



US 20250177876A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2025/0177876 A1**

YAMAGAMI et al.

(43) **Pub. Date:** **Jun. 5, 2025**

(54) **TOY COMPONENT AND DOLL TOY**

(71) Applicant: **BANDAI CO., LTD.**, Tokyo (JP)

(72) Inventors: **Atsushi YAMAGAMI**, Tokyo (JP);
Yusuke MOROOKA, Tokyo (JP)

(73) Assignee: **BANDAI CO., LTD.**, Tokyo (JP)

(21) Appl. No.: **18/845,207**

(22) PCT Filed: **Mar. 1, 2023**

(86) PCT No.: **PCT/JP2023/007506**

§ 371 (c)(1),

(2) Date: **Sep. 9, 2024**

(30) **Foreign Application Priority Data**

Mar. 11, 2022 (JP) 2022-038421

Publication Classification

(51) **Int. Cl.**

A63H 3/46 (2006.01)

A63H 3/16 (2006.01)

(52) **U.S. Cl.**

CPC *A63H 3/46* (2013.01); *A63H 3/16* (2013.01)

(57) **ABSTRACT**

To provide a toy component and a doll toy enabling maintenance of an aesthetic appearance by eliminating seams on a surface. Provided is a toy component of a doll toy of an assembly type, the toy component comprising a first part (302), a second part (2041) connected to the first part so as to be able to turn, and a third part (301) that at least partially accommodates the first part and the second part, wherein the third part has a first cavity internally and is formed as one piece without seams on a surface thereof and includes cover members (301a, 301b) that cover a connection portion between the first part and the second part when the first part and the second part are accommodated in the connected state in the first cavity of the third part.

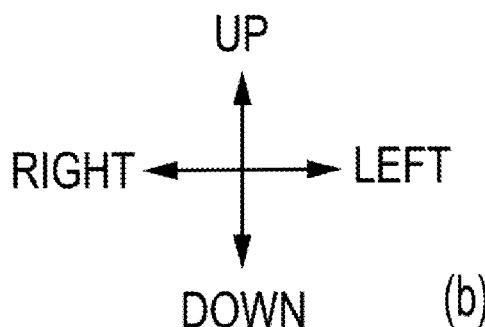
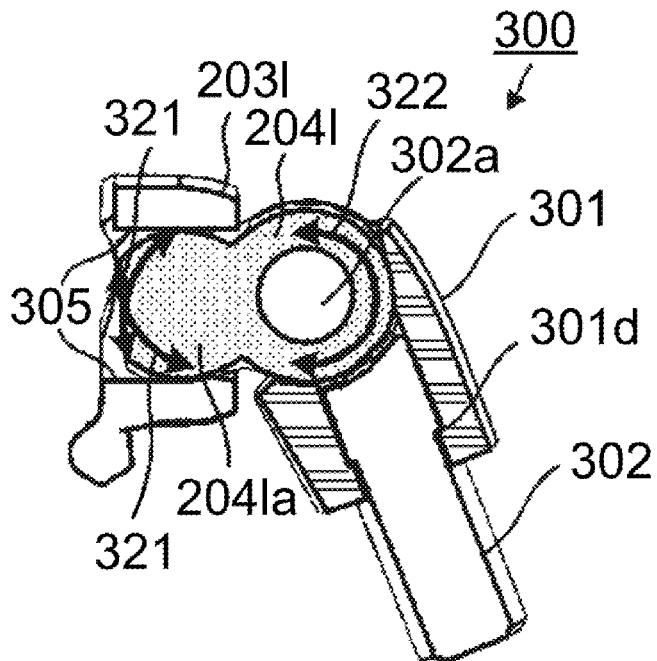


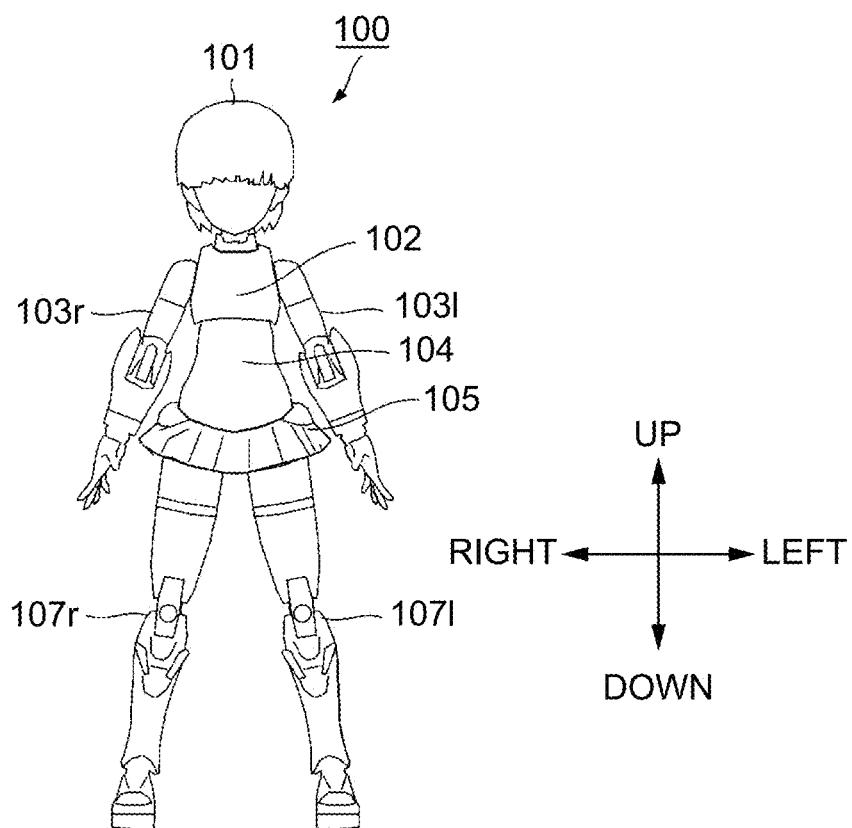
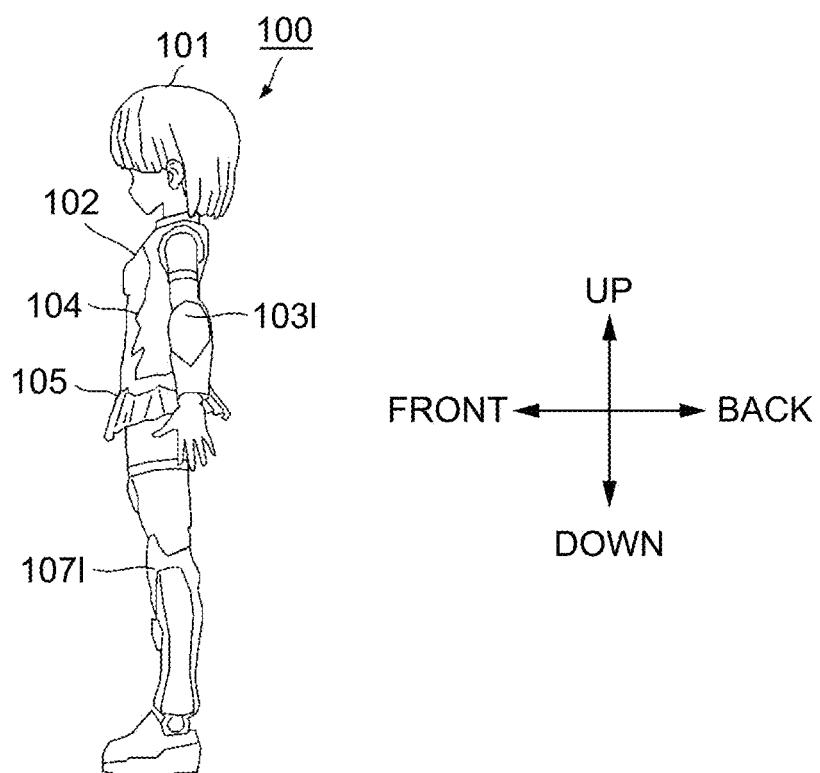
FIG. 1A**FIG. 1B**

FIG. 2

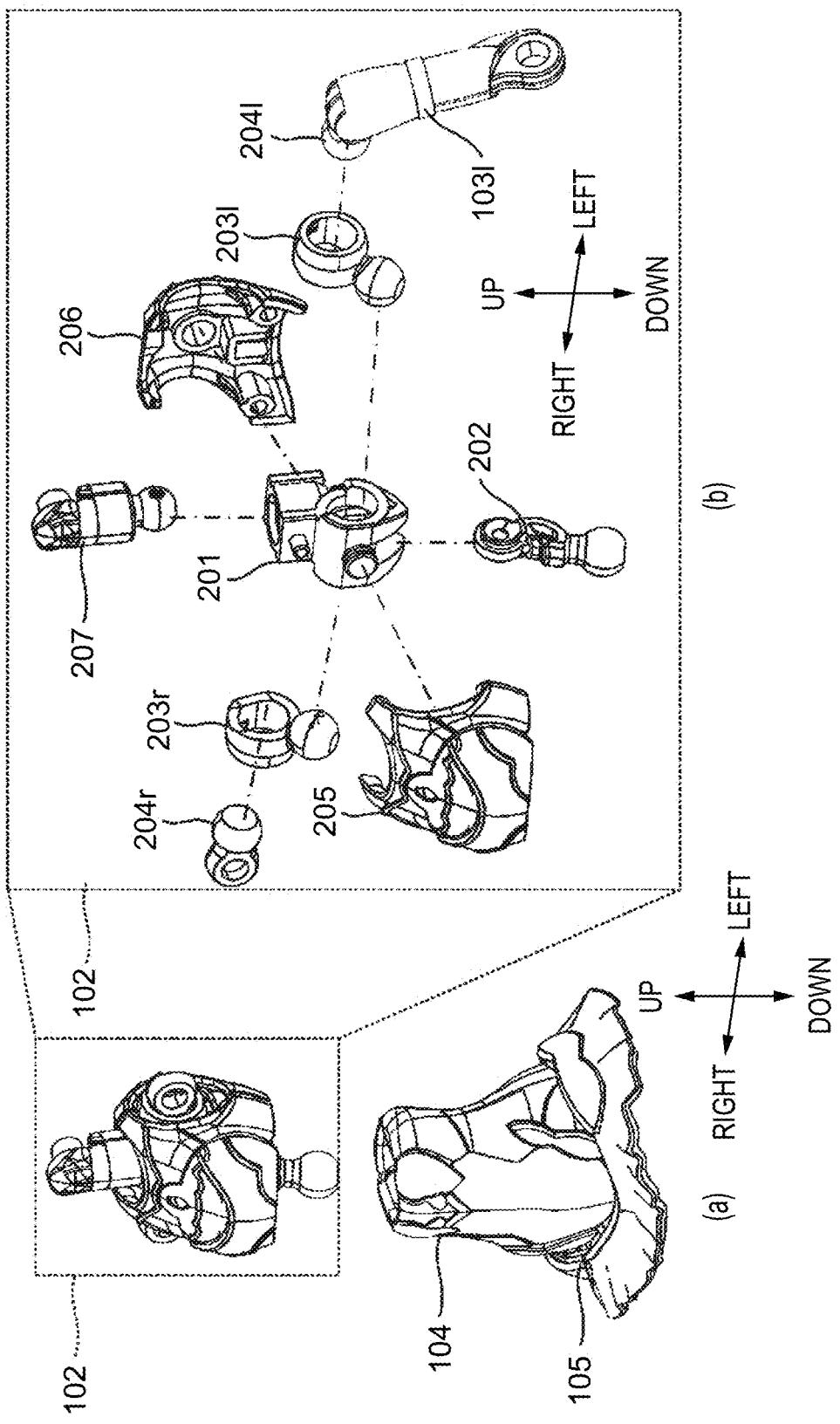
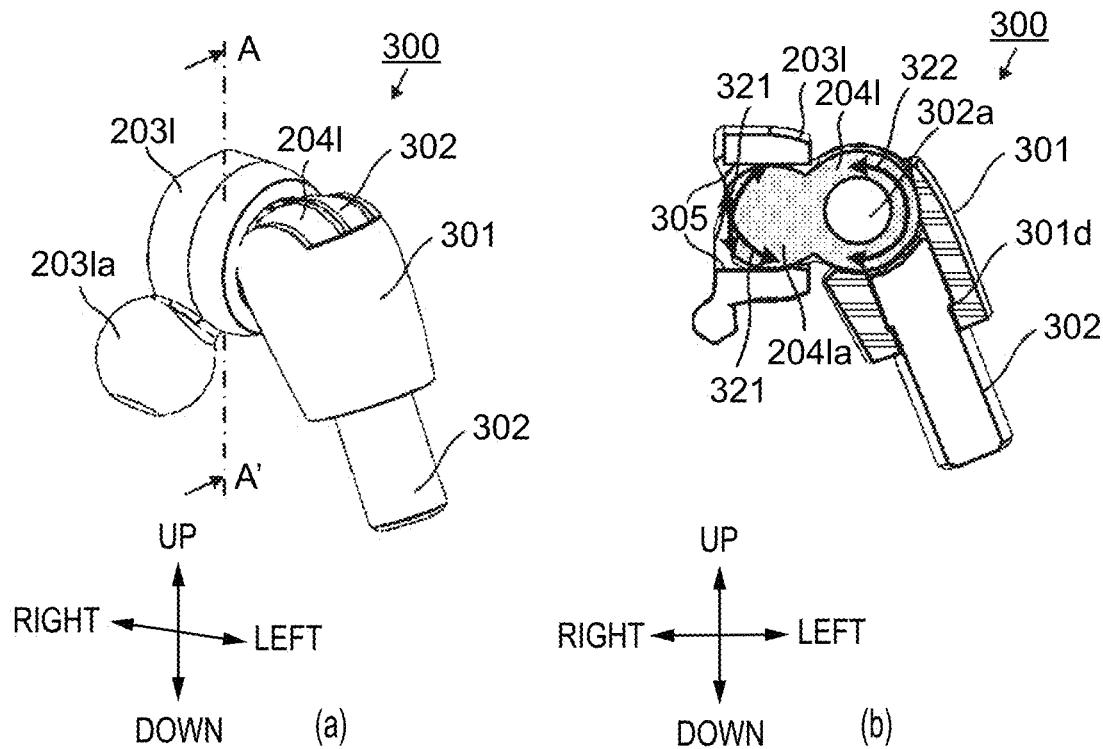
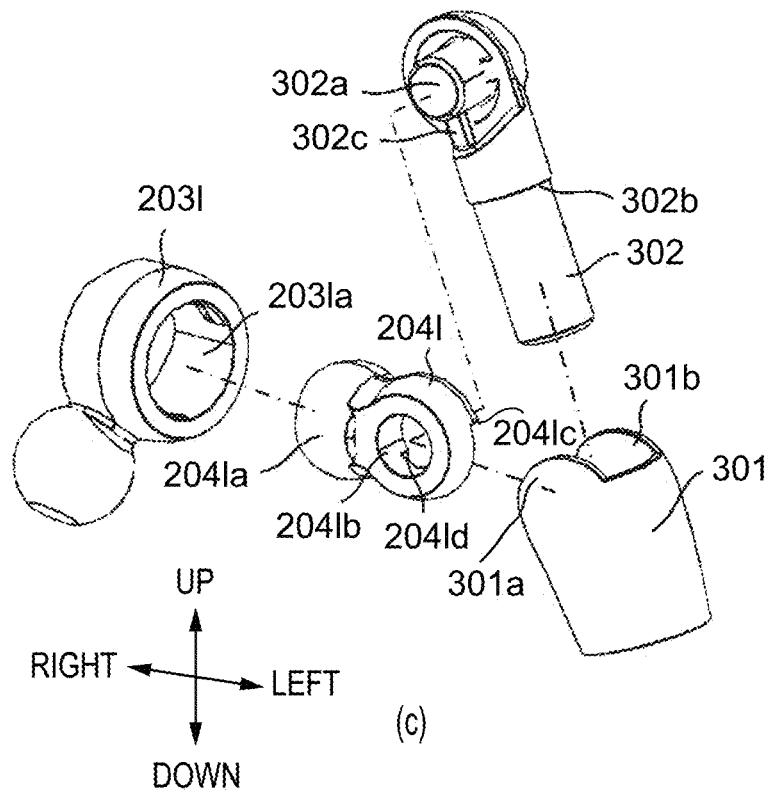


FIG. 3



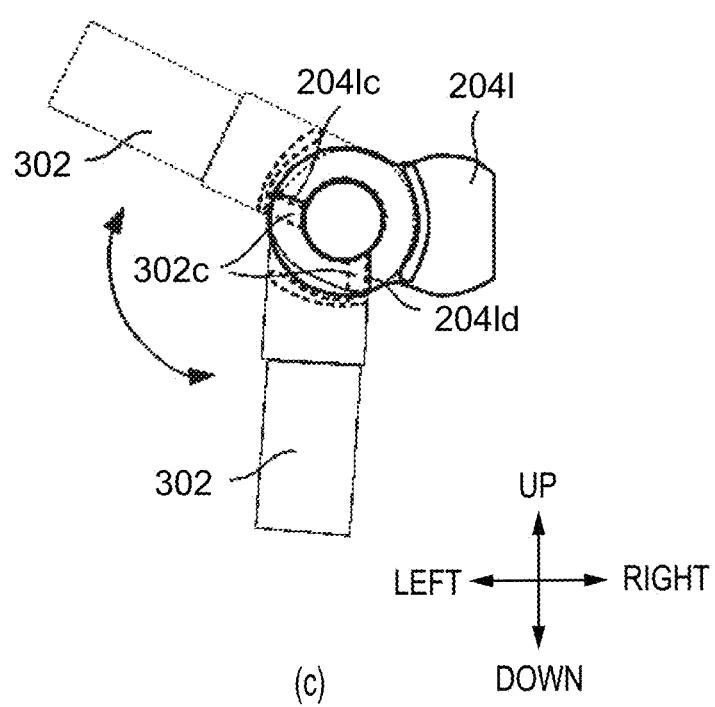
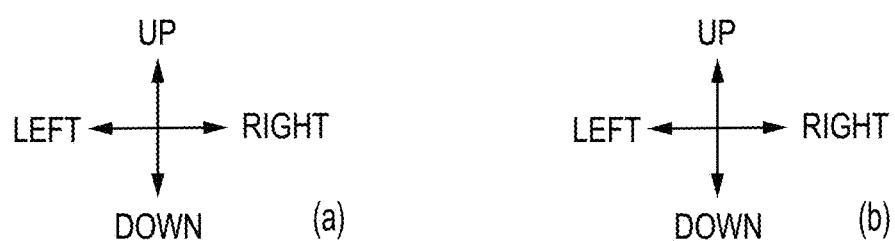
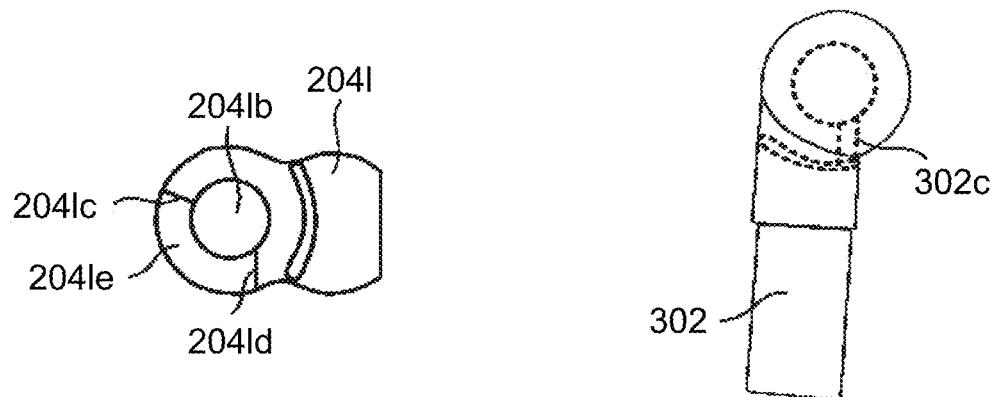
(a)

(b)



(c)

FIG. 4



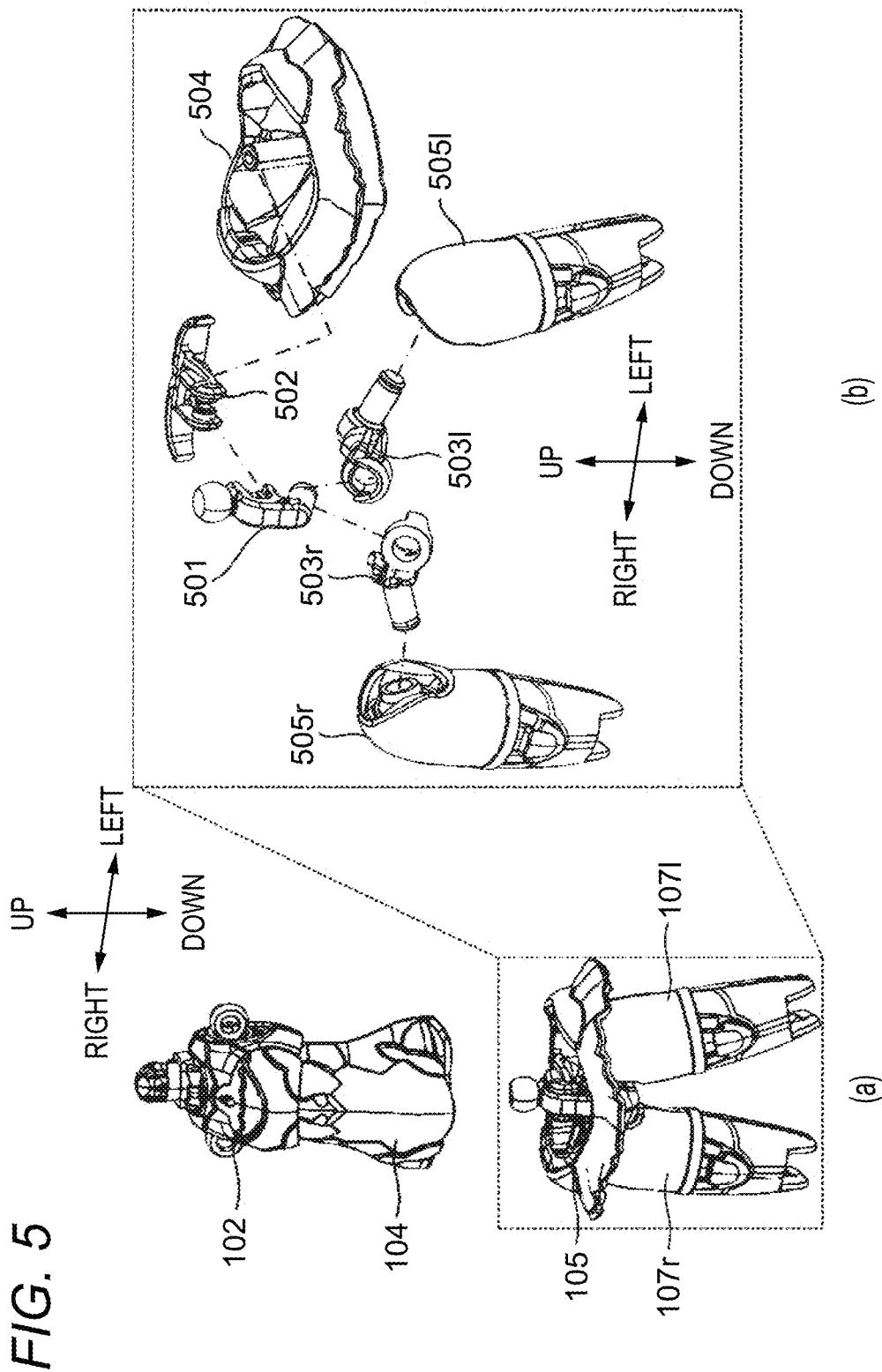
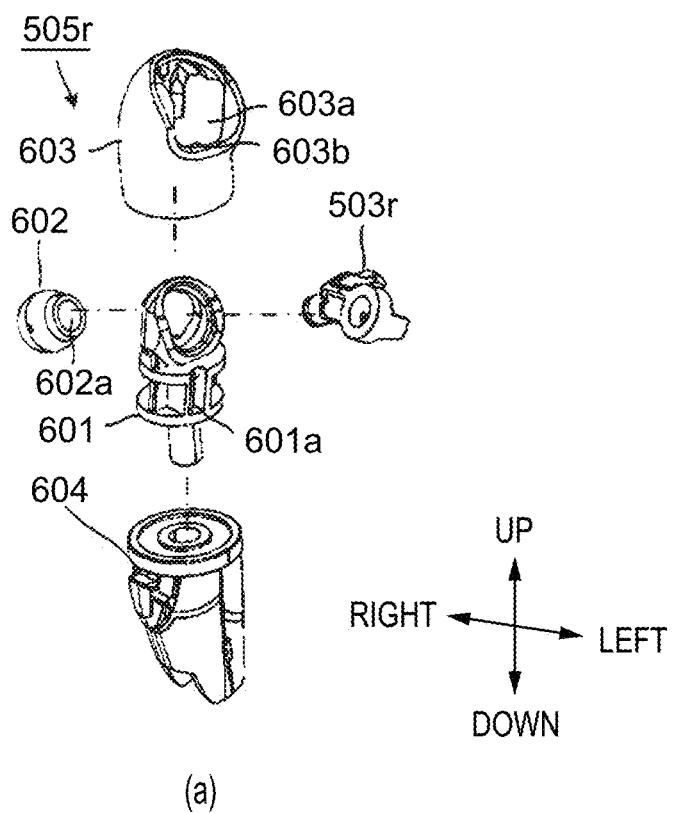
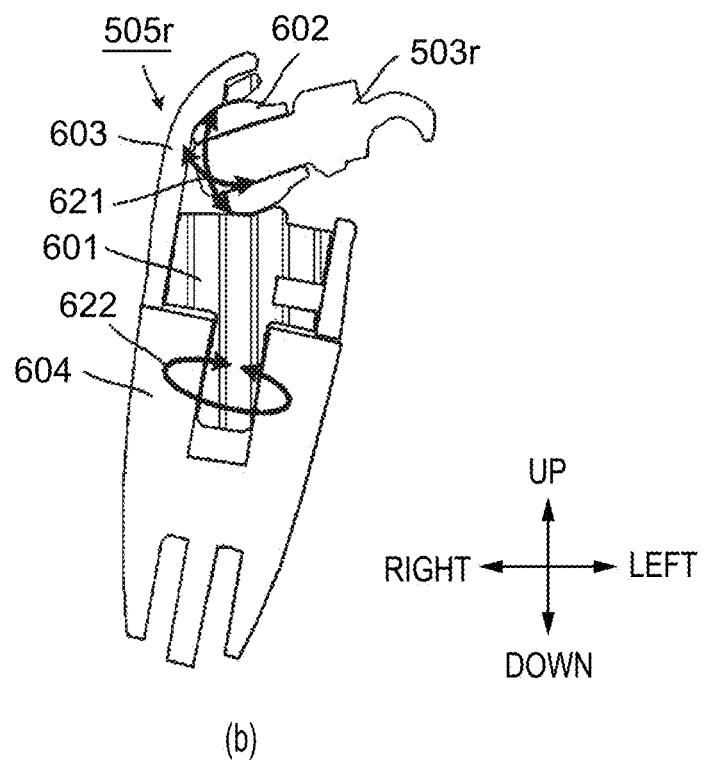


FIG. 6

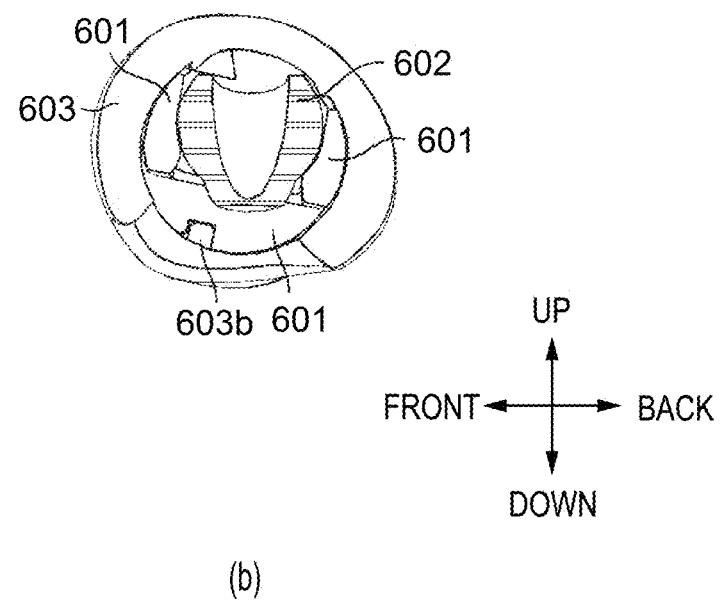
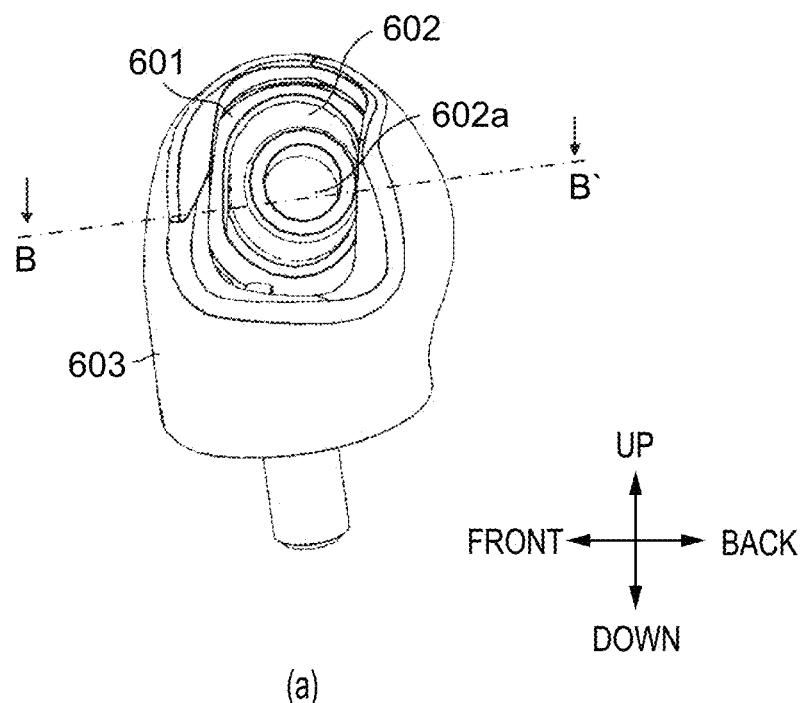


(a)



(b)

FIG. 7



TOY COMPONENT AND DOLL TOY

TECHNICAL FIELD

[0001] The present invention relates to a toy component and a doll toy.

BACKGROUND ART

[0002] An assembly toy (for example, a doll-type assembly toys) is assembled by combining a plurality of parts. For example, Patent Literature 1 describes a plastic model in which each part is assembled by combining two plastic parts, one on the front and one on the back. The plastic parts have projections and recesses formed on them, and the parts are joined by combining the projections and recesses.

CITATION LIST

Patent Literature

[0003] Patent Literature 1: JPH02-5103B

SUMMARY OF INVENTION

Technical Problem

[0004] However, when two parts are combined to form a part, when a seam (parting line) of a connecting part is visible from the outside, it may spoil an aesthetic appearance of some parts of the toy and may give a sense of discomfort to a viewer.

[0005] The present invention provides a toy component and a doll toy capable of maintaining an aesthetic appearance by eliminating a seam on a surface.

Solution to Problem

[0006] The present invention relates to, for example, a toy component of an assembling-type doll toy including a first part, a second part rotatably connected to the first part, and a third part that at least partially accommodates the first part and the second part, where the third part has a first cavity inside and is one-piece molded without any seam on a surface thereof, and includes a cover member that covers a connecting portion between the first part and the second part when the first part and the second part are accommodated in the first cavity of the third part with the first part and the second part connected to each other.

[0007] Further, the present invention relates to, for example, a toy component of an assembling-type doll toy including a fourth member, a fifth member that is rotatably connected to an opening of the fourth member, and a sixth member that accommodates the fourth member and the fifth member in a second cavity formed inside with the fourth member and the fifth member connected to each other, where the sixth member includes a first opening through which the fourth member and the fifth member is received in the second cavity and a second opening through which the accommodated fifth member connects to a second other member, and is one-piece molded without any seam on a surface thereof.

[0008] Furthermore, the present invention relates to an assembling-type doll toy including the toy component described above.

Advantageous Effects of Invention

[0009] According to the present invention, it is possible to provide a toy component and a doll toy capable of maintaining an aesthetic appearance by eliminating a seam on a surface.

BRIEF DESCRIPTION OF DRAWINGS

[0010] FIG. 1A is a diagram illustrating an example of an external front view of a doll toy according to an embodiment.

[0011] FIG. 1B is a diagram illustrating an example of an external side view of the doll toy according to the embodiment.

[0012] FIG. 2 is (a) an exploded perspective view of a torso and (b) an exploded perspective view of a chest of the doll toy according to the embodiment.

[0013] FIG. 3 is (a) a perspective view of, (b) a cross-sectional view of, and (c) an exploded view of a shoulder joint of the doll toy according to the embodiment.

[0014] FIG. 4 is a diagram for illustrating a rotational movement of the shoulder joint of the doll toy according to the embodiment.

[0015] FIG. 5 is (a) an exploded perspective view of the torso and (b) an exploded perspective view of a waist of the doll toy according to the embodiment.

[0016] FIG. 6 is (a) an exploded perspective view of, and (b) a cross-sectional view of a leg moving mechanism of the doll toy according to the embodiment.

[0017] FIG. 7 is (a) a perspective view of, and (b) a cross-sectional view of the leg moving mechanism of the doll toy according to the embodiment.

DESCRIPTION OF EMBODIMENTS

[0018] An embodiment is described in detail below with reference to the attached drawings. The following embodiment does not limit the invention as claimed, and not all combinations of features described in the embodiment are necessarily essential to the invention. Two or more features of a plurality of features described in the embodiment may be combined in any desired manner. Furthermore, the same reference numbers are used to refer to the same or similar configurations, and duplicate descriptions will be omitted.

[0019] In addition, in each figure, up, down, left, and right directions on a paper surface will be used in the description in the text as up, down, left, and right directions of components (or parts) in this embodiment. In the embodiment described below, the present invention uses acrylonitrile-butadiene-styrene (ABS) resin, styrene-butadiene copolymer, styrene-based special transparent resin (SBC), and the like as molding materials, but is not limited to these, and does not exclude the use of other materials (thermoplastic resins such as polyethylene, thermosetting resins, soft resins, metals, and the like).

Appearance of Doll Toy

[0020] First, with reference to FIGS. 1A and 1B, an example of an external configuration of a doll toy 100 according to this embodiment will be described. FIG. 1A illustrates an external front view of the doll toy 100. FIG. 1B illustrates an external side view of the doll toy 100. The

up/down, left/right, and front/back arrows indicate an orientation of the doll toy in the figure, and this also applies to the other figures.

[0021] The doll toy (doll body) 100 includes a head 101, a chest 102, arms 103r and 103l, an abdomen 104, a waist 105, and legs 107r and 107l. The doll toy 100 is a movable doll toy such as an assembling-type movable figure, and each part can be moved within a limited range caused by its relationship with other members. The head 101 is connected to the chest 102 by a spherical connecting member (hereinafter also referred to as a ball joint). The chest 102 is further connected to the arms 103 including the right arm 103r and the left arm 103l by a spherical connecting member, and the abdomen 104 is connected at the bottom. A detailed configuration of the chest will be described below. The waist 105 is connected to the abdomen 104. The Legs 107 including the right leg 107r and the left leg 107l are connected to the waist 105 and are covered with clothing accessories such as a skirt.

[0022] In the following, an upper body including the head 101, the chest 102, and the arms 103 will be referred to as an upper body. In addition, a lower body including the waist 105 and the legs 107r and 107l will be referred to as a lower body. The upper body and lower body are connected via the abdomen 104. In addition, the chest 102, the abdomen 104, and the waist 105 will be collectively referred to as a torso. In the following, as a joint structure according to this embodiment, a shoulder joint structure that connects the arm 103b to the chest 102 by a spherical connecting member (ball joint), and a hip joint structure that connects to the waist 105 will be described. However, there is no intention to limit the present invention, and the joint structure described below is not limited to the shoulder joint and hip joint, and can also be applied to other joints, such as elbow joints and knee joints.

Upper Body (Chest) Configuration

[0023] Next, with reference to FIG. 2, a detailed configuration of the chest 102 of the upper body of the doll toy 100 according to this embodiment will be described. Part (a) of FIG. 2 is an exploded perspective view of the chest 102, and the abdomen 104 and the waist 105 of the upper body. Part (b) of FIG. 2 is an exploded view of the chest 102 including the chest joint and the shoulder joint. The arms 103r and 103l are connected to the shoulder joint, but the arm 103r is omitted in FIG. 2.

[0024] As illustrated in part (a) of FIG. 2, the chest 102 is connected to the abdomen 104 by a spherical connecting part (ball joint). In other words, the chest joint according to this embodiment movably connects the chest 102 to the abdomen 104 by a ball joint. However, this is not intended to limit the invention, and connecting parts of other shapes may be used instead of the spherical connecting part.

[0025] As illustrated in part (b) of FIG. 2, the chest 102 is composed of a plurality of parts 201 to 207. The part 201 is a base part for a plurality of joints. The part 202 is inserted into the part 201 from below to form the chest joint. With the part 202 inserted into the part 201, the parts 203r and 203l are fitted in from both sides. This prevents the part 202 from falling out of the part 201.

[0026] The parts 204r and 204l are respectively connected to the parts 203r and 203l, which together with the part 201 form the shoulder joint. Furthermore, the arms 103r and 103l are respectively connected to the parts 204r and 204l.

In part (b) of FIG. 2, only the arm 103l is shown. The part 205, which is an external part of the chest, and the part 206, which is an external part of an upper back, are assembled so as to pinch the parts 201 to 203, thereby engaging and fixing the parts.

[0027] A recess is further formed in an upper portion of the part 201. A spherically shaped connecting part of the part 207 is connected to this recess. A neck joint of the doll toy 100 is formed by connecting the part 201 and the part 207. In this way, according to this embodiment, a chest joint, shoulder joint, and neck joint can be realized using the part 201, which serves as the base part of a plurality of joints, making it possible to achieve a variety of movements with fewer parts. Furthermore, when a spherically shaped connecting part is used in each joint, it can rotate in all directions within spatial limitations of the other parts.

Configuration of Shoulder Joint connected to Chest Joint

[0028] Next, a detailed configuration of the shoulder joint connected to the chest joint according to this embodiment will be described with reference to FIG. 3. Part (a) of FIG. 3 is a perspective view illustrating a portion of the configuration that forms the shoulder joint in the arm 103l. Here, this is referred to as a shoulder joint portion 300. Part (b) of FIG. 3 is a cross-sectional view illustrating an example of a cross-sectional structure of the shoulder joint portion 300 in part (a) of FIG. 3. The cross-sectional view in part (b) of FIG. 3 is a cross-section taken along line A-A' in part (a) of FIG. 3 as viewed from a direction of the arrow. Part (c) of FIG. 3 illustrates an example of an exploded view of the shoulder joint portion 300. Below, a description will be given with reference to parts (a) to (c) of FIG. 3.

[0029] In FIG. 3, the shoulder joint portion 300 is composed of a combination of the part 203l, the part 204l (second part), a part 301 (third part), and a part 302 (first part). In FIG. 3, symbols r and l used to distinguish between left and right parts are omitted, but FIG. 3 shows the configuration of the left arm, and it is assumed that similar parts are used in the right arm 103r.

[0030] The part 203l has a spherical connecting part 203la formed at one end and an opening 203lb formed at the other end. A spherical connecting part 204la formed at one end of the part 204l is connected to this opening 203lb so as to be rotatable in a direction indicated by an arrow 321 in part (b) of FIG. 3. Also, an opening 204lb is formed at the other end of the part 204l, and a protrusion 302a formed on an upper end side of the part 302 is connected to the opening 204lb so as to be rotatable in a direction indicated by an arrow 322. This range of rotation is restricted by the engagement between ends 204lc and 204ld of a recess provided on a connection surface side of the part 204l with the part 302 and a protrusion 302c provided below the protrusion 302a of the part 302. In addition, a connecting portion between the opening 204lb and the protrusion 302a is covered by cover members 301a, 301b on an upper end side of the part 301 so that it is not exposed to the outside. A shape of upper ends of the cover members 301a and 301b is arcuate to correspond to a trajectory of connecting part 204la when the part 204l rotates relative to the part 302. This ensures that the trajectory of the connecting part 204la is not obstructed when the part 204l rotates.

[0031] Here, the part 301 is formed in one-piece and has no seams on the surface. This makes it possible to make the

connecting part of the doll toy **100**, which has a structure that exposes the shoulders and bare skin, visually inconspicuous while eliminating the sense of discomfort caused by seams and giving the impression of bare skin. Also, the part **301** has a cavity (first cavity, through hole) formed inside that connects an upper opening and a lower opening, and the part **204l** and the part **302** are inserted into the cavity from the upper opening of the part **301** with the opening **204lb** and the protrusion **302a** connected. The above-described protrusion **302a** is formed on an upper end of the part **302**, and the other end side is configured as a cylindrical member that is inserted into the cavity. Also, the cylindrical member has a step **302b** (first step), and an inner diameter of the cylindrical member becomes thinner or different toward the other end side via the step **302b**. In FIG. 3, only one step is provided, but a plurality of steps may be provided by varying the inner diameter of the cylindrical member by three or more steps. A step corresponding to the step **302b** is also provided in the cavity within the part **301** (step **301d**: second step), and the step **301d** engages with the step **302b** to determine an insertion depth of the part **302** into the part **301**. In this case, a bottom end of the part **302** is maintained in a state of protruding from the cavity of the part **301**. Other parts that form the arm **103l** of the doll toy **100** are connected to the member protruding from the lower opening of the part **302**.

[0032] FIG. 4 is a diagram for illustrating a rotational movement of the part **204l** and the part **302**. Part (a) of FIG. 4 is a diagram illustrating the configuration of the part **204l** from a side opposite to the side shown in part (c) of FIG. 3, and a recess **204le** defined by the ends **204lc** and **204ld** is formed around the opening **204lb** on a connection surface side of the part **204l** with the part **302**. Part (b) of FIG. 4 is a diagram illustrating the configuration of the part **302** from a side opposite to the side shown in part (c) of FIG. 3, and the protrusion **302c** is indicated by a dotted line.

[0033] Part (c) of FIG. 4 shows the range of rotation when the part **204l** and the part **302** are rotatably connected and rotate. The protrusion **302c** engages with the recess **204le** and can move in the range from the end **204lc** to the end **204ld**, thus defining the range of rotation of the part **204l** relative to the part **302** (or vice versa).

Waist Configuration

[0034] Next, with reference to FIG. 5, a detailed configuration of the waist **105** of the doll toy **100** according to this embodiment will be described. Part (a) of FIG. 5 is an exploded perspective view of the chest **102**, the abdomen **104**, and the waist **105**. Part (b) of FIG. 5 is an exploded view of the waist **105**, including the waist joint and hip joint, and parts of the legs **107r** and **107l**.

[0035] As illustrated in part (a) of FIG. 5, the waist **105** is connected to the abdomen **104** by a spherical connecting part (ball joint). This allows the waist **105** to be connected to the abdomen **104** in a rotatable manner.

[0036] Next, as illustrated in part (b) of FIG. 5, the waist **105** is composed of at least a plurality of parts **501** to **504**. The part **501** is a part that serves as the base part of a plurality of movable mechanisms. The part **502** is rotatably connected to the part **501**. The part **502** is a part of the clothing of the doll toy **100**. More specifically, the part **502** is a pants part of the doll toy **100**. Therefore, in the doll toy **100** according to this embodiment, the pants part moves on an axis independent of the other movable mechanisms and other parts. The part **502** is further connected to the part **504**

that represents the buttocks and the skirt, which is a part of the clothing of the doll toy **100**. Therefore, the part **504** also rotates in accordance with the rotation of the part **502**. The parts **503r** and **503l** are each sequentially connected to a cylindrical portion formed at one end of the part **501**. This forms the hip joint of the doll toy **100**. The parts **503r** and **503l** are further respectively connected to parts **505r** and **505l**, which are part of the legs **107r** and **107l**.

Leg Movable Mechanism

[0037] Next, with reference to FIG. 6, a movable mechanism **505** of the leg connected to the hip joint according to this embodiment will be described. Part (a) of FIG. 6 illustrates an exploded view of the part **505r** of the leg **107r**. Part (b) of FIG. 6 illustrates a cross-sectional view of the part **503r** and the part **505r** when connected. The configuration of the movable mechanism for the right leg will be described with reference to FIG. 6, but the configuration of the left leg is similar and so will not be described.

[0038] As illustrated in part (a) of FIG. 6, the part **505r** of the leg **107r** further includes parts **601** to **604**. The part **601** (fourth member) is a base part of the part **505r**; and rotatably receives the spherical part **602** at an upper receiving portion. A rotation direction of the part **602** (fifth member) is a direction indicated by an arrow **621** in part (b) of FIG. 6, and the part **602** can be connected to the part **503r** via a connecting part **602a** when accommodated in the part **601**. The part **602** has a spherical shape and functions as a ball joint with respect to the part **503r**. The parts **601** and **602** are accommodated in a cavity (second cavity, through hole) **603a** provided inside the part **603** (sixth member). The cavity **603a** is formed to connect a lower opening of the part **603** that receives the parts **601** and **602** with an upper opening for exposing the connecting part **602a** of the part **602** to the outside of the part **603**.

[0039] A protrusion **603b** is formed on the inside of the cavity **603a**, and the protrusion **603b** engages with a recess **601a** provided in the part **601**, thereby enabling positioning of the parts **601** and **602** within the part **603**. This positioning mechanism makes it possible to align the connecting part **602a** of the part **602** with a position of the upper opening of the part **603**, ensuring connection with the part **503r**.

[0040] Here, the part **603** is formed in one-piece, and there are no seams on the surface. As a result, in the doll toy **100**, which has a structure that exposes the legs and bare skin, the connecting parts are made visually inconspicuous, while eliminating the sense of discomfort caused by seams and creating the impression of bare skin.

[0041] As illustrated in part (b) of FIG. 6, the part **503r** and the part **602** are assembled to form a ball joint, which is provided inside the leg **107r**. Therefore, the leg **107r** connected to the part **602** can rotate in all directions relative to the hip joint, within the limits of the other parts, as indicated by an arrow **521**. Furthermore, a cylindrical portion at the bottom of the part **601** is rotatably inserted into a recess of the part **604**. Therefore, in the leg **107r**, a portion below the part **604** can rotate in a direction of an arrow **522** relative to the part **601**.

[0042] Next, the structure of the movable mechanism **505** of the leg **107** will be further described with reference to FIG. 7. Part (a) of FIG. 7 is a diagram illustrating a state in which the parts **601** and **602** are connected and accommodated in the part **603** as part of the configuration of the movable mechanism **505**. The part **602** exposes the con-

necting part **602a** to the outside from the opening in the part **601** through the upper opening in the part **603**, making it possible to receive the part **503r**.

[0043] Part (b) of FIG. 7 is a top view of the cross section taken along line B-B' in part (a) of FIG. 7. From part (b) of FIG. 7, it can be seen that when the parts **601** and **602** are accommodated within the part **603**, the part **602** is pinched between the part **601** and the part **603** and cannot fall out of the part **603**. Specifically, the part **602** is disposed so as to be pinched between an inner wall of the opening of the part **601** and an inner wall of the cavity of the part **603**. The inner wall of the opening of the part **601** has a shape that corresponds to a spherical outer shape of the part **602**, allowing the part **602** to rotate within the part **601**. It can also be seen that in the state shown in part (b) of FIG. 7, the recess of the part **601** and the protrusion **603b** of the part **603** engage and are positioned.

[0044] As described above, the toy components according to this embodiment relate to the configuration of the parts exposed to the outside, such as the shoulders and legs of an assembling-type doll-shaped toy body. In either configuration, by integrally forming the parts exposed to the outside, it is possible to eliminate the seams and parting lines that would occur when combining two parts as in the related art, so that a viewer does not feel visually uncomfortable and can feel a natural bare skin feel. In addition, the integrated part forms a joint portion, accommodates a connecting member made of at least two parts inside, and cover the connecting member to prevent the joint portion from being exposed to the outside. In this embodiment, the case where it is applied to the bare skin parts of the shoulders and legs of a toy body is described, but it can also be applied to parts where the presence of seams and parting lines would cause discomfort, such as when single-colored clothing is depicted.

REFERENCE SIGNS LIST

[0045] **100**: doll toy

[0046] **101**: head

[0047] **102**: chest

[0048] **103r, 103l**: arm

[0049] **104**: abdomen

[0050] **105**: waist

[0051] **107r, 107l**: leg

1. A toy component of an assembling-type doll toy, comprising:

a first part;

a second part rotatably connected to the first part; and a third part that at least partially accommodates the first part and the second part, wherein

the third part

has a first cavity inside and is one-piece molded without any seam on a surface thereof, and

includes a cover member that covers a connecting portion between the first part and the second part when the first part and the second part are accommodated in the first cavity of the third part with the first part and the second part connected to each other.

2. The toy component according to claim 1, wherein the first part is configured to include a cylindrical member having at least two different inner diameters, the different inner diameters forming a first step, and

the third part includes a second step in the first cavity, and

is configured such that when the cylindrical member of the first part is inserted into the first cavity of the third part, the first step and the second step engage so as to determine an insertion depth of the first part relative to the third part.

3. The toy component according to claim 2, wherein the second part includes a connecting part for connecting to a first other part at an end opposite to an end connected to the first part, and

an upper end of the cover member of the third part has a shape corresponding to a trajectory of the connecting part in response to rotation of the second part relative to the first part.

4. The toy component according to claim 1, wherein the second part has a recess on a connection surface with the first part to define a range of the rotation, and the second part is configured to be rotatable with respect to the first part within a range from one end to the other end of the recess.

5. The toy component according to claim 4, wherein the first part has a first protrusion and a second protrusion, the second part has an opening that is rotatably coupled to the first protrusion, and the recess is provided around the opening, and the second protrusion engages with the recess and moves in accordance with the rotation within the range from the one end to the other end.

6. A toy component of an assembling-type doll toy, comprising:

a fourth member;

a fifth member that is rotatably connected to an opening of the fourth member; and

a sixth member that accommodates, in a second cavity formed inside thereof, the fourth member and the fifth member with the fourth member and the fifth member connected to each other, wherein

the sixth member

includes a first opening through which the fourth member and the fifth member is received in the second cavity, and a second opening through which the accommodated fifth member connects to a second other member, and

is one-piece molded without any seam on a surface thereof.

7. The toy component according to claim 6, wherein the fourth member includes a recess, the sixth member includes a protrusion within the second cavity, and

the recess and the protrusion are engaged so that a connecting part of the fifth member with the second other member is positioned in the second opening.

8. The toy component according to claim 6, wherein the fifth member is disposed so as to be pinched between an inner wall of the opening of the fourth member and an inner wall of the second cavity of the sixth member in a state in which the fifth member is connected to the fourth member and accommodated in the sixth member.

9. An assembling-type doll toy comprising the toy component according to claim 1.

10. An assembling-type doll toy comprising the toy component according to claim 6.

* * * * *