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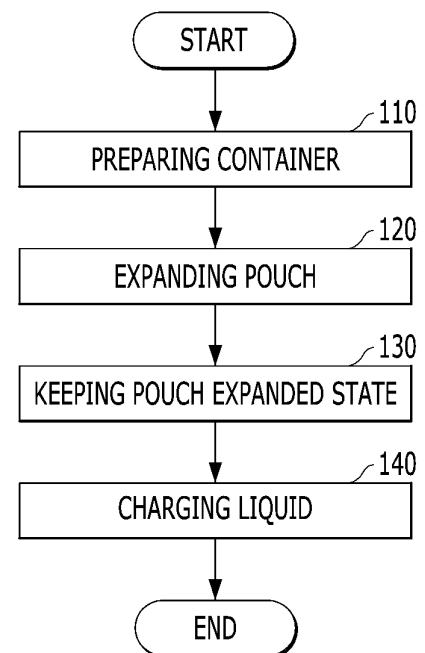
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(54) **METHOD AND APPARATUS FOR MANUFACTURING CONTAINER**

(57) The present disclosure relates to a container manufacturing method and a container manufacturing apparatus, which receive liquid.

A container manufacturing method according to the present disclosure, includes in the manufacturing method of a container including an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, preparing the container that prepares the container including the external container and the pouch coupled to the external container so that the charging space is positioned in a receiving space of the external container; and expanding the pouch that supplies air to the charging space of the pouch so that the charging space of the pouch is expanded in the receiving space.

[FIG. 9]



Description

[Technical Field]

[0001] The present disclosure relates to a container manufacturing method and a container manufacturing apparatus, which receive liquid, and more particularly, to a manufacturing method and a manufacturing apparatus of a container capable of storing and discharging a liquid, which can use all contents without remaining.

[Background Art]

[0002] FIG. 1A is a diagram illustrating a device for storing liquid-phase contents with viscosity according to the related art.

[0003] Liquids such as shampoos and lotions are characterized by relatively large viscosity. When being contained in a container 10, contents with large viscosity 20 have a property of sticking to the inner wall of the container due to the viscosity of the contents. However, these products are generally sold by being contained in the hard container 10 having a small opening portion, as illustrated in FIG. 1A, because of beauty, convenience of use, etc. That is, most of them are sold by being contained in the hard container of the shape illustrated in FIG. 1A because of consumer sensitivity or convenience of use, etc., and a method for discharging the contents generally uses a method for attaching a pump to a discharging portion 30, and sucking and discharging the contents to a discharging tube 31 by the pumping operation by the air pressure for convenience of use. However, there is no problem when the contents 20 are sufficient in a storing space of the container 10 and the contents can be discharged through the discharging tube 31, but there is a problem in that when the contents are not much remained in the container 10, the residual contents stick to the inner wall of the container, and are not well separated therefrom, such that it is difficult to discharge the residual contents, and this operates as a great obstacle to neatly use the contents such as shampoo and lotion.

[0004] FIG. 1B is a diagram illustrating the in-container state when the residual contents have been not much remained in the container for storing the liquid-phase contents with viscosity according to the related art.

[0005] As illustrated in FIG. 1B, there is a problem in that when the amount of the residual contents 21 is small, the residual contents 21 adhere to the inner wall of the container 10 and are not easily separated from the container 10, and in addition, a region where the discharging tube 31 attached to the pump can suck is limited, thereby not effectively discharging the residual contents 21 in the container. Such a problem is caused by the fact that a large amount of the contents stuck to the inner wall of the container are not properly discharged to make it difficult to use, thereby causing the following serious problems.

[0006] Firstly, the contents are remained in a portion

of the hard container that is out of the reach of the hand, and the contents cannot be used completely and discarded, thereby leading to excessive consumption.

[0007] Secondly, when the container is discarded in a state where the contents such as lotion, shampoo, and detergent have been remained, it can cause environmental pollution.

[0008] Thirdly, when a discharger such as the pump is separated from the container to open a discharging port in order to use the residual contents in the container not discharged to the discharger, the contents can be contaminated due to the inflow of foreign substances, etc.

[0009] Fourthly, there is a problem that it is difficult to accurately discharge the amount to be used when separating the container and the discharger and attempting to discharge by turning over and shaking them in order to discharge the residual contents in the container.

[0010] Meanwhile, in order to solve the above problems, although an airless container has been disclosed in which the bottom plate of the container rises to reduce the volume thereof according to the use of the contents, in such a container, a large-capacity container is inappropriate because of pulling up the bottom plate of the container by reducing the pressure of the contents, and moreover, it is possible to implement only a cylinder-shaped container, thereby greatly restricting the freedom of container design, and increasing the cost in manufacturing the container.

[0011] Therefore, there is a need for introducing a container and a method capable of manufacturing it at the inexpensive cost, and effectively injecting and discharging the contents with viscosity even while keeping beauty and convenience by using a hard container.

[Disclosure]

[Technical Problem]

[0012] The inventor of the present disclosure has recognized a problem in that it is difficult to discharge the residual contents by using a pump, etc. when the liquid contents stick to the inner wall of a container by the viscosity and the surface tension of the liquid contents and the residual contents are not much remained, in the case that the liquid, particularly, the liquid with high viscosity is stored in the hard container with a narrow opening portion, such that it is not practical. Nonetheless, the inventor has sufficiently recognized the voice of the relevant industry that the hard container should be used because the hard container makes the product look luxurious in appearance, and it is necessary to attach the pump, etc. to the discharging portion for convenience of use, etc.

[0013] Therefore, the inventor of the present disclosure has devised a container and a device, which can put a pouch with the elasticity (an elastic pouch) into the hard container and store the liquid contents in the elastic pouch, thereby using the contents stored therein conven-

iently and completely even while using the hard container through a new and innovative method.

[0014] In this regard, as described above, in order to easily discharge the contents even when the elastic pouch is provided in the hard container and the residual contents are not much remained, a procedure of charging the contents into the elastic pouch in manufacturing the product should be accompanied.

[0015] FIGS. 2A and 2B are diagrams illustrating a procedure of charging liquids into a hard container in a general manufacturing process of shampoo, lotion, etc.

[0016] As illustrated in FIG. 2A, in the case of a product sold by storing liquids such as shampoo or lotion in the hard container, the hard container is arranged in a line on a conveying apparatus 50 and conveyed to a contents charging equipment 51. The contents charging equipment can have from one to a plurality of nozzles 60 according to its design.

[0017] As illustrated in FIG. 2B, when the hard container is positioned below the nozzle according to the number of nozzles, the nozzle moves downwardly above the opening portion of each hard container to charge the contents therein through the nozzle 61. At this time, the time of the nozzle movement for charging the contents and the charging amount per unit time of the nozzle are directly related to the production efficiency of the product, and therefore, generally, the nozzle vertically moves only by a minimum distance according to the designing method, or sprays the contents at that position without the movement so that the contents can be accurately stored in the hard container, and therefore, the nozzle and the opening portion of the hard container are mostly spaced apart from each other to perform an charging operation considering the production efficiency, etc.

[0018] Meanwhile, the inventor of the present disclosure has also recognized a problem in that when the contents are charged into the elastic pouch through the corresponding method, an injection pressure of the contents injected through the opening portion of the hard container is not strong enough to overcome the elasticity of the elastic pouch due to the elasticity of the elastic pouch, and when the injection of the contents is not performed in a state where a contents injection nozzle has been in close contact with the hard container, it is not possible to contain the contents by the volume of the hard container by inflating the elastic pouch.

[0019] Therefore, considering economical efficiency, it has been required to develop a container device of new type and a method for manufacturing the same, which can contain the contents into the elastic pouch even while using the conventional contents charging equipment as it is.

[0020] Therefore, an object of the present disclosure is to provide a device, a container, and a method for manufacturing the same, which can contain the liquid with viscosity in the container device capable of storing and discharging the liquid according to the present disclosure, thereby using all contents without remaining.

[0021] Another object of the present disclosure is to provide a device, a container, and a method for manufacturing the same, which can provide an elastic pouch that can be inserted into the hard container, thereby effectively using the residual contents by using the pressure at which the elastic pouch pushes the contents toward the opening portion by the reduction effect of the surface area according to the contraction of the elastic pouch and the elasticity (the restoring force) of the elastic pouch and the discharging pressure of the discharging device, and can be deformed into various shapes in which the hard container can have when the elastic pouch has been inflated by the elasticity of the elastic pouch, thereby designing the container regardless of the shape of the hard container.

[0022] Still another object of the present disclosure is to provide a device, a container, and a method for manufacturing the same, which can inject the contents by using the conventional contents charging method even while providing the elastic pouch because the contents cannot be injected therein by the volume of the hard container by the elasticity of the elastic pouch in a state where the elastic pouch has not been expanded in advance when the charging nozzle uses a method for spraying or flowing the contents above the opening portion of the hard container like the conventional method in charging the contents in the hard container provided with the elastic pouch.

[0023] The objects of the present disclosure are not limited to the above-mentioned objects, and other objects not described can be clearly understood by those skilled in the art from the following description.

[Technical Solution]

[0024] A container manufacturing method according to one aspect of an embodiment of the present disclosure includes, in the manufacturing method of a container including an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, preparing the container that prepares the container including the external container and the pouch coupled to the external container so that the charging space is positioned in a receiving space of the external container; and expanding the pouch that supplies air to the charging space of the pouch so that the charging space of the pouch is expanded in the receiving space.

[0025] In addition, the expanding the pouch can include stretching the pouch that elastically deforms the pouch in the opposite direction of an opening portion side of the external container in a state where the pouch has been inserted into the receiving space of the external container; and pressurizing the pouch that expands the charging space of the pouch by injecting the air into the elastically deformed pouch in the stretching the pouch.

[0026] In addition, in the stretching the pouch, an air pressurizing/depressurizing unit of a container manufac-

turing apparatus can be inserted into the charging space of the pouch, and the air pressurizing/depressurizing unit moves from the opening portion side of the container to the end portion side of the container to elastically deform the pouch.

[0027] In addition, the expanding the pouch can further include depressurizing the pouch that depressurizes the charging space of the elastically deformed pouch to a first reference depressurizing pressure that is an atmospheric pressure or less by the air pressurizing/depressurizing unit; and depressurizing the external container that depressurizes the receiving space of the container to the atmospheric pressure or less through a through-hole formed by passing through the container, and in the pressurizing the pouch, when a pressure of the receiving space of the external container becomes equal to a second reference depressurizing pressure or is reduced to the second reference depressurizing pressure or less, the pressurizing pressure, which is equal to the atmospheric pressure or greater than the atmospheric pressure can be provided to the charging space of the pouch, thereby expanding the charging space of the pouch.

[0028] In addition, in the depressurizing the external container, the receiving space of the external container can communicate with the outside of the receiving space only through the through-hole.

[0029] In addition, in the pressurizing the pouch, the charging space of the pouch can have a portion that is distant from the opening portion side of the external container and a portion that is close thereto expanded simultaneously.

[0030] In addition, in the expanding the pouch, as the air is supplied to the charging space of the pouch and the volume of the charging space increases in the receiving space, the air in the receiving space can be discharged to the outside of the external container through the through-hole formed by passing through the external container, the container manufacturing method can further include keeping the pouch expanded state that installs a blocking means in the through-hole of the external container in order to keep the expanded state of the charging space, in a state where the charging space of the pouch has been expanded, in the keeping the pouch expanded state, the internal pressure of the charging space of the pouch is formed smaller than the restoring force of the pouch, and a force operating on the inner surface of the pouch by the pressure of the charging space of the pouch and a force operating on the outer surface of the pouch by the pressure of the receiving space between the pouch and the external container are in equilibrium with the restoring force of the pouch.

[0031] In addition, the container manufacturing method can further include charging liquid that charges liquid-state contents in the charging space of the expanded pouch, and the contents charged in the charging space of the pouch can be charged in the charging space without providing a separate pressure for the contents in the

atmospheric pressure state.

[0032] In addition, the preparing the container can include gripping a first external container that grips the opposite side end portion of the opening portion side of the external container; and gripping a second external container that grips the opening portion side of the external container.

[0033] In addition, the expanding the pouch can include stretching the pouch that elastically deforms the pouch in the opposite direction of the opening portion side of the external container in a state where the pouch has been inserted into the receiving space of the external container; and pressurizing the pouch that expands the charging space of the pouch by injecting the liquid contents in the elastically deformed pouch in the stretching the pouch.

[0034] A container manufacturing apparatus according to another aspect of the present disclosure includes, in the container manufacturing apparatus of a container including an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, an air pressurizing/depressurizing unit inserted into the charging space of the pouch, having a plurality of air holes formed at the outer surface thereof to flow into or out the air in the charging space, and slidable from an opening portion side of the pouch toward the end portion side of the pouch.

[0035] In addition, the air pressurizing/depressurizing unit can include a slidable unit body; and a head portion formed at one side of the unit body and having the plurality of air holes formed therein, and the end portion of the head portion can be roundly formed.

[0036] In addition, the air holes can be formed in the side surface of the head portion or the end portion side of the head portion.

[0037] In addition, one side of the external container can be formed with an opening portion having a locking portion of the pouch fitted therein and for communicating with the receiving space of the external container, and the container manufacturing apparatus can further include a first gripping unit for pressurizing the other side of the external container so that the external container is gripped.

[0038] In addition, the container manufacturing apparatus can further include a stage unit having the locking portion of the pouch coupled to the opening portion of the external container seated therein, and having the air pressurizing/depressurizing unit installed therein, and the stage unit can move downward by a predetermined distance when the first gripping unit pressurizes the other side of the external container.

[0039] In addition, the container manufacturing apparatus can further include a second gripping unit for gripping one side of the external container in a direction perpendicular to the direction in which the first gripping unit grips the external container.

[0040] In addition, the other side of the external container can be formed with a through-hole for communi-

cating with the receiving space, and the first gripping unit can include a first gripping unit body, a suction passage formed at the first gripping unit body and for communicating with the through-hole, and an elastic gripping portion contacting the other side of the external container in a state where the through-hole of the external container has contacted the suction passage.

[0041] A container according to still another aspect of the present disclosure further includes, in the container manufactured by the manufacturing method including preparing the container that prepares the container including the external container and the pouch coupled to the external container so that the charging space is positioned in the receiving space of the external container; and expanding the pouch that supplies air to the charging space of the pouch so that the charging space of the pouch is expanded in the receiving space, in the container manufacturing method of a container including an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, a coupling unit fitted into the opening portion side of the pouch and having a through space for communicating the charging space of the pouch with the outside thereof formed therein, in a state where the external container and the pouch have been coupled, and the coupling unit pressurizes a part of the pouch to the inner wall side of the opening portion of the external container.

[Advantageous Effects]

[0042] The present disclosure is intended to solve the above problems, and the container device according to the present disclosure provides a device, a container, and a method for manufacturing the same, which can contain the liquid with viscosity therein, thereby using all contents without remaining.

[0043] It is possible for the device, the container, and the method for manufacturing the same according to an embodiment of the present disclosure to provide the elastic pouch that can be inserted into the hard container, thereby effectively using the residual contents by using the pressure at which the elastic pouch pushes the contents toward the opening portion by the reduction effect of the surface area according to the contraction of the elastic pouch and the elasticity (the restoring force) of the elastic pouch and the discharging pressure of the discharging device, and can be deformed into various shapes in which the hard container can have when the elastic pouch has been inflated by the elasticity of the elastic pouch, thereby designing the container regardless of the shape of the hard container.

[0044] It is possible for the device, the container, and the method for manufacturing the same according to an embodiment of the present disclosure to inject the contents by using the conventional contents charging method even while providing the elastic pouch because the contents cannot be injected therein by the volume of the

hard container by the elasticity of the elastic pouch in a state where the elastic pouch has not been expanded in advance when the charging nozzle uses a method for spraying or flowing the contents above the opening portion of the hard container like the conventional method in charging the contents in the hard container provided with the elastic pouch.

[Description of Drawings]

[0045]

FIG. 1A is a diagram illustrating a device for storing the liquid-phase contents with viscosity according to the related art.

FIG. 1B is a diagram illustrating the in-container state when the residual contents are not much remained in the device for storing the liquid-phase contents with viscosity according to the related art.

FIG. 2A is a diagram illustrating a procedure of charging the liquids into a hard container in a general manufacturing process of shampoo, lotion, etc.

FIG. 2B is a diagram illustrating a procedure of charging the liquids into the hard container in the general manufacturing process of shampoo, lotion, etc.

FIG. 3 is a diagram illustrating a container manufacturing apparatus according to an embodiment of the present disclosure.

FIGS. 4 to 7 are diagrams illustrating a method for charging the liquid into the container by using the container manufacturing apparatus of FIG. 3.

FIG. 8 is a diagram illustrating the container charged by the container manufacturing method of FIGS. 4 to 7.

FIG. 9 is a flowchart illustrating the container manufacturing method of FIGS. 4 to 7.

FIG. 10 is a flowchart illustrating expanding a pouch in the container manufacturing method of FIG. 9.

[Best Mode]

[0046] The advantages and features of the present disclosure and the method for achieving them will become apparent with reference to the embodiments, which will be described in detail below together to the accompanying drawings. However, the present disclosure is not limited to the embodiments disclosed below, but can be implemented in many different forms, and the embodiments are merely provided so that the disclosure of the present disclosure is thorough, and to fully convey the scope of the disclosure to those skilled in the art to which the present disclosure pertains, and the present disclosure is only defined by the scope of the claims.

[0047] Although the first, second, etc. are used to describe various components, it is natural that these components are not limited by these terms. These terms are used only to distinguish one component from another. Therefore, it is natural that the first component described

below can also be the second component within the technical spirit of the present disclosure.

[0048] The same reference numerals refer to the same components throughout the specification.

[0049] The respective features of various embodiments of the present disclosure can be coupled or combined with each other partially or entirely, various interlocking and driving is technically possible as can be understood by those skilled in the art, and the respective embodiments can be preformed independently with respect to each other and can also be performed together in association therewith.

[0050] Meanwhile, the potential effects that can be expected by the technical features of the present disclosure, which has not been specifically described in the specification of the present disclosure, are regarded as described in the present specification, and the present embodiment is provided to explain the present disclosure for those skilled in the art more completely, such that the contents illustrated in the drawings can be exaggerated compared to the actual implementation figure of the disclosure, and the detailed description of the configuration, which is determined to unnecessarily obscure the subject matter of the present disclosure is omitted or briefly described.

[0051] In the present specification, the 'liquid' refers to a wide range of liquid-phase state rather than a solid or gaseous state. That is, it means all states that have a short intermolecular distance and low kinetic energy but are not stuck with each other as strongly as solid-phase molecules, and is used as the meaning that includes all liquids from the liquid without viscosity such as water to the liquid with strong viscosity such as gels.

[0052] In the present specification, the pouch, as a flexible pouch, can have the fixed appearance or cannot have the fixed appearance, and means a pouch that has the restoring force for returning to its original shape when the shape is stretched or inflated by the elasticity while being changed by an external force and a pouch, as a simple flexible pouch, that changes in shape by an external force because it does not have the fixed appearance.

[0053] In the present specification, the container means all kinds of containers having the hard materials having certain appearance, such as plastic, glass, and metal, and can be used with 'hard container'.

[0054] In the present specification, the coupling unit means a structure that couples with the opening portion of the pouch to couple with the container coupling portion of the container (the injection port of the container), thereby coupling the pouch and the container so that the pouch can be fixed in the container. The coupling unit can further include a fixing portion or an air blocking portion so that the space between the container and the pouch can be completely blocked from the outside. The coupling unit can be integrally implemented through the insert injection, etc. at the time of manufacturing the pouch.

[0055] Hereinafter, embodiments of the present disclosure

will be described in detail with reference to the accompanying drawings so that those skilled in the art to which the present disclosure pertains can easily practice. The present disclosure can be implemented in many different forms and is not limited to the embodiments described herein. In order to clearly describe the present disclosure in the drawings, parts not related to the description are omitted, and the same or similar components are denoted by the same reference numerals throughout the specification. In addition, since the size and the thickness of the respective components illustrated in the drawings have been arbitrarily illustrated for convenience of explanation, the present disclosure is not necessarily limited to those illustrated in the drawings.

[0056] FIG. 3 is a diagram illustrating a container manufacturing apparatus according to an embodiment of the present disclosure. FIGS. 4 to 7 are diagrams illustrating a method for charging liquid into a container by using the container manufacturing apparatus of FIG. 3. Then, FIG. 8 is a diagram illustrating the container charged by the container manufacturing method of FIGS. 4 to 7.

[0057] Referring to FIGS. 3 and 4, a container manufacturing apparatus 1 according to an embodiment of the present disclosure is an apparatus for manufacturing a container 2 that includes a pouch 220 of an elastic material and for suppressing the remainder of the contents charged in a procedure of using it.

[0058] The container 2 manufactured by the container manufacturing apparatus 1 according to the present embodiment can include, for example, an external container 210 made of a hard material such as glass or plastic, the pouch 220 of an elastic material coupled to the external container 210 and having a charging space 226 formed therein, and a coupling unit 230 for firmly coupling the pouch 220 to the external container 210 and securing a passage for the charging space 226 of the pouch 220.

[0059] There occurs a problem in that when the conventional charging equipment for flowing and charging the liquid contents into the container 1 is simply used without applying pressure to the liquid contents separately at the time of charging the liquid contents such as cosmetics or detergents, the pouch 220 is not sufficiently expanded in a receiving space 216 of the external container 210 only when the pouch 220 is coupled to the external container 210 of the container 2.

[0060] That is, there is a problem in that when the conventional charging equipment is used, the weight of the liquid contents received in the charging space 226 of the pouch 220 in the contracted state is smaller than the elastic force of the pouch 220 to keep the contracted state of the pouch 220, and the desired amount of the liquid contents is not charged in the pouch 220.

[0061] Therefore, the container manufacturing apparatus 1 according to an embodiment of the present disclosure can expand the pouch 220 by a predetermined size in a state where the external container 210 and the pouch 220 have been coupled, thereby securing the sufficient charging space 226, and can keep the state where

the pouch 220 has been expanded, thereby solving the problem caused when the conventional charging equipment was used.

[0062] The container manufacturing apparatus 1 according to an embodiment of the present disclosure can include a table T, a stage unit 110, an air pressurizing/depressurizing unit 120, a first gripping unit 130, a second gripping unit 140, and a third gripping unit 150.

[0063] More specifically, the table T is supported for the bottom surface (not illustrated) thereof, and provides a space where the stage unit 110, the air pressurizing/depressurizing unit 120, the first gripping unit 130, the second gripping unit 140, and the third gripping unit 150 can be installed therein.

[0064] The stage unit 110 is movably installed at the upper surface of the table T vertically by a predetermined distance, and is formed with a stage unit body 111 vertically and slidably connected to the table T, and a container installation portion 112 positioned at the upper surface of the stage unit body 111 and having a part of the container 1 fitted therein.

[0065] For example, the container installation portion 112 can be formed in a circular shape, and a coupling unit 230 of the container 200, a locking portion 224 of the pouch 220, and a neck portion 214 of the external container 210 can be seated in an installation hole (not illustrated) formed at the center of the container installation portion 112. In a state where the container 2 has been seated in the container installation portion 112, an opening portion 215 formed at the neck portion 214 of the external container 210 is closed by the pouch 220, and the coupling unit 230 pressurizes a part of the pouch 220 to the inner surface side of the opening portion 215 so that the opening portion 215 of the external container 210 can be firmly sealed.

[0066] The air pressurizing/depressurizing unit 120 is positioned in the installation hole of the container installation portion 112, and is slidably formed vertically with respect to the container installation portion 112. The air pressurizing/depressurizing unit 120 is inserted into the charging space 226 of the pouch 220, and has a plurality of air holes 124 formed at the outer surface thereof, thereby flowing into or out the internal air of the charging space 226.

[0067] More specifically, the air pressurizing/depressurizing unit 120 includes a unit body 121 slidable with respect to the stage unit 110, and a head portion 122 formed at one side of the unit body 121 and having the plurality of air holes 124 formed therein. The end portion 123 of the head portion 122 is roundly formed so that the damage of the pouch 220 can be suppressed and the pouch 220 can be uniformly expanded in a procedure in which the head portion 122 pressurizes the end portion 222 of the pouch 220 so that the pouch 220 is expanded and deformed.

[0068] Although it has been described in the present embodiment as a configuration that the plurality of air holes 124 are formed in the head portion 122, the air

holes 124 can also be formed as one.

[0069] The air holes 124 of the head portion 122 can be prepared in plural, and for example, the air holes 124 can be linearly positioned at the side surface of the head portion 122. However, this is merely illustrative, and a configuration, in which the air holes 124 are positioned in a spiral shape or positioned in an irregular pattern at the side surface of the head portion 122, is also possible, and a configuration, in which the air holes 124 are positioned at the end portion 123 side of the head portion 122 or the air holes 124 are all positioned at the end portion of the head portion 122 and the side surface thereof, is also possible.

[0070] The air holes 124 of the air pressurizing/depressurizing unit 120 are connected to a pump unit (not illustrated) of the container manufacturing apparatus 1, and the air can be discharged through the air hole 124 or sucked from the air holes 124 through the pump unit.

[0071] In addition, the unit body 121 of the air pressurizing/depressurizing unit 120 can be vertically moved by receiving a driving force from a driving unit (not illustrated). The driving unit can be a Rack and Pinion or a Linear Motor for converting the RPM into a linear direction, but the driving unit is not limited to the above example.

[0072] Meanwhile, the first gripping unit 130 and the third gripping unit 150 are movably installed vertically with respect to a vertical frame 180 formed by extending in a direction perpendicular to the table T, and a pair of the second gripping units 140 is movably installed at the table T in a direction perpendicular to the extending direction of the vertical frame 180, that is, in a horizontal direction.

[0073] The first gripping unit 130 has a locking portion 224 of the pouch 220 and the coupling unit 230 installed at one side of the external container 210, that is, the neck portion 214, and contacts the other side 212 of the external container 210 in a state where the opening portion 215 of the external container 210 has been installed toward the stage unit 110, and pressurizes the external container 210 to the stage unit 110 side so that the external container 210 is gripped.

[0074] In a state where the first gripping unit 130 has been lifted upward on the vertical frame 180, in a procedure of pressurizing/gripping the external container 210 by moving down to the external container 210 side, the external container 210 can move downward by a predetermined distance of the stage unit 110 in which one side 213 of the external container 210 is seated when the first gripping unit 130 contacts the other side 212 of the external container 210 and a pressurizing force is provided to the external container 210, thereby preventing the container 2 from being broken due to the sudden application of the pressurizing force.

[0075] Meanwhile, the other side of the external container 210 is formed with a through-hole 217 for communicating with the receiving space 216 of the external container 210. Then, the first gripping unit 130 includes a first gripping unit body 131 slidably connected vertically with respect to the vertical frame 180, a suction passage

133 formed at the first gripping unit body 131 and for communicating with the through-hole 217 of the external container 210, and an elastic gripping portion 134 contacting the other side 212 of the external container 210 in a state where the through-hole 217 of the external container 210 contacts the suction passage 133.

[0076] At this time, the suction passage 133 is connected to a pumping unit (not illustrated) of the container manufacturing apparatus 1, and in a state where the through-hole 217 has communicated with the suction passage 133, a negative pressure can be provided from the pumping unit, thereby discharging the air of the receiving space 216 to the outside through the through-hole 217.

[0077] Then, the elastic gripping portion 134 made of an elastic material such as rubber or silicone can contact the other side 212 of the external container 210, thereby preventing the external container 210 from being broken by the contact momentarily occurred between the external container 210 and the first gripping unit 130.

[0078] The second gripping unit 140 is positioned in a pair spaced apart from each other with respect to the stage unit 110, and includes a gripping unit body 141, a gripping portion 142 positioned at one end of the gripping unit body 141 and surrounding the neck portion 214 of the external container 210, and moving portion 143 connected to the other end of the gripping unit body 141 and capable of moving the gripping unit body 141 in a horizontal direction, that is, in a direction that approaches the stage unit 110 or is away therefrom.

[0079] The pair of the second gripping units 140 grips the neck portion 214 of the external container 210 in a state where the container 2 has been positioned at the stage unit 110, thereby suppressing the container 2 from being shaken horizontally. Meanwhile, according to the implementation of the present disclosure, the pair of the second gripping units 140 can be designed so that one unit is fixed and only the other unit is driven.

[0080] The third gripping unit 150 is positioned on the vertical frame 180, and is interposed between the first gripping unit 130 and the table T. The third gripping unit 150 can surround the outer circumference of the external container 210, thereby suppressing the container 2 from being shaken in a state that it has been positioned at the stage unit 110.

[0081] Although it has been described in the present embodiment as a configuration that the opening portion 215 of the external container 210 and an opening portion 225 of the pouch 220 are directed downward, a configuration, in which the opening portion 215 of the external container 210 and the opening portion 225 of the pouch 220 are directed upward, is also included in an embodiment of the present disclosure. In this case, the stage unit 110 can include a suction passage that contacts the through-hole 217 of the external container 210, and the air pressurizing/depressurizing unit 120 can be installed at the first gripping unit 130.

[0082] Meanwhile, although it has been described in

the present embodiment that the external container 210, the pouch 220, and the coupling unit 230 are manually positioned in the container manufacturing apparatus 1, the second gripping unit 140 and/or the third gripping unit 150 can be omitted when the external container 210, the pouch 220, and the coupling unit 230 are automatically positioned in the container manufacturing apparatus 1 by a conveyor belt, a robot, etc.

[0083] Hereinafter, a container 2 manufacturing method according to an embodiment of the present disclosure will be described in detail.

[0084] First, the container 2, which includes the external container 210, the pouch 220 coupled to the external container 210 so that the charging space 226 is positioned in the receiving space 216 of the external container 210, and the coupling unit 230 fitted into the opening portion 225 side of the pouch 220 and having a through space 235 for communicating the charging space 226 of the pouch 220 with the outside formed therein in a state where the external container 210 and the pouch 220 have been coupled, is seated in the stage unit 110 of the manufacturing apparatus 1.

[0085] The neck portion 214, which has the opening portion 215 of the external container side that communicates with the receiving space 216, is positioned at one side 213 of the external container 210, and for example, the neck portion 214 is formed smaller than the diameter of an external container body 211.

[0086] The pouch 220 is made of an elastic material and is formed with a pouch body 221 having the charging space 226 formed therein and having the opening portion 225 of the pouch side formed at one side 223 thereof, and the locking portion 224 in a plate shape formed at one side of the pouch body 221 and formed larger than the outer diameter of the pouch body 221.

[0087] The coupling unit 230 includes a coupling unit body 231 fitted into the opening portion 225 side of the pouch 220, and a coupling unit side locking portion 232 formed at one side of the coupling unit body 231 and formed larger than the outer diameter of the coupling unit body 231. Then, the through space 235 for communicating with the charging space 226 of the pouch 220 is formed at the center of the coupling unit body 231.

[0088] In a state where the pouch 220 has been coupled to the external container 210, the coupling unit 230 can be installed at the opening portion 225 side of the pouch 220 to pressurize a part of the pouch 220 to the external container side opening portion 215 of the external container 210 so that the external container 210 and the pouch 220 are firmly coupled, thereby suppressing the air from flowing into or out through the space between the external container side opening portion 215 of the external container 210 and the pouch 220. In addition, the coupling unit 230 is made of a material harder than the pouch 220, for example, a plastic material such as PP, PE, ABS, or nylon or a metal material such as SUS. Therefore, when the charging of the liquid contents into the container 2 has been completed, and a pumping

means (not illustrated) for discharging the liquid contents to the outside is installed at the opening portion 225 side of the pouch 220, the coupling unit 230, which is not deformed in shape by an external force, firmly keeps a shape of the opening portion 225 side of the pouch 220, thereby suppressing the opening portion 225 side of the pouch 220 from rolling-in by the insertion of the pumping means therein.

[0089] Although it has been described in the present embodiment as a configuration that the coupling unit 230 is coupled to the opening portion 225 side of the pouch 220, a configuration, in which a support member made of a material harder than a material of the pouch 220 is positioned in the locking portion 224 of the pouch 220 without installing separate the coupling unit 230, is also included in an embodiment of the preset disclosure.

[0090] In a procedure of seating the container 2 in the stage unit 110 of the manufacturing apparatus 1, first, in a state where the external container 210, the pouch 220, and the coupling unit 230 of the container 2 have been coupled to each other, the container 2 is seated in the stage unit 110 so that the air pressurizing/depressurizing unit 120 passes through the through space 235 of the coupling unit 230, and so that the head portion 122 of the air pressurizing/depressurizing unit 120 is positioned in the charging space 226 of the pouch 220.

[0091] Meanwhile, although it has been described as a configuration that the container 2 includes the coupling unit 230 coupled to the pouch 220, the coupling unit 230 is not prepared to be separately formed, and a configuration, in which a part (the locking portion 224) of the pouch 220 is made of a hard material, or a hard support member is prepared in the locking portion 224 of the pouch 220, is also possible.

[0092] In a state where the container 2 has been seated in the stage unit 110, the second gripping unit 140 can surround the outer circumferential surface of the external container 210 so that the external container 210 is gripped.

[0093] Next, referring to FIG. 5, in a state where the container 2 has been seated in the stage unit 110, the first gripping unit 130 moves to the stage unit 110 side to contact the other side 212 of the external container 210. At this time, the through-hole 217 formed in the other side 212 of the external container 210 communicates with the suction passage 133 of the first gripping unit 130.

[0094] Then, the second gripping units 140 move in a horizontal direction to grip the neck portion 214 of the external container 210.

[0095] Then, referring to FIG. 6, in a state where the container 2 has been gripped by the gripping units 130, 140, 150, the air pressurizing/depressurizing unit 120 is slid in a direction of the first gripping unit 130, that is, in the opposite direction of the opening portion 215 side of the external container 210 to elastically deform the pouch 220.

[0096] Then, in a state where the charging space 226 of the pouch 220 has been stretched upward by a pre-

determined size, the air pressurizing/depressurizing unit 120 depressurizes the charging space 226 of the elastically deformed pouch 220 to a first reference depressurizing pressure P_{NR1} , which is equal to or smaller than atmospheric pressure. When the charging space 226 is depressurized to the first reference depressurizing pressure P_{NR1} , a part of the inner surface of the pouch 220 is absorbed and fixed to the air pressurizing/depressurizing unit 120.

[0097] Next, referring to FIG. 7, in a state where the charging space 226 has been depressurized to the first reference depressurizing pressure P_{NR1} , the receiving space 216 of the external container 210 is depressurized to the atmospheric pressure or less through the air passage 133 of the first gripping unit 130. At this time, a part of the inner surface of the pouch 220 can be absorbed and fixed to the air pressurizing/depressurizing unit 120, thereby preventing the pouch 220 from being elastically deformed into an unintended shape, that is, preventing a part of the pouch 220 from being sucked and deformed into the through-hole 217 side of the external container 210 at the time of depressurizing the receiving space 216.

[0098] Meanwhile, although it has been described in the present embodiment as a configuration that the charging space 226 is depressurized, and then the receiving space 216 is depressurized, the corresponding depressurization procedure can also be performed simultaneously.

[0099] At this time, the first reference depressurizing pressure P_{NR1} can be formed to be equal to or smaller than a second reference depressurizing pressure P_{NR2} , and the receiving space 216 of the external container 210 can communicate with the outside of the receiving space 216 only through the through-hole 217.

[0100] Then, when the internal pressure of the receiving space 216 is reduced to the second reference depressurizing pressure P_{NR2} or less, the air pressurizing/depressurizing unit 120 provides a reference pressurizing pressure P_{PR} , which is equal to the atmospheric pressure or is greater than the atmospheric pressure, to the charging space 226. In a state where the pressure of the receiving space 216 has been the second reference depressurizing pressure P_{NR2} smaller than the atmospheric pressure, when the reference pressurizing pressure P_{PR} greater than the atmospheric pressure is applied to the charging space 226, the pouch body 221 of the pouch 220 instantly expands in the receiving space 216 of the external container 210.

[0101] At this time, the charging space 226 of the pouch 220 has a portion distant from the opening portion 215 of the external container 210, that is, a portion adjacent to the other side 212 of the external container 210 and a portion close to the opening portion 215 thereof, that is, a portion adjacent to one side 213 of the external container 210 expanded simultaneously.

[0102] That is, when the air pressurizing/depressurizing unit 120 provides the reference pressurizing pressure P_{PR} to the charging space 226 without the depressuri-

zation procedure for the receiving space 216 of the external container 210, the end portion 222 side of the pouch 220, in which the air holes 124 of the air pressurizing/depressurizing unit 120 are positioned relatively and eccentrically, is first inflated, such that the pouch 220 can be unevenly inflated. When the pouch 220 is unevenly inflated, the firstly inflated portion of the pouch body 221 can contact the inner wall side of the external container 210 to close the passage where the air in the receiving space 216 of the external container 210 is discharged through the through-hole 217 according to the inflation of the pouch 220, such that the pouch 220 cannot be inflated by the desired size.

[0103] Therefore, in the present embodiment, the pouch 220 is uniformly inflated in the receiving space 216 so that the pouch 220 can be smoothly inflated.

[0104] Meanwhile, although it has been described in the present embodiment as a configuration that all of the air holes 124 of the air pressurizing/depressurizing unit 120 suck or discharge the air, a configuration, in which some air holes 124 of the plurality of air holes 124 suck the air, and the other air holes 124 discharge the liquid contents, is also possible.

[0105] That is, in a state where the charging space 226 has been depressurized to the first reference depressurizing pressure P_{NR1} and the receiving space 216 has been depressurized to the second reference depressurizing pressure P_{NR2} , when the liquid contents are supplied from the other air holes 124, the pouch 220 can be expanded at the atmospheric pressure or the pressure close to the atmospheric pressure at the time of supplying the liquid contents. In addition, a configuration of providing the liquid contents at a pressure of the atmospheric pressure or more to expand the pouch 220 is also included in an embodiment of the present disclosure.

[0106] Next, referring to FIG. 8, in a state where the charging space 226 of the pouch 220 has been expanded to the desired size, a blocking means 240 is installed in the through-hole 217 of the external container 210 in order to keep the expanded state of the charging space 226.

[0107] The blocking means 240 of the container manufacturing method according to the present embodiment can be an adhesive member such as a sticker for suppressing the air from flowing into the through-hole 217. However, the blocking means 240 can also be a valve means such as a check valve for selectively blocking the movement of air, and when the blocking means 240 is formed of the check valve, the blocking means 240 can be provided in a state installed to the external container 210 in preparing the container 2.

[0108] Meanwhile, although it has been described in the present embodiment as a configuration that the air pressurizing/depressurizing unit 120 charges the air in the charging space 226 of the pouch 220, a configuration, in which the air pressurizing/depressurizing unit 120 directly charges the liquid contents into the charging space 226 of the pouch 220, can also be included in an embod-

iment of the present disclosure.

[0109] Hereinafter, a container manufacturing method according to an embodiment of the present disclosure will be described step by step.

5 [0110] FIG. 9 is a flowchart illustrating the container manufacturing method of FIGS. 4 to 7, and FIG. 10 is a flowchart illustrating expanding the pouch in the container manufacturing method of FIG. 9.

10 [0111] Referring to FIGS. 9 and 10, preparing the container S110, which prepares the container 2 including the external container 210 and the pouch 220 coupled to the external container 210 so that the charging space 226 is positioned in the receiving space 216 of the external container 210, is preformed.

15 [0112] At this time, the preparing the container S110 includes gripping a first external container in which the first gripping unit 130 grips the opposite side end portion 212 of the opening portion 215 side of the external container 210, and gripping a second external container that grips the opening portion 215 of the external container 210, that is, the neck portion 214.

[0113] Then, the container manufacturing method includes expanding the pouch S220, which supplies air to the charging space 226 of the pouch 220 so that the charging space 226 of the pouch 220 is expanded in the receiving space 216.

25 [0114] In the expanding the pouch S220, in a state where the pouch 220 has been inserted into the receiving space 216 of the external container 210, stretching the pouch S121, which elastically deforms the pouch 220 in the opposite direction of the opening portion 215 side of the external container 210, is first performed.

30 [0115] Then, depressurizing the pouch S122, which depressurizes the charging space 226 of the elastically deformed pouch 220 to the first reference depressurizing pressure P_{NR1} that is equal to or smaller than the atmospheric pressure by the air pressurizing/depressurizing unit 120, is preformed.

35 [0116] Then, depressurizing the external container S123, which depressurizes the receiving space 216 of the external container 210 to the atmospheric pressure or less through the through-hole 217 formed by passing through the external container 210, is performed.

40 [0117] Then, pressurizing the pouch S124, which expands the charging space 226 of the pouch 220 by injecting the air into the elastically deformed pouch 220 in the stretching the pouch S121, is performed.

45 [0118] In the expanding the pouch S120, as the air is supplied to the charging space 226 of the pouch 220 and the volume of the charging space 226 increases in the receiving space 216, the air in the receiving space 216 is discharged to the outside of the external container 210 through the through-hole 217 formed by passing through the external container 210.

50 [0119] Then, in a state where the charging space 226 of the pouch 220 has been expanded, keeping the pouch expanded state S130, which installs the blocking means 240 in the through-hole 217 of the external container 210

in order to keep the expanded state of the charging space 226, is performed.

[0120] In the keeping the pouch expanded state S130, the internal pressure of the charging space 226 of the pouch 220 is formed smaller than the restoring force of the pouch, and a force operating on the inner surface of the pouch 220 by the pressure of the charging space 226 of the pouch 220 and a force operating on the outer surface of the pouch 220 by the pressure of the receiving space 216 between the pouch 220 and the external container 210 are in equilibrium with the restoring force of the pouch 220.

[0121] Then, charging liquid S140, which charges the liquid-state contents into the charging space 226 of the expanded pouch 220, is performed, and the contents charged into the charging space 226 of the pouch 220 is charged into the charging space 226 without providing separate pressure for the contents in the atmospheric pressure state.

[0122] According to the proposed embodiment, it is possible to charge the liquid contents into the container including the pouch of an elastic material and the external container provided with the pouch by using the conventional charging equipment.

[0123] As described above, while the preferred embodiments of the present disclosure have been described, the present disclosure is not limited thereto and various modifications can be made within the scope of the claims, the detailed description of the disclosure, and the accompanying drawings and it is natural that these are also included in the scope of the present disclosure.

[0124] Embodiments of the disclosure have been described in the above best mode for embodying the disclosure.

[Industrial Applicability]

[0125] The present disclosure relates to a container manufacturing method and a container manufacturing apparatus, and is also applicable to the container manufacturing method or manufacturing apparatus capable of storing and discharging the liquid in order to use all contents without remaining, and is industrially applicable with its repetitive possibility.

Claims

1. A container manufacturing method, comprising:

in the manufacturing method of a container comprising an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, preparing the container that prepares the container comprising the external container and the pouch coupled to the external container so that the charging space is positioned in a receiving

space of the external container; and expanding the pouch that supplies air to the charging space of the pouch so that the charging space of the pouch is expanded in the receiving space.

2. The container manufacturing method of claim 1, wherein the expanding the pouch comprises stretching the pouch that elastically deforms the pouch in the opposite direction of an opening portion side of the external container, in a state where the pouch has been inserted into the receiving space of the external container; and pressurizing the pouch that expands the charging space of the pouch by injecting the air into the elastically deformed pouch in the stretching the pouch.
3. The container manufacturing method of claim 2, wherein in the stretching the pouch, an air pressurizing/depressurizing unit of a container manufacturing apparatus is inserted into the charging space of the pouch, and the air pressurizing/depressurizing unit moves from the opening portion side of the container to the end portion side of the container to elastically deform the pouch.
4. The container manufacturing method of claim 3, wherein the expanding the pouch further comprises depressurizing the pouch that depressurizes the charging space of the elastically deformed pouch to a first reference depressurizing pressure that is the atmospheric pressure or less by the air pressurizing/depressurizing unit; and depressurizing the external container that depressurizes the receiving space of the container to the atmospheric pressure or less through a through-hole formed by passing through the container, and wherein in the pressurizing the pouch, when a pressure of the receiving space of the external container becomes equal to a second reference depressurizing pressure or is reduced to the second reference depressurizing pressure or less, the pressurizing pressure, which is equal to the atmospheric pressure or greater than the atmospheric pressure, is provided to the charging space of the pouch to expand the charging space of the pouch.
5. The container manufacturing method of claim 4, wherein in the depressurizing the external container, the receiving space of the external container communicates with the outside of the receiving space only through the through-hole.
6. The container manufacturing method of claim 2, wherein in the pressurizing the pouch, the charging space of the pouch has a portion distant from the opening portion side of the external container and a portion close thereto expanded simul-

taneously.

7. The container manufacturing method of claim 1, wherein in the expanding the pouch, as the air is supplied to the charging space of the pouch and the volume of the charging space increases in the receiving space, the air in the receiving space is discharged to the outside of the external container through the through-hole formed by passing through the external container, further comprising keeping the pouch expanded state that installs a blocking means in the through-hole of the external container in order to keep the expanded state of the charging space, in a state where the charging space of the pouch has been expanded, wherein in the keeping the pouch expanded state, the internal pressure of the charging space of the pouch is formed smaller than the restoring force of the pouch, and wherein a force operating on the inner surface of the pouch by the pressure of the charging space of the pouch and a force operating on the outer surface of the pouch by the pressure of the receiving space between the pouch and the external container are in equilibrium with the restoring force of the pouch.
8. The container manufacturing method of claim 1, further comprising charging liquid that charges liquid-state contents into the charging space of the expanded pouch, wherein the contents charged into the charging space of the pouch are charged into the charging space without providing the separate pressure for the contents in the atmospheric pressure state.
9. The container manufacturing method of claim 1, wherein the preparing the container comprises gripping a first external container that grips the opposite side end portion of the opening portion side of the external container; and gripping a second external container that grips the opening portion side of the external container.
10. The container manufacturing method of claim 1, wherein the expanding the pouch comprises stretching the pouch that elastically deforms the pouch in the opposite direction of an opening portion side of the external container, in a state where the pouch has been inserted into the receiving space of the external container; and pressurizing the pouch that expands the charging space of the pouch by injecting the liquid contents into the elastically deformed pouch in the stretching the pouch.
11. A container manufacturing apparatus, comprising:
 - in the container manufacturing apparatus of a container comprising an external container and a pouch of an elastic material coupled to the external container and having a charging space formed therein, an air pressurizing/depressurizing unit inserted into the charging space of the pouch, having a plurality of air holes formed at the outer surface thereof to flow into or out the air in the charging space, and slidable from an opening portion side of the pouch toward the end portion side of the pouch.
12. The container manufacturing apparatus of claim 11, wherein the air pressurizing/depressurizing unit comprises a slidable unit body; and a head portion formed at one side of the unit body and having the plurality of air holes formed therein, and wherein the end portion of the head portion is roundly formed.
13. The container manufacturing apparatus of claim 12, wherein the air holes are formed in the side surface of the head portion or the end portion side of the head portion.
14. The container manufacturing apparatus of claim 11, wherein one side of the external container is formed with an opening portion having a locking portion of the pouch fitted therein and for communicating with a receiving space of the external container, and further comprising a first gripping unit for pressurizing the other side of the external container so that the external container is gripped.
15. The container manufacturing apparatus of claim 14, further comprising a stage unit having the locking portion of the pouch coupled to the opening portion of the external container seated therein, and having the air pressurizing/depressurizing unit installed thereon, wherein the stage unit moves downward by a predetermined distance when the first gripping unit pressurizes the other side of the external container.
16. The container manufacturing apparatus of claim 14, further comprising a second gripping unit for gripping one side of the external container in a direction perpendicular to the direction in which the first gripping unit grips the external container.
17. The container manufacturing apparatus of claim 14, wherein a through-hole for communicating with the receiving space is formed at the other side of the external container, and wherein the first gripping unit comprises a first grip-

ping unit body, a suction passage formed at the first gripping unit body and for communicating with the through-hole, and an elastic gripping portion contacting the other side of the external container in a state where the through-hole of the external container has contacted the suction passage. 5

18. A container, further comprising
in the container manufactured by the container manufacturing method of claim 1, a coupling unit fitted into the opening portion side of the pouch and having a through space for communicating the charging space of the pouch with the outside thereof formed therein, in a state where the external container and the pouch have been coupled, 10
wherein the coupling unit pressurizes a part of the pouch to the inner wall side of the opening portion of the external container. 15

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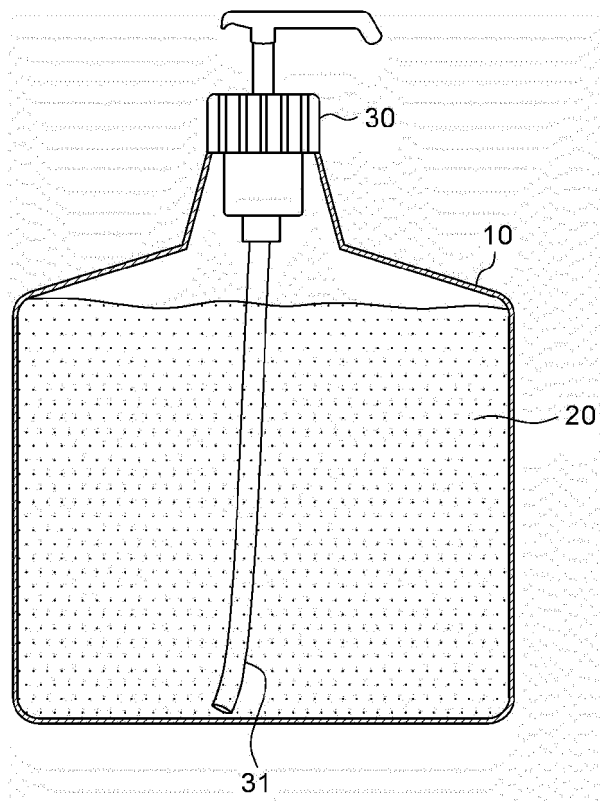
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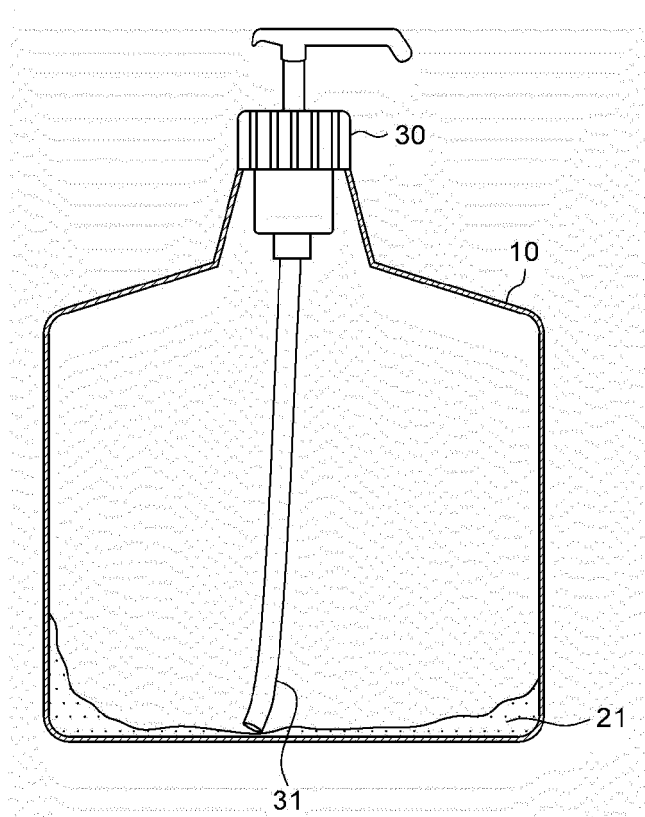
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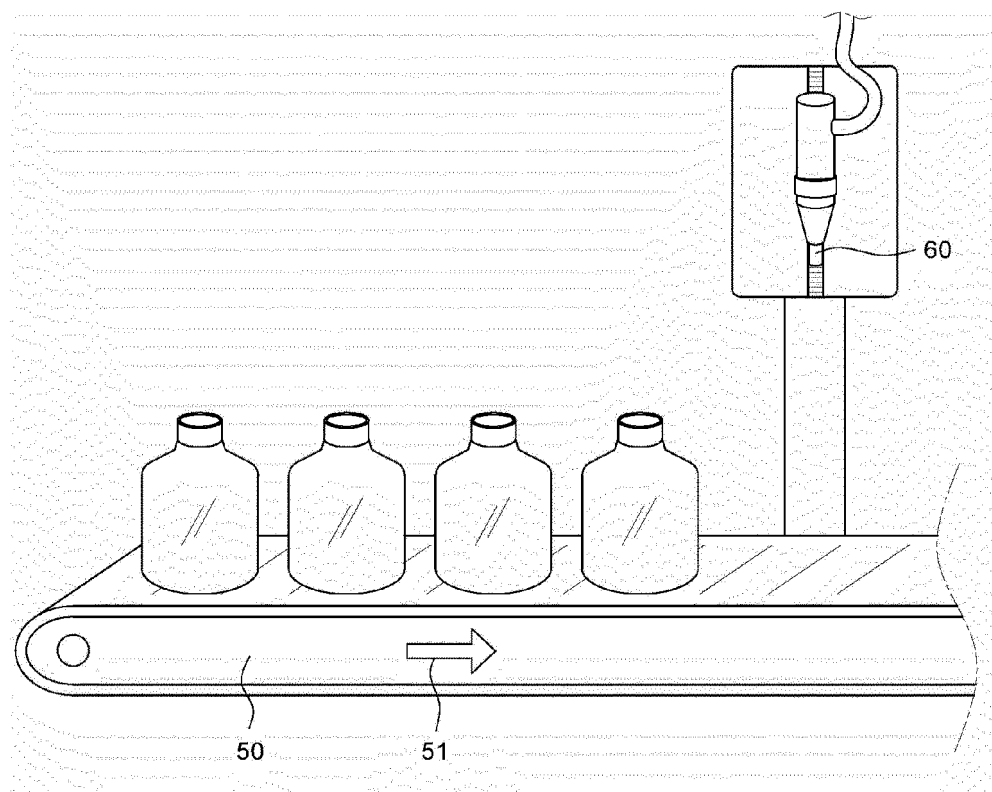
[FIG. 1A]



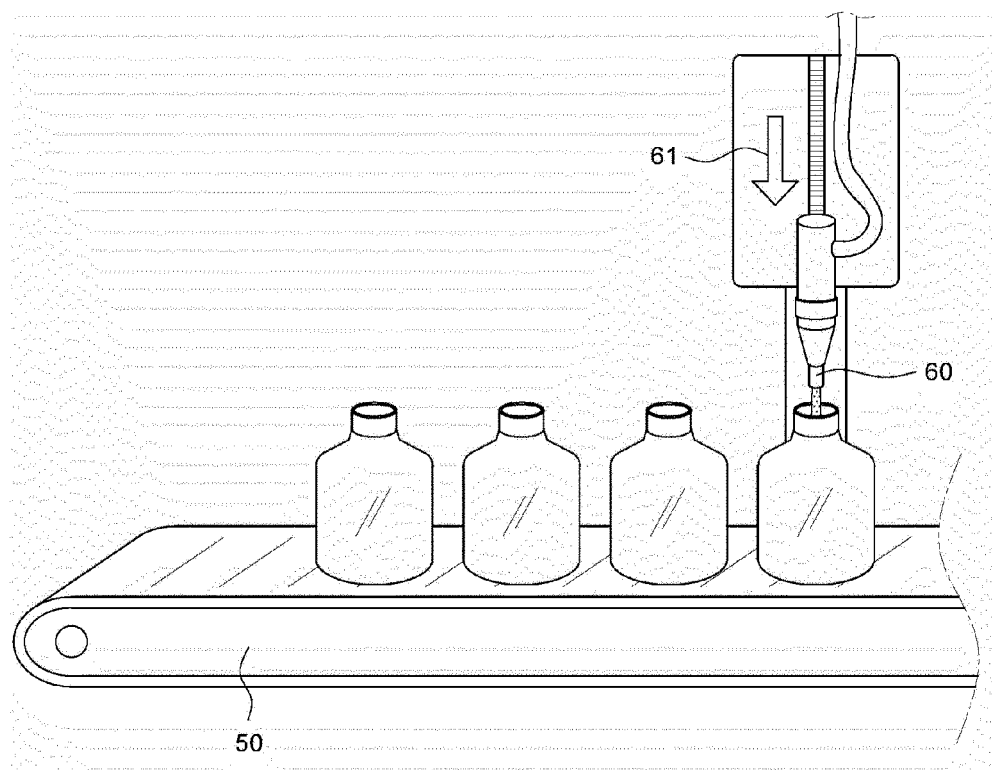
[FIG. 1B]



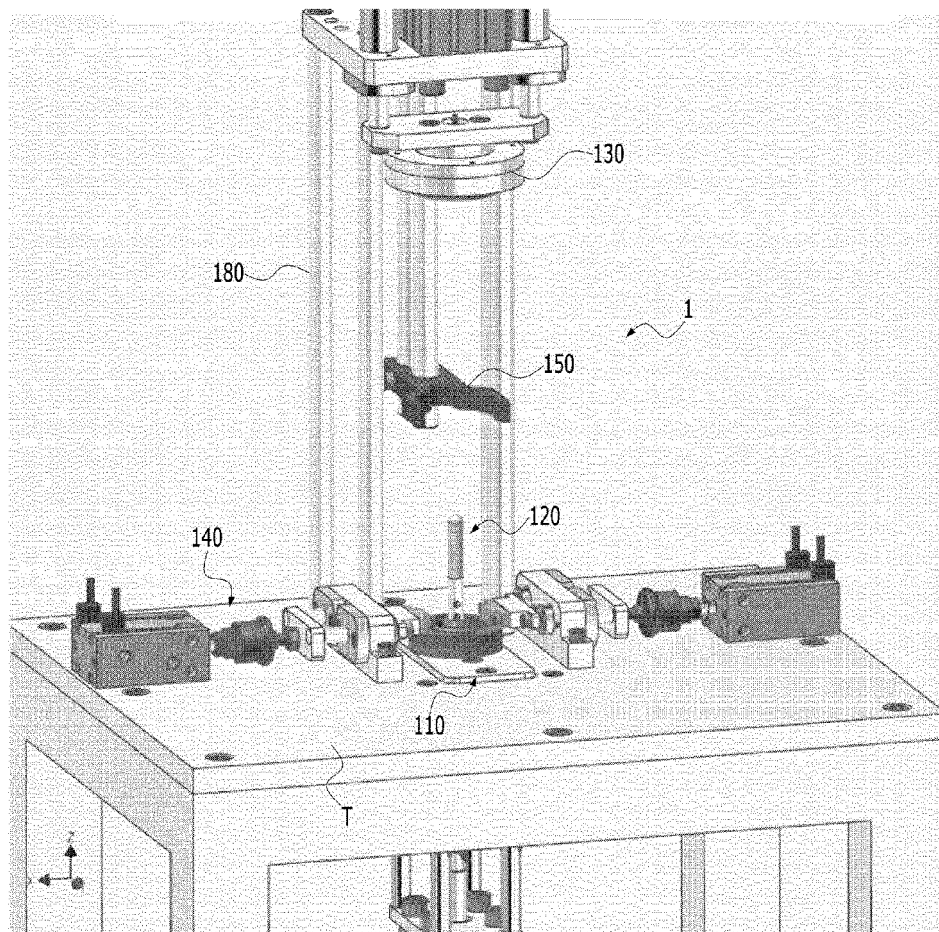
[FIG. 2A]



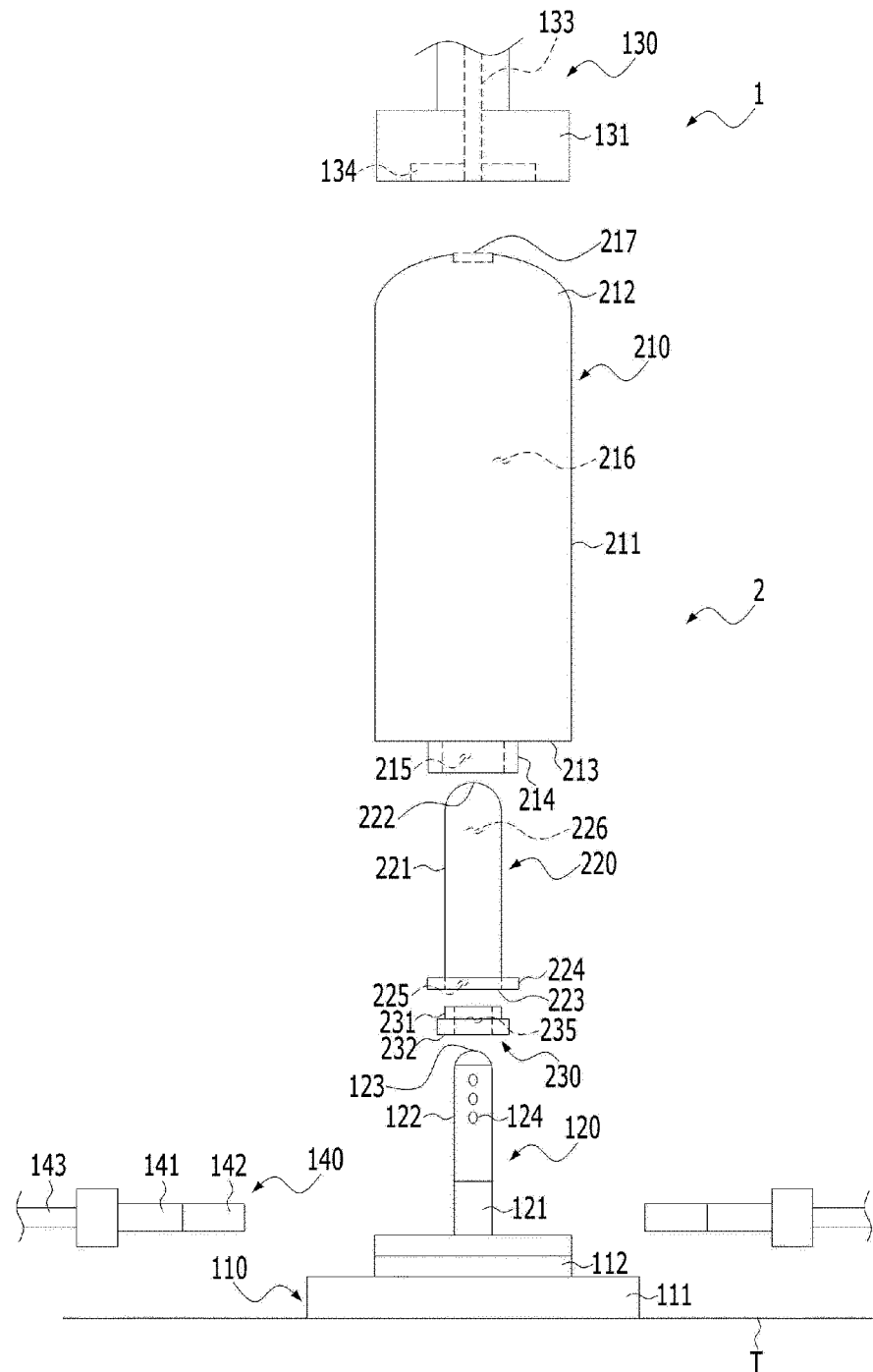
[FIG. 2B]



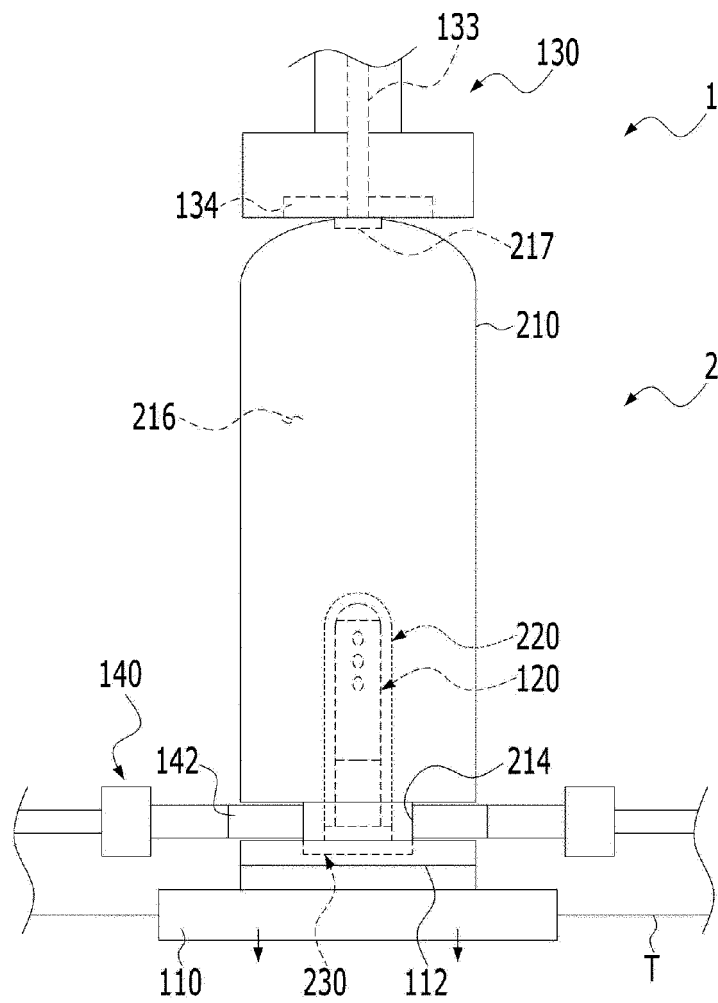
[FIG. 3]



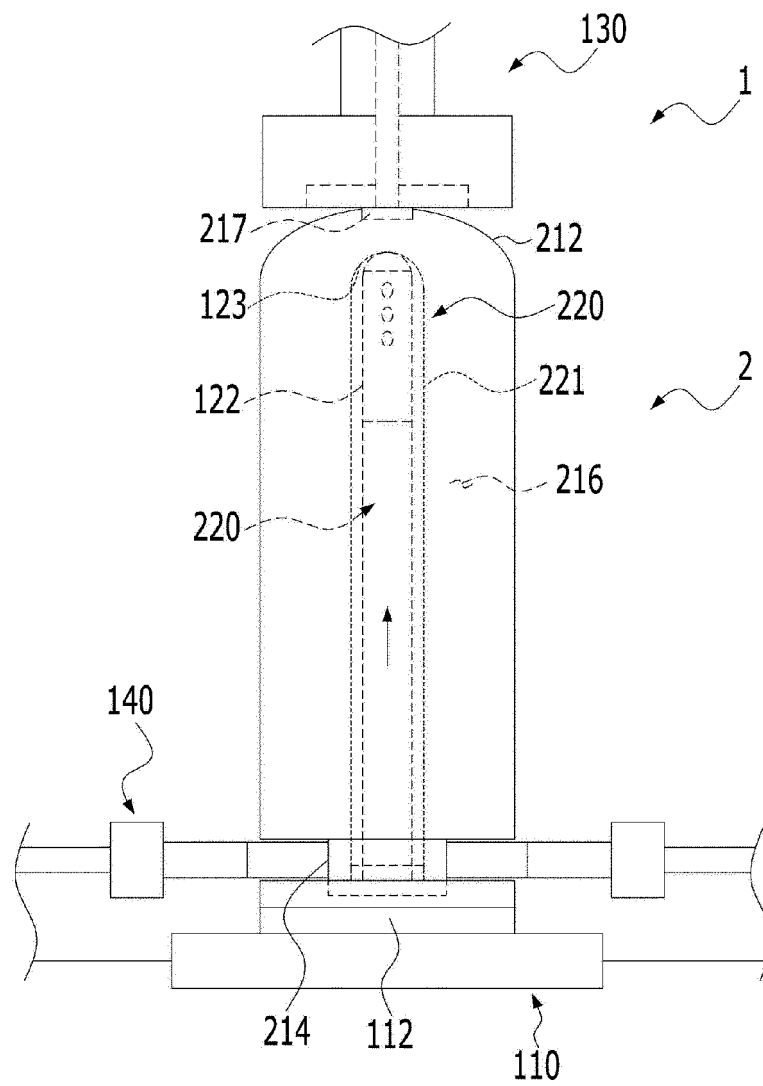
[FIG. 4]



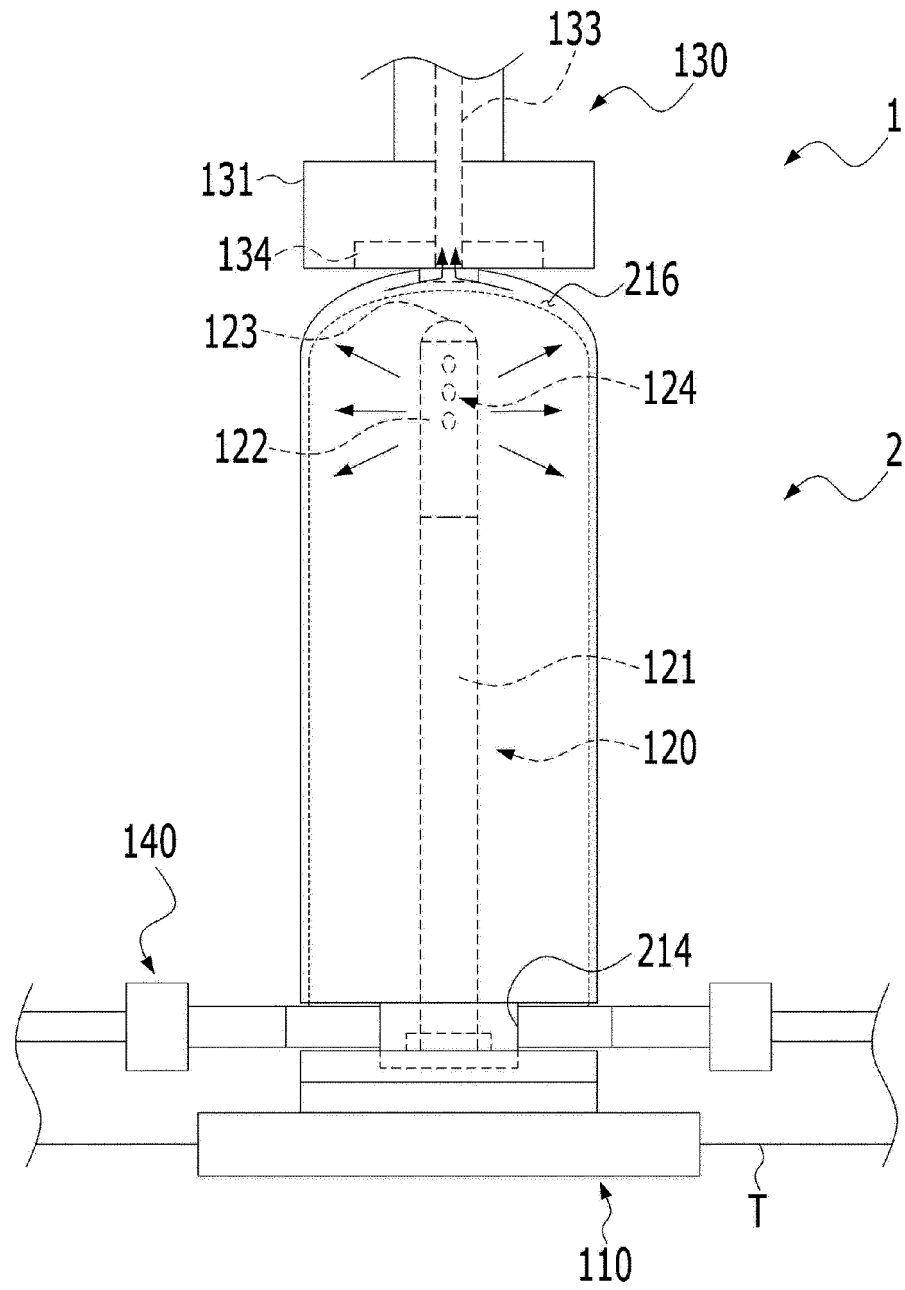
[FIG. 5]



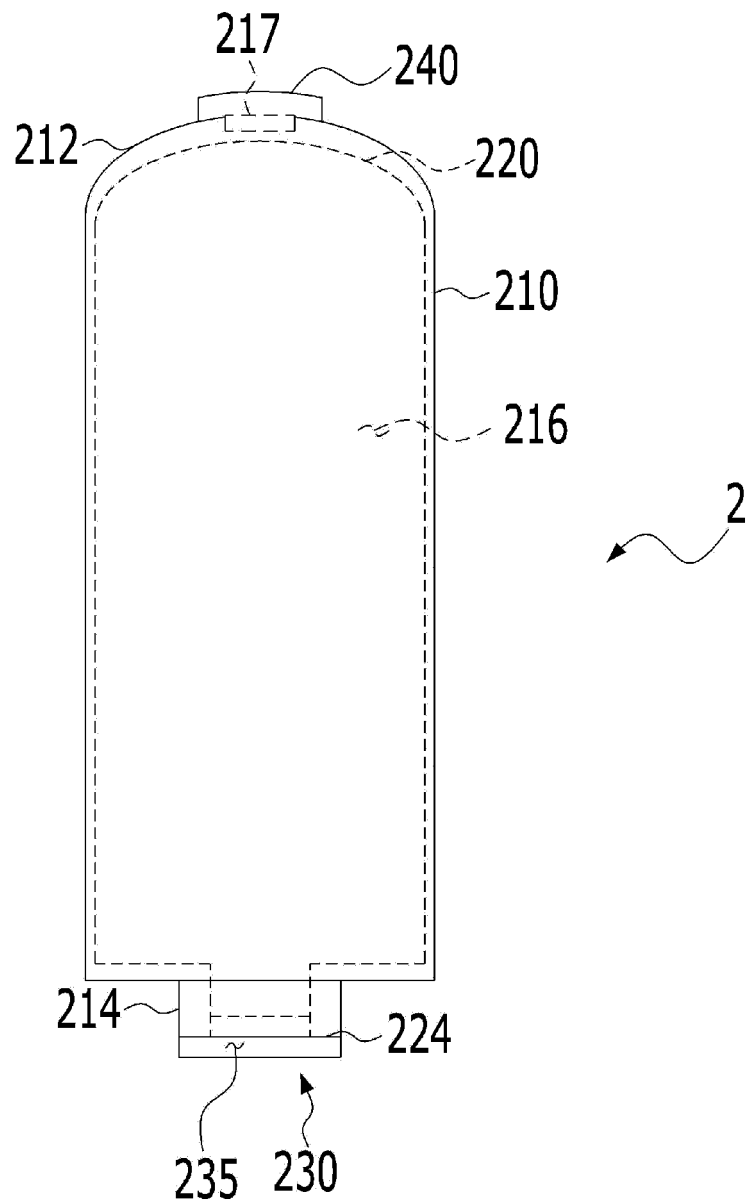
[FIG. 6]



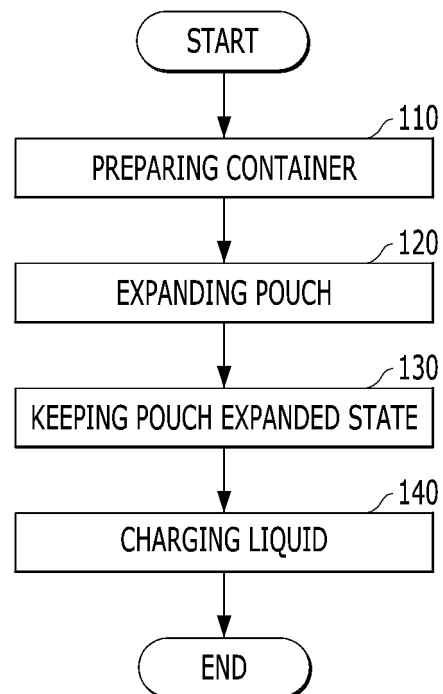
[FIG. 7]



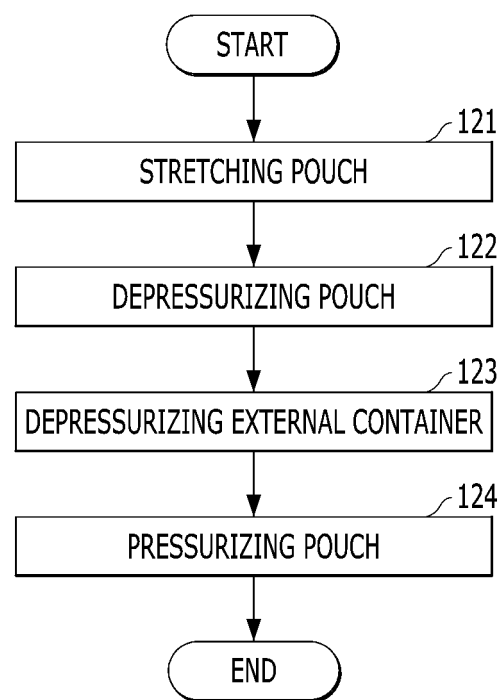
[FIG. 8]



[FIG. 9]



[FIG. 10]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/001876

A. CLASSIFICATION OF SUBJECT MATTER

B65B 3/02(2006.01)i, B65B 3/04(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65B 3/02; B29C 49/62; B65D 1/09; B65D 25/02; B65D 25/16; B65D 77/06; B65D 83/00; B65B 3/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models: IPC as above

Japanese utility models and applications for utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: container, manufacturing, elasticity, pouch, air, filling, expansion, stretching, decompression, pressurization

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014-0069916 A1 (FRANSEN, Alfons) 13 March 2014	1,8
Y	See paragraphs [0022], [0068]-[0070], [0073], [0094], claim 25 and figures 1-6.	2-7,9-18
Y	US 2011-0227258 A1 (PATRINI, Orsola) 22 September 2011	2-6,9-17
	See paragraphs [0025], [0030]-[0042], [0046] and figures 1-7.	
Y	JP 2017-178320 A (NISSHIN SANSHO K.K.) 05 October 2017	7
	See paragraphs [0046]-[0055] and figure 8.	
Y	JP 2001-114246 A (KAO CORP.) 24 April 2001	9,14-18
	See paragraphs [0008], [0012], [0017]-[0019], [0021]-[0022] and figures 1-2.	
A	JP 06-100057 A (PROCTER AND GAMBLE COMPANY) 12 April 1994	1-18
	See paragraphs [0017]-[0019] and figure 1.	

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 MAY 2019 (17.05.2019)

Date of mailing of the international search report

17 MAY 2019 (17.05.2019)

Name and mailing address of the ISA/KR


 Korean Intellectual Property Office
 Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu,
 Daejeon, 35208, Republic of Korea
 Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2019/001876

Patent document cited in search report	Publication date	Patent family member	Publication date
US 2014-0069916 A1	13/03/2014	BE 1019961 A3 BR 112013027802 A2 EP 2705293 A2 JP 2014-515716 A JP 6196210 B2 WO 2012-149613 A2 WO 2012-149613 A3	05/03/2013 10/01/2017 12/03/2014 03/07/2014 13/09/2017 08/11/2012 14/03/2013
US 2011-0227258 A1	22/09/2011	BR P11101298 A2 CN 102218811 A CN 102218811 B EP 2366529 A1 EP 2366529 B1 IT 1398945 B1 IT M120100435 A1 RU 2011110055 A RU 2558120 C2 US 8377367 B2	28/08/2012 19/10/2011 20/05/2015 21/09/2011 03/08/2016 28/03/2013 18/09/2011 27/09/2012 27/07/2015 19/02/2013
JP 2017-178320 A	05/10/2017	None	
JP 2001-114246 A	24/04/2001	None	
JP 06-100057 A	12/04/1994	JP 2862443 B2	03/03/1999