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(54) **DETACHABLE TOY**

ABNEHMBARES SPIELZEUG

JOUET DÉTACHABLE

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Description

[Technical Field]

[0001] The present invention relates to a detachable toy, and more particularly, to a detachable toy that is configured to detach a portion of a body from the body if a given condition is provided to detach the portion of the body from the body, so that the body and the detached portion of the body transform from a first form into a second form.

[Background Art]

[0002] Among toys for the play of babies or children, transformable toys provide various playing effects.

[0003] A method for transforming a toy's form is carried out by means of manual manipulation or an operation of locking means using a magnetic force of a magnet.

[0004] Particularly, the toy using the magnetic force includes external structures, internal structures accommodated in interiors of the external structures, and locking means operating cooperatively with the movement of a magnet disposed movably in an interior thereof.

[0005] If the magnet moves by means of the magnetic force, the locking means transforms the toy from a first form into a second form.

[0006] A transforming toy using the magnetic force is disclosed in Korean Patent Application Laid-open No. 2008-101924 entitled 'toy'.

[0007] According to the conventional toy, if the magnetic force generated from the magnet is not supplied, the external structures and a plurality of components constituting a spherical first form are kept to a spherical form by means of locking members, with a force applied from deviation means.

[0008] On the other hand, if the magnetic force is supplied, the locking states caused by the locking members are released cooperatively with the movement of the magnet, and accordingly, locking between the external structures folded to the spherical form in the locking states caused by the locking members is released, so that the external structures transform from the first form into a second form.

[0009] If the magnetic force of the magnet is not supplied, accordingly, it is impossible that the conventional toy transforms from the first form into the second form.

[0010] Further, the conventional toy changes only in the form of a body thereof, so that it does not provide any complex play or interest after transformation.

[0011] A detachable toy according to the preamble of claim 1 is disclosed in KR 2011 0083364 A1. Further, also KR 101 375 110 B1 discloses a detachable toy.

[Disclosure]

[Technical Problem]

[0012] The present invention has been made in view of the above-mentioned problems occurring in the prior art, and it is an object of the present invention to provide a detachable toy that is configured to detach a portion of a body from the body if a given condition is provided to detach the portion of the body from the body, so that the body and the detached portion of the body transform from a first form into a second form. It is also an object to further develop the solutions known in the prior art.

[Technical Solution]

[0013] To accomplish the above object, according to the present invention, there is provided a detachable toy including a first body, a second body detachably or rotatably disposed on the first body, locking parts for fixing the second body to the first body, and latch parts for releasing locking states of the locking parts by means of displacement in position thereof, wherein if the locking states of the locking parts are released, the second body is detached or rotates from the first body, and at least one of the first body and the second body is developed to transform from a first form into a second form.

[0014] According to the present invention, the detachable toy further includes an auxiliary toy disposed between the first body and the second body in such a manner as to be launched from the first body if the second body rotates to open.

[0015] Further according to the present invention, if the auxiliary toy is launched from the first body, the auxiliary toy transforms into a second form from a first form.

[0016] According to the present invention, desirably, the detachable toy further includes a pressurizing part disposed on any one of the first body and the second body to pressurize the second body thereagainst, so that the second body is separated or detached from the first body.

[0017] According to the present invention, desirably, the latch parts have the displacement in position thereof through at least one of an inertial force generated from an impact or crash and a magnetic force formed by a magnetic material.

[0018] According to the present invention, desirably, each of the latch parts includes: a latch part body; a latch part coupling groove formed on one side of the latch part body in such a manner as to support the locking parts to allow the locking parts to be kept to the locking states at a given position; and a latch part spring for providing an elastic force to allow the latch part body to be returned to original states thereof if the latch part body is displaced to a locking releasing position by means of the inertial force.

[0019] According to the present invention, desirably, each of the latch parts includes a magnet adapted to

provide the magnetic force so that the locking parts are displaced to locking releasing positions.

[0020] According to the present invention, desirably, the detachable toy further includes an item having a magnetic material disposed at an interior thereof in such a manner as to provide the magnetic force together with the latch parts.

[0021] According to the present invention, desirably, the first form is any one selected from a spherical form and a polygonal form having at least three or more surfaces.

[Advantageous Effects]

[0022] According to the present invention, the detachable toy is configured to detach a portion of a body from the body if a given condition is provided to detach the portion of the body from the body, so that the body and the detached portion of the body transform from the first form into the second form, thereby greatly improving children's interest in playing with the detachable toy.

[0023] In the following, parts of the description and drawings referring to embodiments, which are not covered by the claims are not presented as embodiments of the invention, but as examples useful for understanding the invention.

[Brief Description of Drawings]

[0024]

FIG.1 is a perspective view showing a detachable toy according to a first embodiment of the present invention.

FIG.2 is a perspective view showing an operating state of the detachable toy of FIG.1 according to the first embodiment of the present invention.

FIG.3 is a sectional view showing a structure of the detachable toy of FIG.1 according to the first embodiment of the present invention.

FIG.4 is an exploded perspective view showing upper parts of the detachable toy of FIG.1 according to the first embodiment of the present invention.

FIG.5 is an exploded perspective view showing upper parts of the detachable toy of FIG.1 according to the first embodiment of the present invention.

FIGS.6a to 6c are perspective views showing operating processes of the detachable toy of FIG.1 according to the first embodiment of the present invention.

FIG.7 is a perspective view showing a detachable toy according to a second embodiment of the present invention.

FIG.8 is a perspective view showing an operating state of the detachable toy of FIG.7 according to the second embodiment of the present invention.

FIG.9 is a sectional view showing a structure of the detachable toy of FIG.7 according to the second embodiment of the present invention.

FIG.10 is a perspective view showing a detachable toy according to a third embodiment of the present invention.

FIG.11 is a perspective view showing an operating state of the detachable toy of FIG.10 according to the third embodiment of the present invention.

FIG.12 is a sectional view showing a structure of the detachable toy of FIG.10 according to the third embodiment of the present invention.

FIG.13 is a perspective view showing a detachable toy according to a fourth embodiment of the present invention.

FIG.14 is a sectional view showing a structure of the detachable toy of FIG.13 according to the fourth embodiment of the present invention.

[Mode for Invention]

[0025] Hereinafter, an explanation on a detachable toy according to the present invention will be in detail given with reference to the attached drawing.

(First Embodiment)

[0026] FIG.1 is a perspective view showing a detachable toy according to a first embodiment of the present invention, FIG.2 is a perspective view showing an operating state of the detachable toy of FIG.1 according to the first embodiment of the present invention, FIG.3 is a sectional view showing a structure of the detachable toy of FIG.1 according to the first embodiment of the present invention, FIG.4 is an exploded perspective view showing upper parts of the detachable toy of FIG.1 according to the first embodiment of the present invention, and FIG. 5 is an exploded perspective view showing upper parts of the detachable toy of FIG.1 according to the first embodiment of the present invention.

[0027] As shown in FIGS.1 to 5, a detachable toy 100 according to a first embodiment of the present invention is configured to detach a portion of a body from the body if an impact or crash for detaching the portion of the body from the body is generated, so that the body and the detached portion of the body transform into a second form from a first form, and the detachable toy 100 includes a first body 110, a second body 120, an auxiliary body 130, locking parts 140, latch parts 150, and a pressurizing part 160.

[0028] The first form of the detachable toy 100 in a locking state is any one selected from a spherical form and a polygonal form having at least three or more surfaces, and desirably, the first form is a generally spherical form.

[0029] For the brevity of the description, further, the first form is the spherical form, but it is not necessarily limited thereto.

[0030] The first body 110 is a hemispherical member and includes a concaved first body housing 111, a first

body coupling protrusion 112 formed along top of the first body housing 111, and a protrusion 113 extended upwardly by a given length from a bottom center of the first body housing 111.

[0031] The second body 120 is a hemispherical member disposed on top of the first body 110 in such a manner as to be coupled to the first body 110 to allow the first form in the locking state to become the generally spherical form, and the second body 120 includes a second body base 121, a plurality of flaps 122 whose one side rotatably coupled to the second body base 121 by means of rotary shafts 123 and having a curved portion formed at the inside thereof, and second body springs 124 for applying elastic forces to the rotary shafts 123 if the flaps 122 are released from locking states, so that the flaps 122 rotate around the rotary shafts 123.

[0032] Further, the second body 120 includes a weight 125 adapted to allow center of gravity of the second body base 121 to be located on the lower portion thereof if the second body 120 is detached from the first body 110.

[0033] The second body base 121 has a curved underside surface and includes coupling grooves 121a equally spaced apart from each other along the outer periphery thereof in such a manner as to be coupled to the flaps 122 and coupling holes 121b pierced into the coupling grooves 121a in such a manner as to insert the rotary shafts 123 thereinto.

[0034] Further, the second body base 121 has a character 121c disposed on top thereof in such a manner as to be exposed to the outside if the second body 120 is separately developed, and the character 121c has various shapes, such as a human being, object, animal, robot and so on.

[0035] The flaps 122 are provided by dividing the second body 120 into four parts around the second body base 121, and each flap 122 includes fastening portions 122a extended by a given length from one side thereof in such a manner as to be inserted into the corresponding coupling groove 121a of the second body base 121, through holes 122b passing through the fastening portions 122a in such a manner as to insert the corresponding rotary shaft 123 thereinto, and a second body coupling protrusion 122c formed on the other side end thereof in such a manner as to be fitted to the protrusion 113 of the first body 110 to allow the second body 120 to be supportedly kept in the coupled state with the first body 110.

[0036] The auxiliary body 130 is disposed between the first body 110 and the second body 120 to partition the first body 110 and the second body 120 and serves to support the locking parts 140, the latch parts 150 and the pressurizing part 160 thereagainst. The auxiliary body 130 includes a disc-shaped auxiliary body base 131, a cylindrical support 132 extended by a given length from one side periphery of the auxiliary body base 131 and having guide slots 132a formed in a longitudinal direction thereof in such a manner as to mount the locking parts 140 thereon, and a through hole 133 formed on the center of the auxiliary body base 131 to allow a portion of the pressurizing part 160 to pass therethrough.

[0037] The locking parts 140 are disposed on the guide slots 132a of the auxiliary body 130 and serve to support the pressurizing part 160 to allow a fixed locking state of the pressurizing part 160 at a given position to be maintained or serve to move radially outward from the support 132 to allow the pressurizing part 160 to be released from the locking state thereof according to operations of the latch parts 150. Each locking part 140 includes a locking part body 141, extended portions 142 protruding laterally from both sides of the locking part body 141 in such a manner as to prevent the locking part body 141 from moving radially inward from the support 132, a locking part protrusion 143 protruding from one side of the locking part body 141 in such a manner as to be coupled to the corresponding latch part 150, and a locking part locking protrusion 144 protruding by a given length from the front end of the locking part body 141 in a longitudinal direction toward the inside of the support 132 in a radial direction of the support 132.

[0038] The latch parts 150 are disposed on the auxiliary body base 131 of the auxiliary body 130, and if an impact occurs, the latch parts 150 provide displacement through an inertial force to allow the locations of the locking parts 140 to be varied, so that the locking parts 140 move radially outward from the support 132 of the auxiliary body 130 and are thus released from locking states thereof. The latch parts 150 are desirably made of metal materials having a high weight per unit volume so as to provide large moving displacement through the inertial force.

[0039] Further, the latch parts 150 have a member for detecting the impact not exposed to the outside of the first body 110, so that the first form is kept to the generally spherical form rollable.

[0040] Furthermore, each latch part 150 includes a latch part body 151, a latch part coupling groove 152 formed on one side of the latch part body 151 and having a through hole 152a coupled to the corresponding locking part protrusion 143, and an impact sensing spring 153 disposed between the latch part body 151 and the auxiliary body base 131 to provide an elastic force so that the latch part body 151 is kept to a given position.

[0041] The pressurizing part 160 is disposed inside the first body 110 in such a manner as to be movable in upward and downward directions and serves to lock the locking parts 140 thereonto to allow a locking state fixed to the given position to be maintained or released from the locking state thereof, so that if it is released from the locking state, it moves upwardly to provide a pressurizing force to allow the second body 120 to be detached from the first body 110. The pressurizing part 160 includes a pressurizing part body 161 hollow in an interior thereof and open on the bottom thereof, a pressurizing part protrusion 162 protruding by a given length from top of the pressurizing part body 161, a flange 163 formed along the bottom periphery of the pressurizing part body 161,

and a pressurizing part spring 164 fixedly coupled to the protrusion 113 of the first body 110 to provide an elastic force so that the pressurizing part 160 moves upwardly.

[0042] If the pressurizing part 160 is released, the pressurizing part protrusion 162 passes through the through hole 133 of the auxiliary body 130 and thus pressurizes or hits the character 121c of the second body 120.

[0043] According to the first embodiment of the present invention, on the other hand, the pressurizing part 160 is disposed inside the first body 110, but it is not limited thereto. That is, the pressurizing part protrusion 162 may be disposed on the second body 120, and the pressurizing part protrusion 162 disposed on the second body 120 may pressurize the pressurizing part body 161 and the pressurizing part spring 164 disposed on the first body 110. Accordingly, the part for providing the pressurizing force to detach the second body 120 from the first body 110 may be disposed on any one of the first body 110 and the second body 120.

[0044] Next, an explanation on operating processes of the detachable toy 100 according to the first embodiment of the present invention will be given.

[0045] The detachable toy 100 in the first form where the first body 110 and the second body 120 are coupled to each other crashes into an arbitrary object or floor by a user.

[0046] If such crash or impact is applied to the detachable toy 100, it is also applied to the latch parts 150 kept to the given position, and at this time, displacement in position of the latch parts 150 occurs by means of an inertial force.

[0047] According to the displacement in position of the latch parts 150, the locking part protrusions 142 of the locking parts 140 coupled to the latch parts 150 move radially outward from the support 132 to allow the locking part locking protrusions 144 to be released from the flange 163 of the pressurizing part 160.

[0048] If the pressurizing part 160 is released, the pressurizing part body 161 moves upwardly by means of the elastic force of the pressurizing part spring 164, and the pressurizing part protrusion 162 pressurizes the character 121c of the second body 120, so that the fastened state between the first body coupling protrusion 112 and the second body coupling protrusions 122c is released to allow the second body 120 to be detached from the first body 110. Accordingly, the detachable toy 100 transforms from the first form into the second form.

[0049] If the second body 120 is detached from the first body 110, further, the flaps 122 are developedly open from the second body base 121 by means of the elastic forces of the second body springs 124, so that the second body 120 transforms from the hemispherical first form into a second form open around the character 121c.

[0050] If the second body 120 is detached from the first body 110 and is thus launched, furthermore, the center of gravity of the second body 120 moves to the underside of the second body base 121 by means of the weight 125 and thus turns over. In this state, the flaps 122 are open.

[0051] That is, as shown in FIGS.6a to 6c, if an impact occurs on the detachable toy 100 kept to the first form as shown in FIG.6a, the first body 110 and the second body 120 are separated from each other, as shown in FIG.6b, so that first transformation for the detachable toy 100 is carried out. After that, as shown in FIG.6c, the second body 120 transforms from the hemispherical first form into the second form open around the character 121c, so that second transformation for the second body 120 is carried out.

(Second Embodiment)

[0052] FIG.7 is a perspective view showing a detachable toy according to a second embodiment of the present invention, FIG.8 is a perspective view showing an operating state of the detachable toy of FIG.7 according to the second embodiment of the present invention, and FIG.9 is a sectional view showing a structure of the detachable toy of FIG.7 according to the second embodiment of the present invention.

[0053] First, the repeated explanation on the same parts as in the first embodiment of the present invention will be avoided, and the same reference numerals will be used to describe the same components.

[0054] As shown in FIGS.7 to 9, a detachable toy 100a according to a second embodiment of the present invention is configured to detach a portion of a body from the body if displacement caused by a magnetic force is generated to detach the portion of the body from the body, so that the body and the detached portion of the body transform into a second form from a first form, and the detachable toy 100a includes a first body 110a, a second body 120, an auxiliary body 130, locking parts 140a, a latch part 150a, a pressurizing part 160a, and an item 200.

[0055] The first body 110a is a hemispherical member and includes a concaved first body housing 111a, a first body coupling protrusion 112a formed along top of the first body housing 111a, and a first body through hole 113a formed on a bottom center of the first body housing 111a.

[0056] The locking parts 140a are disposed under the auxiliary body 130 and serve to support the pressurizing part 160a to allow a fixed locking state of the pressurizing part 160a at a given position to be maintained or serve to rotate upwardly to allow the pressurizing part 160a to be released from the locking state thereof according to an operation of the latch part 150a. Each locking part 140a includes a locking part body 141a locked onto the pressurizing part 160a to allow the fixed locking state of the pressurizing part 160a at the given position to be maintained and a rotary shaft 142a for supporting the locking part body 141a to allow the locking part body 141a to rotate.

[0057] The latch part 150a is disposed inside the first body 110a and moves upwardly and downwardly through the displacement caused by the magnetic force gener-

ated in response to the item 200 to allow the locking parts 140a to be varied in position. The latch part 150a includes a latch part body 151a, a magnet 152a disposed on one side end of the latch part body 151a to form the magnetic force, a link member 153a disposed on the other side of the latch part body 151a in such a manner as to be connected to the locking parts 140a by means of rotary shafts 153a', and a latch part spring 154a for providing an elastic force to allow the latch part body 151a to be kept to a given position.

[0058] That is, the latch part 150a allows the locking parts 140a to be maintained to the fixed locking states to the given position by means of the elastic force of the latch part spring 154a and generates a repulsive force from the magnetic force together with the item 200, so that if the latch part 150a moves downwardly in the drawing, the locking parts 140a rotate through the locking part rotary shafts 142a and are released from the locking states thereof.

[0059] The pressurizing part 160a is disposed movably in upward and downward directions between the auxiliary body 130 and the latch part 150a and serves to lock the locking parts 140 thereonto to allow the locking state fixed to the underside of the auxiliary body 130 to be maintained or released from the locking state onto the locking parts 140a, so that if it is released from the locking state, it moves upwardly in the drawing to provide a pressurizing force to allow the second body 120 to be detached from the first body 110. The pressurizing part 160a includes a pressurizing part body 161a having a protruding portion, a flange 162a formed along the bottom periphery of the pressurizing part body 161a, and a pressurizing part spring 163a for providing an elastic force to allow the pressurizing part body 161a to move upwardly.

[0060] In the state where the pressurizing part body 161a moves downwardly by means of a character 121c of the second body 120, that is, the pressurizing part 160a is lockedly fixed to the locking parts 140a, and if the locking state between the pressurizing part 160a and the locking parts 140a is released according to the displacement in position of the latch part 150a, the pressurizing part body 161a moves upwardly by means of the elastic force of the pressurizing part spring 163a and passes through the through hole 133 of the auxiliary body 130 to pressurize or hit the character 121c of the second body 120.

[0061] Further, a protrusion (not shown) may be not formed on the first body 110a, but formed on the second body 120, so as to pressurize top of the pressurizing part body 161a.

[0062] On the other hand, the elastic force of the latch part spring 154a has a larger value than that of the pressurizing part spring 163a so as to prevent the locking states of the locking parts 140a from being released by the elastic force of the pressurizing part spring 163a.

[0063] The item 200 is a plate-shaped member having any one selected from circular, oval, and polygonal outer shapes, and the item 200 includes a card-shaped item housing 210 made of paper, a plastic synthetic resin, and so on and at least one selected from a magnetic material 220 and a magnet disposed in an interior of the item housing 210 to form the magnetic field together with the magnet 152a of the latch part 150a.

[0064] According to the second embodiment of the present invention, the item 200 has a shape of a card, but it is not limited thereto. That is, the item 200 may be freely changed to a play plate having a given size.

[0065] Further, the item housing 210 has a given character, numbers, text, figure, and pattern printed on the external surfaces thereof, and otherwise, the external surfaces of the item housing 210 may be formed by means of depressed engraving or embossed carving.

[0066] Next, an explanation on operating processes of the detachable toy 100a according to the second embodiment of the present invention will be given.

[0067] The detachable toy 100a in the first form where the first body 110a and the second body 120 are coupled to each other moves to top of the item 200 by a user.

[0068] If a magnetic force is generated by the magnetic field between the detachable toy 100a and the item 200, displacement in position of the latch part 150a occurs by means of the magnetic force.

[0069] According to the displacement in position of the latch part 150a, the locking parts 140 coupled to the latch part 150a rotate and are thus released from the flange 162a of the pressurizing part 160a.

[0070] If the pressurizing part 160a is released, the pressurizing part body 161a moves upwardly by means of the elastic force of the pressurizing part spring 163a, and the pressurizing part protrusion 162a pressurizes the character 121c of the second body 120, so that the fastened state between the first body coupling protrusion 112a and the second body coupling protrusions 122c is released to allow the second body 120 to be detached from the first body 110a. Accordingly, the detachable toy 100a transforms from the first form into the second form.

[0071] If the second body 120 is detached from the first body 110a, further, the flaps 122 are developedly open from the second body base 121 by means of the elastic forces of the second body springs 124, so that the second body 120 transforms from the hemispherical first form into a second form open around the character 121c.

[0072] If the second body 120 is detached from the first body 110a and is thus launched, furthermore, the center of gravity of the second body 120 moves to the underside of the second body base 121 by means of the weight 125 and thus turns over. In this state, the flaps 122 are open.

(Third Embodiment)

[0073] FIG.10 is a perspective view showing a detachable toy according to a third embodiment of the present invention, FIG.11 is a perspective view showing an operating state of the detachable toy of FIG.10 according to the third embodiment of the present invention, and FIG.12 is a sectional view showing a structure of the de-

tachable toy of FIG.10 according to the third embodiment of the present invention.

[0074] As shown in FIGS.10 to 12, a detachable toy 100b according to a third embodiment of the present invention is configured to rotate a portion of a body from the body if an impact or crash for detaching the portion of the body from the body is generated, so that the body and the rotating portion of the body transform into a second form from a first form, and the detachable toy 100b includes a first body 110b, a second body 120b, an auxiliary body 130b, a locking part 140b, latch parts 150b, a pressurizing part 160b, and an auxiliary toy 300.

[0075] A first form of the detachable toy 100b in a locking state is any one selected from a spherical form and a polygonal form having at least three or more surfaces, and desirably, the first form is a generally spherical form.

[0076] The first body 110b is a hemispherical member and includes a concaved first body housing 111b, a support 111b' disposed on top of the first body housing 111b to allow flaps 121b of the second body 120b to be rotatably supported thereagainst, first body through holes 112b formed on top of the first body housing 111b, an accommodation portion 113b extended by a given length upwardly from a bottom center of the first body housing 111b, and a first body spring 114b disposed in the accommodation portion 113b to provide an elastic force for the locking part 140b.

[0077] The second body 120b is a hemispherical member disposed on top of the first body 110b in such a manner as to be coupled to the first body 110b to allow the first form in the locking state to become the generally spherical form, and the second body 120b includes the flaps 121b whose one side rotatably coupled to the support 111b' of the first body 110b by means of rotary shafts 122b and having a curved portion formed at the inside thereof, second body springs (not shown) for applying elastic forces to allow the flaps 121b to rotate around the rotary shafts 123 if the flaps 121b are released from locking states, and hooks 123b disposed on the inner surfaces of the flaps 121b in such a manner as to be coupled to the locking part 140b.

[0078] The auxiliary body 130b is disposed between the first body 110b and the second body 120b to partition the first body 110b and the second body 120b and serves to fixedly seat the auxiliary toy 300 thereonto. The auxiliary body 130b includes a disc-shaped auxiliary body base 131b, a seating groove 132b formed on the center of the auxiliary body base 131b to seat the auxiliary toy 300 thereonto, and a through hole 133b formed on the center of the seating groove 132b to allow the pressurizing part 160b to pass therethrough.

[0079] The locking part 140b serves to allow the flaps 121b of the second body 120b and the pressurizing part 160b to be kept to fixed locking states at given positions or serves to move to the upward direction of the first body 110b to release the locking states of the flaps 121b of the second body 120b and the pressurizing part 160b according to operations of the latch parts 150b. The locking part 140b includes a locking part body 141b, a flange 142b formed on one side end periphery of the locking part body 141b, and coupling portions 143b formed on the other side of the locking part body 141b in such a manner as to be locked onto the hooks 123b of the second body 120b.

[0080] The latch parts 150b are disposed in the lower portion of the first body 110b, and if an impact occurs, they vary the position of the locking part 140b through displacement caused by an inertial force, so that the locking part 140b moves radially outward from the first body 110b and is thus released from the locking state thereof. The latch parts 150b are desirably made of metal materials having a high weight per unit volume so as to provide large moving displacement through the inertial force.

[0081] Further, the latch parts 150b have the members for detecting the impact not exposed to the outside of the first body 110b, so that the first form is kept to the generally spherical form rollable.

[0082] Furthermore, each latch part 150b includes a latch part body 151b, a latch part locking protrusion 152b formed on one side of the latch part body 151b in such a manner as to be locked onto the flange 142b of the locking part 140b to allow the locking part 140b to be kept to the fixed locking state at the given position, and an impact sensing spring 153b disposed between the latch part body 151b and the first body 110b to provide an elastic force so that the latch part body 151b is kept to a given position.

[0083] The pressurizing part 160b is extended by a given length from top of the locking part 140b and serves to pressurize and launch the auxiliary toy 300 seated on the seating groove 132b toward the outward direction by means of the elastic force of the first body spring 114b, in the process where the locking part 140b moves upwardly.

[0084] According to the third embodiment of the present invention, on the other hand, the pressurizing part 160b is extended from top of the locking part 140b, but it is not limited thereto. That is, the pressurizing part 160b may be disposed on the second body 120 to pressurize the locking part 140b.

[0085] Further, pressurizing means having a separate pressurizing force may be disposed on the second body 120b, so that in case where the second body 120b is detached from the first body 110b, the pressurizing means provides the pressurizing force.

[0086] The auxiliary toy 300 is disposed between the first body 110b and the second body 120b in such a manner as to be launched from the first body 110b if the second body 120b rotates to open. If the launched auxiliary toy 300 crashes into floor or an arbitrary object, it transforms into a second form from a first form, and desirably, it has the same configuration as the detachable toy according to the first embodiment of the present invention.

[0087] Next, an explanation on operating processes of the detachable toy 100b according to the third embodiment of the present invention will be given.

[0088] The detachable toy 100b in the first form where the first body 110b and the second body 120b are coupled to each other crashes into an arbitrary object or floor by a user.

[0089] If such crash or impact is applied to the detachable toy 100b, an inertial force caused by the crash or impact is generated from the latch parts 150b kept to the given position, and at this time, the generated inertial force causes displacement in position of the latch parts 150b.

[0090] According to the displacement in position of the latch parts 150b, the locking part 140b coupled to the latch parts 150b and thus kept to the locking state is released from the locking state, and if the locking part 140b moves upwardly by means of the first body spring 114b, the coupling state between the locking part locking protrusion 143b and the hooks 123b of the second body 120b is released.

[0091] If the second body 120b is released, the flaps 121b are open around the rotary shafts 122b of the second body 120b by means of the elastic forces of the springs, so that the detachable toy 100b transforms from the first form into a second form.

[0092] On the other hand, if the locking part 140b is released to move upwardly by means of the elastic force of the first body spring 114b, the pressurizing part 160b pressurizes or hits the auxiliary toy 300 in the upward direction of the first body 110b open through the rotation of the second body 120b and launches the auxiliary toy 300 therefrom.

[0093] If the auxiliary toy 300 is separated from the first body 110b, it crashes into the arbitrary object or floor, and through the impact caused by the crash, it transforms into a second form from the first form through the same developing operation as the detachable toy according to the first embodiment of the present invention.

(Fourth Embodiment)

[0094] FIG.13 is a perspective view showing a detachable toy according to a fourth embodiment of the present invention, and FIG.14 is a sectional view showing a structure of the detachable toy of FIG.13 according to the fourth embodiment of the present invention.

[0095] First, the repeated explanation on the same parts as in the third embodiment of the present invention will be avoided, and the same reference numerals will be used to describe the same components.

[0096] As shown in FIGS.13 and 14, a detachable toy 100c according to a fourth embodiment of the present invention is configured to rotate a portion of a body from the body if displacement caused by a magnetic force is generated to detach the portion of the body from the body, so that the body and the rotating portion of the body transform into a second form from a first form, and the detachable toy 100c includes a first body 110c, a second body 120b, an auxiliary body 130c, a locking part 140c, a latch part 150c, a pressurizing part 160c, an item 200, and an auxiliary toy 300.

[0097] The first body 110c is a hemispherical member and includes a concaved first body housing 111c, a support disposed on top of the first body housing 111c to allow flaps 121b of the second body 120b to be rotatably supported thereagainst, first body through holes 112c formed on top of the first body housing 111c, and a first body through hole 113c formed on a bottom center of the first body housing 111c.

[0098] The auxiliary body 130c is disposed between the first body 110c and the second body 120b to partition the first body 110c and the second body 120b and serves to fixedly seat the auxiliary toy 300 thereonto. The auxiliary body 130c includes a disc-shaped auxiliary body base 131c, a seating groove 132c formed on the center of the auxiliary body base 131c to seat the auxiliary toy 300 thereonto, a through hole 133c formed on the center of the seating groove 132c to allow the pressurizing part 160c to pass therethrough, and a pressurizing part installation groove 134c formed on the bottom of the seating groove 132c to dispose the pressurizing part 160c thereinto.

[0099] The locking part 140c serves to allow the flaps 121b of the second body 120b to be kept to fixed locking states at a given position or serves to move to the upward direction of the first body 110c to release the locking states of the flaps 121b of the second body 120b according to an operation of the latch part 150c. The locking part 140c includes a locking part body 141c, a link member 142c disposed on one side of the locking part body 141c and having locking protrusions 142c' locked onto the hooks 123b of the second body 120b, and a locking part spring 143c for providing an elastic force to allow the locking part body 141c to be kept to a given position.

[0100] The latch part 150c is disposed on the other side end of the locking part body 141c and serves to move the locking part body 141c in upward and downward direction through displacement caused by a magnetic force, so that the position of the locking part 140c is varied. Desirably, the latch part 150c is formed of a magnet.

[0101] The pressurizing part 160c is disposed in the pressurizing part installation groove 134c of the auxiliary body 130c, and if the flaps 121b of the second body 120b are released to rotate around rotary shafts 122b and to thus open, the pressurizing part 160c serves to launch the auxiliary toy 300. The pressurizing part 160c includes a pressurizing part body 161c and a pressurizing part spring 162c for providing an elastic force for the pressurizing part body 161c.

[0102] According to the fourth embodiment of the present invention, on the other hand, the pressurizing part 160c is disposed inside the first body 110c, but it is not limited thereto. That is, the pressurizing part 160c may be disposed on the second body 120b.

[0103] Next, an explanation on operating processes of the detachable toy 100c according to the fourth embodiment of the present invention will be given.

[0104] The detachable toy 100c in the first form where the first body 110a and the second body 120 are coupled to each other moves to top of the item 200 by a user.

[0105] If a magnetic force is generated by the magnetic field between the detachable toy 100a and the item 200, displacement in position of the latch part 150c occurs by means of the magnetic force.

[0106] According to the displacement in position of the latch part 150c, the locking part 140c coupled to the latch part 150c moves downwardly to allow the locking state onto the hooks 123b of the second body 120b to be released.

[0107] If the second body 120b is released, the flaps 122 are developedly open around the rotary shafts 122b by means of the elastic forces of the second body springs, so that the detachable toy 100c transforms from the first form into a second form.

[0108] On the other hand, if the locking part 140c is released to open top of the first body 110c, the pressurizing part 160c pressurizes or hits the auxiliary toy 300 by means of the elastic force of the pressurizing part spring 162c to launch the auxiliary toy 300.

[0109] If the auxiliary toy 300 is separated from the first body 110c, it crashes into an arbitrary object or floor, and through the impact caused by the crash, it transforms into a second form from a first form through the same developing operation as the detachable toy according to the first embodiment of the present invention.

[0110] If a given condition is provided to detach the portion of the body from the body, therefore, the body and the detached portion of the body transform from the first form into the second form, thereby greatly improving children's interest in playing with the detachable toy.

[0111] While the present invention has been described with reference to the particular illustrative embodiments, it is not to be restricted by the embodiments but only by the appended claims. It is to be appreciated that those skilled in the art can change or modify the embodiments without departing from the scope and spirit of the present invention.

[0112] In the description, the thicknesses of the lines or the sizes of the components shown in the drawing may be magnified for the clarity and convenience of the description. Further, the terms as will be discussed later are defined in accordance with the functions of the present invention, but may be varied under the intention or regulation of a user or operator. Therefore, they should be defined on the basis of the whole scope of the present invention. The scope of the invention is defined by the appended claims.

Explanations on Reference Numerals

[0113]

100, 100a, 100b, 100c: detachable toy
110, 110a, 110b, 110c: first body
120, 120b: second body
130, 130a, 130b, 130c: auxiliary body
140, 140a, 140b, 140c: locking part
150, 150a, 150b, 150c: latch part
160, 160a, 160b, 160c: pressurizing part
200: item
300: auxiliary toy

Claims

1. A detachable toy comprising a first body (110, 110a, 110b, 110c), a second body (120, 120b) detachably or rotatably disposed on the first body, locking parts (140, 140a, 140b, 140c) for fixing the second body (120, 120b) to the first body (110, 110a, 110b, 110c), and latch parts (150, 150a, 150b, 150c) for releasing locking states of the locking parts (140, 140a, 140b, 140c) by means of displacement in position thereof, wherein if the locking states of the locking parts are released, the second body (120, 120b) is detached or rotates from the first body (110, 110a, 110b, 110c), and at least one of the first body (110, 110a, 110b, 110c) and the second body (120, 120b) is developed to transform from a first form into a second form,
wherein the detachable toy further comprises an auxiliary toy (300) disposed between the first body (110b, 110c) and the second body (120b) in such a manner as to be launched from the first body (110b) if the second body (120b) rotates to open,
characterized in that
if the auxiliary toy (300) is launched from the first body (110b, 110c), the auxiliary toy (300) transforms into a second form from a first form.

2. The detachable toy according to claim 1, further comprising a pressurizing part (160, 160a, 160b, 160c) disposed on any one of the first body (110, 110a, 110b, 110c) and the second body (120, 120b) to pressurize the second body (120, 120b) thereagainst, so that the second body (120, 120b) is separated or detached from the first body (110, 110a, 110b, 110c).

3. The detachable toy according to claim 1, wherein the latch parts (150, 150a, 150b, 150c) have the displacement in position thereof through at least one of an inertial force generated from an impact or crash and a magnetic force formed by a magnetic material.

4. The detachable toy according to claim 3, wherein each of the latch parts (150, 150b) comprises:

a latch part body (151, 151b);
a latch part coupling groove formed on one side of the latch part body (151, 151b) in such a manner as to support the locking parts (140, 140b) to allow the locking parts (140, 140b) to be kept to the locking states at a given position; and

a latch part spring (153, 153b) for providing an elastic force to allow the latch part body (151, 151b) to be returned to original states thereof if the latch part body (151, 151b) is displaced to a locking releasing position by means of the inertial force.

5. The detachable toy according to claim 3, wherein each of the latch parts (150, 150b) comprises a magnet adapted to provide the magnetic force so that the locking parts (140a, 140c) are displaced to locking releasing positions.

6. The detachable toy according to claim 5, further comprising an item (200) having a magnetic material (220) disposed at an interior thereof in such a manner as to provide the magnetic force together with the latch parts (150, 150b) .

7. The detachable toy according to any one of claims 1 to 6, wherein the first form is any one selected from a spherical form and a polygonal form having at least three or more surfaces.

Patentansprüche

1. Abnehmbares Spielzeug, das aufweist einen ersten Körper (110, 110a, 110b, 110c), einen zweiten Körper (120, 120b), der entfernbar oder drehbar am ersten Körper angeordnet ist, Sperrteile (140, 140a, 140b, 140c), um den zweiten Körper (120, 120b) am ersten Körper (110, 110a, 110b, 110c) zu befestigen, und Verriegelungsteile (150, 150a, 150b, 150c), um die Sperrzustände der Sperrteile (140, 140a, 140b, 140c) mittels der Versetzung in der Position davon freizugeben, wobei, wenn die Sperrzustände der Sperrteile freigegeben werden, der zweite Körper (120, 120b) vom ersten Körper (110, 110a, 110b, 110c) abgenommen oder rotiert wird und wenigstens einer von dem ersten Körper (110, 110a, 110b, 110c) und dem zweiten Körper (120, 120b) ausgestaltet ist, um sich von einer ersten Form in eine zweite Form zu verwandeln,
wobei das abnehmbare Spielzeug weiterhin ein Hilfsspielzeug (300) aufweist, das zwischen dem ersten Körper (110b, 110c) und dem zweiten Körper (120b) dergestalt angeordnet ist, dass es vom ersten Körper (110b) hervorgeschoben wird, wenn der zweite Körper (120b) zur Öffnung rotiert,
dadurch gekennzeichnet, dass
wenn das Hilfsspielzeug (300) vom ersten Körper (110b, 110c) hervorgeschoben wird, sich das Hilfsspielzeug (300) von einer ersten Form in eine zweite Form umwandelt.

2. Abnehmbares Spielzeug nach Anspruch 1, das weiterhin ein Druckausübungsteil (160, 160a, 160b, 160c) aufweist, das an einem beliebigen von dem ersten Körper (110, 110a, 110b, 110c) und dem zweiten Körper (120, 120b) angeordnet ist, um den zweiten Körper (120, 120b) dagegen unter Druck zu setzen, sodass der zweite Körper (120, 120b) vom ersten Körper (110, 110a, 110b, 110c) getrennt oder abgenommen wird.

3. Abnehmbares Spielzeug nach Anspruch 1, wobei die Verriegelungsteile (150, 150a, 150b, 150c) die Versetzung in der Position davon durch wenigstens eine Trägheitskraft haben, die durch eine Einwirkung oder einen Aufprall und eine durch ein Magnetmaterial ausgebildete Magnetkraft erzeugt wird.

4. Abnehmbares Spielzeug nach Anspruch 3, wobei ein jedes der Verriegelungsteile (150, 150b) aufweist:

einen Verriegelungsteilkörper (151, 151b);
eine Verriegelungsteil-Kopplungsnut, die an einer Seite des Verriegelungsteilkörpers (151, 151b) in einer solchen Weise ausgebildet ist, um die Sperrteile (140, 140b) zu halten, um zu ermöglichen, dass die Sperrteile an einer bestimmten Position gehalten werden; und
eine Verriegelungsteilfeder (153, 153b), um eine elastische Kraft vorzusehen, um zu ermöglichen, dass ein Verriegelungsteilkörper (151, 151b) in die originalen Zustände davon zurückgesetzt wird, wenn der Verriegelungsteilkörper (151, 151b) in eine Sperrfreigabeposition mittels der Trägheitskraft versetzt wird.

5. Abnehmbares Spielzeug nach Anspruch 3, wobei ein jedes der Verriegelungsteile (150, 150b) einen Magneten aufweist, der ausgebildet ist, um die Magnetkraft so vorzusehen, dass die Sperrteile (140a, 140c) in die Sperrfreigabepositionen versetzt werden.

6. Abnehmbares Spielzeug nach Anspruch 5, das weiterhin ein Element (200) aufweist, bei dem ein Magnetmaterial (22) an einem Inneren davon in einer solchen Weise angeordnet ist, um die Magnetkraft zusammen mit den Verriegelungsteilen (150, 150b) vorzusehen.

7. Abnehmbares Spielzeug nach einem der Ansprüche 1 bis 6, wobei die erste Form eine ist, die ausgewählt ist aus einer Kugelform und einer polygonalen Form und wenigstens drei oder mehr Flächen aufweist.

Revendications

1. Jouet détachable comprenant un premier corps (110, 110a, 110b, 110c), un deuxième corps (120,

120b) disposé de manière détachable ou rotative sur le premier corps, des parties de verrouillage (140, 140a, 140b, 140c) pour fixer le deuxième corps (120, 120b) au premier corps (110, 110a, 110b, 110c) et des parties de verrou (150, 150a, 150b, 150c) pour libérer des états de verrouillage des parties de verrouillage (140, 140a, 140b, 140c) au moyen d'un déplacement en position de celles-ci, dans lequel si les états de verrouillage des parties de verrouillage sont libérés, le deuxième corps (120, 120b) est détaché du premier corps (110, 110a, 110b, 110c) ou tourne par rapport à celui-ci, et au moins l'un du premier corps (110, 110a, 110b, 110c) et du deuxième corps (120, 120b) est développé pour se transformer d'une première forme en une deuxième forme,
dans lequel le jouet détachable comprend en outre un jouet auxiliaire (300) disposé entre le premier corps (110b, 110c) et le deuxième corps (120b) de manière à être lancé à partir du premier corps (110b) si le deuxième corps (120b) tourne pour s'ouvrir,
caractérisé en ce que
si le jouet auxiliaire (300) est lancé à partir du premier corps (110b, 110c), le jouet auxiliaire (300) se transforme en une deuxième forme à partir d'une première forme.

2. Jouet détachable selon la revendication 1, comprenant en outre une partie de mise sous pression (160, 160a, 160b, 160c) disposée sur l'un quelconque du premier corps (110, 110a, 110b, 110c) et du deuxième corps (120, 120b) pour mettre sous pression le deuxième corps (120, 120b) contre celle-ci, de sorte que le deuxième corps (120, 120b) soit séparé ou détaché du premier corps (110, 110a, 110b, 110c).

3. Jouet détachable selon la revendication 1, dans lequel le déplacement en position des parties de verrou (150, 150a, 150b, 150c) est provoqué par l'intermédiaire d'au moins l'une d'une force d'inertie générée à partir d'un impact ou d'une collision et d'une force magnétique formée par un matériau magnétique.

4. Jouet détachable selon la revendication 3, dans lequel chacune des parties de verrou (150, 150b) comprend :

un corps de partie de verrou (151, 151b) ;
une rainure de couplage de partie de verrou formée sur un côté du corps de partie de verrou (151, 151b) de manière à supporter les parties de verrou (140, 140b) pour permettre aux parties de verrouillage (140, 140b) d'être maintenues dans les états de verrouillage à une position donnée ; et
un ressort de partie de verrou (153, 153b) pour fournir une force élastique pour permettre au corps de partie de verrou (151, 151b) de revenir à ses états d'origine si le corps de partie de verrou (151, 151b) est déplacé vers une position de libération de verrouillage au moyen de la force d'inertie.

5. Jouet détachable selon la revendication 3, dans lequel chacune des parties de verrou (150, 150b) comprend un aimant adapté pour fournir la force magnétique de sorte que les parties de verrouillage (140a, 140c) soient déplacées vers des positions de libération de verrouillage.

6. Jouet détachable selon la revendication 5, comprenant en outre un article (200) ayant un matériau magnétique (220) disposé au niveau d'une partie intérieure de celui-ci de manière à fournir la force magnétique conjointement avec les parties de verrou (150, 150b).

7. Jouet détachable selon l'une quelconque des revendications 1 à 6, dans lequel la première forme est une forme quelconque choisie parmi une forme sphérique et une forme polygonale ayant au moins trois surfaces ou plus.

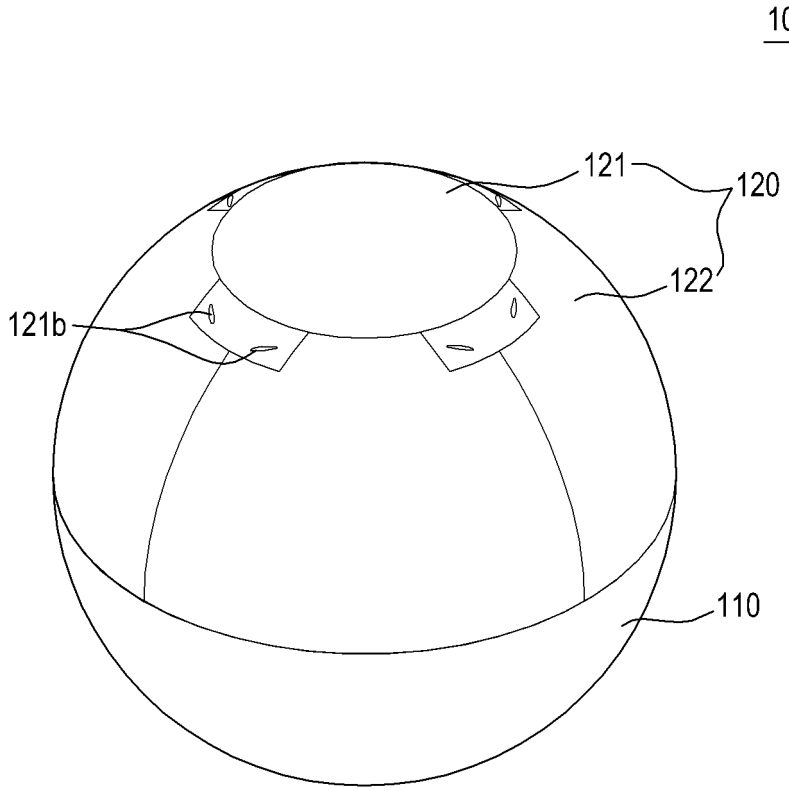

Fig. 1

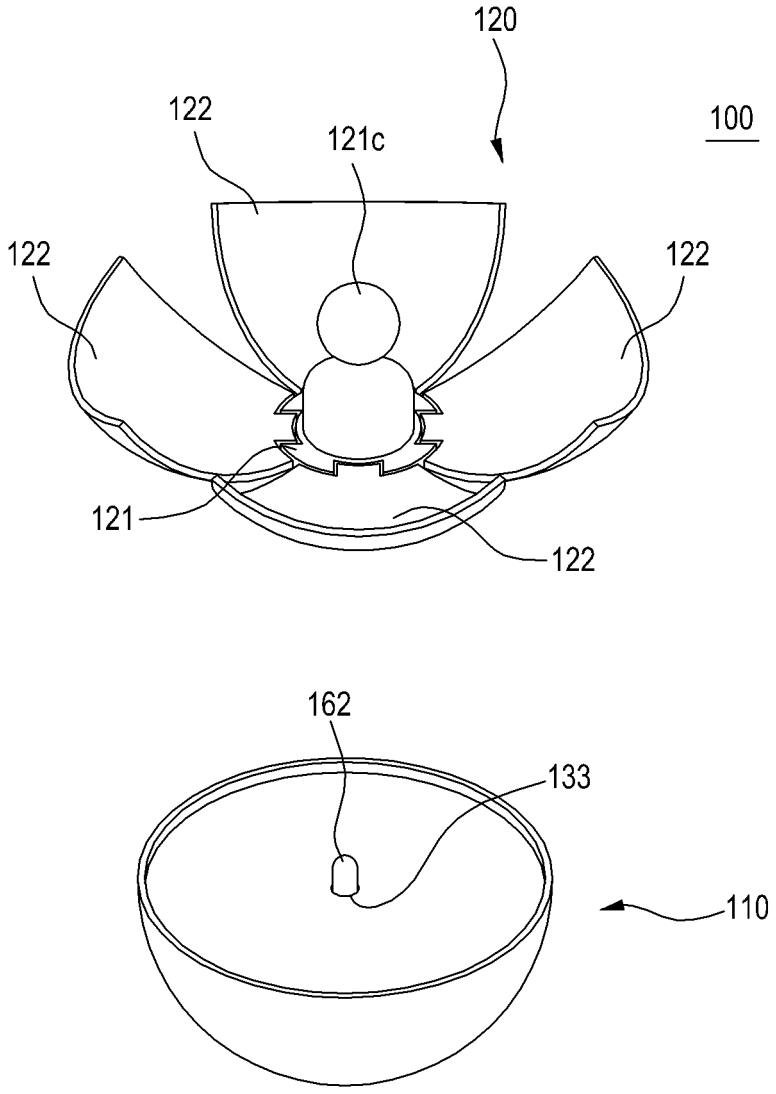

Fig. 2

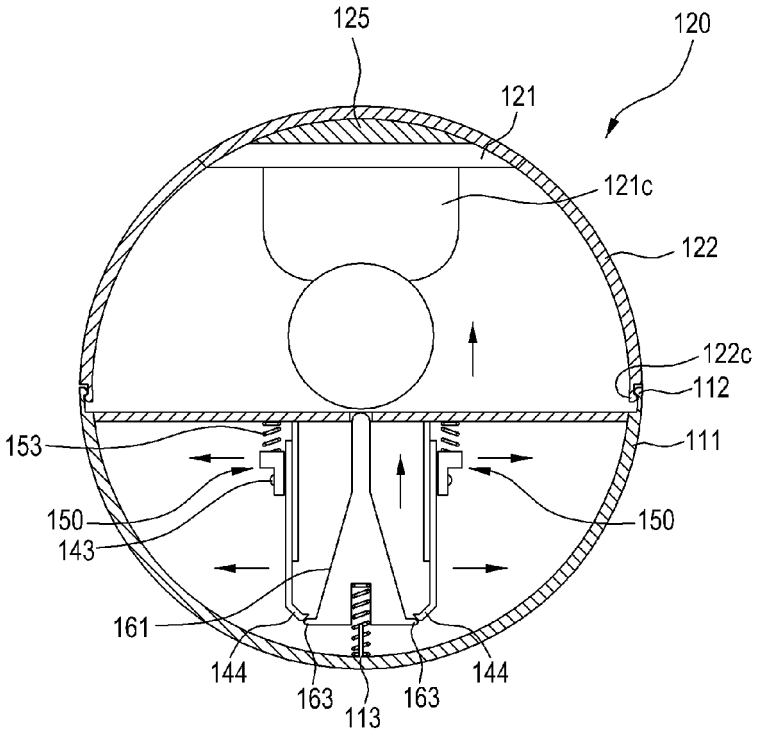
125
120
121
121c
122
122c
112
111
153
150
143
150
161
144
163
113
163
144

Fig. 3

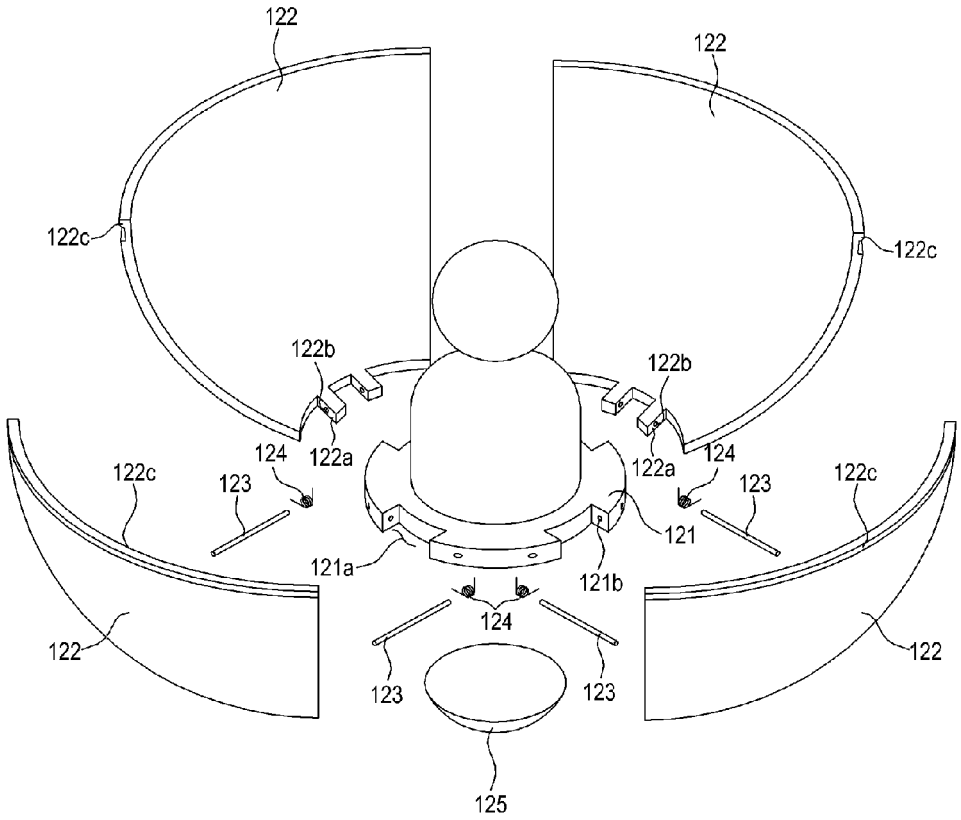
122
122
122c
122c
122b
122b
124
122a
122a
124
122c
123
123
122c
121
121a
121b
124
122
122
123
123
125

Fig. 4

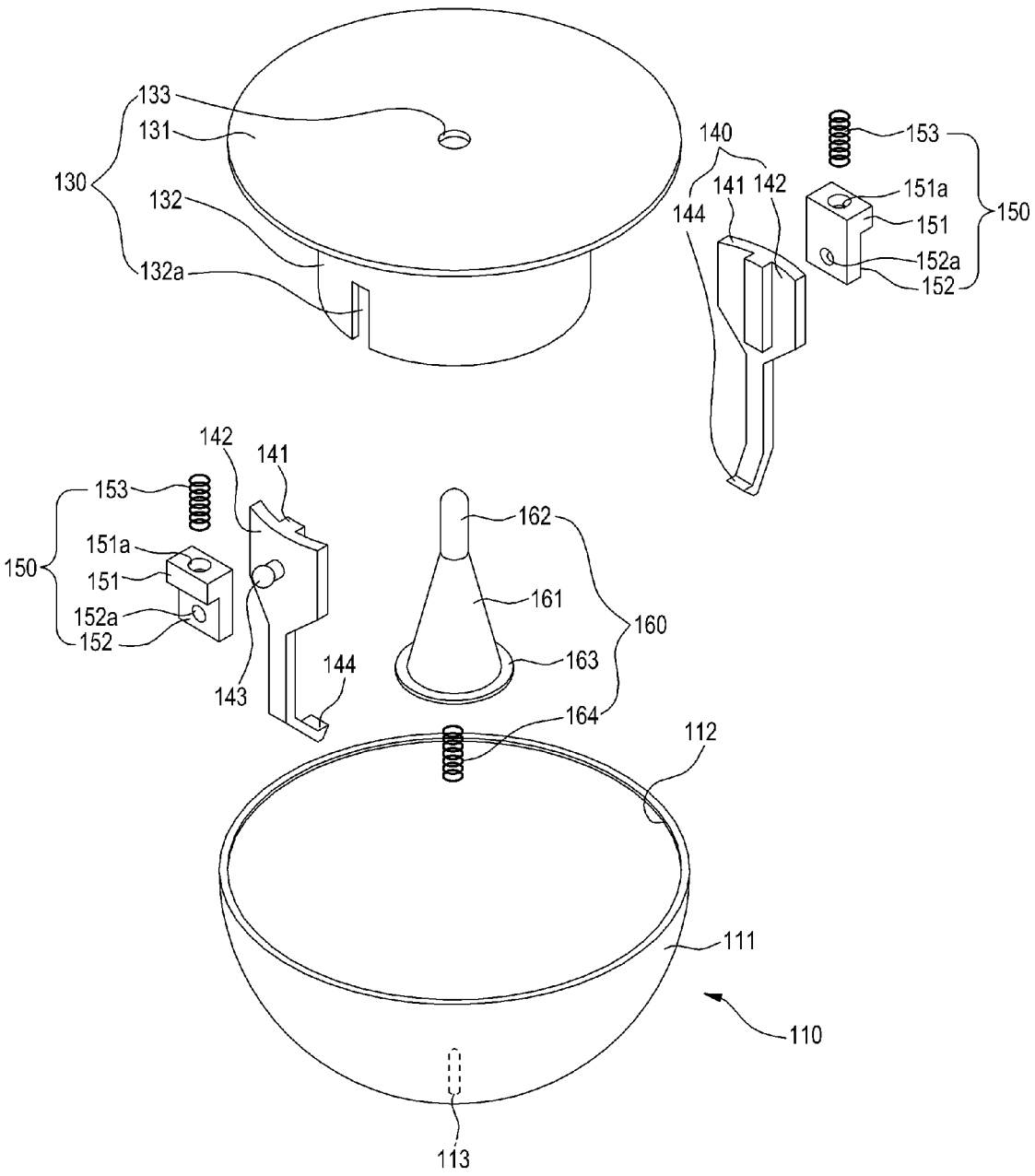
133
131
130
132
132a
140
141
142
144
153
151a
151
152a
152
150
142
141
153
151a
151
152a
152
150
143
144
162
161
160
163
164
112
111
110
113

Fig. 5

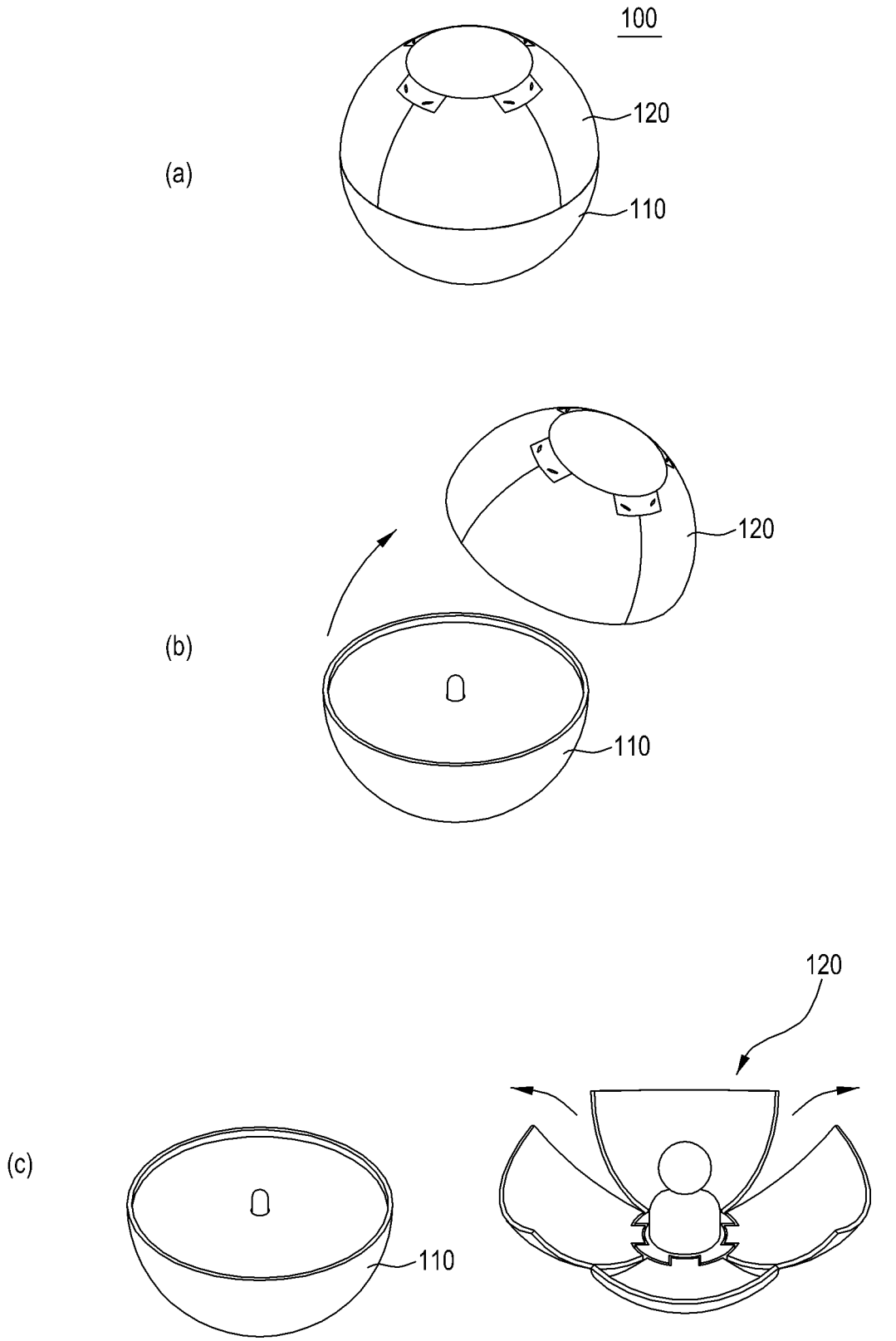

Fig. 6

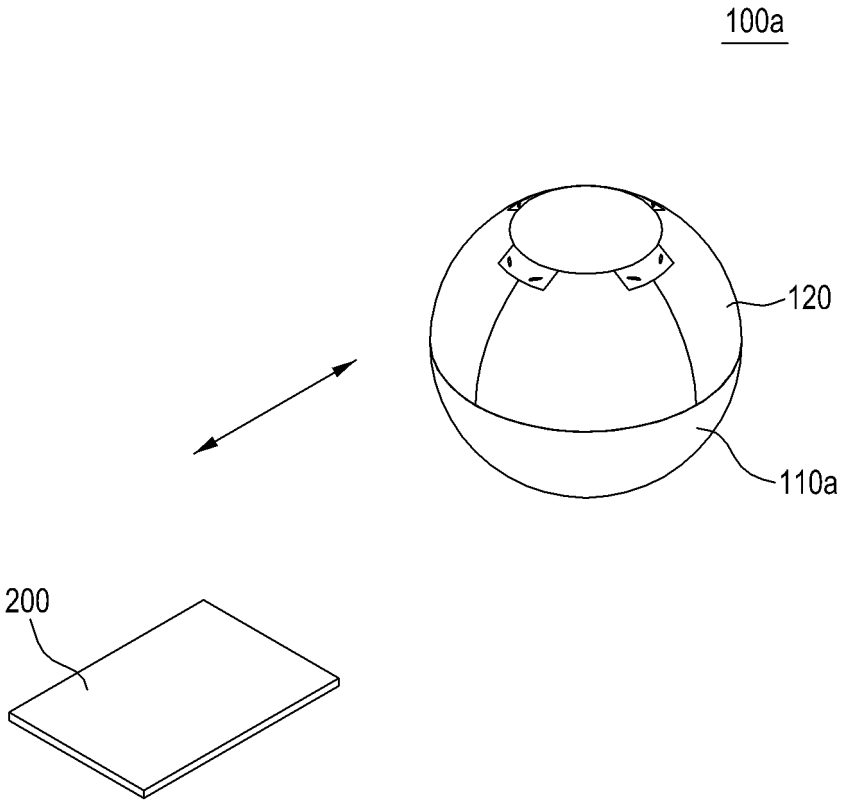

Fig. 7

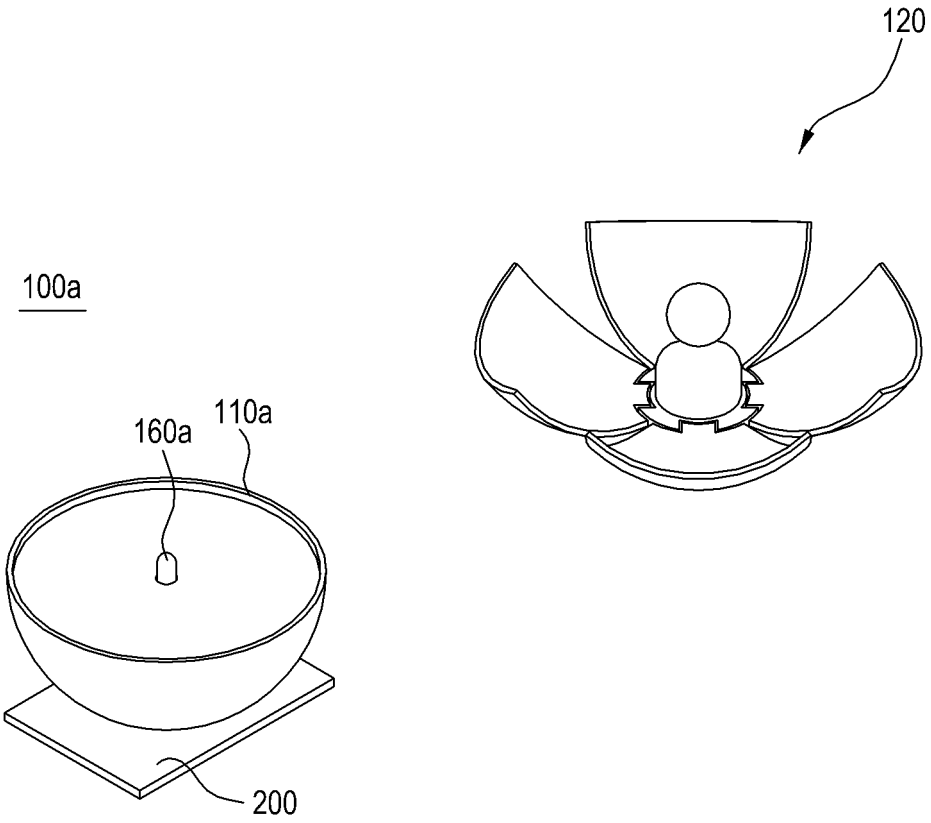

Fig. 8

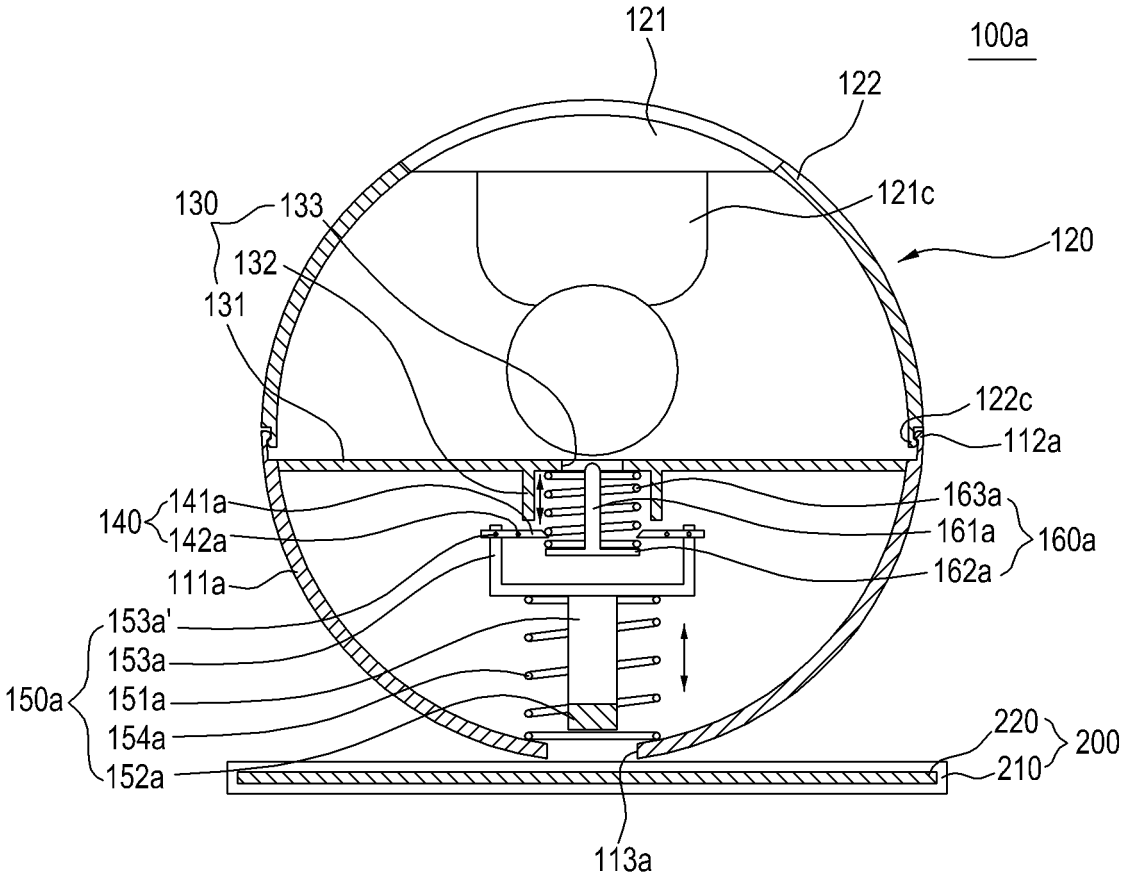
121
100a
122
121c
130
133
120
132
131
122c
112a
140
141a
142a
163a
161a
160a
162a
111a
153a'
153a
150a
151a
154a
152a
220
200
210
113a

Fig. 9

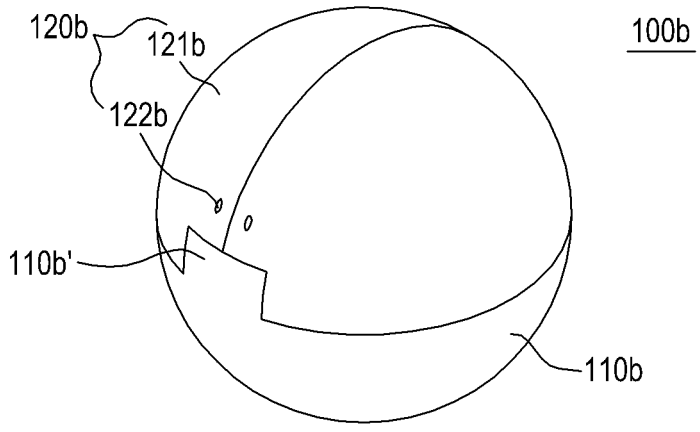
120b
121b
100b
122b
110b'
110b

Fig. 10

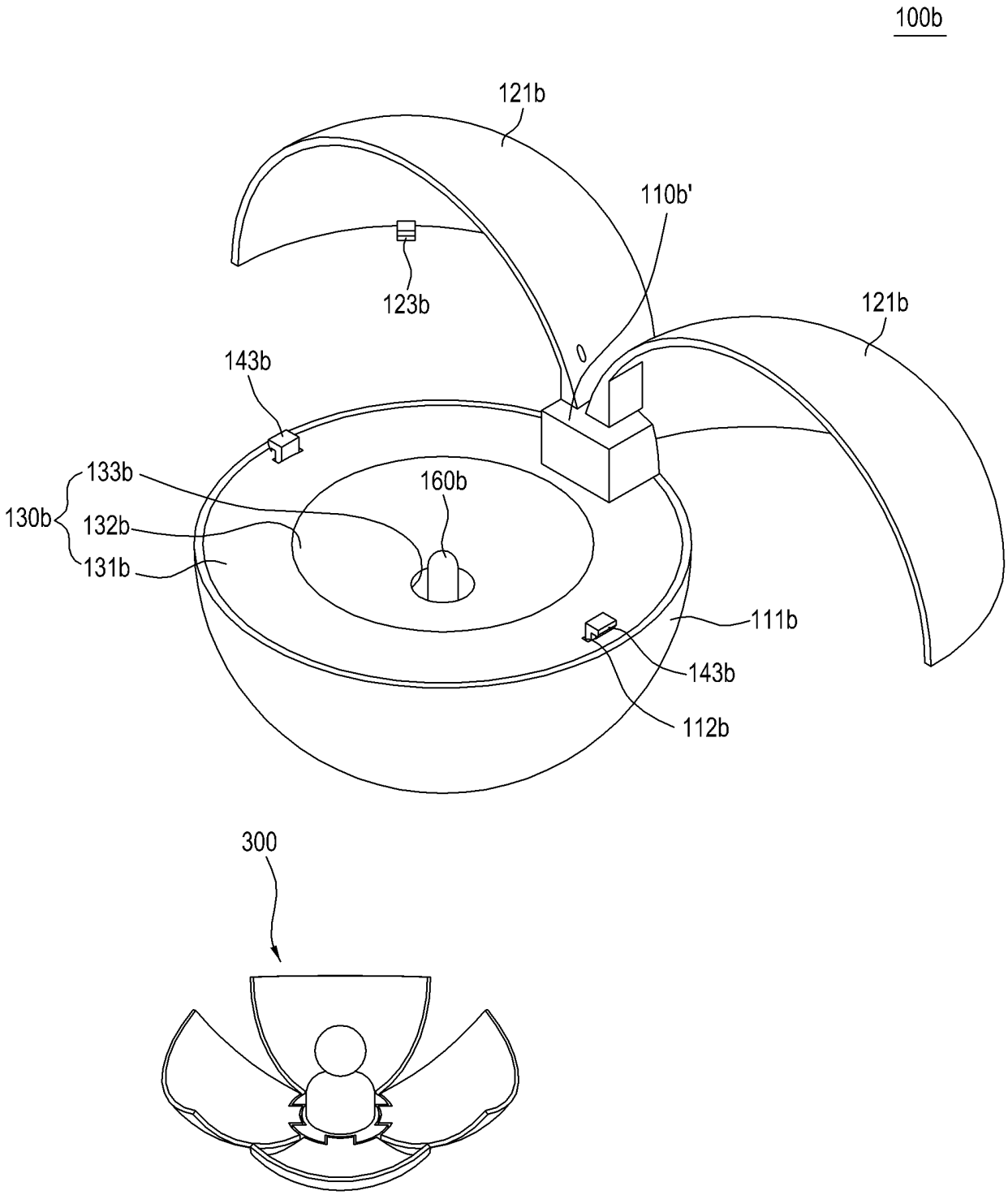
100b
121b
110b'
123b
121b
143b
133b
130b
132b
131b
160b
111b
143b
112b
300

Fig. 11

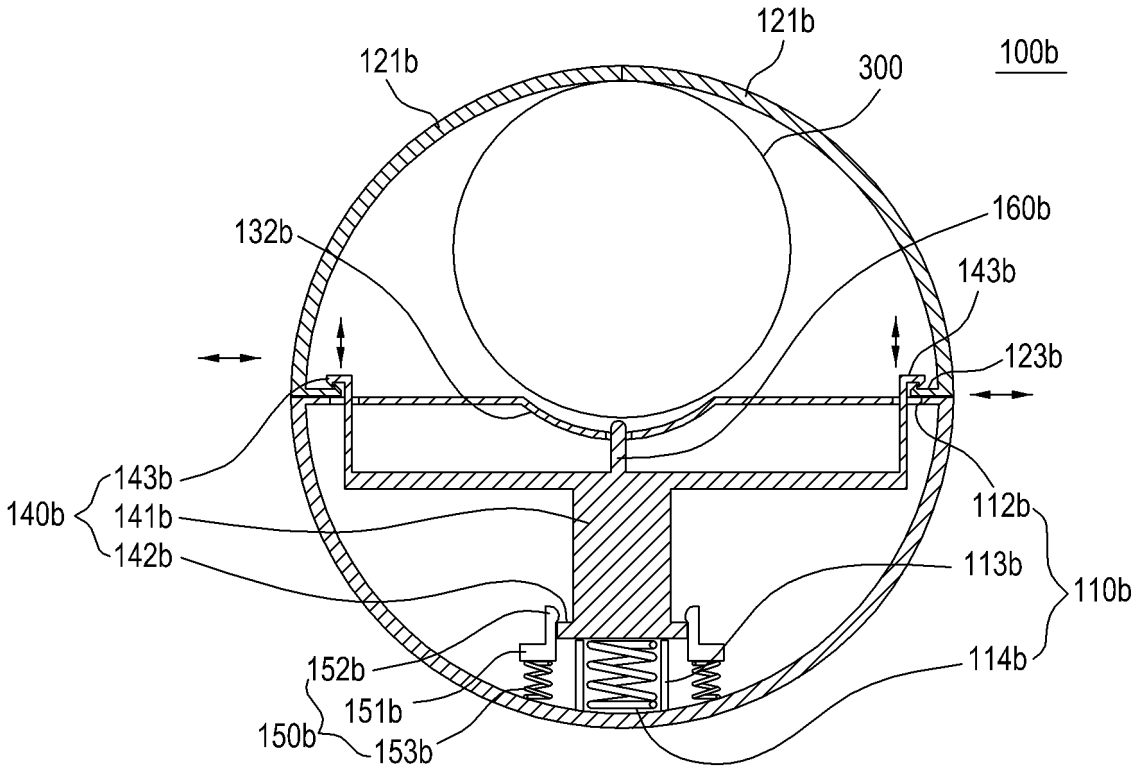
121b
121b
300
100b
160b
132b
143b
123b
143b
140b
141b
142b
112b
113b
110b
114b
152b
151b
150b
153b

Fig. 12

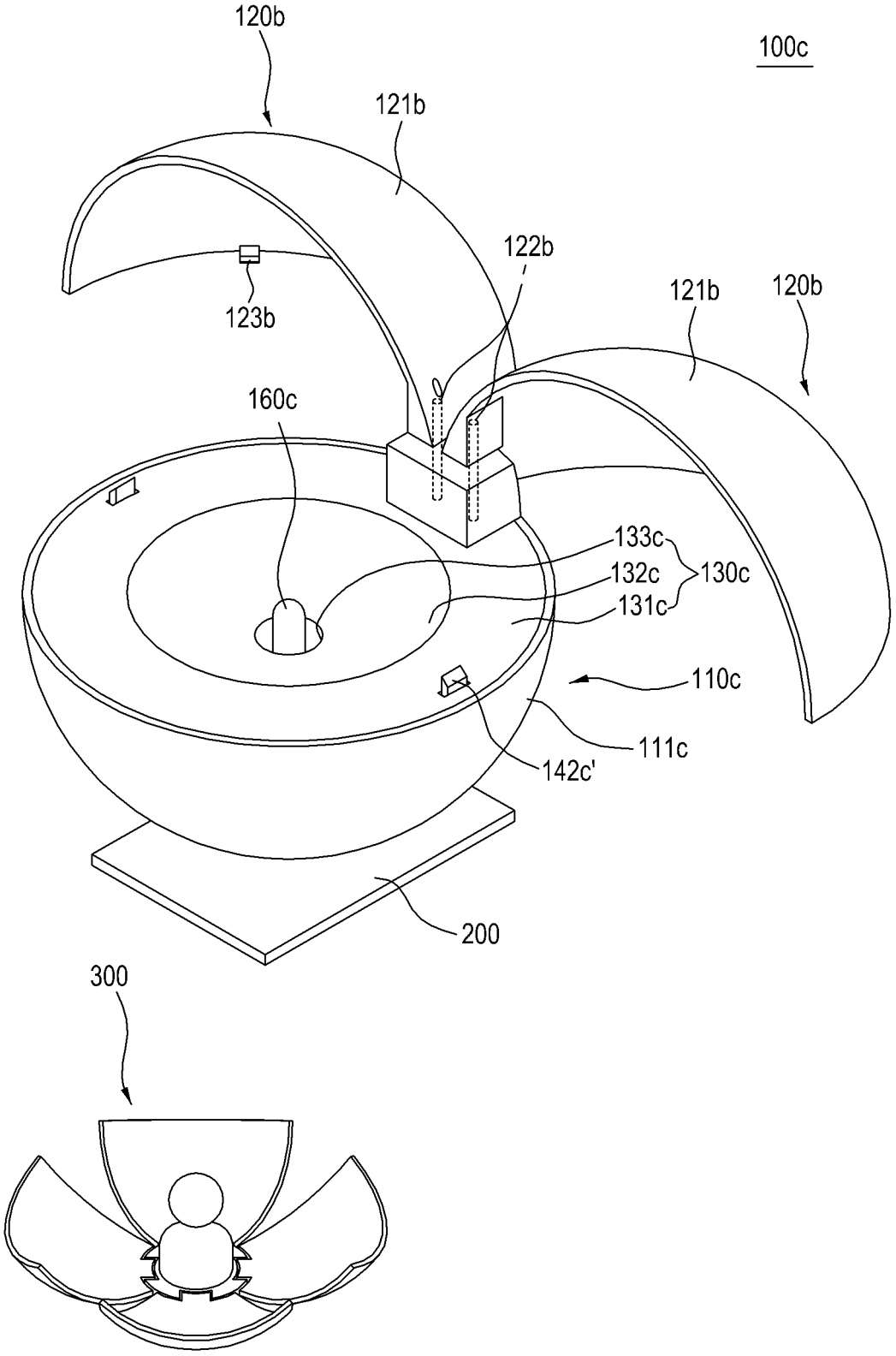
120b
100c
121b
122b
123b
121b
120b
160c
133c
132c
130c
131c
110c
111c
142c'
200
300

Fig. 13

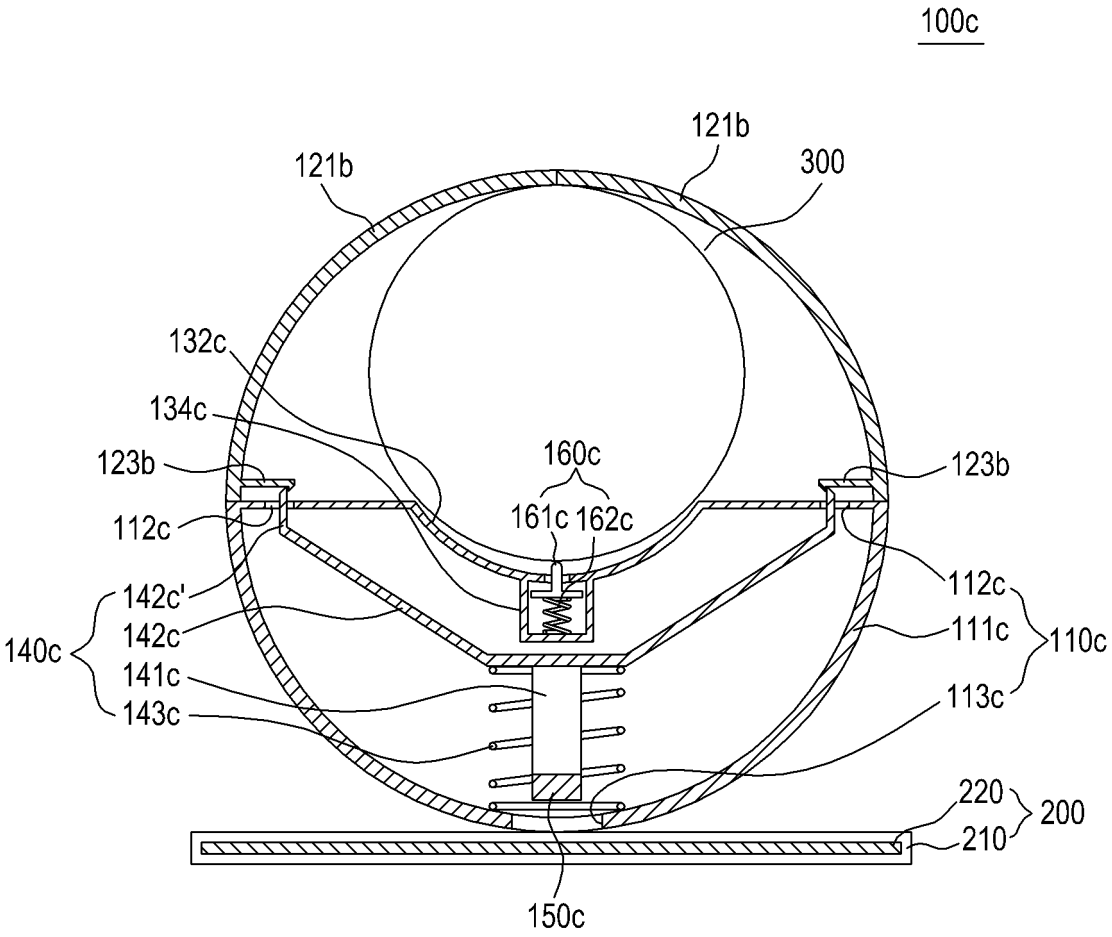
100c
121b
121b
300
132c
134c
123b
160c
123b
161c
162c
112c
112c
142c'
140c
142c
111c
110c
141c
113c
143c
220
200
210
150c

Fig. 14

REFERENCES CITED IN THE DESCRIPTION

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