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(54) METHOD AND APPARATUS FOR PRODUCING NON-LOCAL PHYSICAL, CHEMICAL AND BIOLOGICAL EFFECTS

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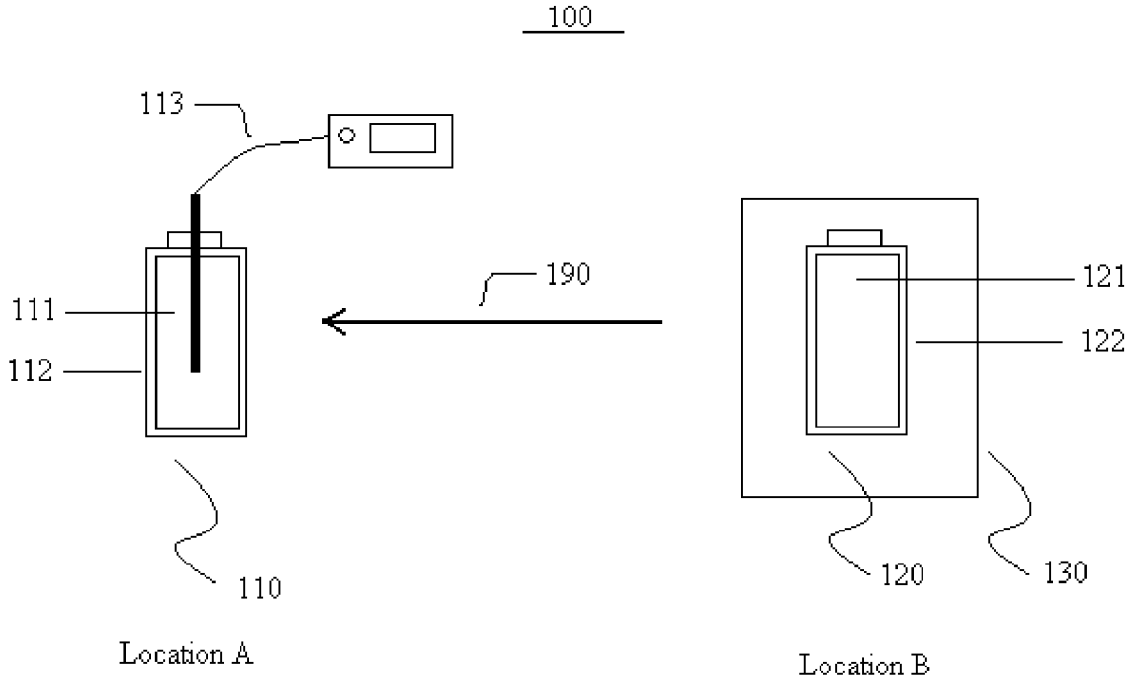
(57) **ABSTRACT**

A method and apparatus are disclosed which produce physical, chemical and/or biological non-local effect on a target substance through non-local processes mediated by quantum entanglement. In one broad embodiment, the apparatus includes a target substance, a first container holding said target substance; an originating substance, a second container holding said originating substance, said originating substance being quantum-entangled with said target substance; and a mean for manipulating said originating substance such that when said manipulation mean operates, said non-local effect is generated in said target substance through said non-local processes mediated by quantum entanglement. Also described are a number of implementations and methods of use of the apparatus, including a member of the manipulation mean being a Dewar filled with liquid nitrogen, a heater, a chemical substance, a laser or a magnetic coil connected to a driving device and the use being industrial, therapeutic, communicational or recreational.



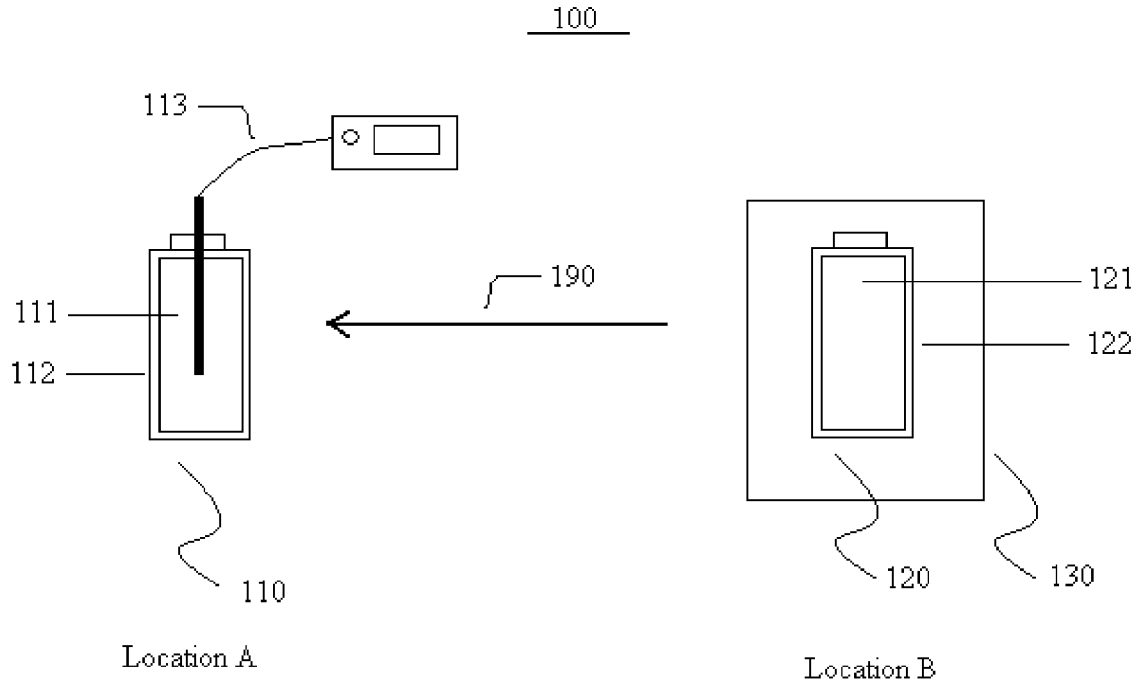
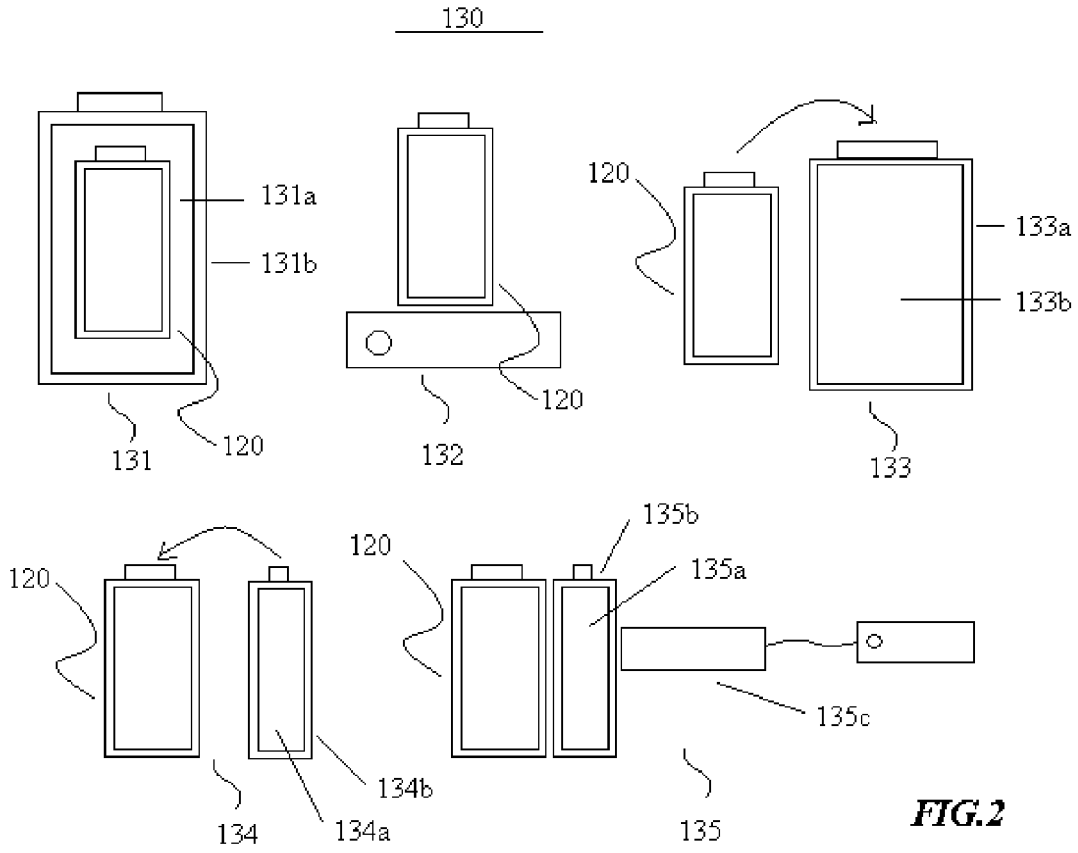


FIG.1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135c
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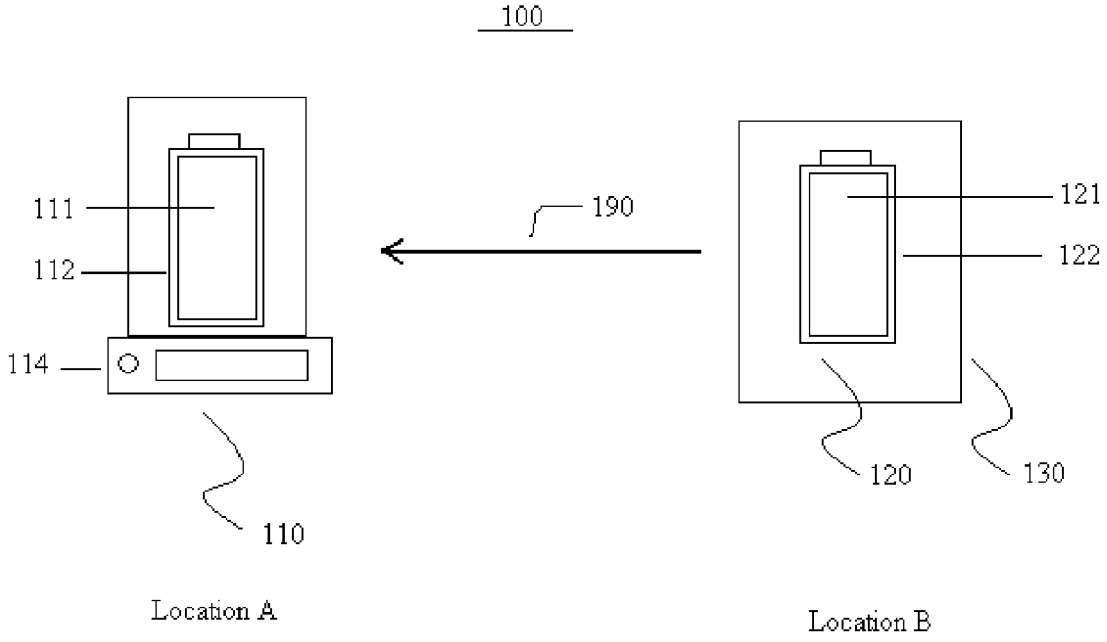
FIG.2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130
Location A
Location B

FIG.3

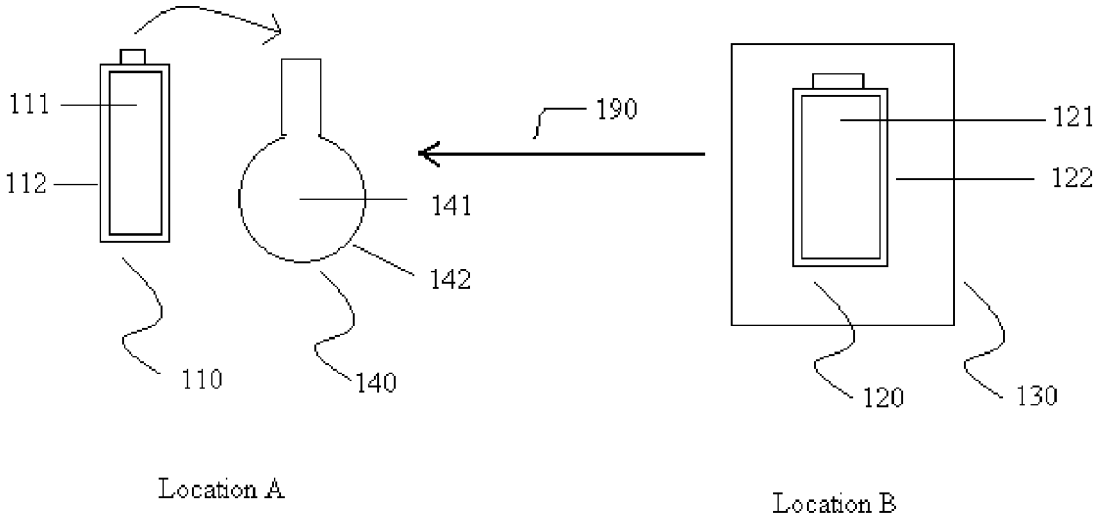
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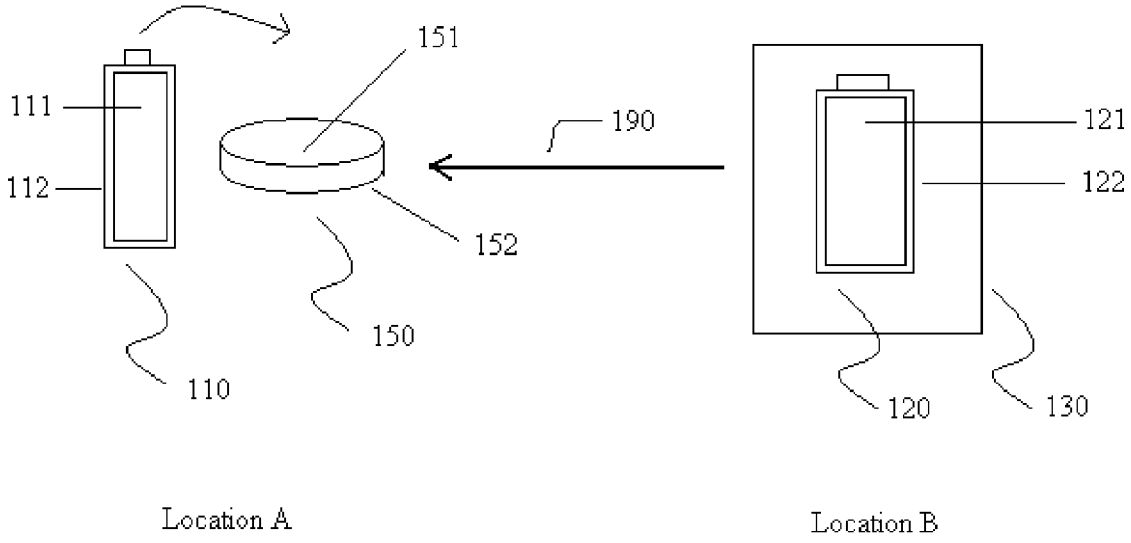
FIG.4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Location A
Location B

FIG.5

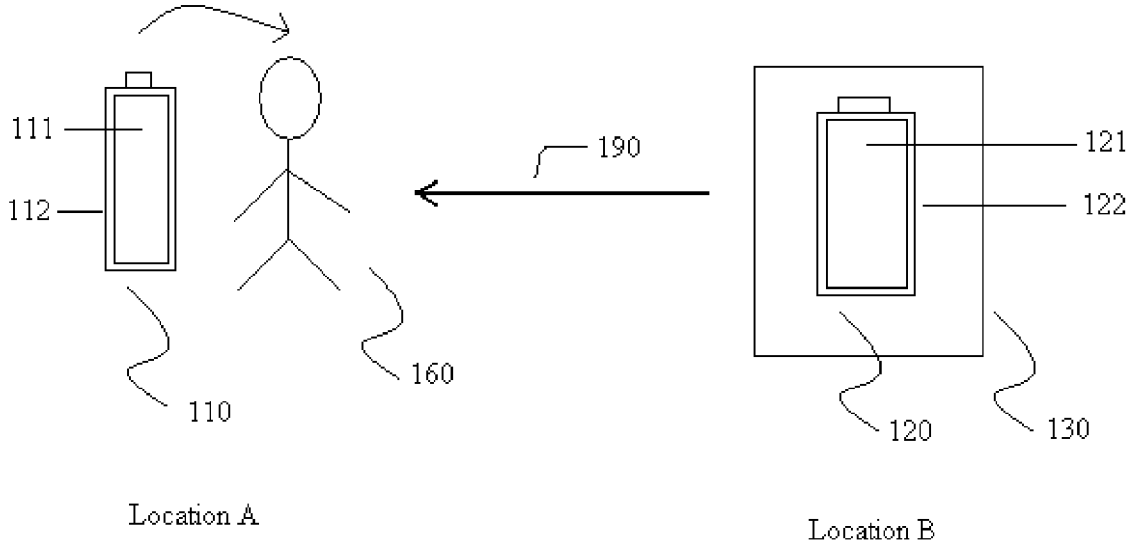
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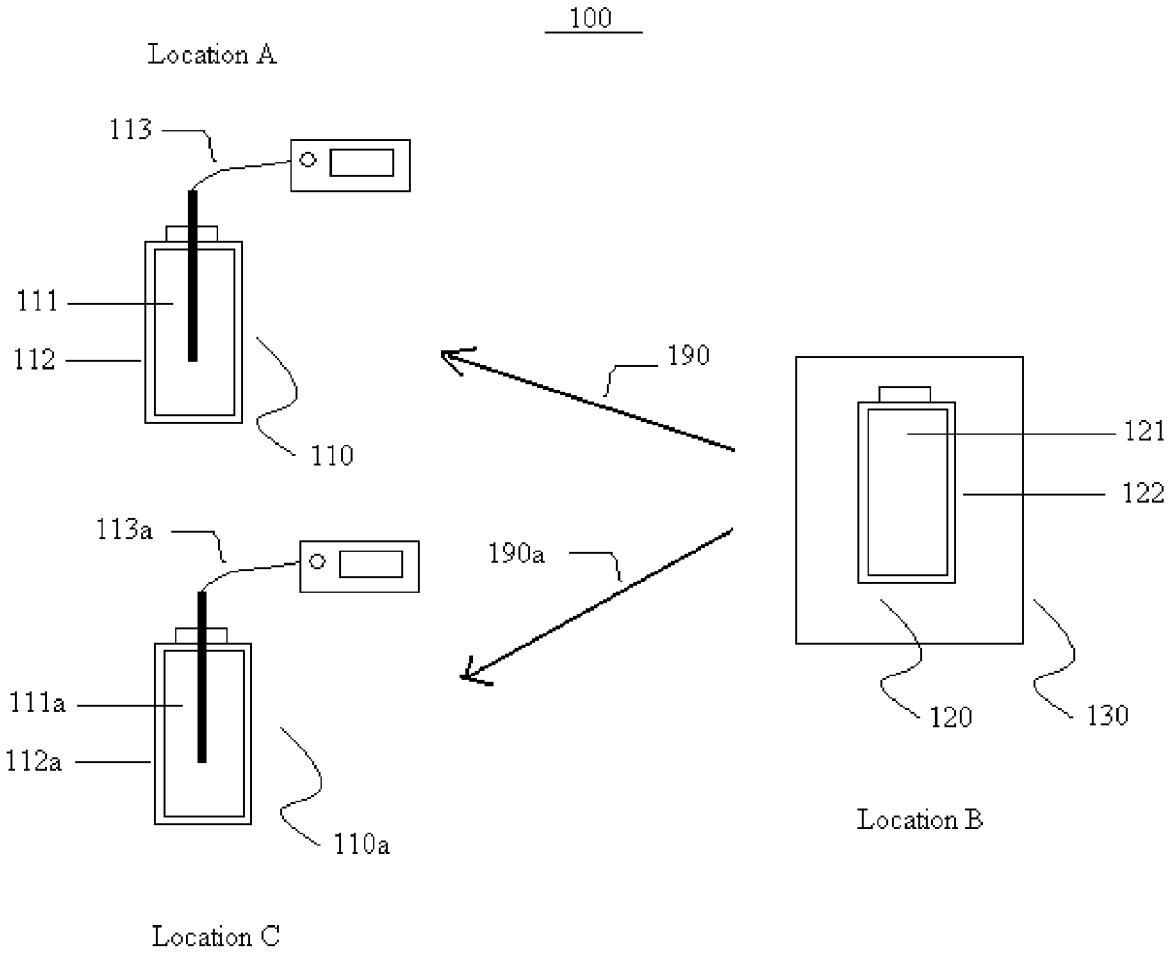
FIG.6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Location A
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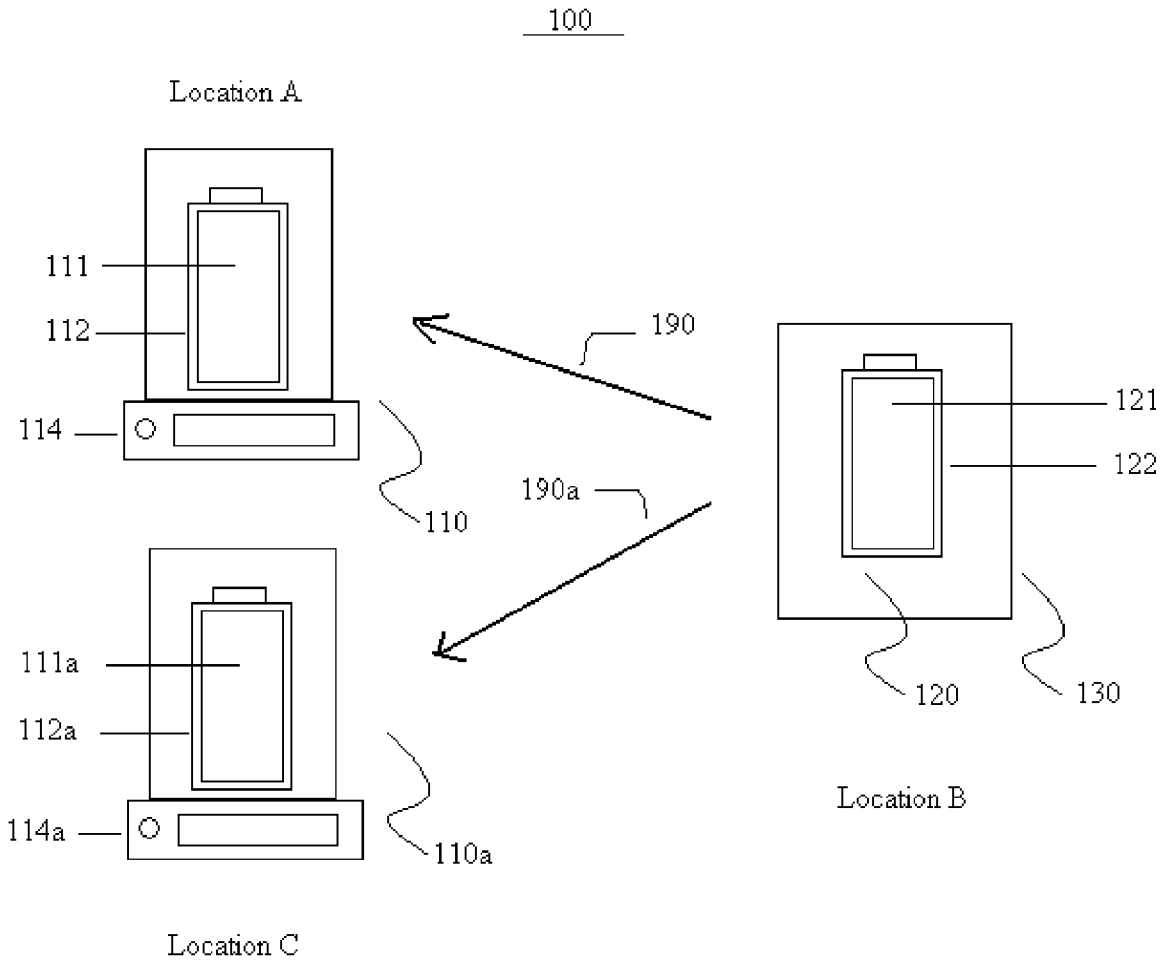
FIG. 7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Location C

FIG.8

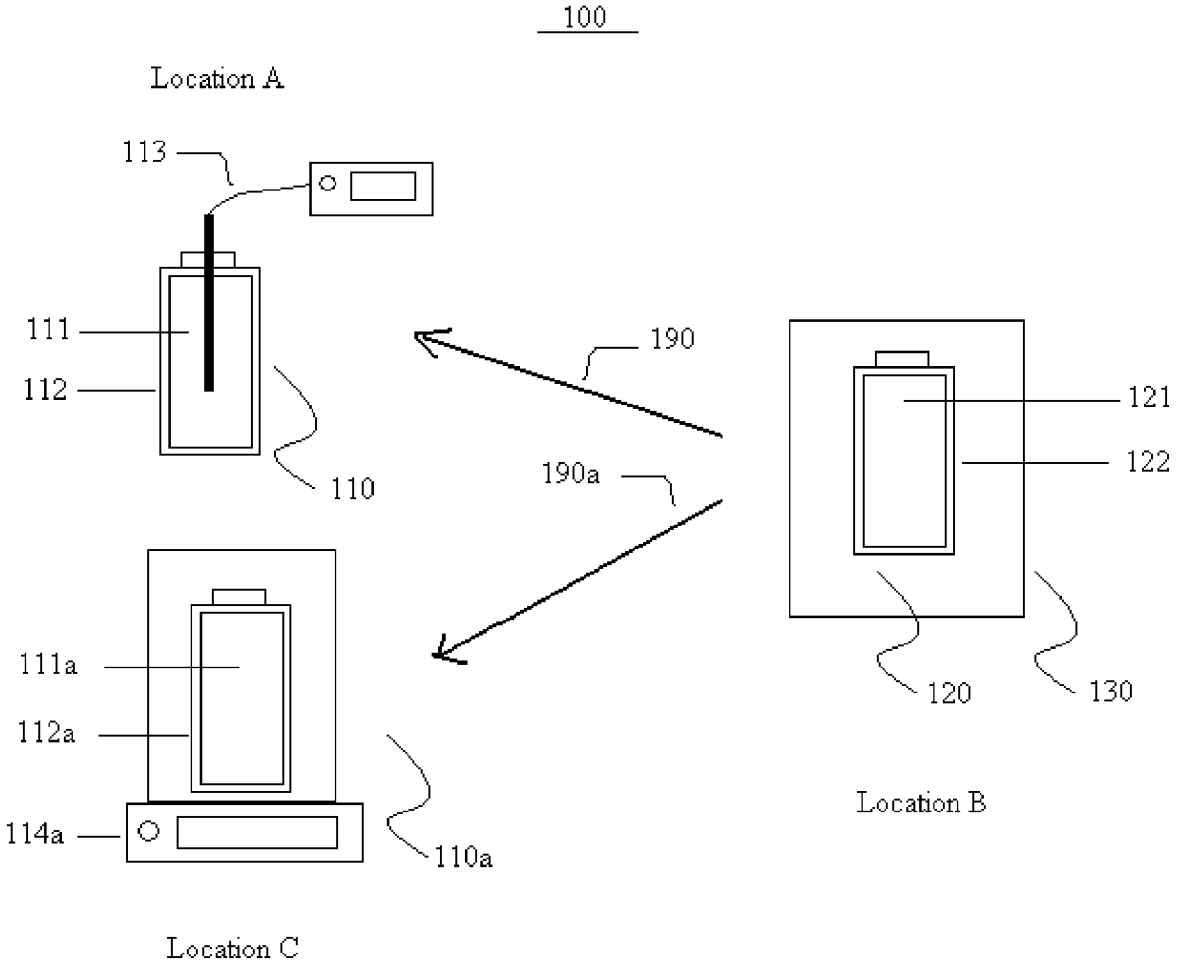
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FIG.9

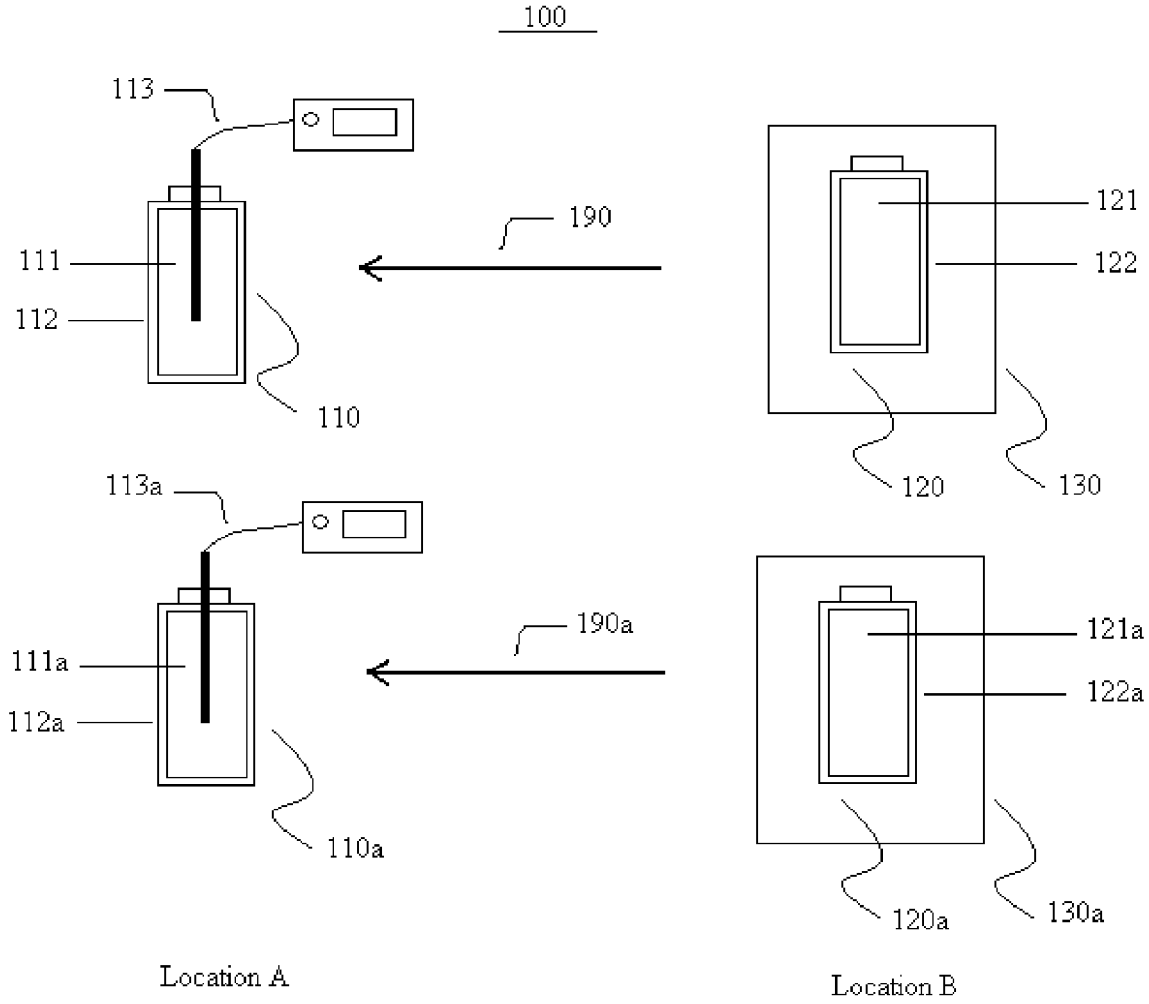
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FIG.10

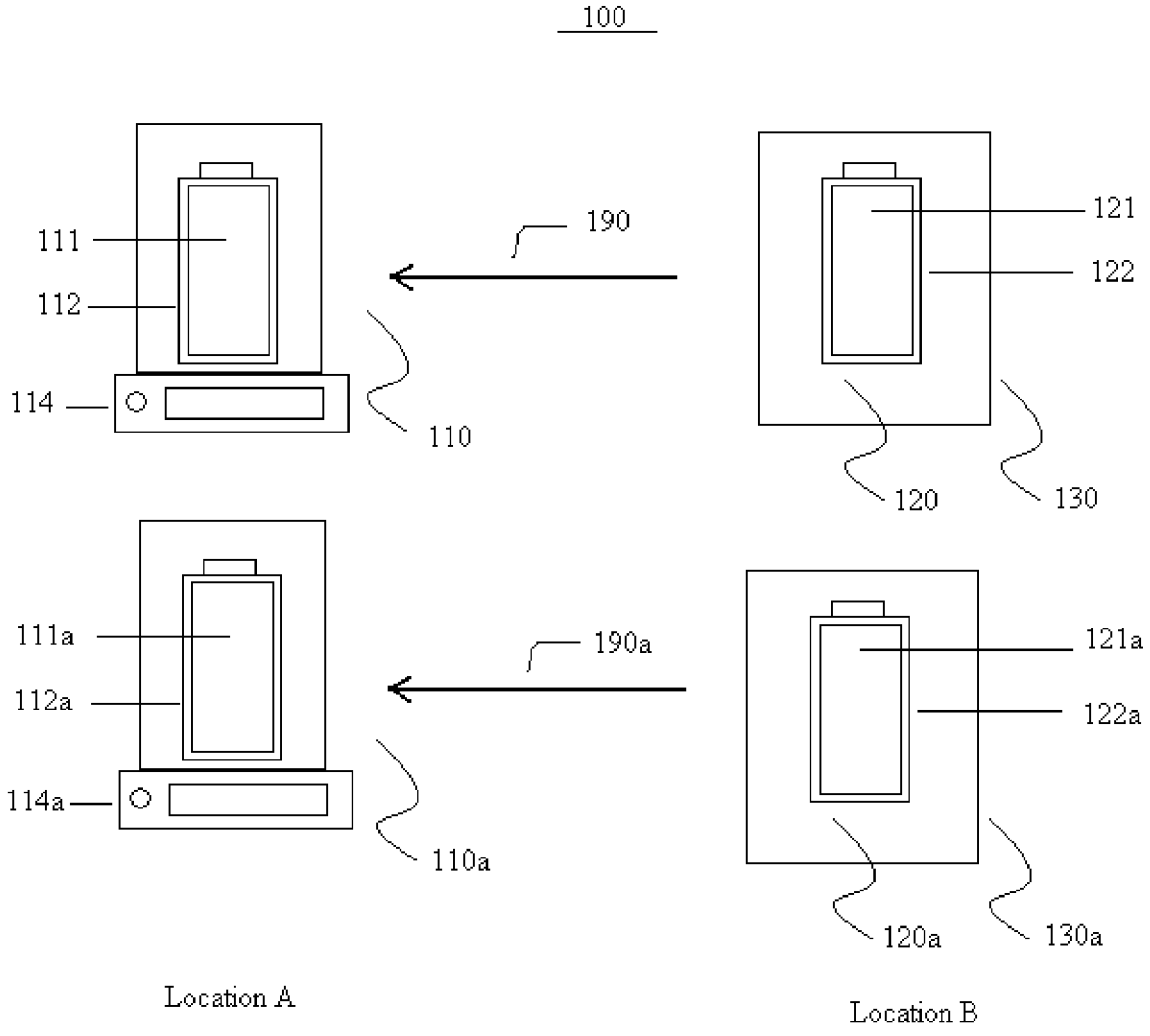
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FIG.11

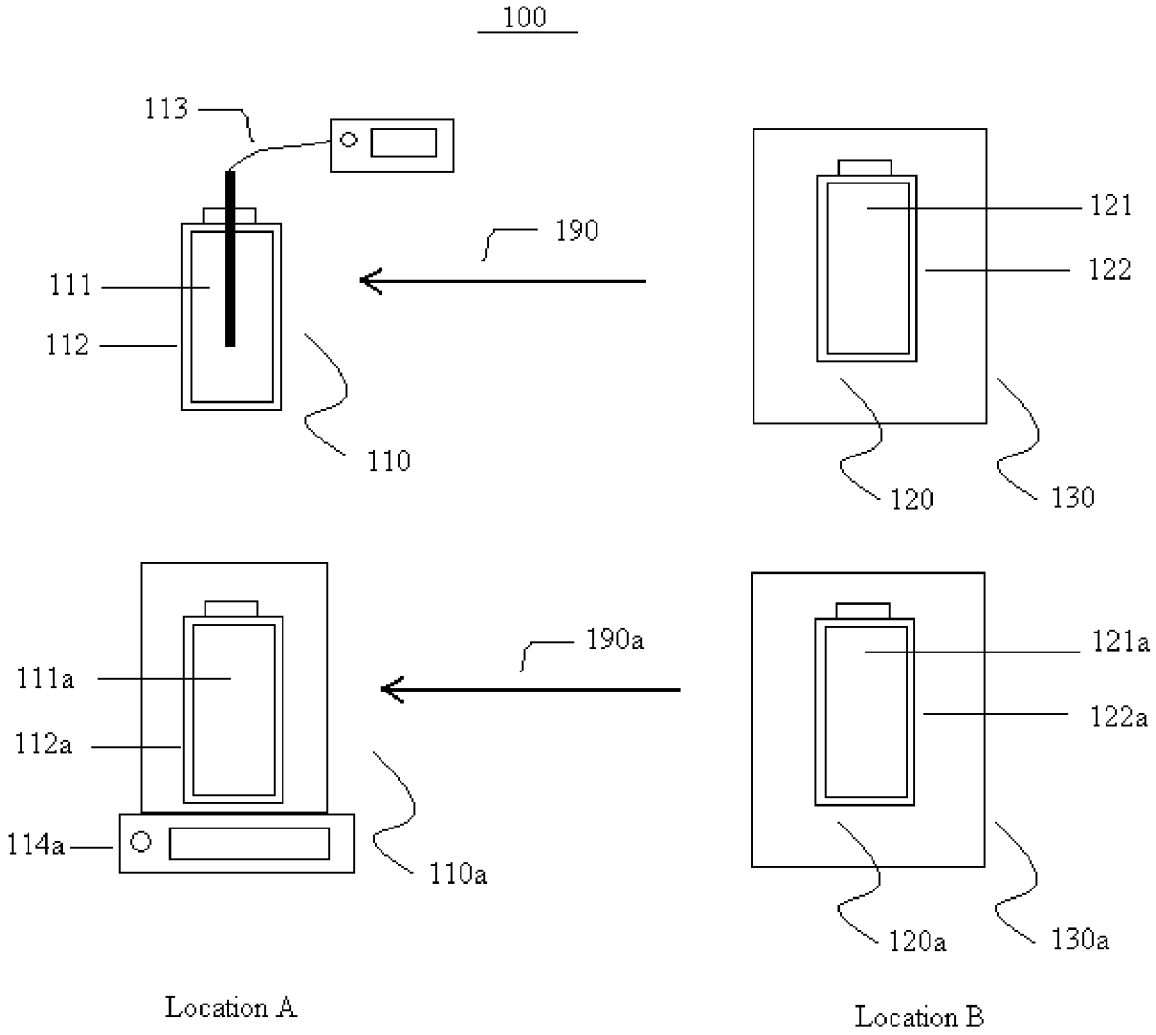
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FIG.12

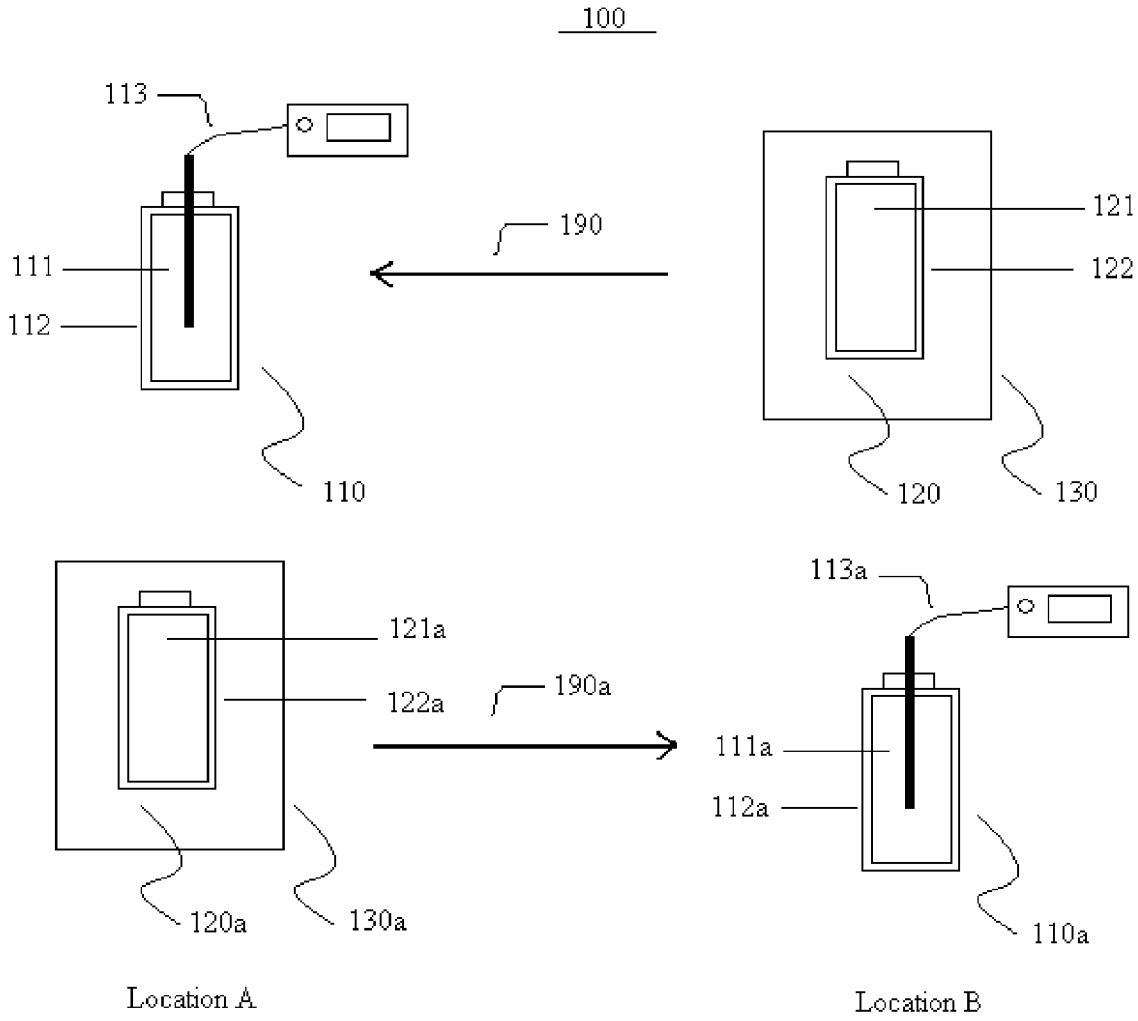
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FIG.13

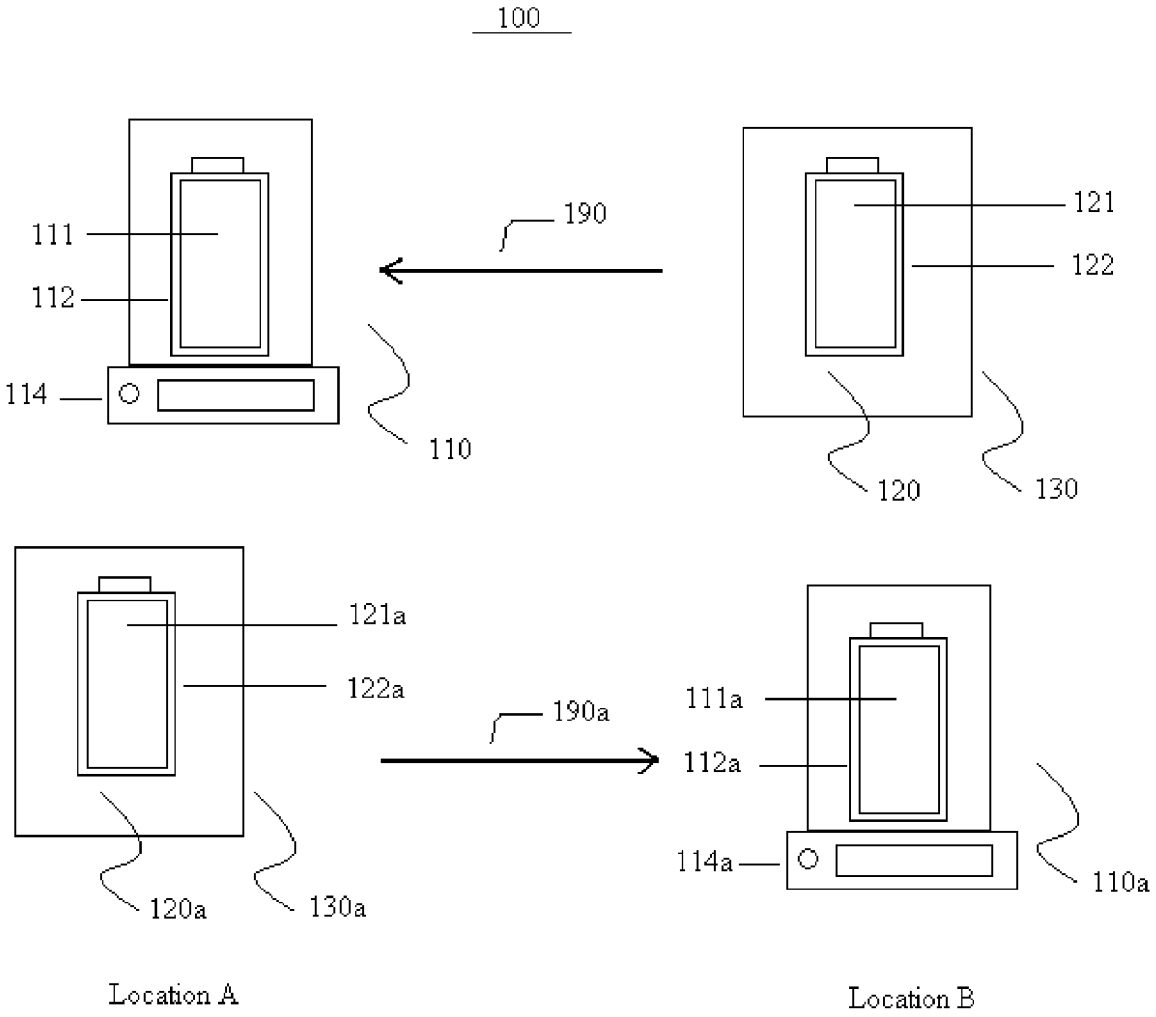
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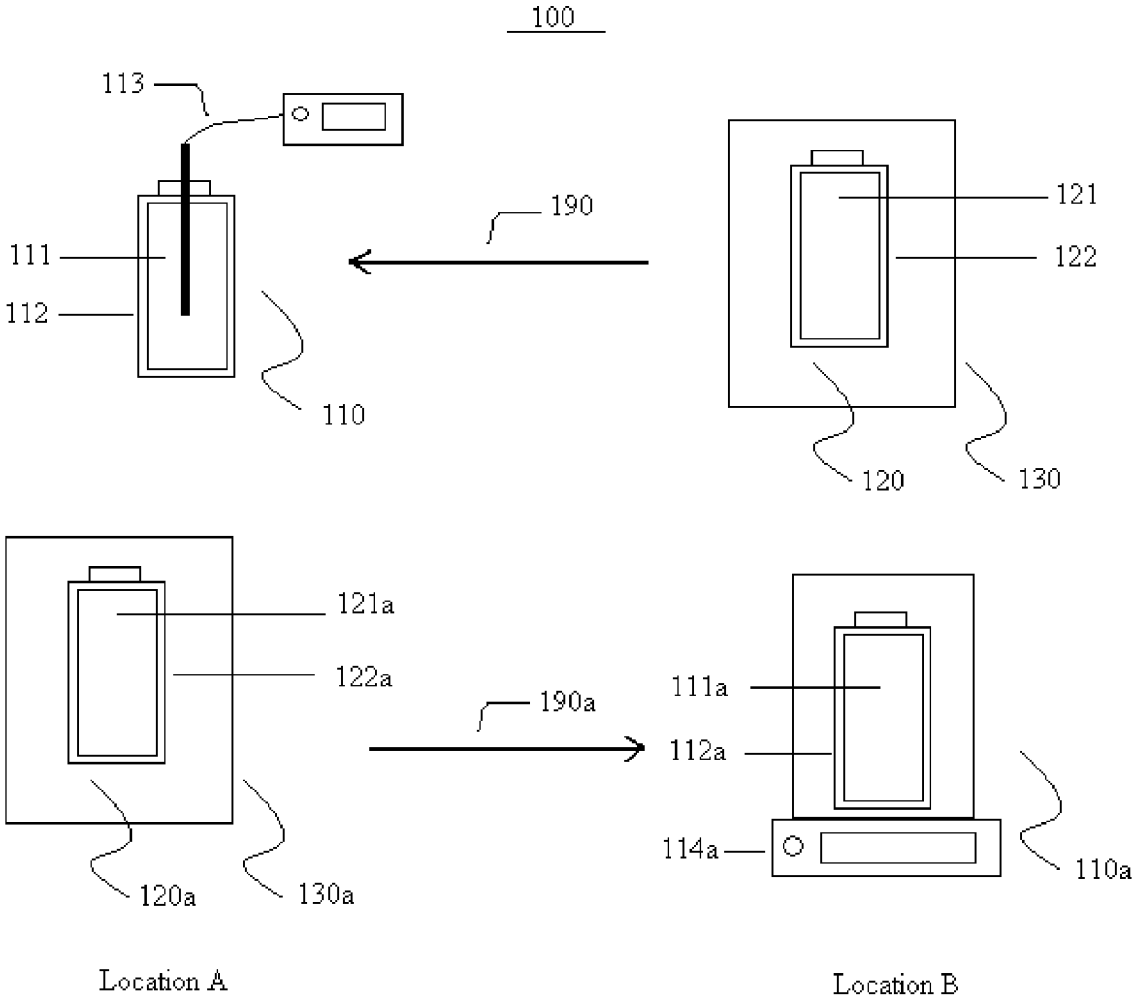
FIG.14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Location A
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FIG.15

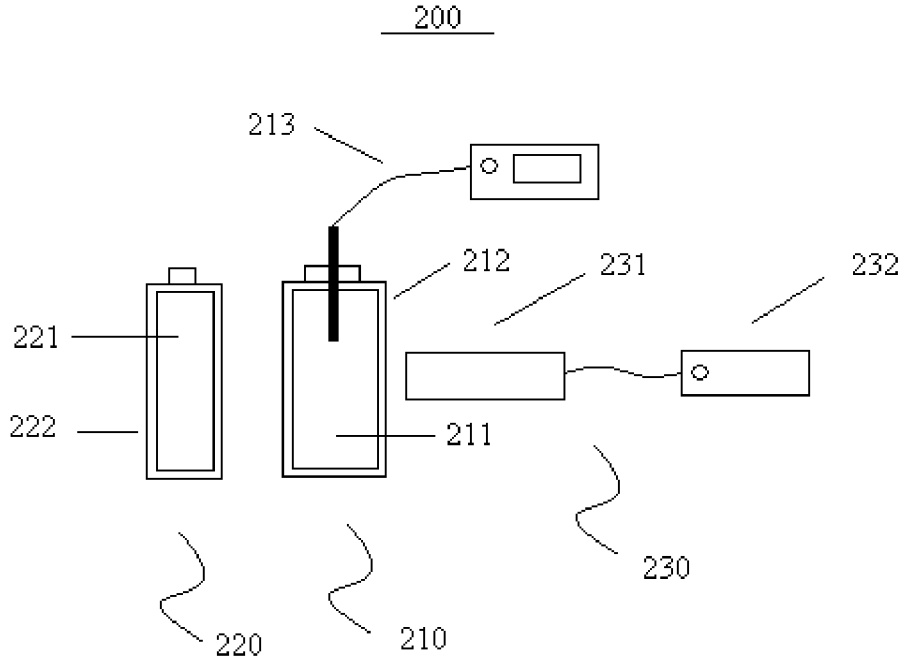
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FIG.16

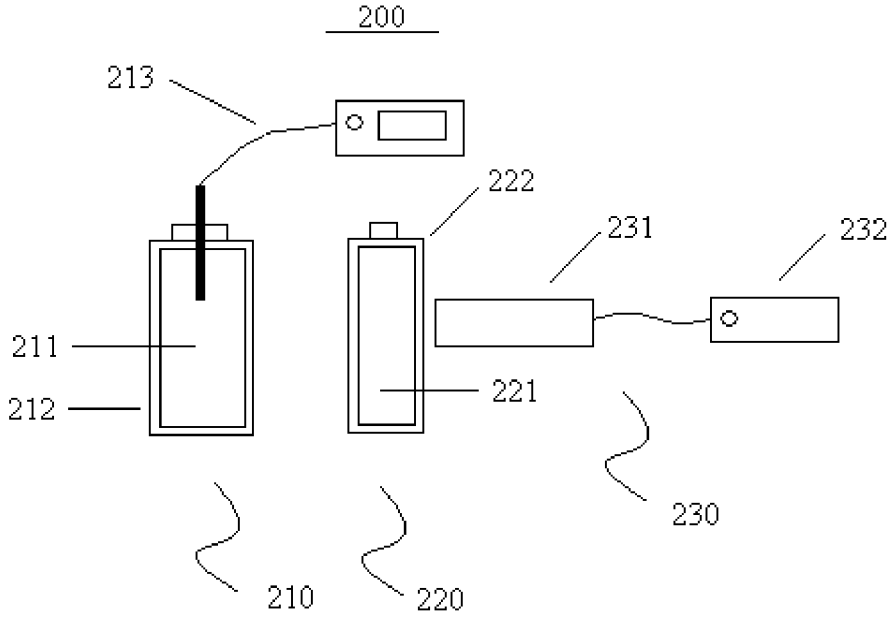
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FIG.17

METHOD AND APPARATUS FOR PRODUCING NON-LOCAL PHYSICAL, CHEMICAL AND BIOLOGICAL EFFECTS

[0001] This application claims the benefit of U.S. Provisional Application 60/869,511 filed Dec. 11, 2006.

FIELD OF THE INVENTION

[0002] The invention herein relates to method of producing non-local physical, chemical and biological effects on physical, chemical and/or biological systems through quantum entanglement mediated processes, to apparatus for such productions, and to method of using the non-local effects for beneficial purposes.

BACKGROUND OF THE INVENTION

[0003] Many experiments have shown that quantum entanglement is physically real (see Aspect, A., Dalibard, J., & Roger, G. Experimental test of Bell's inequalities using time-varying analyzers. Phys. Rev. Lett. 49, 1804-1807 (1982)). It is ubiquitous in the microscopic world and manifests itself macroscopically under some circumstances (see Ghosh, S., Rosenbaum, T. F., Aeppli, G. & Coppersmith, S. N. Entangled quantum state of magnetic dipoles. Nature 425, 48-51 (2003)). Indeed, quantum spins of photons, electrons and nuclei have now been successfully entangled in various ways for purposes of quantum computation and communication (see Matsukevich, D. N. & Kuzmich, A. Quantum state transfer between matter and light. Science 306, 663-666 (2004)).

[0004] However, the essence and implications of quantum entanglement are still hotly debated and largely unknown. For example, it is commonly believed that quantum entanglement alone cannot be used to transmit binary or classical information. Further, despite of the fact that all interactions in biological systems at molecular and sub-molecular levels are quantum interactions in nature, it is commonly believed that quantum effects do not play any roles in biological functions such as brain functions due to quantum decoherence (see Tegmark, M. The importance of quantum decoherence in brain processes. Phys. Rev., 61 E: 4194 (2000)). Yet, I have recently discovered non-local effects of chemical substances on biological systems such as a human brain produced through quantum entanglement (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)).

[0005] My invention and discovery were made against such background. No process has previously been known which can produce non-local physical, chemical, thermal and gravitational effects through quantum entanglement mediated processes on targets such as physical, chemical or biological systems, so that beneficial effects or information can be delivered through said processes.

SUMMARY OF THE INVENTION

[0006] I have now invented apparatus and method for producing non-local physical, chemical, thermal and gravitational effects through quantum entanglement mediated processes on targets such as physical, chemical or biological systems.

[0007] The subject invention is originated from my research on brain functions and nature of quantum entanglement. I have theorized that nuclear and/or electronic spins inside brain play important roles in certain aspects of brain functions such as perception (Hu, H. P., & Wu, M. X. Spin-mediated consciousness theory. Medical Hypotheses 63, 633-646 (2004); also see arXiv e-print quant-ph/0208068v1 (2002)). Further, I have discovered non-local effects of chemical substances on biological systems such as a human brain produced through quantum entanglement (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)).

[0008] The subject invention is therefore based on my realizations that (1) quantum entanglement means genuine interconnectedness and inseparableness of once interacting quantum entities and can be directly sensed and utilized by the entangled quantum entities; (2) quantum entanglement can persist in biological, chemical and physical systems at room and higher temperatures despite of quantum decoherence; and (3) quantum entanglement can influence chemical and biochemical reactions, other physical processes and micro- and macroscopic properties of all forms of matters. Therefore, it can be harnessed and developed into useful technologies to serve the mankind in many areas such as communication, engineering, health, medicine and recreation.

[0009] For example, using the apparatus and method developed in this invention I have discovered that the pH value of water in a detecting reservoir can be non-locally affected through manipulating water in a remote reservoir quantum-entangled with the water in the detecting reservoir.

[0010] For another example, using the apparatus and method developed in this invention I have further discovered that temperature of the water in said detecting reservoir can be non-locally affected through manipulating the water in said remote reservoir quantum-entangled with the water in the detecting reservoir and said temperature can change against that of local environment surrounding said detecting reservoir.

[0011] For yet another example, using the apparatus and method developed in this invention I have also discovered that gravity of the water in said detecting reservoir can be non-locally affected through manipulating the water in said remote reservoir quantum-entangled with the water in the detecting reservoir and the said gravity can change against local gravity surrounding said detecting reservoir.

[0012] Key to the present invention is an apparatus for generating a non-local effect which includes a target substance; an originating substance, said target substance being quantum-entangled with said originating substance; a mean for manipulating said originating substance, such that when said manipulation mean operates, said non-local effect is generated in said target substance through non-local processes mediated by quantum entanglement.

[0013] In one broad embodiment, the invention provides an apparatus that changes the physical property of a target substance quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0014] In another broad embodiment, the invention provides a method for changing the physical property of one target substance quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0015] In yet another broad embodiment, the invention provides an apparatus that changes the chemical property of a target substance quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0016] In another broad embodiment, the invention provides a method for changing the chemical property of one target substance quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0017] In yet another broad embodiment, the invention provides an apparatus that changes the biological property of a target biological system in vitro quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0018] In yet another broad embodiment, the invention provides a method for changing the biological property of a target biological system in vitro quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0019] In yet another broad embodiment, the invention provides an apparatus that changes the biological property of a target biological system in vivo quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0020] In yet another broad embodiment, the invention provides a method for changing the biological property of a target biological system in vivo quantum-entangled with an originating substance through non-local processes mediated by quantum entanglement.

[0021] In yet another broad embodiment, the invention provides an apparatus that enables communications between two or more quantum-entangled systems separated by arbitrary distances through non-local processes mediated by quantum entanglement.

[0022] In another broad embodiment, the invention provides method for communicating between two or more quantum-entangled systems separated by arbitrary distances through non-local processes mediated by quantum entanglement.

[0023] One benefit of the present invention is that the physical and/or chemical properties such as pH values, temperatures and gravities of two or more quantum-entangled systems separated by arbitrary distances can be, in one broad embodiment, manipulated or modified for a desired purpose. A second benefit of the present invention is that the beneficial effects of chemical substances such as medications can be, in one broad embodiment, delivered to desired biological systems such as human patients from a remote location of arbitrary distance. A third benefit of the present invention is that two or more quantum-entangled systems separated by arbitrary distances can, in one broad embodiment, communicate among themselves without the assistance of any classical channels.

[0024] My invention may be more completely understood by reference to the following detailed description considered in connection with the accompanying drawings. However, it should be understood that the drawings are designed for purposes of illustration only and not as a definition of the limits of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. **1** is a schematic view of an apparatus according to one embodiment producing physical and/or chemical non-local effect in the target substance, through manipulation of the originating substance quantum-entangled with said target substance, optionally measurable by an internal probe such as pH meter or thermometer for the purpose of monitoring and/or non-local communication.

[0026] FIG. **2** is a schematic view of several embodiments of the manipulating mean for manipulating the originating substance quantum-entangled with the target substance to produce non-local effect in said target substance through non-local processes mediated by quantum entanglement.

[0027] FIG. **3** is a schematic view of the apparatus illustrated in FIG. **1** producing physical and/or chemical non-local effect on said target substance, through manipulation of the originating substance quantum-entangled with said target substance, optionally measurable by an external probe such as analytical balance or spectrophotometer for the purpose of monitoring and/or non-local communication.

[0028] FIG. **4** is a schematic view of one method according to one embodiment for non-locally influencing a chemical reaction in a chemical system by first contacting said target substance with a chemical substance or mixture of chemical substances in said chemical system and then manipulating the originating substance quantum-entangled with said target substance.

[0029] FIG. **5** is a schematic view of another method according to one embodiment for non-locally influencing a biological system in vitro such as a cell culture by first contacting said target substance with said system in vitro and then manipulating the originating substance quantum-entangled with said target substance.

[0030] FIG. **6** is a schematic view of another method according to one embodiment for non-locally influencing a biological system in vivo such as a human body by first applying said target substance into said system in vivo and then manipulating the originating substance quantum-entangled with said target substance.

[0031] FIG. **7** is a schematic view of an apparatus according to one embodiment producing physical and/or chemical non-local effects in at least two targets, through manipulation of the originating substance quantum-entangled with target substances in said targets, respectively and optionally measurable by aforesaid internal probe such as the pH meter or the thermometers for the purpose of monitoring and/or non-local communication.

[0032] FIG. **8** is a schematic view of the apparatus illustrated in FIG. **7** producing physical and/or chemical non-local effects in the target substances, through manipulation of the originating substance quantum-entangled with said target substances, respectively and optionally measurable through aforesaid external probe for the purpose of monitoring and/or non-local communication.

[0033] FIG. **9** is a schematic view of the apparatus illustrated in FIG. **7** producing physical and/or chemical non-local effects in the target substances, through manipulation of the originating substance quantum-entangled with said target substances, respectively and optionally measurable through

aforesaid internal probe and/or external probe for the purpose of monitoring and/or non-local communication.

[0034] FIG. **10** is a schematic view of one parallel combination of the apparatus illustrated in FIG. **1** for simultaneously transmitting two bits of information through said non-local effect from an originating location to a target location of arbitrary distance from said originating location.

[0035] FIG. **11** is a schematic view of one parallel combination of the apparatus illustrated in FIG. **3** for simultaneously transmitting two bits of information through said non-local effect from said originating location to said target location of arbitrary distance from said originating location.

[0036] FIG. **12** is a schematic view of yet another parallel combination of apparatuses illustrated in FIG. **1** and FIG. **3** for simultaneously transmitting two bits of information through said non-local effects from said originating location to the target location of arbitrary distance from said originating location.

[0037] FIG. **13** is a schematic view of one reverse combination of apparatus illustrated in FIG. **1** for exchanging two bits of information through said non-local effect between two locations separated by an arbitrary distance.

[0038] FIG. **14** is a schematic view of another reverse combination of apparatus illustrated in FIG. **3** for exchanging two bits of information through said non-local effect between said two locations separated by an arbitrary distance.

[0039] FIG. **15** is a schematic view of yet another reverse combination of apparatuses illustrated in FIG. **1** and FIG. **3** for exchanging two bits of information through said non-local effects between said two locations separated by an arbitrary distance.

[0040] FIG. **16** is a schematic view of an apparatus according to one embodiment producing non-local physical and/or chemical effects in a first substance, through quantum entanglement between said first substance and a second substance generated by a quantum entanglement generating source such as a laser or magnetic coil, optionally measurable by an internal and/or external probe such as pH meter.

[0041] FIG. **17** is a schematic view of a variation of the apparatus in FIG. **16** producing non-local physical and/or chemical effects in said first substance in which the said first substance and second substance are disposed in a reverse order of that shown in FIG. **16**.

DETAILED DESCRIPTION OF THE INVENTION

[0042] The apparatus of the present invention in one broad embodiment includes the target substance, a first container holding said target substance; the originating substance, a second container holding said originating substance, said target substance being quantum-entangled with said originating substance; and said mean for manipulating said originating substance.

[0043] The said mean will be, depending on a particular use, any mean, such as a mean for cooling, heating, irradiating or adding a specific substance to said originating substance, which is capable of generating non-local effects in said target substance when said mean operates. The selection and operating specifications of the mean will vary according to the use. The person skilled in the art will be able readily to determine the appropriate mean and operating specifications of said mean, with only routine experimentation, for optimum performance of the specific use intended.

[0044] The said target or originating substance will be, depending on the use, a single substance or a mixture of several substances and has the physical forms of a liquid, gel, powder, solid or gas, or a mixture of these said forms. Again, the selection of the substance or specific mixture of substances and their precise concentrations will vary according to the use. It will, however, from the information herein, be well within the ability of a person of ordinary skill in the art to select the appropriate mixture of substances for the particular use intended by such person, with no more than routine experimentation.

[0045] The said first or second container will be any material and form capable of supportive functions such as a simple plastic frame, a glass or plastic bottle, or polymer matrix. The container will be optional if the substance or the mixture of substances will be made into an appropriate solid.

[0046] The said target substance and originating substance will be quantum-entangled through one of several quantum-entanglement processes discovered by me (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)). For example, in one process a certain volume of a liquid, gel, gas, solid or a composition thereof such as water or a chemical solution in a suitable container will be exposed to electromagnetic radiation of a desired wavelength for a desired length of time before use. In a second process, the said liquid, gel, gas, solid or certain composition thereof such as water or a chemical solution in a suitable container will be simply left alone at a desired temperature for a certain period of time before use. Yet again, the selection and operating specifications of the quantum-entanglement processes will vary according to the use. The person skilled in the art will be able readily to determine the appropriate process and operating specifications of said process, with only routine experimentation, for optimum performance of the specific use intended.

[0047] Considering first FIG. **1**, the apparatus **100** of the present invention in one embodiment includes a target **110**, a source **120** and said mean **130** for manipulating said source **120**. Said target **110** further includes the target substance **111**, said first container **112** holding said substance **111** and said internal probe **113** inserted into said container **112**. Said source further including said originating substance **121** and said second container **122** holding said substance **121**.

[0048] In one particular embodiment, the target substance **111** and originating substance **121** are quantum-entangled water prepared according to one of the said quantum-entanglement process, the internal probe is a traceable-calibration digital thermometer with a resolution of 0.001° C. and repeatability of 0.002° C. in liquid near 25° C., container **112** is a small flat glassware of the dimensions about 1"×4"×6" (thickness, width, height) with a useful internal volume of about 250 ml, container **122** is a round plastic ware of the dimensions 2"×7" (diameter, height) with a useful internal volume of about 350 ml, and the manipulation mean **130** is a particular embodiment of mean **131** shown in FIG. **2** which includes a 25-liter Dewar and 10-25 liters of liquid nitrogen filling said Dewar. The container **112** has a removable cap so that it can be filled, emptied, closed and fitted with the said probe **113**. The container **122** also has a removable cap so that container **122** can be filled, emptied and closed. It will be understood, however, that the invention is not limited only to quantum-entangled water but also applies to other quantum-entangled media. It will be further understood that the internal

probe is not limited only to the said digital thermometer but also applies to other internal probes such as pH meter and conductivity meter depending on a particular purpose.

[0049] To use the apparatus having this particular embodiment for a desired purpose such as non-local signaling, control of a device or manipulation of the physical and or chemical properties of the target substance, one disposes the said target **110** to a desired location A with well-controlled environment and the said source **120** to another desired location B, operates the manipulation mean **131** by submerging the container **122** containing substance **121** into the 25-litre Dewar filled with 10-25 liters of liquid nitrogen for a desired length of time whereby the target substance **111** are remotely influenced by the operation of the said manipulation mean through non-local process **190** mediated by quantum entanglement between the target substance **111** and originating substance **121**, and records readings of said probe **113** both before and during the operation of the said mean **131** for a desired period of time depending on a desired purpose.

[0050] FIG. **2** shows several embodiments of the manipulation mean **130** including said mean **131** mentioned immediately above. Said mean **131** includes a substance **131***a* and a container **131***b* filled said substance **131***a* such that when said source **120** is submerged into said substance **131***a* a non-local effect is produced in the target **110** for an intended purpose through said non-local process mediated by quantum entanglement between the target substance **111** and originating substance **121**. In the particular embodiment described immediately above, said container **131***b* is a 25-liter Dewar and said substance **131***a* is 10-25 liters of liquid nitrogen filling said Dewar.

[0051] Mean **132** shown in FIG. **2** includes a manipulation member **132** disposed beneath, above or next to or otherwise enclosing the source **120** such that when said member operates a non-local effect is produced in the target **110** for an intended purpose through said non-local process mediated by quantum entanglement between the target substance **111** and originating substance **121**. In one particular embodiment, the said manipulation member **132** is a household gas or electric stove. In another particular embodiment, the said manipulation member **132** is a household microwave oven.

[0052] Mean **133** shown in FIG. **2** includes a substance **133***a* and a container **133***b* filled with said substance **133***a* such that when the originating substance **121** contacts said substance **133***a* a non-local effect is produced in the target **110** for an intended purpose through said non-local process mediated by quantum entanglement between the target substance **111** and originating substance **121**. In one particular embodiment, said substance **133***a* is a desired acidic or alkaline solution such as concentrated HCl or NaOH solution and said container **133***b* is a glass container of an appropriate shape and size with a removable cap. In another particular embodiment, said substance **133***a* is a quantum-entangled large liquid mass such as 200 gallons of quantum entangled water and said container **133***b* is a large tank capable of holding said large liquid mass.

[0053] Mean **134** includes a substance **134***a* and a container **134***b* filled with said substance **134***a* such that when said substance **134***a* contacts the originating substance **121** a non-local effect is produced in the target **110** for an intended purpose through said non-local process mediated by quantum entanglement between the target substance **111** and originating substance **121**. In one particular embodiment, said substance **134***a* is a desired acidic or alkaline solution such as concentrated HCl or NaOH solution and said container **134***b* is a glass container of a desired size with a removable cap.

[0054] Mean **135** includes a substance **135***a*, a container **135***b* filled with said substance **135***a* and disposed next to said contained **122**, and an radiation member **135***c* disposed adjacent to said container **135***b* such that when said radiation member **135***c* operates said substance **135***a* gets quantum entangled with said substance **121** which, in turn, produces a non-local effect in the target **110** for an intended purpose through said non-local process mediated by quantum entanglement between the target substance **111** and originating substance **121**. In one particular embodiment, said radiation member **135***c* is a laser of a desired wavelength and output. In another particular embodiment, said radiation member is a magnetic coil of desired output and an appropriate driving mechanism.

[0055] Considering next FIG. **3**, the apparatus **100** of the present invention in one embodiment is a variation of the apparatus shown in FIG. **1** in which the internal probe **113** is replaced by an external probe **114** disposed beneath, above or next to said container **112**. In one particular embodiment, the external probe **114** is an analytic balance with a capacity 210 g, resolution 0.1 mg, repeatability 0.1 mg and sensitivity drift 3 PPM/° C., and other elements of the apparatus are the same as the ones described in the particular embodiment of the apparatus shown in FIG. **1**. The said analytic balance may further include a windshield enclosing the weight pan. To use the apparatus having this particular embodiment, one carries out same steps as those for operating the particular embodiment of the apparatus shown in FIG. **1** with the exception that instead of recording readings of the internal probe **113**, the digital thermometer, the readings of the external probe **114**, the analytic balance, are recorded both before and during the operation of the said mean **130** for a desired period of time.

[0056] FIG. **4** illustrates a method according to one embodiment for non-locally influencing a chemical reaction in a chemical system **140** for a beneficial purpose. The essential steps include providing said quantum entangled target substance **111** and originating substance **121**, a chemical substance or a mixture of chemical substances **141** and said manipulation mean **130**; contacting said target substance **111** with said chemical substance or the mixture of chemical substances **141**; and operating the manipulation mean **130**; whereby the chemical reaction in the chemical system **140** is remotely influenced through said non-local process **190** mediated by quantum entanglement between the target substance **111** and originating substance **121**.

[0057] FIG. **5** illustrates another method according to one embodiment for non-locally influencing a biological system in vitro **150** for a beneficial purpose. The essential steps include providing said quantum entangled target substance **111** and originating substance **121**, a desired biological target in vitro **151** and a manipulation mean **130**; applying said target substance **111** to said biological target in vitro **151**; and operating the manipulation mean **130**; whereby the said biological target in vitro **151** is remotely influenced through said non-local process **190** mediated by quantum entanglement between the target substance **111** and originating substance **121**.

[0058] FIG. **6** illustrates yet another method according to one embodiment for non-locally influencing a biological object in vivo **160** for a beneficial purpose. The essential steps include providing said quantum entangled target substance **111** and originating substance **121**, a desired biological object

in vivo **160** and a manipulation mean **130**; applying said target substance **111** to said biological object in vivo **160**; and operating the manipulation mean **130**; whereby the said biological object in vivo **160** is remotely influenced through said non-local process **190** mediated by quantum entanglement between the target substance **111** and originating substance **121**.

[0059] Considering next FIG. **7**, the apparatus **100** of the present invention in one embodiment includes at least two targets **110** and **110***a*. This apparatus produces physical and/or chemical non-local effects in at least two target substances **111** and **111***a*, through manipulation of the originating substance **121** quantum-entangled with said target substances **111** and **111***a*, respectively measurable by aforesaid internal probe such as the pH meter or the thermometer for the purpose of monitoring and/or non-local communication.

[0060] To use the apparatus having said embodiment immediately above for a desired purpose such as non-local signaling to two locations or manipulation of the physical and/or chemical properties of said target substances, one disposes the said target **110** to a desired location A, the said target **110***a* to a desired location C and the said source **120** to another desired location B, operates the manipulation mean **130** for a desired length of time whereby the target substances **111** and **111***a* are remotely influenced by the operation of the said manipulation mean through non-local processes **190** and **190***a* respectively mediated by quantum entanglement of the target substances **111** and **111***a* with originating substance **121**, and records readings of internal probes **113** and **113***a* both before and during the operation of the said mean **130** for a desired period of time depending on said desired purpose.

[0061] Considering next FIG. **8**, the apparatus **100** of the present invention in one embodiment is a variation of the apparatus shown in FIG. **7** in which the internal probes **113** and **113***a* are replaced by external probes **114** and **114***a* respectively disposed beneath, above or next to containers **112** and **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **7** except that instead recording the readings of said internal probes **113** and **113***a* the readings of said external probes **114** and **114***a* are recorded.

[0062] Considering next FIG. **9**, the apparatus **100** of the present invention in one embodiment is yet another variation of the apparatus shown in FIG. **7** in which the internal probes **113***a* is replaced by external probes **114***a* disposed beneath, above or next to container **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **7** except that instead recording the readings of said internal probe **113***a* the readings of said external probe **114***a* are recorded.

[0063] Considering next FIG. **10**, the apparatus **100** of the present invention in one embodiment is a parallel combination of two apparatuses shown in FIG. **1** with each respectively including a target **110** or **110***a* and a source **120** or **120***a*. This apparatus can simultaneously produces physical and/or chemical non-local effects in said respective target **111** or **111***a*, through respective manipulation of the originating substance **121** or **121***a* quantum-entangled with said target substances **111** or **111***a*, measurable by aforesaid internal probe such as the pH meter or the thermometer for the purpose of monitoring and/or non-local communication.

[0064] To use the apparatus having said embodiment immediately above for a desired purpose such as simultaneous non-local transmission of two bits of information from one location to another, one disposes the said targets **110** and **110***a* to a desired location A and the said sources **120** and **120***a* to another desired location B, operates the manipulation means **130** and **130***a* for a desired length of time whereby the target substances **111** and **111***a* are remotely influenced by the operation of the said manipulation means **130** and **130***a* through non-local processes **190** and **190***a* respectively mediated by quantum entanglement between said target substances **111** and originating substance **121** and that between said target substances **111***a* and originating substance **121***a*, and records readings of internal probes **113** and **113***a* both before and during the operations of the said mean **130** and **130***a* for a desired period of time depending on said desired purpose.

[0065] Considering next FIG. **11**, the apparatus **100** of the present invention in one embodiment is a variation of the apparatus shown in FIG. **10** in which the internal probes **113** and **113***a* are replaced by external probes **114** and **114***a* respectively disposed beneath, above or next to containers **112** and **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **10** except that instead recording the readings of said internal probes **113** and **113***a* the readings of said external probes **114** and **114***a* are recorded.

[0066] Considering next FIG. **12**, the apparatus **100** of the present invention in one embodiment is yet another variation of the apparatus shown in FIG. **10** in which the internal probes **113***a* is replaced by external probes **114***a* disposed beneath, above or next to container **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **10** except that instead recording the readings of said internal probe **113***a* the readings of said external probe **114***a* are recorded.

[0067] Considering next FIG. **13**, the apparatus **100** of the present invention in one embodiment is a reverse combination of at least two apparatuses shown in FIG. **1** with each including a target **110** or **110***a* and a source **120** or **120***a*. This apparatus produces physical and/or chemical non-local effects in said respective target substance **111** or **111***a*, through manipulation of the originating substance **121** or **121***a* quantum-entangled with said target substances **111** or **111***a*, measurable by aforesaid internal probe such as the pH meter or the thermometer for the purpose of monitoring and/or non-local communication.

[0068] To use the apparatus having said embodiment immediately above for a desired purpose such as non-local exchange of information between two locations, one disposes the said target **110** and source **120***a* to a desired location A and the said sources **120** and target **110***a* to another desired location B, operates the manipulation means **130** and **130***a* in a desired sequence and for a desired length of time whereby the target substances **111** and **111***a* are remotely influenced by the operation of the said manipulation means **130** and **130***a* through non-local processes **190** and **190***a* respectively mediated by quantum entanglement between said target substances **111** and originating substance **121** and that between said target substances **111***a* and originating substance **121***a*, and records readings of internal probes **113** and **113***a* both before and during the operations of the said mean **130** and **130***a* for a desired period of time depending on said desired purpose.

[0069] Considering next FIG. **14**, the apparatus **100** of the present invention in one embodiment is a variation of the apparatus shown in FIG. **13** in which the internal probes **113** and **113***a* are replaced by external probes **114** and **114***a* respectively disposed beneath, above or next to containers **112** and **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **13** except that instead recording the readings of said internal probes **113** and **113***a* the readings of said external probes **114** and **114***a* are recorded.

[0070] Considering next FIG. **15**, the apparatus **100** of the present invention in one embodiment is yet another variation of the apparatus shown in FIG. **13** in which the internal probes **113***a* is replaced by external probes **114***a* disposed beneath, above or next to container **112***a*. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **13** except that instead recording the readings of said internal probes **113** and **113***a* the readings of said external probes **114** and **114***a* are recorded.

[0071] Considering next FIG. **16**, the apparatus **200** of the present invention in one embodiment includes a first substance **211**, a second substance **221** and a quantum entanglement generating source **230** for quantum-entangling said first and second substances **211** and **221**. Said apparatus further includes a first container **212** for holding said first substance **211**, a second container **222** for holding said second substance **221** and an optional internal probe **213** inserted into said container **212**.

[0072] To use the apparatus having said embodiment immediately above for a desired purpose such as non-local manipulation of the physical and/or chemical properties of said first substance **211**, one disposes the said first container **212** filled with said first substance **211** between said second container **222** filled with said second substance **221** and said generating source **230**, operates said generating source **230** for a desired length of time whereby said first and second substances **211** and **221** are quantum entangled and said physical and/or chemical properties of said first substance **211** are affected by said second substance **221** through non-local processes mediated by said quantum entanglement, and optionally records readings of said internal probe **213** both before and during the operation of the said generating source **230** for a desired period of time depending on said desired purpose. In one particular embodiment, said generating source **230** is a laser of a desired wavelength and output. In another particular embodiment, said generating source **230** is a magnetic coil of desired output and an appropriate driving mechanism.

[0073] Considering next FIG. **17**, the apparatus **200** of the present invention in one embodiment is a variation of the apparatus shown in FIG. **16** in which the said first substance **211** and second substance **221** are disposed in a reverse order of that in FIG. **16**. To use the apparatus having this embodiment for a desired purpose, one carries out same steps as those for using the apparatus shown in FIG. **16** except that said second container **212** filled with said second substance **221** is disposed between said first container **212** filled with said first substance **211** and said generating source **230**.

[0074] It will be appreciated that the particular features of the methods and apparatuses illustrated and described herein may be employed separately or in combination in any suitable manner so as to enhance the beneficial purposes. Those skilled in the art will also of course recognize that substitutions can be made, as long as the changes do not materially affect the ability of the methods and apparatuses disclosed herein.

[0075] Various experimental studies with the apparatus and method disclosed herein were carried out to evaluate the non-local effects produced on the target substance, in particular, water, using physical and/or chemical observables such as pH, temperature and gravity measured with high-precision instruments. My motivation for measuring pH change of water in one reservoir, while manipulating water in a remote reservoir quantum-entangled with the former, is to investigate whether and how pH value in the water being measured shifts under non-local influences. My motivation for measuring temperature variation of water in one reservoir, while manipulating water in a remote reservoir quantum-entangled with the former, is to investigate whether and how the thermodynamics of water being measured changes under non-local influences. My motivation for measuring gravity change of one reservoir of water, while manipulating water in a remote reservoir quantum-entangled with the former, is to investigate whether gravity is a non-local effect associated with quantum entanglement.

[0076] Further, the said experiments were achieved with the aids of high-precision analytical instruments. They include an Ohaus Voyager analytical balance with capacity 210 g, resolution 0.1 mg, repeatability 0.1 mg and sensitivity drift 3 PPM/° C., a Control Company traceable-calibration digital thermometer with resolution 0.001° C. and repeatability 0.002° C. near 25° C. in liquid such as water (estimated from calibration data provided), and a Hanna microprocessor pH meter Model 213 with resolution 0.001 and repeatability 0.002. The other key device is a 25-litre Dewar filled with liquid nitrogen and positioned remotely at a desired distance which not only provided the drastic changes in the water being manipulated but also served as a natural Faraday cage blocking any possible electromagnetic influence between the water being measured and the water being manipulated. Also important to the experiments described herein was the stable environment found in an underground room which shields many external noises such as mechanical vibration, air turbulence and large temperature change.

[0077] Quantum-entangled stock water in individual volumes of 500 ml or similar quantities was prepared as described previously which might then be split into smaller volumes or combined into larger ones based on needs (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)). Briefly, in one procedure 500 ml fresh tap water in a closed plastic reservoir was exposed to microwave radiation in a 1500 W microwave oven for 2 min and then left in room temperature for 24 hours before use. In a second procedure 500 ml fresh tap water in the closed plastic reservoir was exposed to audio-frequency radiations of a 20 W magnetic coil for 30 min and then left in room temperature for 24 hours before use. In a third procedure, 500 ml bottled natural water was simply left in room temperature for at least 30 days before use. In a fourth procedure, 500 ml bottled distilled water was simply left in room temperature for at least 30 days before use. It was found previously that the stock water prepared according to these procedures is quantum-entangled (Hu, H. P., & Wu, M. X.

Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)).

[0078] In the first key experimental setup, the apparatus illustrated in FIG. **9** having following particular embodiment was used: (1) the external probe **114***a* is the Ohaus Voyager analytical balance calibrated internally and stabilized in the underground room for more than one week before use; (2) the container **112***a* is a tightly closed round plastic reservoir of the dimensions 2"×7" (diameter, height) with a useful internal volume of about 350 ml and a removal cap; (3) the target substance **111***a* is 175 ml water split from 500 ml quantum-entangled stock water and is placed on the wind-shielded pan of the balance with 1-inch white foam in between as insulation; (4) the container **112** is tightly closed round glass reservoir the dimensions 2"×4" (diameter, height) with a useful internal volume of about 125 ml and a removal cap; (5) the target substance **111** is 75 ml water split from said 500 ml stock water; (6) the internal probe **113** is the Control Company traceable-calibration digital thermometer and/or the Hanna microprocessor pH meter Model 213 placed into the middle of the container **112**; (6) the container **122** another tightly closed round plastic reservoir of the dimensions 2"×7" (diameter, height) with a useful internal volume of about 350 ml and a removal cap; (7) the originating substance **121** is 250 ml water split from said 500 ml stock water; and (8) the manipulation mean **130** includes a 25-liter Dewar disposed at a distance of 50 or 500 feet from the targets **110** and **110***a*, and 15-25 liters of liquid nitrogen filling said Dewar.

[0079] Experiments with the above first setup carried out in the following steps: (1) prepare the 500 ml quantum-entangled stock water, divide the same into 175 ml, 75 ml and 250 ml portions and put them into their respective containers **112***a*, **112**, and **122** described above; (2) set up the experiment according to FIG. **9** and let the instruments to stabilize for 30 min before any measurements is taken; (3) record for 20 min minute-by-minute changes of pH value and/or temperature of the water in the container **112** and weight of the container **112***a* with water before submerging the container **122** into said liquid nitrogen; (4) submerge the container **122** containing water **121** into said liquid nitrogen for 15 min or another desired length of time and record the readings of the internal and external probes **113** and **114***a* as before; and (5) take the container **122** out of the said liquid nitrogen, thaw the same in warm water for 30 min or longer and, at the same time, record the readings of the internal and external probes **113** and **114***a* as before. Control experiments were carried out in same steps with nothing done to the water **121** in the container **122**.

[0080] Different variations of the above first setup were also used in the experiments. In one variation, the closed plastic container **122** was replaced with a metal container and instead of freeze-thaw treatment the water **121** in the metal container was quickly heated to boiling within 4-5 minutes and then cooled in cold water. In a second variation, the gravity portion of the experiment was eliminated and the water in the containers **112** and **112***a* were combined and put into a closed thermal flask, which prevents heat exchange between the water being measured and its local environment, for pH and temperature measurements. In a third variation, the gravity portion of the experiment was eliminated and the water in the containers **112** and **112***a* were combined and put into another plastic container for temperature, while said water **121** was, first, added with 5 ml concentrated HCl (38% by weight), second, added with 20 g NaOH powder, and, third, transferred to a metal container and heated to boiling on a stove. In a fourth variation, the 25-liter Dewar containing liquid nitrogen was replaced by a large water tank located 20-feet above the underground room which contained 200-gallon tap water sitting in room temperature for months and, instead of submersion, the water **121** in the container **122** was poured into the large water tank the purpose of which was to quantum-entangle the poured water with the water in the large tank. In a fifth variation, the gravity portion of the experiment was eliminated and the water in the containers **112** and **112***a* were combined and put into said plastic container which was moved to a location more than 50 miles away from the Dewar for temperature measurement.

[0081] In the second setup, the apparatus illustrated in FIG. **16** having following particular embodiment was used: (1) the quantum entanglement generating source **230** was a red laser with a 50 mW output and wavelengths 635 nm-675 nm; (2) the first container **212** was a flat glass reservoir of the dimensions 1"×4"×6" (thickness, width, height) with a useful internal volume of about 250 ml disposed next to said laser **230**; (3) the first substance **211** was 200 ml tap water filling said container **212** and sit in room temperature for more than a week without air exchange before use; (4) the internal probe **213** was the Hanna microprocessor pH meter Model 213 placed into the middle of the said flat glass container **212** which was closed to prevent air exchange; (5) the second container **222** was a tightly closed round glass reservoir of the dimensions 2"×4" (diameter, height) with a useful internal volume of about 125 ml disposed at a distance of 500 cm from the container **212**; and (6) the second substance **221** was 100 ml concentrated HCl (38% by weight).

[0082] Experiments with the above second setup were carried out as follows: (1) prepare the 200 ml tap water and set up the experiment according to FIG. **16**; (2) turn on and operate said laser **230** such that the laser beam first passes through said first container **212** and then gets scattered on a nearby concrete wall; (3) let said pH meter **213** to stabilize for 30 min before any measurement is taken; (4) record for 10 min. minute-by-minute changes of pH value of water in said container **212**; and (5) dispose said container **222** containing said second substance **221** on the path of the laser beam and at said distance of 500 cm from said container **212**; and (6) record for 60 min or longer minute-by-minute readings from said pH meter **213**. Control experiments were carried out in same steps without the presence of HCl.

[0083] Tables 1, 2 and 3 show sample data obtained from experiments conducted with the first setup on one batch of quantum-entangled water in which the manipulation mean **130** was at said distance of 50 feet away from the water **111** and **111***a* being measure and said water was simply individually bottled natural water with a shelf time of more than 90 days. Similar results were also obtained with water prepared according to other quantum entanglement methods mentioned above and other quantum-entangled liquid such as olive oil, alcohol, distilled water and Coca Cola as discussed later. The different distances of the manipulation mean from the target in the underground room where most measurements were done made no differences with respect to the non-local effects observed.

[0084] Table 1 shows one data set on the pH values of said target substance **111**, the 75 ml water, in said container **112** during the three stages of manipulation of said originating

substance **121**, the 250 ml water, in said container **122** plus pH values obtained in the control experiment and with said thermal flask in said second variation of the first setup:

TABLE 1

Time (Min)	Freeze-Thaw pH ($\times 10^3$)	Control pH ($\times 10^3$)	Thermal Flask pH ($\times 10^3$)
11	0	0	0
12	−4	−3	−3
13	−7	−6	−7
14	−9	−9	−9
15	−12	−11	−13
16	−13	−13	−16
17	−16	−14	−18
18	−17	−16	−20
19	−19	−17	−22
20	Freeze −21	−19	Freeze −24
21	−23	−21	−25
22	−24	−22	−27
23	−25	−22	−28
24	−26	−24	−30
25	−28	−25	−31
26	−29	−26	−32
27	−29	−28	−33
28	−30	−28	−35
29	−31	−29	−35
30	−31	−30	−37
31	−32	−31	−38
32	−32	−32	−38
33	−32	−32	−39
34	−32	−33	−40
35	Thaw −32	−33	Thaw −40
36	−32	−33	−41
37	−32	−34	−43
38	−32	−34	−43
39	−32	−34	−43
40	−31	−34	−44
41	−30	−34	−45
42	−29	−34	−46
43	−29	−35	−46
44	−27	−35	−47
45	−26	−35	−47
46	−25	−35	−48
47	−24	−35	−48
48	−23	−36	−48
49	−22	−36	−49
50	−21	−37	−50
51	−21	−37	−51
52	−21	−38	−51
53	−21	−38	−51
54	−21	−38	−51
55	−21	−38	−52
56	−21	−38	−52
57	−21	−38	−52
58	−21	−38	−52
59	−21	−38	−53
60	−21	−38	−53

[0085] As shown in Table 1, within minutes after said container **122** was submerged into liquid nitrogen, during which the temperature of said water **121** being manipulated would drop from about 25° C. to −193° C., the pH value of said water **111** in said container **112** steadily stopped dropping and then started rising, but about 20 min after the frozen water **121** was taken out of liquid nitrogen and thawed in warm water the pH value of said water **111** steadily leveled off and started dropping again. In Table 1, the pH value at the starting point of measurement is set to zero.

[0086] In contrast, as shown in Table 1, the control experiments did not show such dynamics. It is known that the pH value of water increases as its temperature goes down to 0° C. Therefore, the pH value of said water **111** being measured goes in the same direction as said water **121** when the latter is manipulated. The difference in pH values from control in which no freeze-thaw was done at the point of thawing is about 0.010. However, in the second variation of the first setup, when said water **111** and **111***a* being measured were merged and kept in said thermal flask to prevent heat exchange with the local environment, no effect on pH value of said water **111** and **111***a* was observed under freeze-thaw treatment of said water **121**. Statistical analysis performed on all data collected after freezing for 10 min show that the results are significantly different under these different treatments/settings.

[0087] Table 2 shows one data set on temperature variations of said target substance **111**, the 75 ml water, in said container **112** during the three stages of manipulation of said originating substance **121**, the 250 ml water, in said container **122** plus temperature variations obtained in the control experiment and with said thermal flask in said second variation of the first setup:

TABLE 2

Time (Minute)	Freeze-Thaw Temp (° C. × 10^3)	Control Temp (° C. × 10^3)	Thermal Flask Temp (° C. × 10^3)
1	0	0	0
2	3	4	0
3	7	8	1
4	10	12	1
5	13	15	2
6	16	19	2
7	19	22	3
8	22	25	3
9	25	29	4
10	28	32	4
11	32	35	5
12	34	38	5
13	37	41	6
14	40	43	6
15	43	46	7
16	46	49	7
17	50	52	7
18	53	55	8
19	55	57	8
20	Freeze 58	60	Freeze 9
21	61	62	9
22	63	64	10
23	66	66	10
24	70	68	11
25	69	70	11
26	66	73	11
27	63	75	12
28	61	77	12
29	57	79	13
30	54	81	13
31	51	83	14
32	48	85	14
33	45	87	15
34	41	89	15
35	38	91	16
36	36	93	16
37	33	95	17
38	30	97	17
39	26	99	18
40	Thaw 24	100	Thaw 19
41	21	102	19
42	18	104	20
43	16	105	20
44	14	107	21
45	13	109	21
46	13	110	22
47	13	112	22
48	13	114	23
49	14	116	23
50	14	117	24

TABLE 2-continued

Time (Minute)	Freeze-Thaw Temp (° C. × 10^3)	Control Temp (° C. × 10^3)	Thermal Flask Temp (° C. × 10^3)
51	15	118	24
52	16	120	25
53	18	121	25
54	19	122	26
55	20	123	26
56	22	125	27
57	24	126	27
58	25	127	28
59	26	128	28
60	27	129	29

[0088] As shown in Table 2, before the submersion of said container **122** into liquid nitrogen the temperature of said water **111** in said container **112** rose in small increments due to, by design, the slight temperature difference between the local environment and said water **111** in said container **112**; but within about 4-5 minutes after said container **122** was submerged into liquid nitrogen, during which the temperature of said water **121** being manipulated would drop from about 25° C. to −193° C., the temperature of said water **111** in said container **112** first stopped rising and then steadily dropped in small increments; and then within about 4-5 minutes after said frozen water **121** was taken out of liquid nitrogen and thawed in warm water the temperature of said water **111** in said container **112** first stopped dropping and then steadily rose again in small increments. In Table 2, the temperature at the starting point of measurement is set to zero.

[0089] In contrast, as shown in Table 2, the control experiments did not show such dynamics. The temperature difference from control in which no freeze-thaw was done at the point of thawing is about 0.05° C. However, in the second variation of the first setup, when said water **111** and **111***a* being measured were merged and kept in said thermal flask to prevent heat exchange with the local environment, no dropping of temperature were observed under freeze-thaw treatment of said water **121**. Statistical analysis performed on all data collected after freezing for 10 min show that the results are significantly different under these different treatments/settings.

[0090] The applicant also found that other liquids such as olive oil, alcohol, Coca Cola and distilled water also showed similar qualitative temperature variations under the said freeze-thaw treatment. Furthermore, experiments conducted with the fifth variation of the first setup in which the temperature measurement done at a location more than 50 miles way from the manipulation mean **130** also show results similar to those obtained at distances of 50 and 500 feet respectively.

[0091] Columns 2, 3 and 4 in Table 3 respectively show one data set on: (1) weight variations of said target substance **111***a*, the 175 ml water, in said container **112***a* during the three stages of manipulation of said originating substance **121**, the 250 ml water, in said container **122**; (2) temperature variations of said target substance **111**, the 75 ml water, in said container **112**, simultaneous to the weight variations, during the same three stages of manipulation; and (3) weight variations obtained in the control experiment:

TABLE 3

Time (Min)	Freeze-Thaw Weight (mg)		Freeze-Thaw Temp (° C. × 10^3)	Control Weight (mg)
1		0.5	0	0
2		0.5	2	0
3		0.5	3	0
4		0	5	0
5		0	6	0
6		0	7	0
7		0	8	0
8		0	9	−0.5
9		−0.5	10	−0.5
10		−0.5	11	−0.5
11		−0.5	12	−1
12		−1	12	−1
13		−1	13	−1
14		−1	13	−1
15		−1.5	14	−1
16		−1.5	15	−1
17		−1.5	15	−1
18	Freeze	−1.5	Freeze	−1
19		−1.5	16	−1
20		−2	17	−1
21		−2	17	−1
22		−2.5	18	−1
23		−2.5	20	−1
24		−3	22	−1
25		−3	22	−1
26		−4	21	−1.5
27		−4	19	−1.5
28		−4.5	17	−1.5
29		−5	14	−1.5
30		−5.5	11	−2
31		−6	9	−2
32		−6	6	−2
33		−6.5	3	−2
34		−7	1	−2
35		−7	−2	−2.5
36		−7	−5	−2.5
37		−7.5	−7	−2.5
38	Thaw	−8	Thaw	−3
39		−8	−12	−3
40		−8	−14	−3
41		−8	−14	−3
42		−8	−14	−3
43		−8	−14	−3.5
44		−8	−14	−3.5
45		−7.5	−14	−3.5
46		−7.5	−14	−4
47		−8	−13	−4
48		−8	−12	−4
49		−8.5	−10	−4.5
50		−8.5	−9	−4.5
51		−8.5	−7	−4.5
52		−8.5	−7	−4.5
53		−9	−6	−4.5
54		−9	−6	−5
55		−9	−6	−5
56		−9	−6	−5
57		−9	−6	−5
58		−9	−6	−5.5
59		−9.5	−6	−5.5
60		−9.5	−6	−5.5

[0092] As shown in Column 2 of Table 3, before the submersion of said container **122** into liquid nitrogen the weight of said water **111***a* in said container **112***a* drifted lower very slowly. But almost immediately after said container **122** was submerged into liquid nitrogen, during which the temperature and physical properties of said water **121** being manipulated drastically changed, the weight of said water **111***a* dropped at

an increased rate, and after the frozen water **121** was taken out the liquid nitrogen and thawed in warm water the weight of said water **111***a* first stopped dropping and, in some cases, even rose before resuming drifting lower. In Table 3, the weight and temperature at the starting point of measurements are set to zero.

[0093] In contrast, as shown in Column 4 of Table 3, the control experiments did not show such dynamics. The weight difference from control in which no freeze-thaw was done at the point of thawing is about 2 mg. Statistical analysis performed on all data collected after freezing for 10 min show that the results are significantly different under these different treatments/settings. In addition, as shown in Column 3 of Table 3, the dynamics of the temperature variations during the same three stages of manipulation are also very clear.

[0094] The applicant found in said first variation of the first setup that when said water **121** was quickly heated to boiling on a household gas stove instead of being frozen in liquid nitrogen, a brief rise of weight of said water **111***a* in the range of about 0.5 mg were repeated observed in several experiments conducted so far.

[0095] The applicant further found in said fourth variation of the first setup that when the originating substance **121**, the 250 ml water, was poured into the 200-gallon water tank instead of being frozen in liquid nitrogen, small but noticeably increased weight losses were repeatedly observed in the several experiments conducted to date. More specifically, before mixing of said water **121** with the water in the water tank the weight of said water **111***a* in said container **112***a* drifted lower very slowly, but within short time measured in minutes after said water **121** in said container **122** was poured into said water tank, during which the water in the said tank got quantum-entangled with said water **121**, the weight of the water **111***a* in said container **112***a* dropped at small but increased rate for a period of time.

[0096] Columns 2, 5 and 6 in Table 4 respectively show (1) sample data on temperature change obtained in the third variation of the first set of experiment described above; (2) one sample data on the pH variation of said first substance **211**, the 200 ml tap water, in the second set of experiment; and (3) one sample data on the pH variation of said first substance **211**, the 200 ml tap water, in the control group of the second set of experiments:

TABLE 4

Time (Minute)	Treatment Temp (° C. × 10^3)	Time (Minute)	Treatment pH (×10^3)	Control pH (×10^3)
1	0	1	0	0
2	2	2	0	0
3	4	3	−1	0
4	6	4	−1	−1
5	8	5	−1	−2
6	11	6	−2	−2
7	14	7	−3	−3
8	Add HCl	16	8	HCl Exposure	−3	−3
9	17	9	−3	−2
10	19	10	−3	−2
11	21	11	−3	−2
12	24	12	−3	−1
13	27	13	−3	−1
14	30	14	−3	0
15	32	15	−3	0
16	32	16	−2	0
17	32	17	−2	0
18	32	18	−2	0

TABLE 4-continued

Time (Minute)	Treatment Temp (° C. × 10^3)	Time (Minute)	Treatment pH (×10^3)	Control pH (×10^3)
19	32	19	−2	0
20	31	20	−2	0
21	31	21	−2	−1
22	30	22	−3	−1
23	29	23	−3	−1
24	28	24	−3	−1
25	27	25	−3	0
26	26	26	−3	0
27	25	27	−3	1
28	Add NaOH	24	28	−3	0
29	23	29	−3	0
30	22	30	−3	0
31	21	31	−4	−1
32	21	32	−4	−1
33	21	33	−5	−2
34	22	34	−5	−2
35	21	35	−6	−2
36	19	36	−6	−2
37	18	37	−6	−2
38	16	38	−8	−2
39	13	39	−8	−2
40	10	40	−8	−2
41	8	41	−10	−2
42	5	42	−10	−3
43	2	43	−11	−3
44	−1	44	−11	−3
45	−4	45	−11	−3
46	−8	46	−12	−3
47	−11	47	−12	−3
48	Heat	−14	48	−12	−3
49	−17	49	−13	−3
50	−20	50	−13	−3
51	−22	51	−13	−3
52	−23	52	−13	−3
53	−24	53	−13	−3
54	−23	54	−13	−3
55	−26	55	−13	−3
56	−29	56	−14	−3
57	−32	57	−14	−3
58	−35	58	−14	−3
59	−38	59	−14	−3
60	−41	60	−14	−3

[0097] As shown in Column 2 of Table 4, the signatures of the manipulation induced temperature changes in said third variation of the first setup were clear. The applicant further found that when said 5 ml HCl was added to the water **121**, the pH value in the water being measured decreased. In Column 2 of Table 4, the general background trend of the temperature first increasing, flattening and decreasing was due to environmental temperature change.

[0098] As shown in Column 5 of Table 4, in about 30 min after the second container **222** containing said second substance **221**, the 100 ml concentrated HCl (38% by weight), was disposed behind the first container **212** at the said distance of 500 cm and on the path of said laser light, during which the water **211** in the first container **212** got quantum-entangled with the HCl **221** in the second container **222**, the pH value of the water **211** in the first container **212** steadily decreased. In Columns 5 & 6 of Table 4, the pH value at the starting point of measurement is set to zero.

[0099] In contrast, as shown in Column 6 of Table 4, the control experiment did not show such dynamics. Also, the said laser did not affect the temperature of the water in the first reservoir significantly during the whole treatment. The difference in pH value from control in which HCl was absence is

about 0.070 after 50 min of exposure to HCl. Statistical analysis performed on all data collected after exposure to HCl for 30 min show that the results are significantly different from control.

[0100] With all experimental setups and their variations described herein, the applicant has observed clear and reproducible non-local effects with the aids of high-precision analytical instruments and under well-controlled conditions. The physical observables used for measuring the non-local effects are simple ones which can be measured with high precisions. These non-local effects are, even under the most stringent statistical analysis, significantly above and beyond what were noticeable in the control experiments.

[0101] Through careful analysis, I have excluded the possibility that the observed weight variation was a secondary local effect due to heat loss and/or sensitivity drift of balance associated with temperature change induced by the manipulation of said originating substance. First, during the period of said manipulation the total temperature change caused by said manipulation was less than 0.08° C. so the total heat loss for the 175 ml water **111***a* in the container **112***a* was about 60 J. In contrast, the weight loss during remote manipulation was on average about 2.5 mg which is 22.5×10^9 J in energy unit. Second, said container **112***a* and the pan of the analytic balance **114***a* were separated by a 1-inch white foam to prevent heat transfer to said analytic balance **114***a*. Even in the highly unlikely scenario that this temperature change somehow affected the overall temperature of the analytical balance **114***a*, the associated sensitivity drift of the balance was about 0.03 mg which is 10 times smaller than what's actually observed. Therefore, the observed gravity variation is a genuine and direct non-local effect associated with quantum entanglement.

[0102] The applicant chose to use liquid nitrogen in said 25-liter Dewar placed at said distant locations for manipulating said originating substance **121** in said experiments because said liquid nitrogen provided drastic changes in the temperature and properties of the water **121** in a very short period of time. The applicant's expectation was that, if the quantum entities inside the water **111** and **111***a* being measured were able to sense the changes experienced by the quantum entities in the water **121** being manipulated through quantum entanglement and further utilize the information associated with the said changes, the chemical, thermal and gravitational properties of the water **111** and **111***a* might be affected through quantum entanglement mediated non-local processes (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)). While the applicant does not wish to be bound by a particular suggested mechanism, the most logical explanation for all the observed non-local effects is that they are the consequences of non-local processes mediated by quantum entanglement between quantum entities in the water being measured and the remote water being manipulated as more specifically illustrated below.

[0103] First, when the pH value of the water **121** in the container **122** is high or low or is changing under said manipulations such as said cooling, heating or addition of said acidic or alkaline chemical, the pH value of said water **111** being measured shift in the same direction as that of said water **121** under the non-local influence of said water **121** in said container **122** mediated through quantum entanglement between said water **111** and **121** and, under the condition that said container **112** is able to exchange energy with its local environment, as if H+ in said water **121** is directly available to said water **111** in said container **112**.

[0104] Second, when temperature of the water **121** in the container **122** is extremely low or high or is changing under said manipulations such as said cooling, heating or addition of heat-generating chemicals such as concentrated HCl or NaOH powder, the temperature of said water **111** being measured shift in the same direction as that of said water **121** under the non-local influence of said water **121** in said container **122** mediated through quantum entanglement between said water **111** and **121** and, under the condition that said container **112** is able to exchange energy with its local environment so that the local thermodynamic energy is conserved, as if the heat or lack of it in said container **122** is directly available to said water **111** in said container **112**.

[0105] Third, when the water **121** in the container **122** is manipulated though cooling, heating or mixing with large quantum-entangled mass such that the quantum entanglement of the water **121** under manipulation with its local environment changes, the weight of the water **111***a* in said container **112***a* also changes under the non-local influence of said manipulation mediated through quantum entanglement between said water **111***a* being weighed and **121** being manipulated.

[0106] While the applicant does not wish to be bound by any particular quantum entities suggested herein, it is believed that nuclear spins and/or electron spins respectively inside the target substance and originating substance are the quantum entities responsible for mediating the observed non-local effects since nuclear spins and electron spins are the natural targets of interactions for reasons discussed below.

[0107] Water contains vast numbers of nuclear spins carried by ^{1}H. These spins form complex intra- and inter-molecular networks through various intra-molecular J and dipolar couplings and both short- and long-range intermolecular dipolar couplings. Further, nuclear spins have relatively long relaxation times after excitations. Thus, when a nematic liquid crystal is irradiated with multi-frequency pulse magnetic fields, its ^{1}H spins can form long-lived intra-molecular quantum coherence with entanglement for information storage (Khitrin, A. K., Ermakov, V. L. & Fung, B. M. Information storage using a cluster of dipolar-coupled spins. Chem. Phys. Lett. 360, 161-166 (2002)). Long-lived (~0.05 ms) entanglement of two macroscopic electron spin ensembles in room temperature has also been achieved (JuIsgaard, B., Kozhekin, A. & Polzik, E S. Experimentally long-lived entanglement of two macroscopic objects. Nature 413, 400-403 (2001)). Furthermore, spin is a fundamental quantum process and was shown to be responsible for the quantum effects in both Hestenes and Bohmian quantum mechanics (Hu, H. & Wu, M. Spin as primordial self-referential process driving quantum mechanics, spacetime dynamics and consciousness. NeuroQuantology 2:41-49 (2004)). Thus, we suggest that quantum-entangled nuclear spins and/or electron spins are likely the mediators of all observed non-local effects reported here (Hu, H. P., & Wu, M. X. Photon induced non-local effect of general anesthetics on the brain. NeuroQuantology 4, 17-31 (2006); Hu, H. P., & Wu, M. X. Non-local effects of chemical substances on the brain produced through quantum entanglement. Progress in Physics v3, 20-26 (2006)).

[0108] In short, through the above described experiments, I have discovered that (1) the pH value of water in a detecting reservoir quantum-entangled with water in a remote reservoir changes in the same direction as that in the remote water when the latter is manipulated under the condition that the water in the detecting reservoir is able to exchange energy with its local environment; (2) the temperature of water in a detecting reservoir quantum-entangled with water in a remote reservoir can change against the temperature of its local environment when the latter is manipulated under the condition that the water in the detecting reservoir is able to exchange energy with its local environment; and (3) the gravity of water in a detecting reservoir quantum-entangled with water in a remote reservoir can change against the gravity of its local environment when the latter was remotely manipulated; Thus, among other things I have realized non-local signaling using three different physical observables—pH value, temperature and gravity.

[0109] My invention and discovery also make it clear that (1) the properties of all matters can be affected non-locally through quantum entanglement mediated processes; (2) physically, chemically and/or biologically meaningful information can be transmitted from one system or location to the other through quantum entanglement; (3) quantum entanglement can be used to deliver the therapeutic effects of many drugs to biological systems such as human bodies without ever physically administrating the said drugs to the said systems; (4) quantum entanglement alone can be used for communications of both quantum and classical information; (5) many substances of nutritional and even recreational values can be repeatedly administrated to the human body through the said technologies; and (6) quantum entanglement can also be used to entangle two or more biological objects such as human brains for legitimate purposes.

[0110] It will be evident from the above that there are other embodiments which are clearly within the scope and spirit of the present invention, although they were not expressly set forth above. Therefore, the above disclosure is exemplary only, and the actual scope of my invention is to be determined by the claims.

What is claimed is:

1. A method of producing a non-local effect in a target substance through manipulating an originating substance which comprises the steps of:

selecting a substance which comprises a single substance or mixture of several substances;

generating a quantum entanglement within said substance;

separating said substance into said target substance and said originating substance;

positioning said target substance at a first location and said originating substance at a second location; and

manipulating said originating substance;

whereby said non-local effect is produced through a non-local process mediated by said quantum entanglement.

2. A method as in claim **1** wherein said generating step comprises irradiating said substance or letting said substance sitting for a length of time; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a change of physical and/or chemical property in said target substance.

3. A method as in claim **2** wherein said generating step comprises irradiating said substance with magnetic pulse, laser light or microwave or letting said substance sitting for said length of time; said substance comprises water, oil, water-based medium or oil-based medium; and said non-local effect comprises said change in temperature, weight and/or pH value.

4. A method as in claim **1** which further comprises the step of:

detecting said non-local effect.

5. A method as in claim **4** wherein said generating step comprises irradiating said substance or letting said substance sitting for a length of time; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting step comprises detecting said change.

6. A method as in claim **5** wherein said generating step comprises irradiating said substance with magnetic pulse, laser light or microwave or letting said substance sitting for said length of time; said substance comprises water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

7. A method as in claim **4** for non-locally transmitting a message from said second location to said first location wherein said positioning step further comprises encoding said message to be carried by said non-local effect; and said detecting step further comprises decoding said message at said first location.

8. A method as in claim **7** wherein said generating step comprises irradiating said substance or letting said substance sitting for a length of time; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting step comprises detecting said change.

9. A method as in claim **8** wherein said generating step comprises irradiating said substance with magnetic pulse, laser light or microwave or letting said substance sitting for said length of time; said substance comprises water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

10. A method of producing a non-local effect in a target substance through manipulating an originating substance which comprises the steps of:

selecting said target substance and said originating substance, said target substance being in a quantum entanglement with said originating substance;

positioning said target substance at a first location and said originating substance at a second location; and

manipulating said originating substance;

whereby said non-local effect is produced through a non-local process mediated by said quantum entanglement.

11. A method as in claim **10** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originat-

ing substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a change of physical and/or chemical property in said target substance.

12. A method as in claim **11** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; and said non-local effect comprises said change in temperature, weight and/or pH value.

13. A method as in claim **10** which further comprises the step of:

detecting said non-local effect.

14. A method as in claim **13** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting step comprises detecting said change.

15. A method as in claim **14** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

16. A method as in claim **13** for non-locally transmitting a message from said second location to said first location wherein said positioning step further comprises encoding said message to be carried by said non-local effect; and said detecting step further comprises decoding said message at said first location.

17. A method as in claim **16** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting step comprises detecting said change.

18. A method as in claim **17** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

19. A method of producing a non-local effect in a target substance through manipulating an originating substance which comprises the steps of:

selecting said target substance and said originating substance;

generating a quantum entanglement between said target substance and said originating substance;

positioning said target substance at a first location and said originating substance at a second location; and

manipulating said originating substance;

whereby said non-local effect in said target substance is produced through a non-local process mediated by said quantum entanglement.

20. A method as in claim **19** wherein said generating step comprises: (1) contacting said target substance with said originating substance for a length of time and separating said target substance and said originating substance, or (2) disposing said target substance next to said originating substance and irradiating said target substance and said originating substance; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a change of physical and/or chemical property in said target substance.

21. A method as in claim **20** wherein said irradiating step comprises irradiating said target substance and said originating substance with magnetic pulse, laser light or microwave; said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; and said non-local effect comprises said change in temperature, weight and/or pH value.

22. A method as in claim **19** which further comprises the step of:

detecting said non-local effect.

23. A method as in claim **22** wherein said generating step comprises: (1) contacting said target substance with said originating substance for a length of time and separating said target substance and said originating substance, or (2) disposing said target substance next to said originating substance and irradiating said target substance and said originating substance; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting step comprises detecting said change.

24. A method as in claim **23** wherein said irradiating step comprises irradiating said target substance and said originating substance with magnetic pulse, laser light or microwave; said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

25. A method as in claim **22** for non-locally transmitting a message from said second location to said first location wherein said positioning step further comprises encoding said message to be carried by said non-local effect; and said detecting step further comprises decoding said message at said first location.

26. A method as in claim **25** wherein said generating step comprises: (1) contacting said target substance with said originating substance for a length of time and separating said target substance and said originating substance, or (2) disposing said target substance next to said originating substance and irradiating said target substance and said originating substance; said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical

property in said target substance; and said detecting step comprises detecting said change.

27. A method as in claim **26** wherein said irradiating step comprises irradiating said target substance and said originating substance with magnetic pulse, laser light or microwave; said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

28. A method of producing a non-local effect in a target through manipulating an originating substance which comprises the steps of:

selecting said target which comprises a physical, chemical or biological system;

selecting a target substance and said originating substance, said target substance being quantum-entangled with said originating substance;

contacting said target substance with said target;

positioning said target containing said target substance at a first location and said originating substance at a second location; and

manipulating said originating substance;

whereby said non-local effect is generated through a non-local process mediated by a quantum entanglement among said originating substance, said target substance and said target.

29. A method as in claim **28** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a physical, chemical and/or biological non-local effect.

30. A method as in claim **29** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; and said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium.

31. A method as in claim **28** which further comprises the step of:

detecting said non-local effect.

32. A method as in claim **31** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a physical, chemical and/or biological non-local effect; and said detecting step comprises detecting said change.

33. A method as in claim **32** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises a change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

34. A method as in claim **31** for non-locally transmitting a message from said second location to said first location wherein said positioning step further comprises encoding said message to be carried by said non-local effect; and said detecting step further comprises decoding said message at said first location.

35. A method as in claim **34** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a physical, chemical and/or biological non-local effect; and said detecting step comprises detecting said change.

36. A method as in claim **35** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises a change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

37. A method of producing a first non-local effects at a first location and a second non-local effect at a second location through manipulating an originating substance at a third location which comprises the steps of:

selecting a first target substance, a second target substance and said originating substance, said originating substance being in a first quantum-entanglement with said first target substance and a second quantum entanglement with said second target substance;

positioning said first target substance at said first location, said second target substance at said second location and said originating substance at said third location; and

manipulating said originating substance;

whereby said first non-local effect is produced through a first non-local process mediated by said first quantum entanglement and said second non-local effect is produced through a second non-local process mediated by said second quantum entanglement.

38. A method as in claim **37** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; and said second non-local effect comprises a second change of physical and/or chemical property in said second target substance.

39. A method as in claim **38** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; and said second non-local effect comprises said second change in temperature, weight and/or pH value.

40. A method as in claim **37** which further comprises the step of:

detecting said first non-local effect and said second non-local effect.

41. A method as in claim **40** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; and said second non-local effect comprises a second change of physical and/or chemical property in said

second target substance; and said detecting step comprises detecting said first change and said second change.

42. A method as in claim **41** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; and said second non-local effect comprises said second change in temperature, weight and/or pH value; and said detecting step comprises detecting said first change with a first thermometer, balance and/or pH meter and said second change with a second thermometer, balance and/or pH meter.

43. A method as in claim **40** for non-locally transmitting a first message from said third location to said first location and a second message from said third location to said second location wherein said positioning step further comprises encoding said first message to be carried by said first non-local effect and said second message to be carried by said second non-local effect; and said detecting step further comprises decoding said first message at said first location and said second message at said second location.

44. A method as in claim **43** wherein said manipulating step comprises cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; and said second non-local effect comprises a second change of physical and/or chemical property in said second target substance; and said detecting step comprises detecting said first change and said second change.

45. A method as in claim **44** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; and said second non-local effect comprises said second change in temperature, weight and/or pH value; and said detecting step comprises detecting said first change with a first thermometer, balance and/or pH meter and said second change with a second thermometer, balance and/or pH meter.

46. A method of producing a first non-local effect at a first location through manipulating a first originating substance at a second location and a second non-local effect at said second location through manipulating a second originating substance at said first location which comprises the steps of:

selecting said first target substance, second target substance, first originating substance and second originating substance, said first target substance being in a first quantum-entanglement with said first originating substance and said second target substance being in a second quantum-entangled with said second originating substance;

positioning at said first location said first target substance and second originating substance and at said second location said second target substance and first originating substance; and

manipulating said first originating substance and second originating substance;

whereby said first non-local effect is produced through a first non-local process mediated by said first quantum entanglement and said second non-local effect is produced through a second non-local process mediated by said second quantum entanglement.

47. A method as in claim **46** wherein said manipulating step comprises cooling, heating or irradiating said first originating substance, adding a first manipulating substance to said first originating substance or adding said first originating substance to said first manipulating substance and cooling, heating or irradiating said second originating substance, adding a second manipulating substance to said second originating substance or adding said second originating substance to said second manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; and said second non-local effect comprises a second change of physical and/or chemical property in said second target substance.

48. A method as in claim **47** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said first originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said second originating substance comprises a fourth volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; and said second non-local effect comprises said second change in temperature, weight and/or pH value.

49. A method as in claim **46** which further comprises the step of:

detecting said first non-local effect and said second non-local effect.

50. A method as in claim **49** wherein said manipulating step comprises cooling, heating or irradiating said first originating substance, adding a first manipulating substance to said first originating substance or adding said first originating substance to said first manipulating substance and cooling, heating or irradiating said second originating substance, adding a second manipulating substance to said second originating substance or adding said second originating substance to said second manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; said second non-local effect comprises a second change of physical and/or chemical property in said second target substance; and said detecting step comprises detecting said first change and said second change.

51. A method as in claim **50** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said first originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said second originating substance comprises a fourth volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; said second non-local effect comprises said second change in temperature, weight and/or pH value; and said detecting step comprises detecting said first change with a first thermom-

eter, balance and/or pH meter and said second change with a second thermometer, balance and/or pH meter.

52. A method as in claim **49** for non-locally transmitting a first message from said second location to said first location and a second message from said first location to said second location wherein said positioning step further comprises encoding said first message to be carried by said first non-local effect and said second message to be carried by said second non-local effect; and said detecting step further comprises decoding said first message at said first location and said second message at said second location.

53. A method as in claim **52** wherein said manipulating step comprises cooling, heating or irradiating said first originating substance, adding a first manipulating substance to said first originating substance or adding said first originating substance to said first manipulating substance and cooling, heating or irradiating said second originating substance, adding a second manipulating substance to said second originating substance or adding said second originating substance to said second manipulating substance; said first non-local effect comprises a first change of physical and/or chemical property in said first target substance; said second non-local effect comprises a second change of physical and/or chemical property in said second target substance; and said detecting step comprises detecting said first change and said second change.

54. A method as in claim **53** wherein said first target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said second target substance comprises a second volume of water, oil, water-based medium or oil-based medium; said first originating substance comprises a third volume of water, oil, water-based medium or oil-based medium; said second originating substance comprises a fourth volume of water, oil, water-based medium or oil-based medium; said first non-local effect comprises said first change in temperature, weight and/or pH value; said second non-local effect comprises said second change in temperature, weight and/or pH value; and said detecting step comprises detecting said first change with a first thermometer, balance and/or pH meter and said second change with a second thermometer, balance and/or pH meter.

55. A method of producing a non-local effect of a first substance on a second substance which comprises the steps of:

selecting said first substance and second substance;

providing a quantum-entanglement generating source which emits a plurality of quantum-entangling members when said source operates;

disposing said first substance between said source and said second substance or said second substance between said source and said first substance; and

driving for a length of time said source to emit said members which interact with said first substance and said second substance;

whereby said non-local effect is produced through a non-local process mediated by a quantum entanglement between said first substance and said second substance.

56. A method as in claim **55** wherein said source comprises a generator of magnetic pulse, laser light or microwave; and said non-local effect comprises a change of physical and/or chemical property in said second substance.

57. A method as in claim **56** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium.

58. A method as in claim **55** which further comprises the step of:

detecting said non-local effect.

59. A method as in claim **58** wherein said source comprises a generator of magnetic pulse, laser light or microwave; said non-local effect comprises a change of physical and/or chemical property in said second substance; and said detecting step comprises detecting said change.

60. A method as in claim **59** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting step comprises detecting said change with a thermometer, balance and/or pH meter.

61. An apparatus for producing a non-local effect in a target substance through manipulating an originating substance which comprises:

said target substance in a first container positioned at a first location;

said originating substance in a second container positioned at a second location, said originating substance being in a quantum-entanglement with said target substance; and

a mean for manipulating said originating substance;

such that when said mean operates, said non-local effect is produced through a non-local process mediated by said quantum entanglement.

62. An apparatus as in claim **61** wherein said manipulating mean comprises a device for cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a change of physical and/or chemical property in said target substance.

63. An apparatus as in claim **62** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; and said non-local effect comprises said change in temperature, weight and/or pH value.

64. An apparatus as in claim **61** which further comprises:

a mean for detecting said non-local effect.

65. An apparatus as in claim **64** wherein said manipulating mean comprises a device for cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting mean comprises a device for detecting said change.

66. An apparatus as in claim **65** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting mean comprises a thermometer, balance and/or pH meter.

67. An apparatus as in claim **64** for non-locally transmitting a message from said second location to said first location

which further comprises a mean for encoding said message to be carried by said non-local effect; and a mean for decoding said message at said first location.

68. An apparatus as in claim **67** wherein said manipulating mean comprises a device for cooling, heating or irradiating said originating substance, adding a manipulating substance to said originating substance or adding said originating substance to said manipulating substance; and said non-local effect comprises a change of physical and/or chemical property in said target substance; and said detecting mean comprises a device for detecting said change.

69. An apparatus as in claim **68** wherein said target substance comprises a first volume of water, oil, water-based medium or oil-based medium; said originating substance comprises a second volume of water, oil, water-based medium or oil-based medium; said non-local effect comprises said change in temperature, weight and/or pH value; and said detecting mean comprises a thermometer, balance and/or pH meter.

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