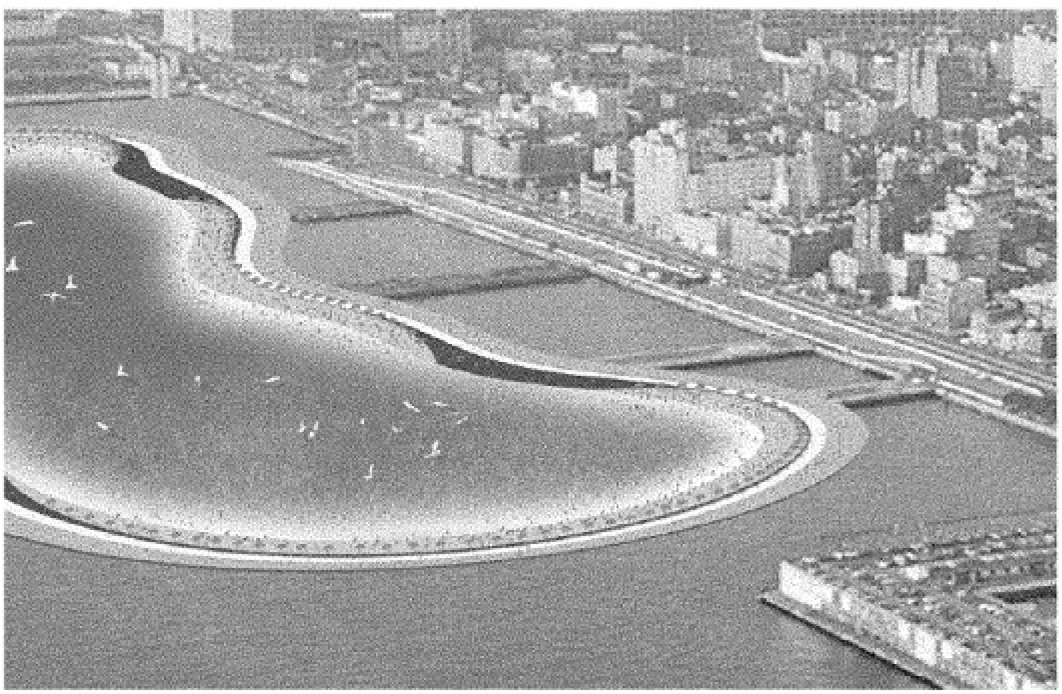

FIG. 2

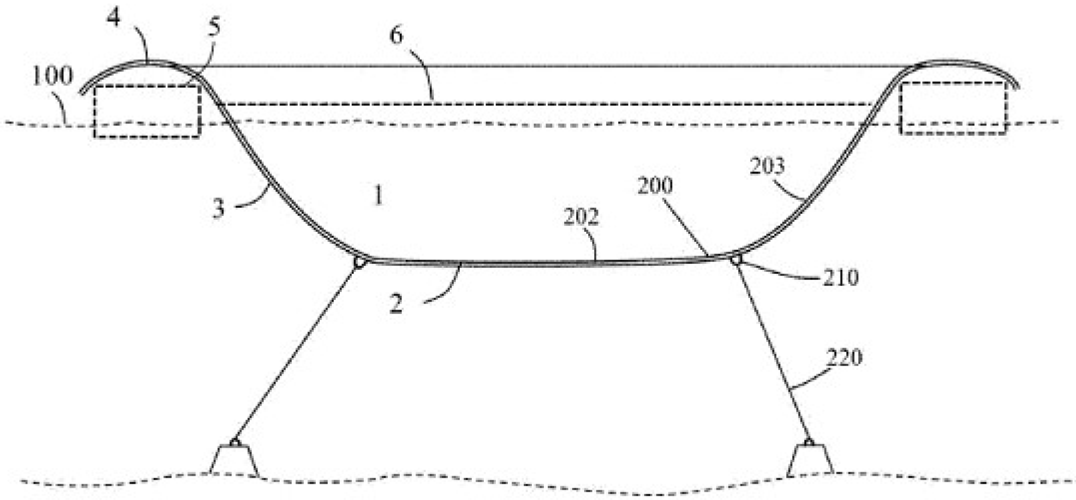

FIG. 3

FIG. 4A

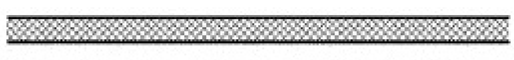

FIG. 4B

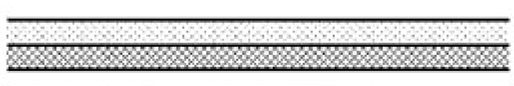

FIG. 4C

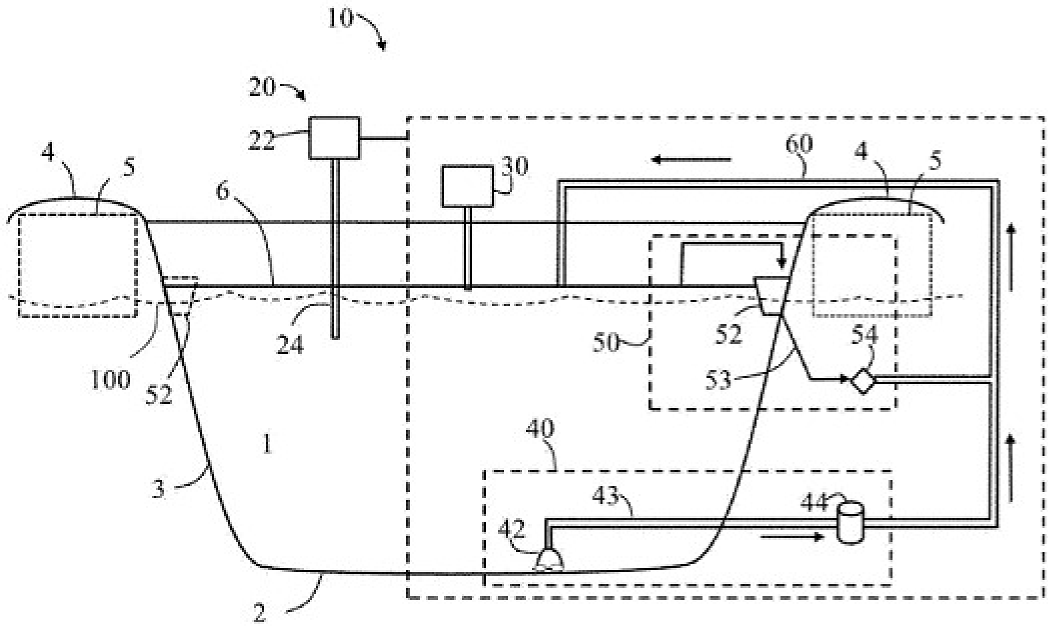
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FIG. 5

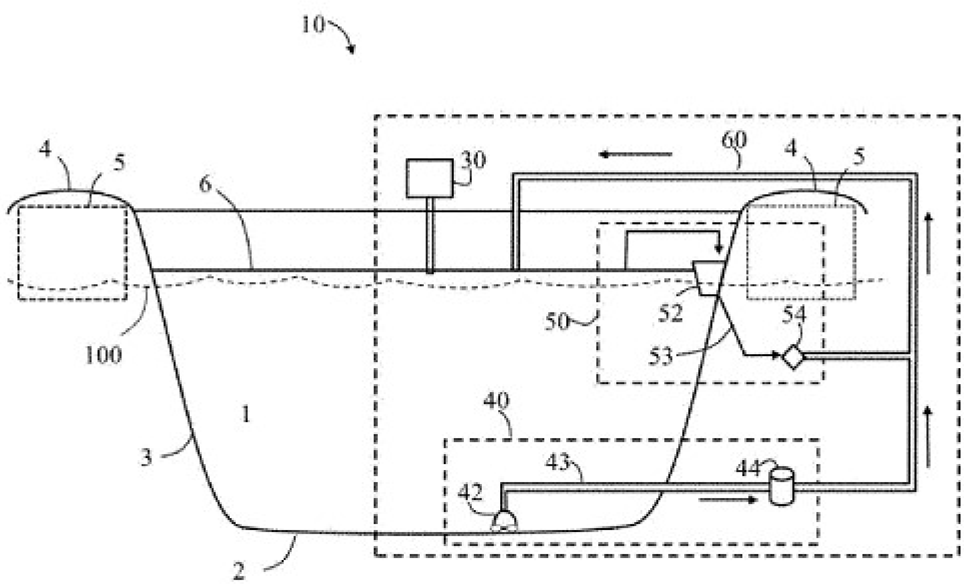
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FIG. 6

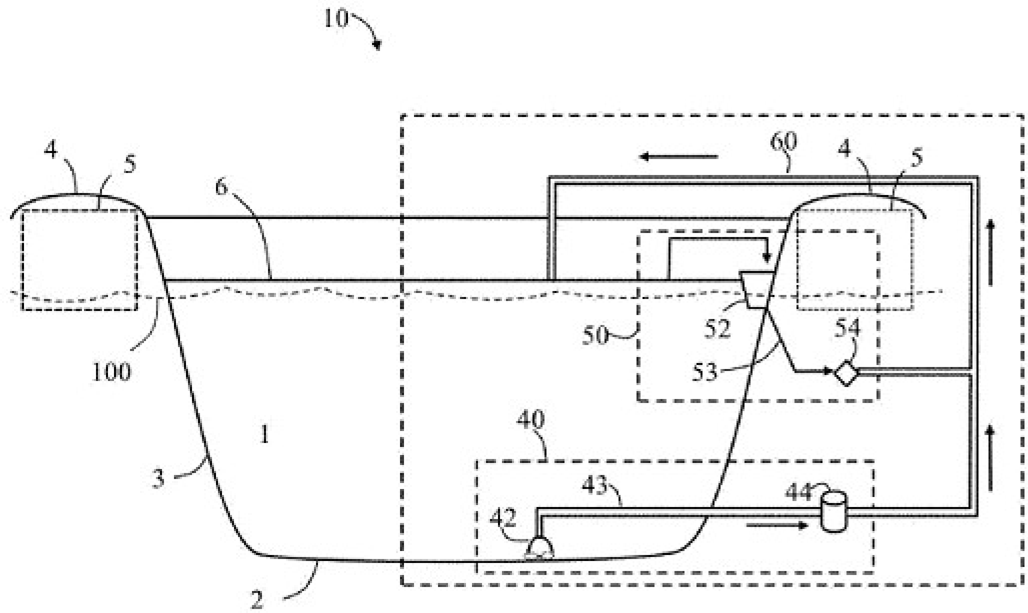
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FIG. 7

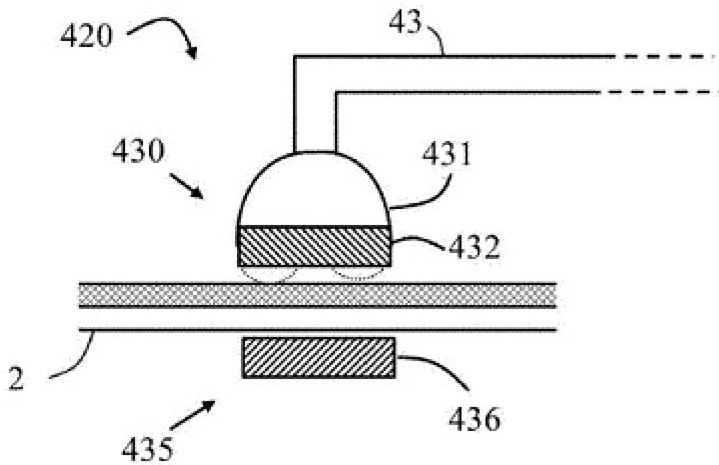
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FIG. 8

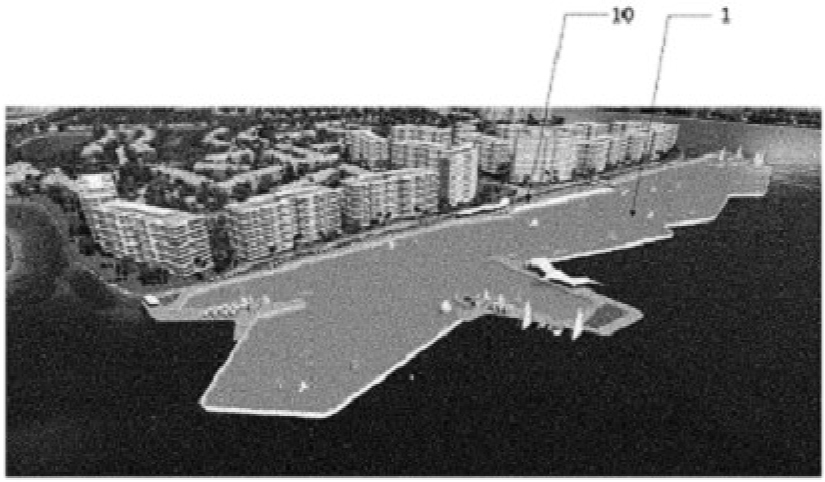

FIG. 9A

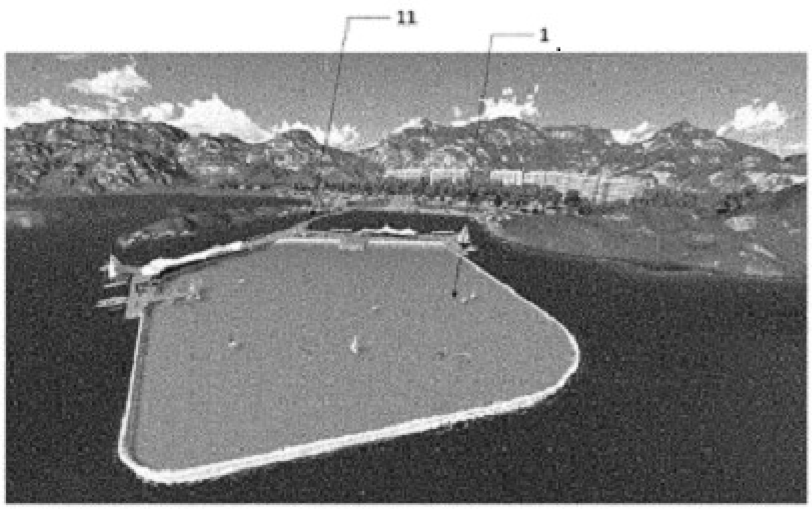

FIG. 9B

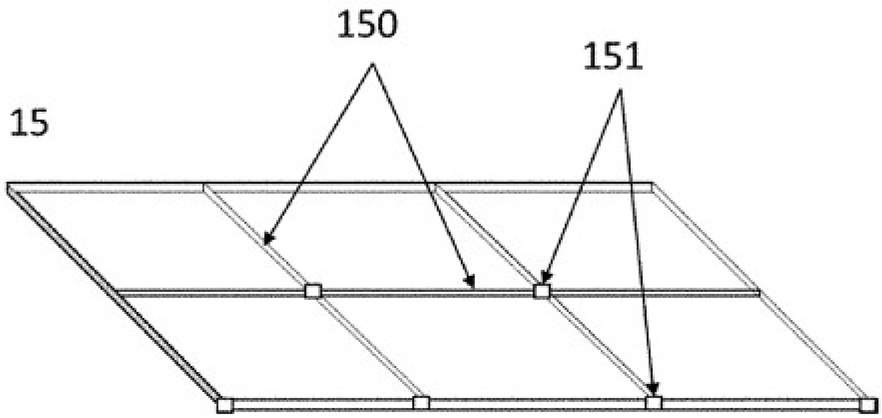

FIG. 10A

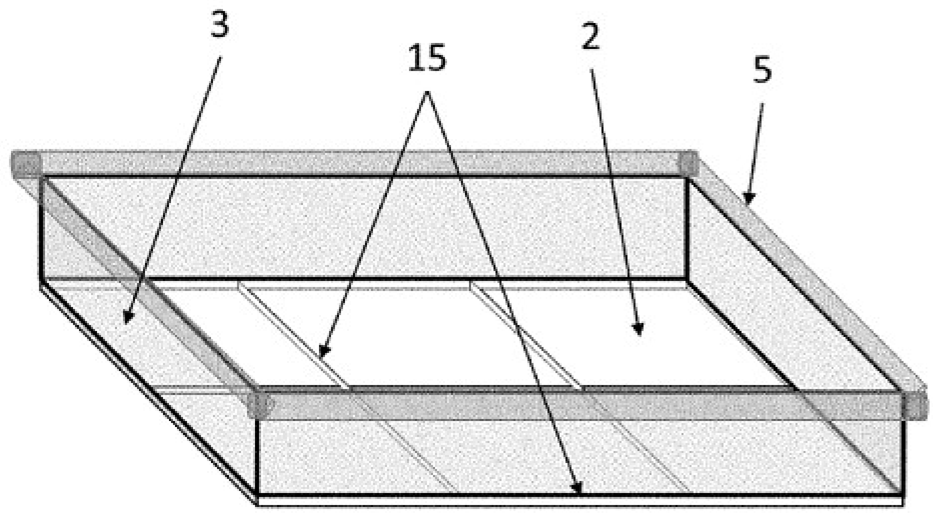

FIG. 10B

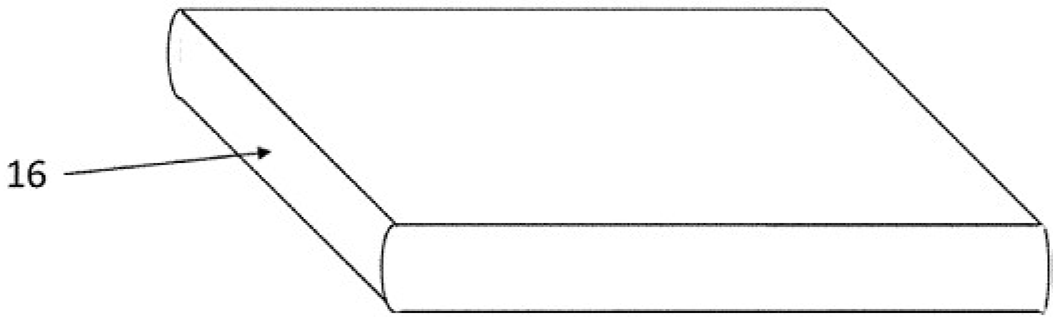

FIG. 11A

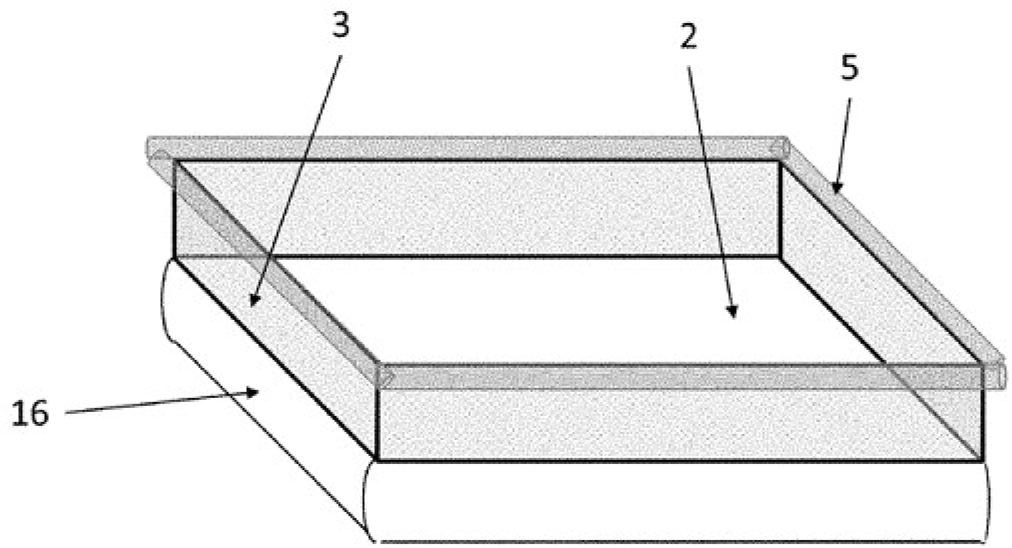

FIG. 11B

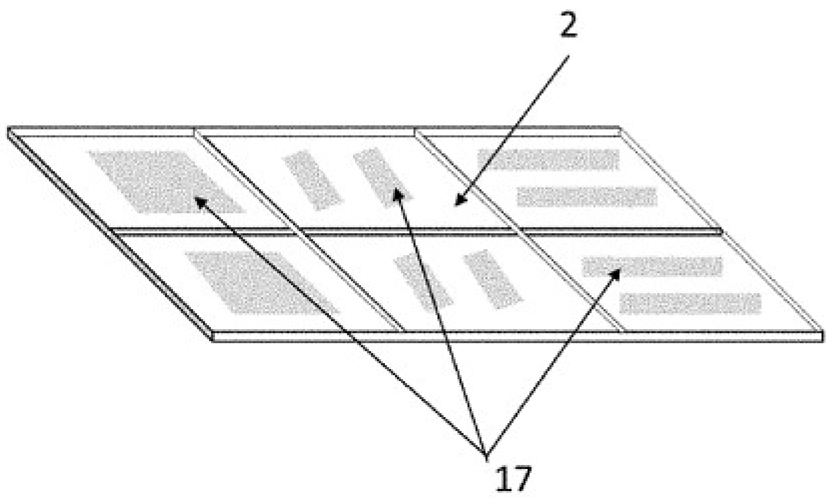

FIG. 12A

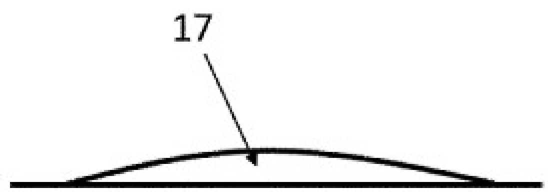

FIG. 12B

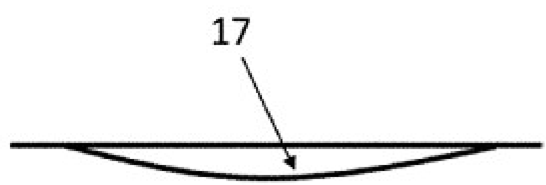

FIG. 12C

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