

CLAIMS

1. A fluid transfer system comprising:
 - a chamber containing a fluid absorbing material in contact with a device;
 - a reservoir comprising rows of bendable support members, the reservoir connected to the chamber for transport of a fluid from the reservoir to the fluid absorbing material; and
 - a mass comprising rows of protrusions configured to engage with the rows of bendable support members, the mass configured to be arranged in the reservoir such that forces acting on the mass comprise a gravitational force on the mass, a floating force exerted by the fluid on the mass, and a contact force exerted by the rows of bendable support members on the mass.
2. The fluid transfer system according to claim 1,
 - wherein the gravitational force acting on the mass is initially balanced by a sum of the floating force exerted by the fluid on the mass and the contact force exerted by the rows of bendable support members on the mass;
 - wherein the rows of bendable support members are configured such that a first row of bendable support members of the rows of bendable support members initially supporting a row of protrusions of the rows of protrusions bends as the floating force exerted by the fluid decreases, causing the gravitational force acting on the mass to be more than the sum of the floating force exerted by the fluid on the mass and the contact force exerted by the rows of bendable support members on the mass; and
 - wherein bending of the first row of bendable support members allows the row of protrusions to move past the first row of bendable support members so that the row of protrusions is supported by a second row of bendable support members of the rows of bendable support members below the first row of bendable support members, thereby allowing the mass to move down relative to the reservoir.
3. The fluid transfer system according to claim 2,
 - wherein the floating force exerted by the fluid on the mass decreases as the fluid travels from the reservoir to the fluid absorbing material to replace the fluid lost via evaporation.

4. The fluid transfer system according to claim 2,
wherein the floating force exerted by the fluid on the mass increases and the contact force exerted by the rows of bendable support members on the mass decreases as the mass moves down relative to the reservoir.
5. The fluid transfer system according to claim 1,
wherein the fluid is water; and
wherein the fluid absorbing material is a hydrophilic material.
6. The fluid transfer system according to claim 5,
wherein the hydrophilic material is a hydrogel.
7. The fluid transfer system according to claim 1, further comprising:
the device.
8. The fluid transfer system according to claim 1,
wherein the device is an ion sensor electrode.
9. The fluid transfer system according to claim 1,
wherein the reservoir comprises one or more walls; and
wherein the rows of bendable support members extend from the one or more walls.
10. The fluid transfer system according to claim 1,
wherein the reservoir comprises:
a lid; and
a column suspended from the lid; and
wherein the rows of bendable support members extend from the column.
11. A method of forming a fluid transfer system, the method comprising:
providing a chamber containing a fluid absorbing material in contact with a device;

connecting a reservoir to the chamber for transport of a fluid from the reservoir to the fluid absorbing material, the reservoir comprising rows of bendable support members; and
providing a mass comprising rows of protrusions configured to engage with the rows of bendable support members, the mass configured to be arranged in the reservoir such that forces acting on the mass comprise a gravitational force on the mass, a floating force exerted by the fluid on the mass, and a contact force exerted by the rows of bendable support members on the mass.

12. The method according to claim 11,

wherein the gravitational force acting on the mass is initially balanced by a sum of the floating force exerted by the fluid on the mass and the contact force exerted by the rows of bendable support members on the mass;

wherein the rows of bendable support members are configured such that a first row of bendable support members of the rows of bendable support members initially supporting a row of protrusions of the rows of protrusions bends as the floating force exerted by the fluid decreases, causing the gravitational force acting on the mass to be more than the sum of the floating force exerted by the fluid on the mass and the contact force exerted by the rows of bendable support members on the mass; and

wherein bending of the first row of bendable support members allows the row of protrusions to move past the first row of bendable support members so that the row of protrusions is supported by a second row of bendable support members of the rows of bendable support members below the first row of bendable support members, thereby allowing the mass to move down relative to the reservoir.

13. The method according to claim 12,

wherein the floating force exerted by the fluid on the mass decreases as the fluid travels from the reservoir to the fluid absorbing material to replace the fluid lost via evaporation.

14. The method according to claim 12,

wherein the floating force exerted by the fluid on the mass increases and the contact force exerted by the rows of bendable support members on the mass decreases as the mass moves down relative to the reservoir.

15. The method according to claim 11,
wherein the fluid is water; and
wherein the fluid absorbing material is a hydrophilic material.
16. The method according to claim 15,
wherein the hydrophilic material is a hydrogel.
17. The method according to claim 11, further comprising:
providing the device.
18. The method according to claim 11,
wherein the device is an ion sensor electrode.
19. The method according to claim 11,
wherein the reservoir comprises one or more walls; and
wherein the rows of bendable support members extend from the one or more walls.
20. The method according to claim 11,
wherein the reservoir comprises:
a lid; and
a column suspended from the lid; and
wherein the rows of bendable support members extend from the column.