



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
23.05.2018 Bulletin 2018/21

(51) Int Cl.:
A63H 1/00 (2006.01)

(21) Application number: **17196427.3**

(22) Date of filing: **13.10.2017**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(71) Applicant: **Tomy Company, Ltd.**
Katsushika-ku
Tokyo 124-8511 (JP)

(72) Inventor: **MURAKI, Makoto**
Katsushika-ku, Tokyo 124-8511 (JP)

(74) Representative: **Bates, Philip Ian**
Reddie & Grose LLP
The White Chapel Building
10 Whitechapel High Street
London E1 8QS (GB)

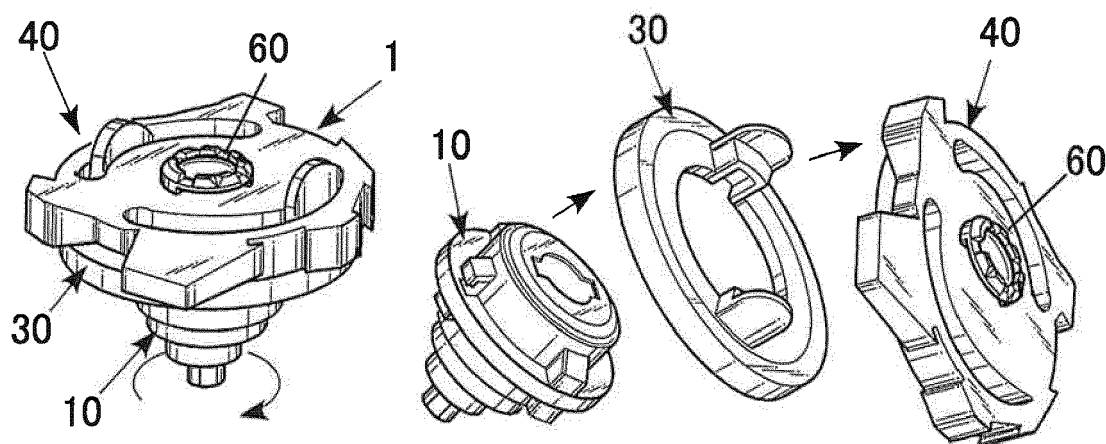
(30) Priority: **18.10.2016 JP 2016204636**

(54) **TOY TOP**

(57) A toy top includes three components. A first component has a hole. A second component has an insertion unit which can be inserted in the hole to a first depth position, and the second component can be turned manually. A third component is prevented from moving in a depth direction in the hole when attached to the first component. A groove is provided with a guide section

which makes the protrusion slide against an inner surface of a groove wall on one side to make the insertion unit rise to a second depth position and which prevents the insertion unit from falling out. The third component has a part which functions as a stopper that prevents the insertion unit from moving to a first depth position direction.

FIG.1



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a toy top.

2. Description of Related Art

[0002] Traditionally, there is known a toy top which includes a configuration where an upper layer member having a function to attack the opponent's toy top, a middle layer member having a function to determine the height of the toy top and a lower layer member having a function to determine the moving manner of the toy top are layered (for example, see Japanese Utility Model No. 3151700).

[0003] With respect to such toy top, a plurality of types of upper layer member, middle layer member and lower layer member are provided and a toy top is formed by assembling one upper layer member, one middle layer member and one lower layer member each of which is selected from the plurality of types thereof. Here, a screw is used to connect the upper layer member and the middle layer member.

[0004] However, especially in a toy top used for a battle game, the following problems exist in a case where a screw type connecting member (component) is used.

[0005] That is, the connecting member might become loose or come off when an impact force is applied in the direction that makes the connecting member become loose when the toy tops collide with each other in a toy top battle. Specifically, in the case where the connecting member is used at the center section of the body of the toy top and if an impact force is applied to the body, a large force is applied to the connecting member and it is easily loosened. When the connecting member becomes loose, the toy top loses its original attacking function. Further, when the connection member falls out, the connecting member and other components will fly away.

[0006] Here, although the connecting member which connects the upper layer member and the middle layer member is described above, the same problems also exist in the case where the components other than the connecting member are assembled by using screw type connecting members.

SUMMARY OF THE INVENTION

[0007] The present invention is made in view of the above problems and an object is to provide a toy top having a configuration that can reliably prevent predetermined components from falling out.

[0008] According to an aspect of the preset invention, there is provided a toy top, including: a first component having a hole whose opening is on a surface side; a second component having an insertion unit which can be

inserted in the hole to a first depth position from the opening, the second component can be turned manually; and a third component which is prevented from moving in a depth direction in the hole in a state where the third component is detachably attached to the first component, wherein a protrusion is formed on one surface which is either an inner peripheral wall of the hole of the first component or an outer peripheral wall of the insertion unit of the second component and a groove in which the protrusion enters is formed on the other surface which is either of the inner peripheral wall of the hole or the outer peripheral wall of the insertion unit that faces the one surface, the groove is provided with a guide section which, with the insertion unit being turned in a predetermined direction by a turning operation of the second component which is in the state where it is inserted in the hole to the first depth position, makes the protrusion slide against an inner surface of a groove wall on one side to make the insertion unit rise to a second depth position which is not as deep as the first depth position and which prevents the insertion unit from falling out by an inner surface of the groove wall on the other side, and the third component has a part which functions as a stopper that prevents the insertion unit from moving to a first depth position direction by facing a part of the second component which is at the second depth position in a depth direction of the hole and by coming in contact with the part of the second component when the third component is attached to the first component.

[0009] According to another aspect of the present invention, there is provided a method of attaching toy top components, including: inserting of the insertion unit of the second component in the hole of the first component to the first depth position; turning of the insertion unit in the predetermined direction by turning the second component; guiding of the insertion unit to the second depth position by making the protrusion slide against the inner surface of the groove wall on one side of the guide section; and attaching of the third component to the first component.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The present invention will become more fully understood from the detailed description given hereinbelow and the appended drawings which are given by way of illustration only, and thus are not intended as a definition of the limits of the present invention, and wherein:

FIG. 1 illustrates how to play with a toy top according to an embodiment of the present invention;
FIG. 2 is an exploded perspective view of the toy top according to the embodiment;
FIG. 3 is an exploded cross sectional perspective view of the toy top according to the embodiment;
FIG. 4 is a bottom view of a spinning shaft of a shaft unit of the toy top;

FIG. 5 is a perspective view of a pressing member of the toy top;

FIG. 6 is a perspective view of a spinning shaft of an identifying member of the toy top;

FIG. 7 is a development view of a groove of the toy top;

FIG. 8A to FIG. 8D are diagrams used for describing an attachment configuration of the identifying member according to the embodiment;

FIG. 9A and FIG. 9B are operation views illustrating the engagement of a toy top main body, a body and a flywheel in the toy top according to the embodiment;

FIG. 10 is a perspective view of an example of a launcher for spinning the toy top according to the embodiment; and

FIG. 11 is a perspective view illustrating a part of a modification example of the toy top according to the embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0011] Hereinafter, a toy top according to the present invention will be described on the basis of the embodiment illustrated in the drawings.

GENERAL CONFIGURATION

[0012] FIG. 1 illustrates how to play with a toy top of the present invention according to the embodiment of the present invention, FIG. 2 is an exploded perspective view of the toy top according to the embodiment, and FIG. 3 is an exploded cross sectional perspective view of the toy top according to the embodiment. As used herein, the terms up-down, right-left and front-rear represent the respective directions as illustrated in FIG. 2 and FIG. 3.

[0013] The toy top 1 of the embodiment is of a type that can be used in a so-called "top battle game". Specifically, the toy top 1 can be used in a battle game in which a player wins the game when an opponent toy top 1 is disassembled as illustrated in the right part of FIG. 1 by the impact force of a collision between toy tops.

[0014] As illustrated in FIG. 2 and FIG. 3, the toy top 1 is composed of a shaft unit 10 as the lower structure, the shaft unit 10 being a driver, and a performance changing ring 30 and a body 40 which are layered to form the upper structure.

DETAILED CONFIGURATION

1. Shaft Unit 10

[0015] As shown in FIG. 2, the shaft unit 10 includes a spinning shaft 11 in the lower part, a flange 12 in the middle part in the up-down direction and a cylinder 13 in the upper part.

[0016] Among the above, the flange 12 and the cylinder

13 are formed integrally and the upper section of the shaft unit is configured with the flange 12 and the cylinder 13. The flange 12 and the cylinder 13 are fixated to the lower section of the shaft unit with screws 11c (see the bottom view illustrated in FIG. 4).

[0017] The lower section of the shaft unit has a shape where it narrows gradually in steps as approaching the tip of the spinning shaft 11 from the flange 12 and is formed in an approximately reversed cone shape as a whole.

[0018] In each of the flange 12 and the cylinder 13, the two holes 14 are respectively formed at the positions that face each other in the front-rear direction having the axis of the spinning shaft 11 therebetween. On the other hand, as shown in FIGS. 2 and 4, protruding pieces 11a that protrude toward outside in the diameter direction are formed at the lower section of the shaft unit at the positions corresponding to the holes 14 of the flange 12. The protruding pieces 11a are disposed below the holes 14 of the flange 12. The upper surfaces of the protruding pieces 11a form the after-mentioned seat units.

[0019] Further, on the cylinder 13, two protrusions 15 are respectively formed at the positions facing each other in the left-right direction having the axis of the spinning shaft 11 therebetween. The outer surfaces of the protrusions 15 are in flush with the outer periphery of the flange 12. Further, at the lower section of the shaft unit, protrusions 11b which protrude toward outside in the diameter direction are formed at the positions corresponding to the protrusions 15 as shown in FIGS. 2 and 4. At the parts corresponding to the protrusions 15 and 11b, the flange 12 and the cylinder 13 are fixated to the lower section of the shaft unit with screws 11c.

[0020] Further, as shown in FIG. 3, a cylindrical pillar 16 is provided inside the cylinder 13 so as to stand. The base end of the cylindrical pillar 16 is coupled with the lower section of the shaft unit. Although it is not limitative in any way, the upper end of the cylindrical pillar 16 is set to be higher than the upper end of the cylinder 13. At the upper end section of the cylindrical pillar 16, two hooks (the second hooks) 17 that protrude toward outside in the diameter direction are respectively formed at the positions that face each other in the front-rear direction having the axis of the spinning shaft 11 therebetween.

[0021] The shaft unit 10 further includes a cylindrical pressing member 18. Although the pressing member 18 is made of synthetic resin here, it can be made of metal. The pressing member 18 is provided inside the cylinder 13 so as to surround the outer circumference of the cylindrical pillar 16.

[0022] As shown in FIG. 5, the pressing member 18 includes a cylinder unit 18a, a ceiling 18b and legs 18c.

[0023] The ceiling 18b is provided at the upper end of the cylinder unit 18a. The ceiling 18b includes a hole 18d formed in the shape that corresponds to the upper end part of the cylindrical pillar 16.

[0024] Further, the legs 18c are formed at the lower

end part on the outer periphery of the cylinder unit 18a. Two legs 18c are respectively formed at the positions that face each other in the front-rear direction having the axis of the spinning shaft 11 therebetween. Each of the legs 18c is formed of a horizontal unit 180c which protrudes horizontally from the cylinder unit 18a and a vertical unit 181c which extends downward in the vertical direction from the tip of the horizontal unit 180c.

[0025] The pressing member 18 having the above configuration is provided so that the legs 18c are inserted in the holes 14. The holes 14 are formed so that their size in the up-down direction are larger than the length of the legs 18c. Further, the pressing member 18 is biased toward upward by a spring 20. With respect to the pressing member 18, the legs 18c are restricted from moving upward at the upper edge of the holes 14 and in the normal state, the upper end of the pressing member 18 is at the same height as the upper end of the cylinder 13.

[0026] On the upper surface of the ceiling 18b of the pressing member 18, two ridges (protrusions) 21 which extend in the diameter direction are respectively formed at the positions that face each other in the left-right direction having the axis of the spinning shaft 11 therebetween.

2. Performance Changing Ring 30

[0027] In the embodiment, the performance changing ring 30 is constituted by a flywheel. The performance changing ring 30 has a plate shape. On the bottom face of the performance changing ring 30, an annular step 31 is formed which can house the flange 12 of the shaft unit 10 from the lower side. Further, on the upper face of the performance changing ring 30, two protrusions 32 which protrude upward are respectively formed at the positions that face each other in the right-left direction having the axis of the spinning shaft 11 therebetween. On the lower parts of the protrusions 32, recesses 33 are respectively formed which can house the protrusions 15 of the shaft unit 10 from the lower side. Further, on the upper face of the performance changing ring 30, tongues 34 are formed which extend upward along the outer side of the respective protrusions 32. The tongues 34 protrude higher than the protrusions 32. Alternatively, the performance changing ring 30 may be constituted by a member that includes a protrusion on the outer peripheral face for facilitating an attack on an opponent toy top 1 or a member that includes a recess on the outer peripheral face for averting an attack from the opponent toy top 1. Such a member may be provided instead of or integrally with a flywheel.

3. Body 40

[0028] The body 40 has a disk shape. As illustrated in FIG. 2, the body 40 includes a base 400 and a transparent cover 401 that has approximately the same shape as the base 400 in the plan view and is placed on the base 400.

[0029] In the outer periphery of the body 40, an uneven pattern 40a is formed. Further, at the center of the base 400, a round hole 41 is formed. The transparent cover 401 covers the part excluding the round hole 41 and the after-mentioned arc slits 46. In the bottom face of the body 40, a circular recess 42 is formed which can house the protrusions 32 of the performance changing ring 30 from the lower side.

[0030] The circular recess 42 is defined by an inner peripheral wall 43a, and two hooks (first hooks) 44 which protrude inward in the radial directions are respectively disposed on the lower end of the inner peripheral face of the inner peripheral wall 43a at the positions that face each other in the front-rear direction having the axis of the spinning shaft 11 therebetween.

[0031] Further, at the center section in the up-down direction on the inner surface of the inner peripheral wall 43a, two protrusions 47 which protrude in the radial directions are respectively disposed at the positions that face each other in the right-left direction having the axis of the spinning shaft 11 therebetween.

[0032] Furthermore, on the lower end surface of the inner peripheral wall 43a, two irregular units 45 which is formed by concaves and recesses continuing in a line and which engage with the ridges 21 are respectively disposed at the positions that face each other in the right-left direction having the axis of the spinning shaft 11 therebetween.

[0033] Further, the circular recess 42 of the body 40 is also defined by a ceiling wall 43b, and arc slits 46 are formed in the roof wall 43b, into which the tongues 34 of the performance changing ring 30 can be inserted from the lower side. The arc slits 46 have such a length that allows the tongues 34 to move an adequate distance.

4. Identifying member 60

[0034] FIG. 6 is a perspective view illustrating the identifying member 60. The identifying member 60 is attached to the round hole 41. The identifying member 60 is used for identifying the toy top 1 and the player.

[0035] Although it is not illustrated in the drawings, identifying members 60 having different designs and/or colors from each other are provided for identifying one another, and the one identifying member 60 selected by a player is attached to the round hole 41.

[0036] The identifying member 60 is formed in an approximately short cylindrical shape as a whole. The upper surface center section of the identifying member 60 is concaved to form a mortar shape, and decoration bumps 61 and operational recesses 62 are formed on the edge that surrounds the concave, two operational recesses 62 being respectively formed at the positions that face each other having the axis of the spinning shaft 11 therebetween. The flange 12 of the shaft unit 10 can be inserted in the operational recesses 62, and the shaft unit 10 which is inserted in the operational recesses 62 is moved so as to operate the identifying member 60.

[0037] On the outer periphery of the identifying member 60, two grooves 63 in which the protrusions 47 enters when the identifying member 60 is inserted in the round hole 41 are respectively formed at the positions that face each other having the axis of the identifying member 60 therebetween. Each groove 63 includes an introduction section 63a which extend in the axis direction of the identifying member 60, a guide section 63b having a part that inclines with respect to the introduction section 63a and connects with the introduction section 63a, and an engaging section 63c which extends in the direction orthogonal to the axis of the identifying member 60. Among these sections, the introduction section 63a guides the identifying member 60 to the first depth position in the round hole 41 when the identifying member 60 is inserted in the round hole 41. Further, the guide section 63b guides the identifying member 60 which is at the first depth position to the second depth position that is not as deep as the first depth position by the protrusions 47 sliding along the groove walls with the rotation. Furthermore, the engaging section 63c prevents the identifying member 60 from falling out from the round hole 41 due to the groove walls and the protrusions 47 engaging with each other at the second depth position.

[0038] FIG. 8A to FIG. 8D illustrate the attachment configuration of the identifying member 60. The attachment of the identifying member 60 is carried out as described below.

[0039] First, in the state where the protrusions 47 are matched with the entrances of the introduction sections 63a in the up-down direction (FIG. 8A), the identifying member 60 is inserted in the round hole 41 from above (FIG. 8B). In such way, the identifying member 60 reaches the first depth position in the round hole 41. Next, the flange 12 of the shaft unit 10 is inserted in the operational recesses 62 and the identifying member 60 is made to turn in a predetermined direction. Then, the protrusions 47 slide along the groove walls and enter the guide section 63b from the introduction sections 63a. First, the identifying member 60 is made to turn at the same depth position. Then, when the identifying member 60 is further rotated, the protrusions 47 slide along the inclined groove walls of the guide sections 63b. In such way, the identifying member 60 gradually rises in the direction parting from the round hole 41. Thereafter, when the protrusions 47 pass the inclined groove walls, the identifying member 60 reaches the second depth position and the protrusions 47 are guided to the back of the engaging sections 63c. The second depth position is not as deep as the first depth position. Then, the protrusions 47 engage with the groove walls of the engaging sections 63c.

[0040] Next, the shaft unit 10 is attached to the body 40. In the state where the shaft unit 10 is attached to the body 40, the upper section of the cylindrical pillar 16 is inside the round hole 41 and the upper surface of the cylindrical pillar 16 abuts the lower surface of the identifying member 60. In such way, the identifying member 60 is fixated to the body 40.

[0041] Here, the identifying member 60 is detached from the body 40 in the reverse procedure of the above attachment procedure. In such case, the protrusions 47 are pulled out from the grooves 63 following the reverse route of the route described in the above attaching.

[0042] When the identifying member 60 is fixated to the body 40 as described above, the following advantages can be obtained.

[0043] That is, although the identifying member 60 once need to be moved in the direction going deeper in the round hole 41 in order to detach the identifying member 60 from the round hole 41, moving of the identifying member 60 can be prevented since the upper surface of the cylindrical pillar 16 abuts the lower surface of the identifying member 60. In such case, the cylindrical pillar 16 functions as a stopper. As a result, the identifying member 60 can be reliably prevented from falling out from the round hole 41.

[0044] On the other hand, the identifying member 60 cannot be attached in the state where the body 40 and the shaft unit 10 are assembled. As a result, the toy top 1 can be prevented from spinning in the state where the identifying member 60 is half way attached.

25 ASSEMBLING METHOD

[0045] Next, an example of the assembling method of the toy top 1 will be described. Here, it is assumed that the shaft unit 10 is already assembled. Further, it is also assumed that the identifying member 60 is attached to the round hole 41.

[0046] First, the shaft unit 10 is fitted in the performance changing ring 30 from the lower side such that the protrusions 15 of the shaft unit 10 mate with the recesses 33 of the performance changing ring 30. Subsequently, the assembly is brought toward the body 40 from the lower side. In this step, the tongues 34 of the performance changing ring 30 of the assembly are set to predetermined ends of the arc slits 46 of the body 40 (FIG. 9A). In this state, the hooks 17 of the shaft unit 10 do not overlap the hooks 44 of the body 40 in the vertical direction. This state is referred to as a coupling releasable state. Thereafter, the shaft unit 10 of the assembly is pushed toward the body 40. With this, first, the performance changing ring 30 is pressed to the lower face of the body 40. Further, the spring 20 shrinks and the hooks 17 of the shaft unit 10 are relatively pushed up higher than the hooks 44 of the body 40. Subsequently, the shaft unit 10 together with the performance changing ring 30 is turned with respect to the body 40 until the tongues 34 reach the other ends of the predetermined ends (FIG. 9B). This turn is a relative turn of the assembly of the body 40 and the performance changing ring 30 with respect to the shaft unit 10. FIG. 9B illustrates a state in which the shaft unit 10 has been already turned relative to the body 40 and the performance changing ring 30. After this step, the hooks 17 of the shaft unit 10 are aligned with the hooks 44 of the body 40 in the vertical

direction. When the shaft unit 10 is released, the lower face of the hooks 17 of the shaft unit 10 abuts the upper face of the hooks 44 of the body 40 by the action of the biasing force of the spring 20.

[0047] The state where the lower surfaces of the hooks 17 of the shaft unit 10 and the upper surfaces of the hooks 44 of the body 40 respectively abut is the coupled state. In such way, the shaft unit 10, the performance changing ring 30 and the body 40 are coupled with one another. The toy top 1 is thus assembled.

HOW TO PLAY

[0048] Next, an example of how to play the toy top 1 will be described.

[0049] In this example, a player spins a toy top 1 to battle with an opponent toy top 1.

[0050] In such cases, a launcher 50 as illustrated in FIG. 10 is used to apply a rotary force to the toy top 1. The launcher 50 includes a disk (not shown) therein. The launcher 50 is configured such that when a string (not shown) wound around the disk is pulled by means of a handle 51 while a spiral spring biases the disk in a certain rotational direction, the disk is rotated, and a top holder 53 is rotated accordingly. The rotation of the top holder 53 is transmitted to the toy top 1 through forks 54 that protrude downward, so that the toy top 1 is rotated. Here, the forks 54 are inserted in the arc slits 46 of the body 40. Then, when the handle 51 of the launcher 50 is completely pulled, the disk and the top holder 53 stop rotating while the toy top 1 continues rotating by the action of its inertial force. Accordingly, the toy top 1 moves away from the top holder 53 along the tilted faces 54a of the forks 54. In FIG. 5, the reference sign 52 denotes a rod that is retractable into the top holder 53. When the toy top 1 is loaded in the top holder 53, the rod 52 is pushed in the top holder 53 by the upper face of the toy top 1. For example, the rod 52 is used for detecting attachment/detachment of the toy top 1.

[0051] The toy top 1 thus launched is led to a predetermined field where it spins. When the toy top 1 collides with an opponent toy top 1, the impact or friction of the collision produces a force that acts in the body 40 in the direction opposite to the spinning direction of the shaft unit 10 and the performance changing ring 30, and the body 40 thereby relatively turns in the direction opposite to the spinning direction of the shaft unit 10 and the performance changing ring 30.

[0052] Then, the ridges 21 of the shaft unit 10 engage with the irregular units 45 of the body 40. Here, since the biasing force of the spring 20 acts on the ridges 21, if the shaft unit 10 reaches the engagement release position by the shaft unit 10 relatively turning with respect to the body 40 and changing the engaging position every time the impact force of the collision occurs, the hooks 44 of the body 40 are released from the hooks 17 of the shaft unit 10 so that the body 40 separates from the shaft unit 10 by the action of the biasing force of the spring 20.

Accordingly, the toy top 1 is disassembled as illustrated in the right part of FIG. 1.

VARIATIONS OF THE PRESENT INVENTION

[0053] While an embodiment of the present invention is described, the present invention is not limited to the embodiment, and various changes may be made without departing from the spirit of the present invention.

[0054] For example, in the above embodiment, the protrusions 47 are formed on the round hole 41 side and the grooves 63 are formed on the identifying member 60 side. However, as shown in FIG. 11, the grooves 63 can be formed on the round hole 41 side and the protrusions 47 can be formed on the identifying member 60 side in the opposite manner.

[0055] Further, in the above embodiment, the upper surface of the cylindrical pillar 16 abuts the lower surface of the identifying member 60. However, the identifying member 60 can abut any part. It is sufficient as long as the identifying member 60 can be supported at the engaging position.

[0056] Moreover, in the above embodiment, the case where the identifying member 60 is attached to the body 40 as an example of a component is described. However, a performance changing member which changes the weight and shape in order to vary the characteristics of spinning and attacking can be attached instead of the identifying member 60. Further, a decoration member for the sole purpose of decoration can be attached instead of the identifying member 60. Furthermore, although the identifying member 60 is formed in a cylindrical shape in the above embodiment, the identifying member 60 can be formed in any shape as long as it includes an insertion unit which can be inserted in the round hole 41.

[0057] Furthermore, a member having the same configuration as the identifying member 60 can be used as a fastener of the toy top 1. For example, the upper section of the fastener can be formed as a head section having a large diameter and the lower section thereof can be formed as a shaft section (insertion unit) having a small diameter and the grooves 63 are formed on the shaft section. Then, another component can be sandwiched between the head section and the member to which the fastener is to be fixated so as to fixate the other component. In such case, it is sufficient that a through hole in which the shaft section of the fastener can be inserted is formed in the other component. As for the other component, the transparent cover 401 which covers the base 400 can be considered, for example. In the embodiment, the transparent cover 401 is fixated to the base 400 in advance. However, the transparent cover 401 can be attached by being sandwiched between the fastener and the base 400. It is needless to say that a plurality of components can be attached in a state sandwiched therebetween.

[0058] Further, in the above embodiment, the protrusions 47 are formed on the inside of the round hole 41

and the grooves 63 are formed on the outside of the identifying member 60. However, this can be in the opposite manner.

[0059] Here, although the grooves 63 respectively include the introduction sections 63a, the guide sections 63b and the engaging sections 63c in the above embodiment, it is sufficient that the guide sections 63b are formed as the grooves 63. The introduction sections 63a are not needed if the identifying member 60 can be inserted to the first depth position. Further, the engaging sections 63c are not needed as long as the identifying member 60 can be prevented from falling out by the abutting of the protrusions 47 to the wall surfaces of the guide sections 63b after the identifying member 60 is guided to the second depth position by turning and the shaft unit 10 is attached. However, the engaging sections 63c act as members to temporarily attach the identifying member 60 and the shaft unit 10 can be attached in the state where the identifying member 60 is temporarily attached. Thus, the shaft unit 10 can be attached easily.

[0060] Further, wall surfaces which function as the guide sections 63b and wall surfaces for preventing the identifying member 60 from falling out or turning in a reverse direction can be formed instead of the grooves 63. Moreover, wall surfaces which function as the engaging sections 63c can be formed instead of or in addition to the wall surfaces for preventing the identifying member 60 from falling out or turning in a reverse direction.

Claims

1. A toy top, comprising:

a first component having a hole whose opening is on a surface side;

a second component having an insertion unit which can be inserted in the hole to a first depth position from the opening, the second component can be turned manually; and

a third component which is prevented from moving in a depth direction in the hole in a state where the third component is detachably attached to the first component,

wherein

a protrusion is formed on one surface which is either an inner peripheral wall of the hole of the first component or an outer peripheral wall of the insertion unit of the second component and a groove in which the protrusion enters is formed on the other surface which is either of the inner peripheral wall of the hole or the outer peripheral wall of the insertion unit that faces the one surface,

the groove is provided with a guide section which, with the insertion unit being turned in a predetermined direction by a turning operation of the second component which is in the state

where it is inserted in the hole to the first depth position, makes the protrusion slide against an inner surface of a groove wall on one side to make the insertion unit rise to a second depth position which is not as deep as the first depth position and which prevents the insertion unit from falling out by an inner surface of the groove wall on the other side, and

the third component has a part which functions as a stopper that prevents the insertion unit from moving to a first depth position direction by facing a part of the second component which is at the second depth position in a depth direction of the hole and by coming in contact with the part of the second component when the third component is attached to the first component.

2. The toy top of claim 1, wherein the groove is provided with an engaging unit which makes the groove wall and the protrusion engage with each other at the second depth position to make the insertion unit temporarily stay at the second depth position.

3. The toy top of claim 1 or claim 2, wherein the protrusion is formed on the inner peripheral wall of the hole of the first component and the groove is formed on the outer peripheral wall of the second component.

4. The toy top of any one of claims 1 to 3, wherein the part which functions as the stopper comes in contact with the insertion unit from a bottom side of the hole.

5. The toy top of any one of claims 1 to 4, wherein the first component is a body of the toy top, the hole is formed in an upper surface of the body, the third component is a shaft unit of the toy top, and the shaft unit includes the part which functions as the stopper.

6. The toy top of claim 5, wherein the hole is formed at a center of the body.

7. The toy top of any one of claims 1 to 6, further comprising a fourth component between the first component and the second component,

wherein

the fourth component has a through hole where the insertion unit can be inserted.

8. A method of attaching toy top components described in any of claims 1 to 7, comprising:

inserting of the insertion unit of the second component in the hole of the first component to the first depth position;

turning of the insertion unit in the predetermined direction by turning the second component;

guiding of the insertion unit to the second depth

position by making the protrusion slide against the inner surface of the groove wall on one side of the guide section; and attaching of the third component to the first component.

5

10

15

20

25

30

35

40

45

50

55

FIG.1

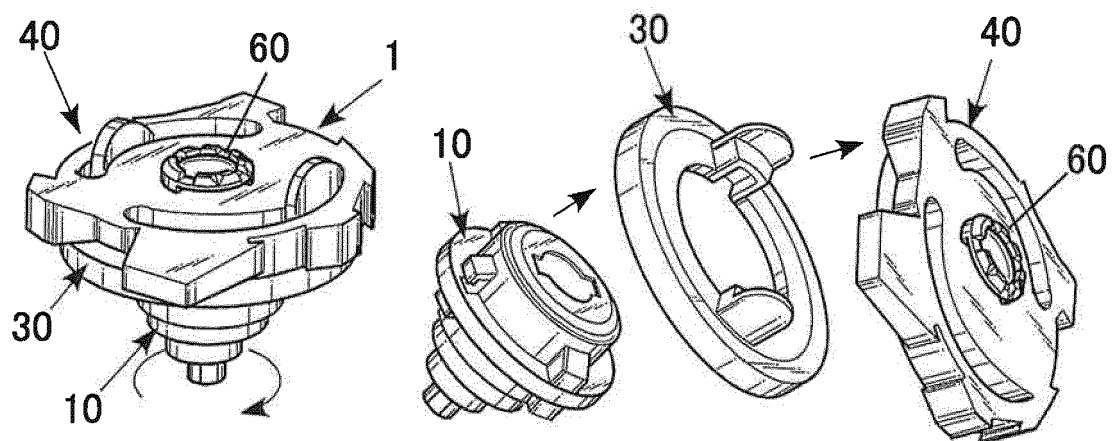


FIG.2

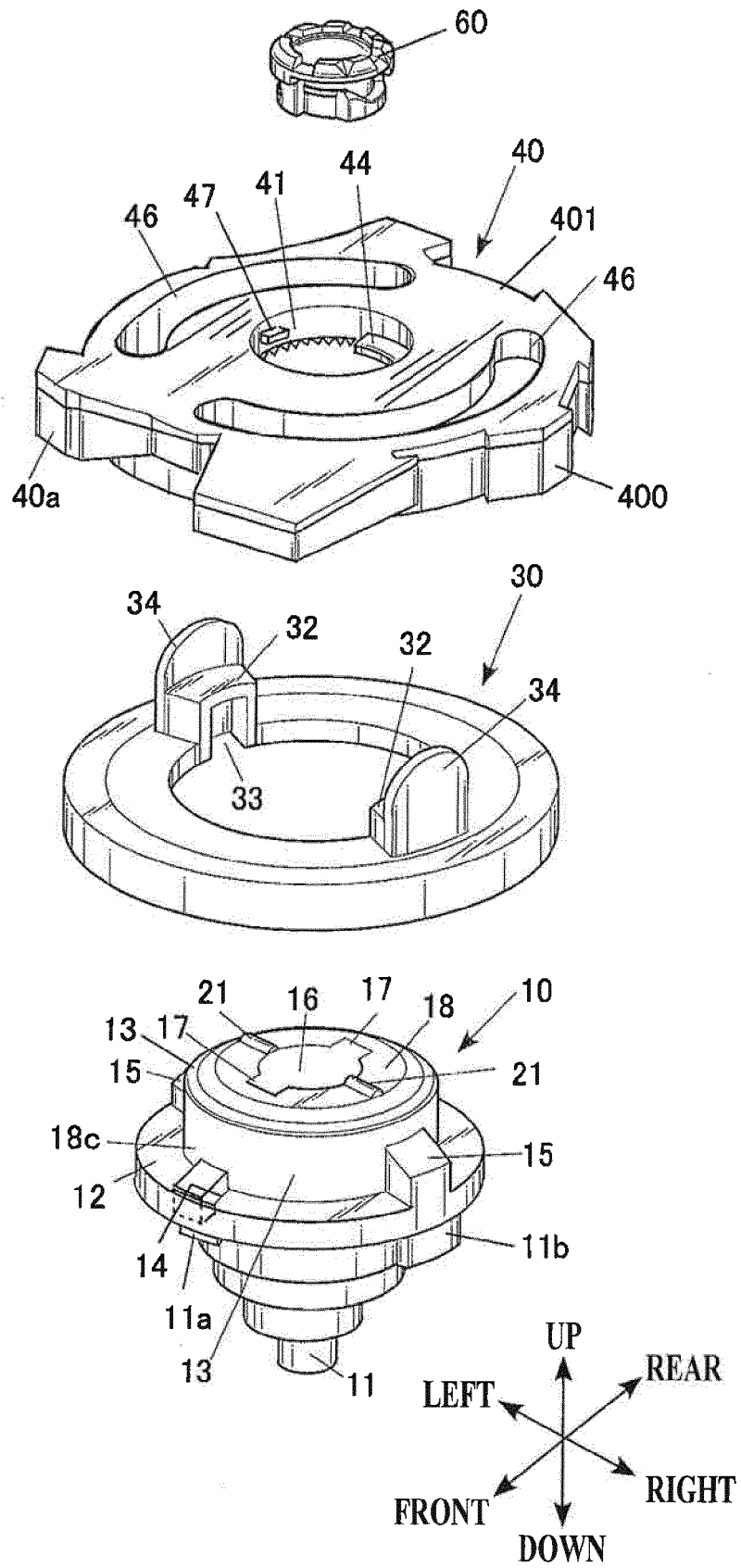


FIG.3

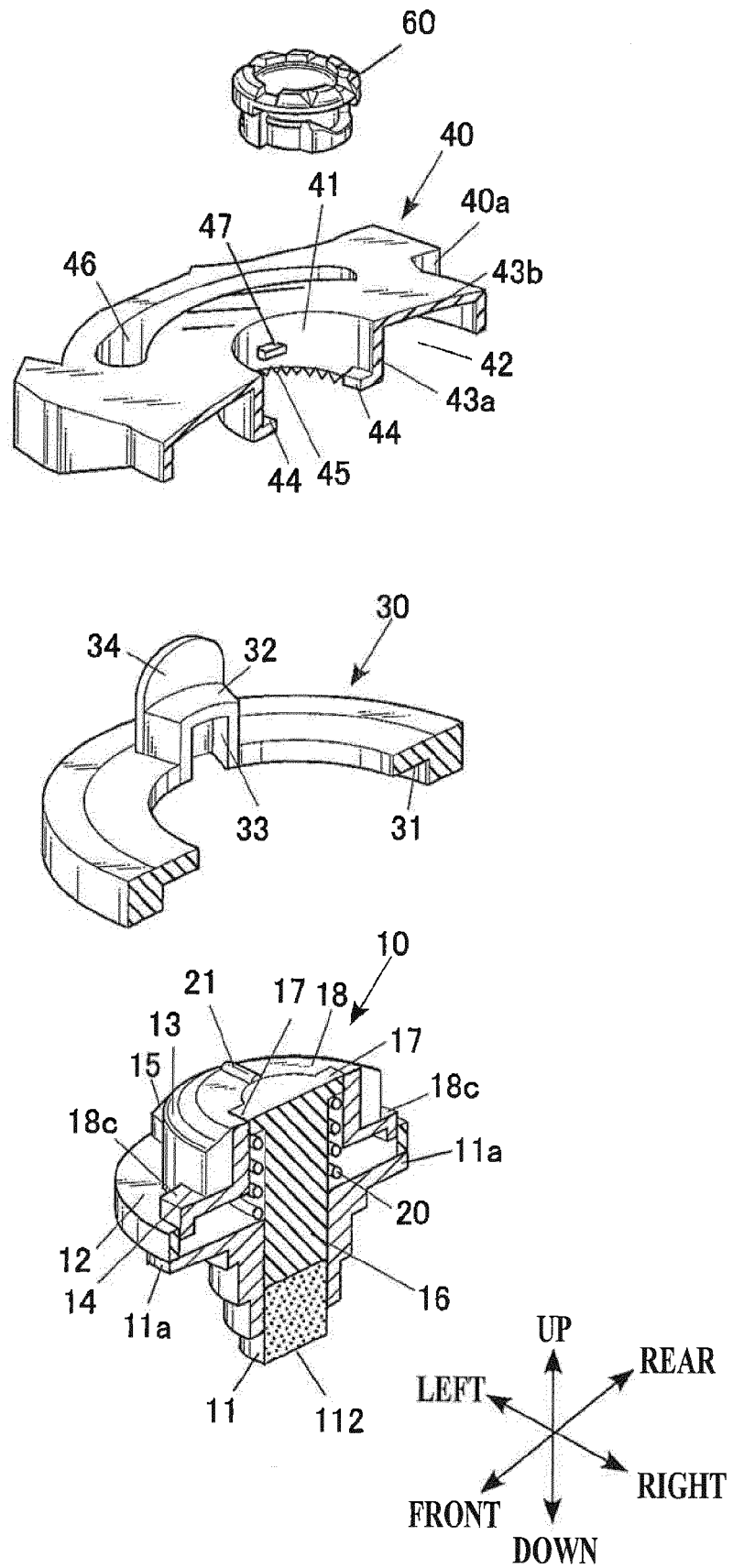


FIG.4

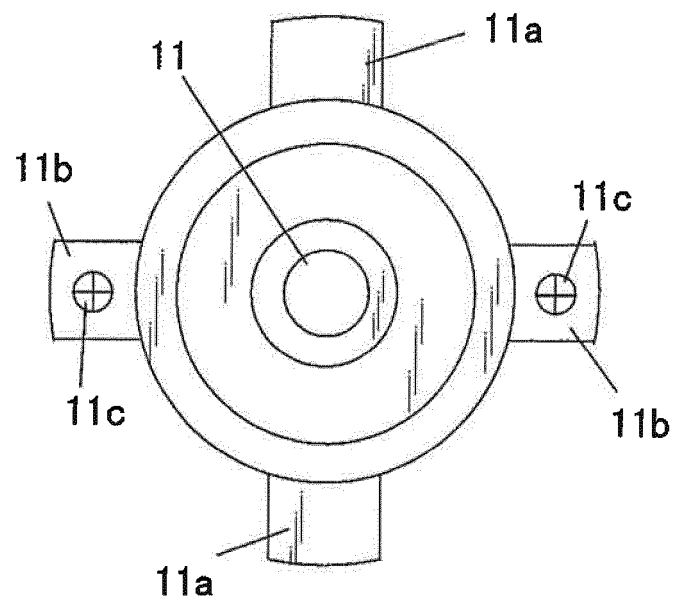


FIG.5

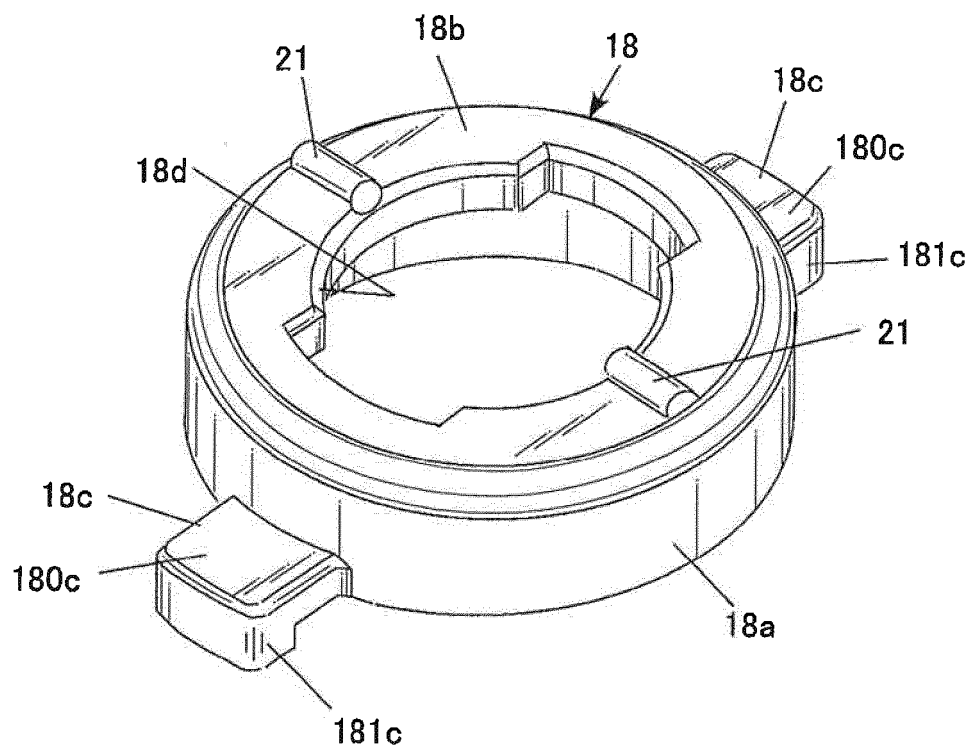


FIG. 6

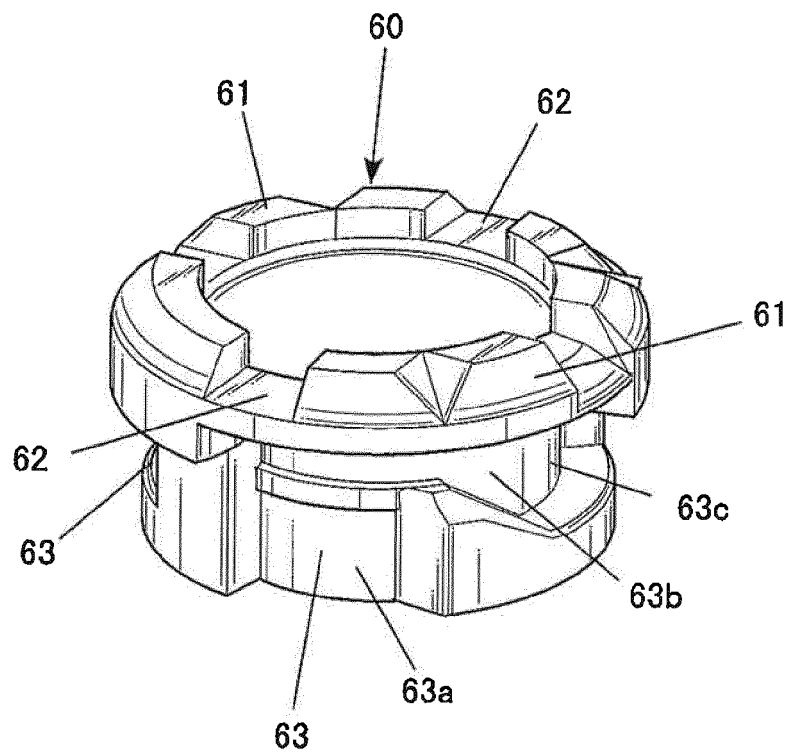


FIG. 7

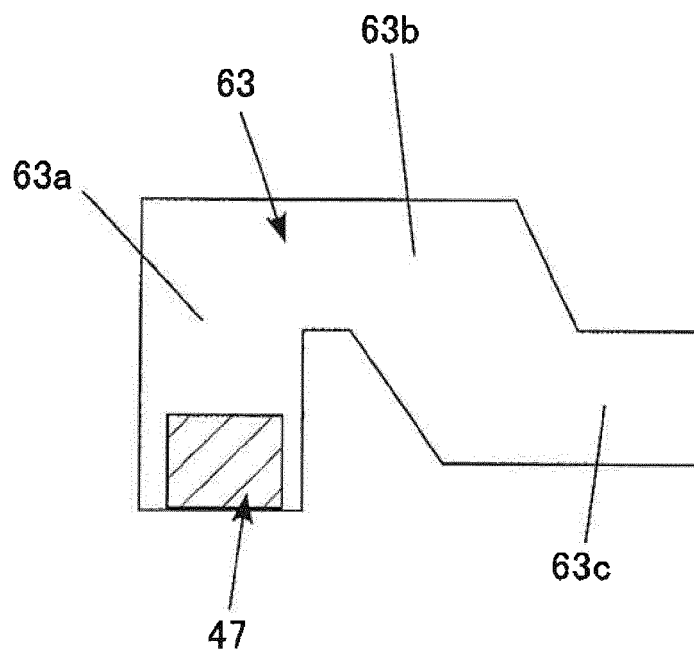


FIG.8A

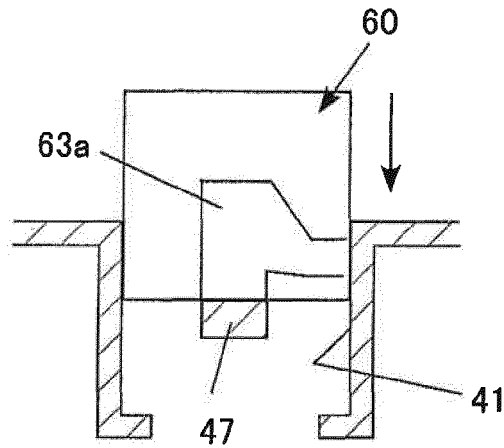


FIG.8B

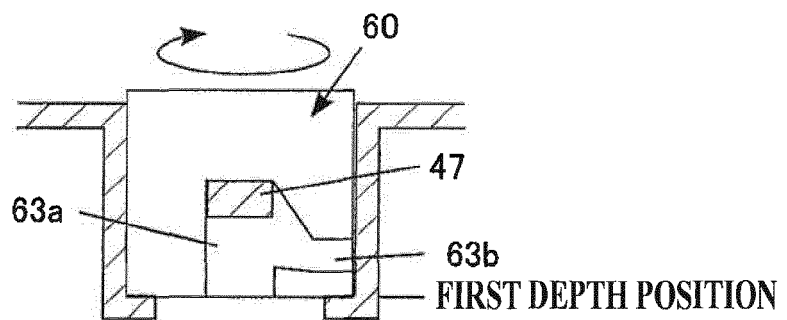


FIG.8C

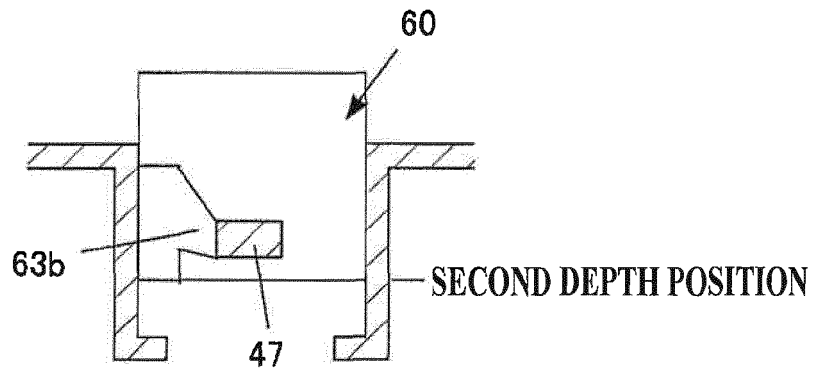


FIG.8D

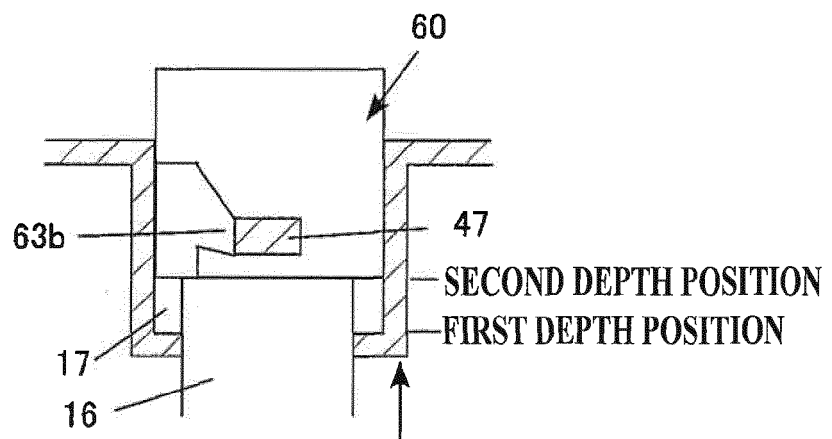


FIG. 9A

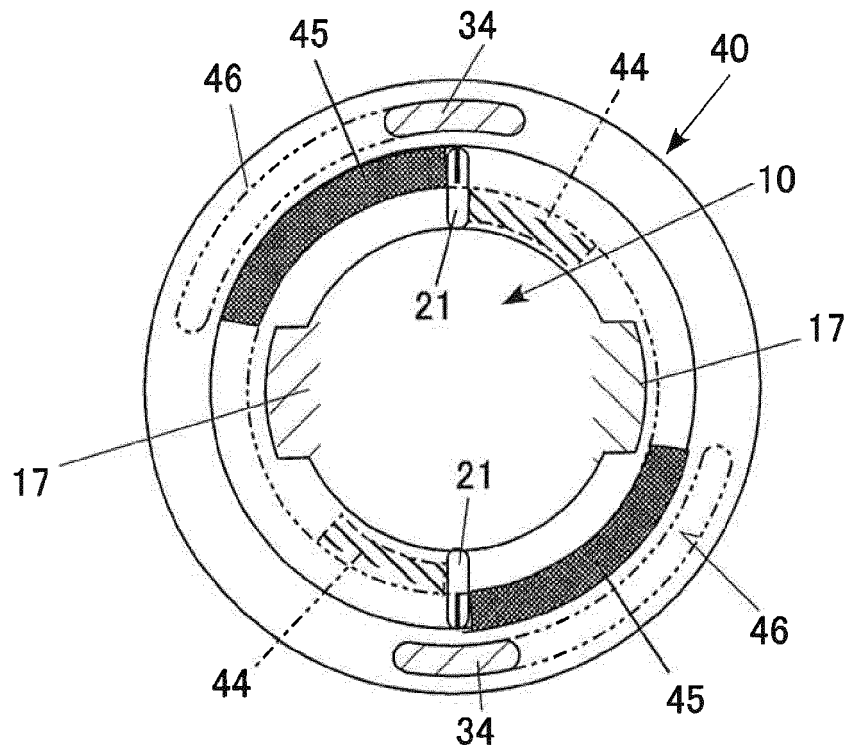


FIG. 9B

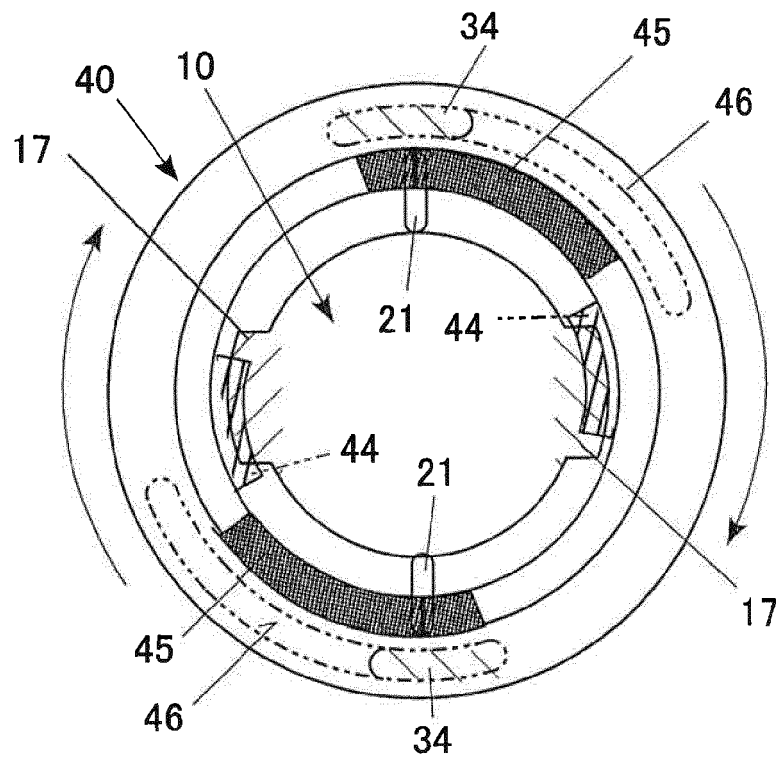


FIG.10

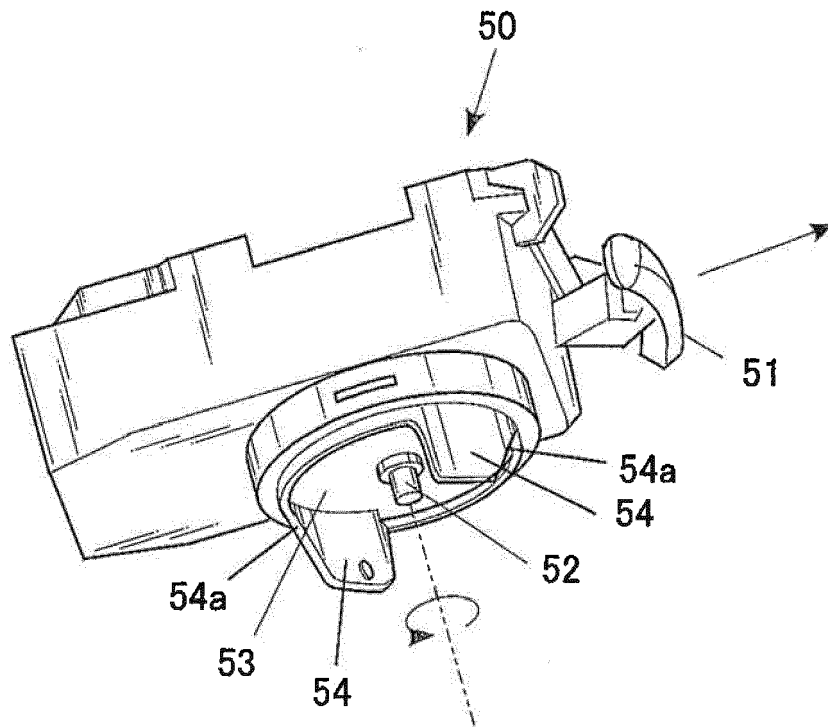
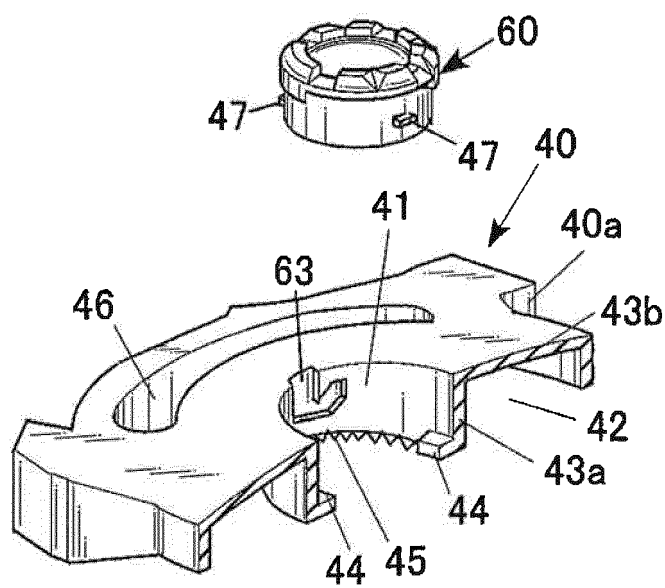


FIG.11





EUROPEAN SEARCH REPORT

Application Number
EP 17 19 6427

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2003 062354 A (BANDAI CO) 4 March 2003 (2003-03-04) * paragraphs [0021] - [0037]; figures *	1-8	INV. A63H1/00
A	JP 5 969151 B1 (TOMY CO LTD; TOKYO UNIQUE:KK) 17 August 2016 (2016-08-17) * the whole document *	1-8	
A	EP 2 786 790 A1 (GUANGDONG ALPHA ANIMATION & CULTURE CO LTD [CN]; GUANGDONG AULDEY ANIM) 8 October 2014 (2014-10-08) * paragraphs [0012] - [0016]; figures *	1-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			A63F A63H
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 April 2018	Examiner Bagarry, Damien
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 19 6427

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-04-2018

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2003062354 A	04-03-2003	JP 4612251 B2	12-01-2011
		JP 2003062354 A	04-03-2003

JP 5969151 B1	17-08-2016	CN 205759650 U	07-12-2016
		EP 3205383 A1	16-08-2017
		JP 5969151 B1	17-08-2016
		JP 2017140129 A	17-08-2017
		US 9566529 B1	14-02-2017

EP 2786790 A1	08-10-2014	AU 2012344547 A1	17-07-2014
		CA 2857579 A1	06-06-2013
		DK 2786790 T3	12-02-2018
		EP 2786790 A1	08-10-2014
		JP 5946920 B2	06-07-2016
		JP 2014533594 A	15-12-2014
		KR 20140108664 A	12-09-2014
		WO 2013078896 A1	06-06-2013

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 3151700 B [0002]