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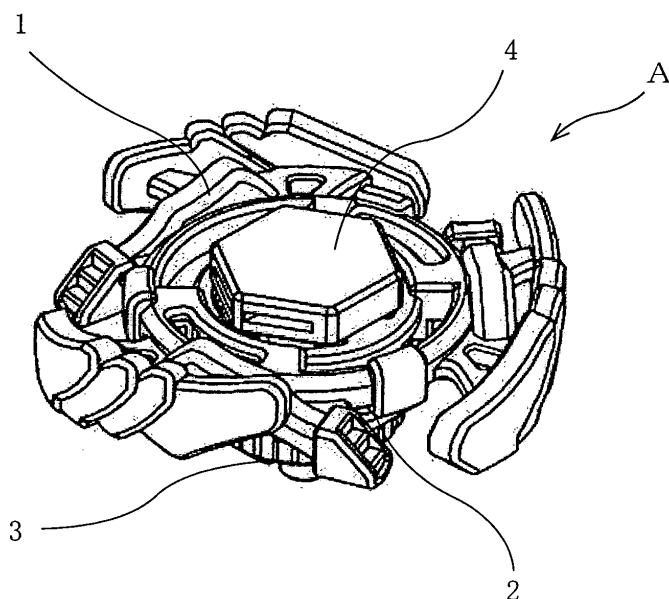
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(54) **Toy top**

(57) A toy top (A) which is played against an opponent toy top on a playing board is provided. The toy top (A) includes an upper layer member (1) for attacking an opponent toy top, an intermediate layer member (2) for determining a height of the toy top, and a lower layer member (3) for determining a manner of moving of the toy top on a playing board, the members (1, 2, 3) being stacked in a layered manner. The upper layer member

(1) is formed with an opening (5) through which a screw (4a) of a screw-like coupling member (4) is inserted, the intermediate layer member (2) is formed with a screw hole (9) screwed with the screw (4a) of the coupling member (4), and the upper layer member (1) and the intermediate member (2) are coupled by the coupling member (4). The lower layer member (3) is fitted to a lower part of the intermediate layer member (2).

FIG.1



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a toy top, and more specifically to a toy top in which members constituting the toy top can be disassembled and assembled easily.

2. Description of the Related Art

[0002] Conventionally, various toy tops which can be altered to have a different rotating characteristic easily by changing constituent members have been proposed and have been put to practical use by the assignee of the present application (for example, see Japanese Utility Model Registration No. 3067318). The toy top comprises a base member or a lowermost layer, an intermediate layer member disposed on an upper side of the base member, an upper layer member disposed on an upper side of the intermediate layer member, and a character display body disposed on the upper layer member, these four constituent members being arranged in a layered manner. The intermediate layer member is formed from metal to serve as a weight member heavier than the other members. The upper layer member is formed from synthetic resin such that its outer end projects beyond the base member and the intermediate layer member and an attacking force differs according to a shape of an outer edge portion of the upper layer member when the upper layer member hits an upper layer member of another toy top. The base members different in height and size of an area of a distal end of a rotating shaft are prepared to choose from.

[0003] The abovementioned toy top is configured such that the intermediate layer member serves as a weight, the upper layer member serves to attack another toy top which is an opponent, attacking force is changed by replacing the upper layer member with another upper layer member, and a moving characteristic and/or rotating characteristic of the toy top on a playing board can be selected according to a height of the toy top and a shape of a distal end of the rotating shaft by replacing the base member with another base member. However, since both the height of the base member and the shape of the distal end of the rotating shaft are set in advance, selection from a broad range of rotating characteristics and/or moving characteristics cannot be performed. Further, since when the upper layer member is fitted to the base member, they are coupled to each other in a state where the intermediate layer member is sandwiched therebetween, a problem arises in that backlash between these members occurs.

SUMMARY OF THE INVENTION

[0004] The present invention has been made in view of the abovementioned problem. Accordingly, it is an object of the present invention to provide a toy top for which various attacking characteristics and rotating characteristics can be selected by increasing the degree of flexibility of a combination of constituent members and respective constituent members can be securely connected to one another without causing backlash between the constituent members.

[0005] In order to solve the abovementioned problem, according to the present invention, there is provided a toy top which is played against an opponent toy top on a playing board. The toy top comprises: an upper layer member provided with a function of attacking an opponent toy top; an intermediate layer member provided with a function of determining a height of the toy top; a lower layer member provided with a function of determining a manner of moving of the toy top on the playing board, the upper layer member, the intermediate member and the lower layer member being stacked on one another in a layered manner; and a screw-like coupling member for coupling the upper layer member and the intermediate layer member to each other; the upper layer member having an opening formed in the center thereof through which a screw of the coupling member is inserted, the intermediate layer member having a screw hole formed therein into which the screw of the coupling member is screwed; and the lower layer member being detachably attached to a lower part of the intermediate layer member by fitting it.

[0006] Incidentally, it is preferable that the upper layer member be formed from metal so that the upper layer member is provided with a function of a heavy weight.

[0007] According to an embodiment of the present invention, the upper layer member has fit projections formed thereon symmetrically regarding the opening, and the intermediate layer member has fit recesses formed therein so as to correspond to the fit projections of the upper layer member, so that the fit projections of the upper layer member are fitted in the fit recesses of the intermediate layer member, respectively.

[0008] According to another embodiment of the present invention, the upper layer member is formed in a circular disc shape and includes an attacking portion projecting outwardly on an outer peripheral surface thereof, the upper layer member includes fit projections formed on a bottom thereof symmetrically regarding the opening, the intermediate layer member is formed in a cylindrical shape and includes a bulging portion formed on an upper outer peripheral surface thereof and fit recesses formed on the bulging portion so as to correspond to the fit projections, and the fit projections of the upper layer member are fitted in the fit recesses of the intermediate layer member, respectively.

[0009] According to still another embodiment of the present invention, the lower layer member has a shaft

portion and arc-shaped openings formed on an outside of the shaft portion, and the intermediate layer member has engagement projections formed on a lower end lateral surface thereof so as to be respectively engaged with the arc-shaped openings of the lower layer member. **[0010]** According to still another embodiment of the present invention, the lower layer member is formed in an inverted circular-truncated conical shape and has an approximately circular opening formed on an upper side thereof into which a cylindrical portion of the intermediate layer member is fitted, the lower layer member includes a shaft portion projecting downwardly, the lower layer member is formed with a pair of arc-shaped openings positioned across the shaft portion outside the shaft portion, the arc-shaped openings are each formed on an inner wall thereof with a protrusion, and the intermediate layer member is formed with a pair of engagement projections on a lower end lateral surface of the cylindrical portion, so that the engagement projections of the intermediate layer member are inserted into the arc-shaped openings of the lower layer member to be engaged with the protrusions formed on the inner walls of the arc-shaped openings of the lower layer member, respectively.

[0011] According to the present invention, a toy top which can achieve a flexible combination of constituent members, where the constituent members can be coupled to one another without causing backlash by coupling the upper layer member and the intermediate member utilizing a screw-like coupling member and simplification of the constituent members can be achieved can be realized.

[0012] According to a preferable embodiment of the present invention, the upper layer member is formed from metal so that unlike the conventional toy top in which a member for attacking is formed from synthetic resin, necessity for separately preparing a weight member for increasing a weight of the whole toy top is eliminated, and the number of constituent parts can be reduced.

BRIEF DESCRIPTION OF DRAWINGS

[0013] Fig. 1 is a perspective view showing an embodiment of a toy top according to the present invention;

[0014] Fig. 2 is an exploded perspective view of the toy top;

[0015] Fig. 3 is a bottom view of an upper layer member of the toy top;

[0016] Figs. 4A and 4B are a plan view and a bottom view of an intermediate layer member of the toy top;

[0017] Fig. 5 is a bottom view of a lower layer member of the toy top;

[0018] Figs. 6A and 6B, 6C and 6D, 6E and 6F, and 6G and 6H are perspective views of intermediate layer members viewed from above and front views thereof;

[0019] Figs. 7A to 7E are perspective views of the lower layer members viewed from below; and

[0020] Figs. 8A to 8D are front views showing a proc-

ess of assembling the toy top.

DESCRIPTION of THE PREFERRED EMBODIMENT

[0021] Figs. 1 and 2 show an embodiment of a toy top according to the present invention. A toy top A comprises an upper layer member 1 provided with a function of attacking an opponent toy top, an intermediate layer member 2 for determining a height of the toy top, a lower layer member 3 for determining a manner of moving of the toy top on a playing board, and a screw-like coupling member 4 for coupling the upper layer member 1 and the intermediate layer member 2.

[0022] The upper layer member 1 is formed in a circular disc shape including an opening 5 through which the coupling member 4 is inserted at a central portion thereof, and attacking portions 6 which contact with an opponent toy top to attack the same are formed on an outer peripheral surface of the upper layer member 1 so as to project outwardly. A pair of fit projections 7 is formed on a bottom of the upper layer member 1 symmetrically regarding the opening 5 so as to project downwardly (see Fig. 3). By fitting the fit projections 7 into fit recesses 11 of the intermediate layer member 2 described later, assembling of the upper layer member 1 and the intermediate member 2 to each other is made easy, and backlash or play between the upper layer member 1 and the intermediate layer member 2 in a circumferential direction of the toy top is eliminated.

[0023] The intermediate layer member 2 is formed in a cylindrical shape, an inner wall surface thereof being formed with a thread 8 to configure a screw hole 9 in which a screw 4a of the coupling member 4 described later is screwed. An upper outer peripheral surface of the intermediate layer member 2 bulges outwardly to form a bulging portion 10 and a pair of the fit recesses 11 is symmetrically formed on the bulging portion 10 (see Fig. 4A).

[0024] A part of the cylindrical portion 12 downwardly extending from the bulging portion 10 configures an adjustment portion 13 functioning so as to determine a height of the toy top based upon a different length L for each intermediate layer member 2, where an intermediate layer member 2 including an adjustment portion 13 having three stages, an intermediate layer member 2 including an adjustment portion 13 having two stages, an intermediate layer member 2 including an adjustment portion 13 having one stage, and an intermediate layer member 2 including no adjustment portion 13 are provided (see Figs. 6A and 6B, 6C and 6D, 6E and 6F, and 6G and 6H). By selecting an intermediate layer member 2 from these intermediate layer members 2 each including the adjustment portion 13 having a different length L, the total height of the assembled toy top A can be changed, so that an attacking pattern such as whether the toy top A attacks an opponent toy top from below, from above, or from a right angle can be set. A pair of engagement projections 14 engageable with a pair of arc-shaped

openings 16 formed in the lower layer member 3 described later is formed on a lower end lateral surface of the cylindrical portion 12 (see Fig. 4B).

[0025] The lower layer member 3 is formed in an inverted circular-truncated conical shape, an approximately circular opening in which the cylindrical portion 12 of the intermediate layer member 2 is inserted is formed on an upper side of the lower layer member 3, and a shaft portion 15 is formed on a lower part of the lower layer member 3 so as to project downwardly. The lower layer member 3 is provided with a function of determining the manner of moving of the toy top rotating on the playing board based upon a shape of the shaft portion 15, wherein a moving state of the toy top A can be changed according to a lower layer member 3 to be selected such that, when a distal end 15a of the shaft portion 15 is flat as shown in Figs. 7A to 7D, a peripheral edge of the distal end 15a contacts a top of the playing board so that the degree of movement of the toy top A on the playing board changes in proportion to a size of a diameter of the distal end 15a, and the degree of movement of the toy top A on the playing board becomes large in accordance with the increase of a diameter of the flat distal end 15a, while when the distal end is formed in a semi-spherical shape (see Fig. 7E), the distal end and the playing board configure a point contact so that the toy top A does not move on the playing board and it remains in one place while waiting for the attack of an opponent toy top.

[0026] The pair of arc-shaped openings 16 is formed outside the shaft portion 15 symmetrically regarding the shaft portion 15. An inner wall of each arc-shaped opening 16 partially protrudes toward the shaft portion 15 to form a protrusion 17 so that the engagement projections 14 of the intermediate layer member 2 are engaged with the protrusions 17, whereby the lower layer member 3 can be fixed to the intermediate layer member 2 (see Fig. 5).

[0027] When the toy top having the abovementioned configuration is assembled, the upper layer member 1, the intermediate layer member 2, and the lower layer member 3 are selected in accordance with the attacking characteristic and the rotating characteristic of the toy top to be assembled (see Fig. 8A). After the respective members are selected, the fit projections 7 of the upper layer member 1 are fitted into the fit recesses 11 of the intermediate layer 2, respectively (see Fig. 8B).

[0028] Next, the screw 4a of the coupling member 4 is inserted through the opening 5 of the upper layer member 1 from above to be screwed into the screw hole 9 of the intermediate layer member 2, so that the upper layer member 1 is fixed to the intermediate layer member 2. In this state, the upper layer member 1 is brought into pressure-contact with the intermediate layer member 2 and fixed thereto by the coupling member 4 without causing backlash (see Fig. 8C).

[0029] Next, the cylindrical portion 12 of the intermediate layer member 2 is fitted into the approximately circular opening of the lower layer member 3 in a state

where the arc-shaped openings 16 of the lower layer member 3 are caused to face the engagement projections 14 formed on the cylindrical portion 12 of the intermediate layer member 2, and the lower layer member 3 is rotated in a circumferential direction to cause the engagement projections 14 to engage the lower sides of the protrusions 17 (see Fig. 8D), so that the toy top A comprising the upper layer member 1, the intermediate layer member 2, and the lower layer member 3 such as shown in Fig. 1 can be assembled.

[0030] In the assembled state of the toy top A, when the lower layer member 3 should be replaced by another one, the lower layer member 3 is rotated in a direction reverse to the rotating direction at the time of mounting the lower layer member to disengage the engagement projections 14 from the protrusions 17 so that the lower layer member 3 is detached from the intermediate layer member 2, and a new lower layer member 3 can be attached to the intermediate layer member 2 after the detachment. When the upper layer member 1 should be replaced by another one, since the coupling member 4 is rotated reversely to undo the screw 4a and disengage it from the intermediate layer member 2 so that the upper layer member 1 can be detached from the intermediate layer member 2, a new upper layer member 1 and the intermediate layer member 2 can be coupled to each other by fitting fit projections 7 of the new upper layer member 1 into the fit recesses 11 of the intermediate layer member 2 and fastening the coupling member 4. Thus, the combination of the respective members can be changed easily.

[0031] Incidentally, when the intermediate layer member is replaced by another one, it is necessary to disassemble all of the upper layer member, the intermediate layer member, and the lower layer member once and perform a new assembling thereof.

Claims

1. A toy top (A) which is played against an opponent toy top on a playing board, comprising:

an upper layer member (1) provided with a function of attacking an opponent toy top;
an intermediate layer member (2) provided with a function of determining a height of the toy top;
a lower layer member (3) provided with a function of determining a manner of moving of the toy top on a playing board, the upper layer member (1), the intermediate member (2) and the lower layer member (3) being stacked on one another in a layered manner; and
a screw-like coupling member (4) for coupling the upper layer member (1) and the intermediate layer member (2) to each other;
the upper layer member (1) having an opening (5) formed in the center thereof through which

- a screw (4a) of the coupling member (4) is inserted, the intermediate layer member (2) having a screw hole (9) formed therein into which the screw (4a) of the coupling member (4) is screwed; and
the lower layer member (3) being detachably attached to a lower part of the intermediate layer member (2) by fitting it.
2. The toy top (A) according to claim 1, wherein the upper layer member (1) is formed from metal so that the upper layer member (1) is provided with a function of a heavy weight.
3. The toy top (A) according to claim 1 or 2, wherein the upper layer member (1) has fit projections (7) formed thereon symmetrically regarding the opening (5), and the intermediate layer member (2) has fit recesses (11) formed therein so as to correspond to the fit projections (7) of the upper layer member (1), so that the fit projections (7) of the upper layer member (1) are fitted in the fit recesses (11) of the intermediate layer member (2), respectively.
4. The toy top (A) according to claim 1 or 2, wherein the upper layer member (1) is formed in a circular disc shape and includes an attacking portion (6) projecting outwardly on an outer peripheral surface thereof, the upper layer member (1) includes fit projections (7) formed on a bottom thereof symmetrically regarding the opening (5), the intermediate layer member (2) is formed in a cylindrical shape and includes a bulging portion (10) formed on an upper outer peripheral surface thereof and fit recesses (11) formed on the bulging portion (10) so as to correspond to the fit projections (7), and the fit projections (7) of the upper layer member (1) are fitted in the fit recesses (11) of the intermediate layer member (2), respectively.
5. The toy top (A) according to claim 1 or 2, wherein the lower layer member (3) has a shaft portion (15) and arc-shaped openings (16) formed on an outside of the shaft portion (15), and the intermediate layer member (2) has engagement projections (14) formed on a lower end lateral surface thereof so as to be respectively engaged with the arc-shaped openings (16) of the lower layer member (3).
6. The toy top according to claim 4, wherein the lower layer member (3) is formed in an inverted circular-truncated conical shape and has an approximately circular opening formed on an upper side thereof into which a cylindrical portion (12) of the intermediate layer member (2) is fitted, the lower layer member (3) includes a shaft portion (15) projecting downwardly, the lower layer member (3) is formed with a pair of arc-shaped openings (16) positioned across

the shaft portion (15) outside the shaft portion (15), the arc-shaped openings (16) are each formed on an inner wall thereof with a protrusion (17), and the intermediate layer member (2) is formed with a pair of engagement projections (14) on a lower end lateral surface of the cylindrical portion (12), so that the engagement projections (14) of the intermediate layer member (2) are inserted into the arc-shaped openings (16) of the lower layer member (3) to be engaged with the protrusions (17) formed on the inner walls of the arc-shaped openings (16) of the lower layer member (3), respectively.

FIG.1

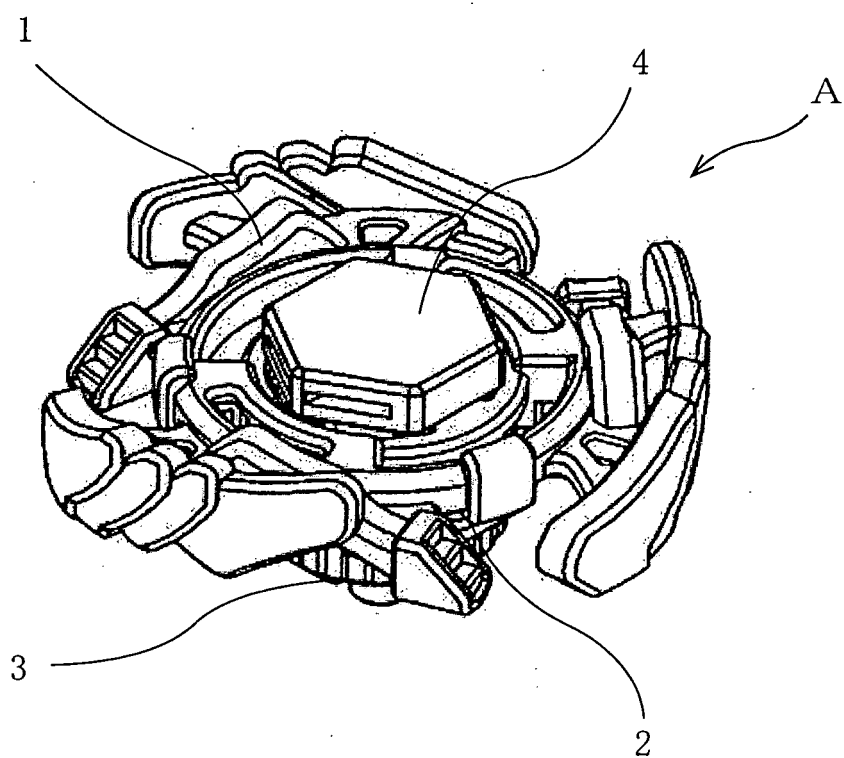
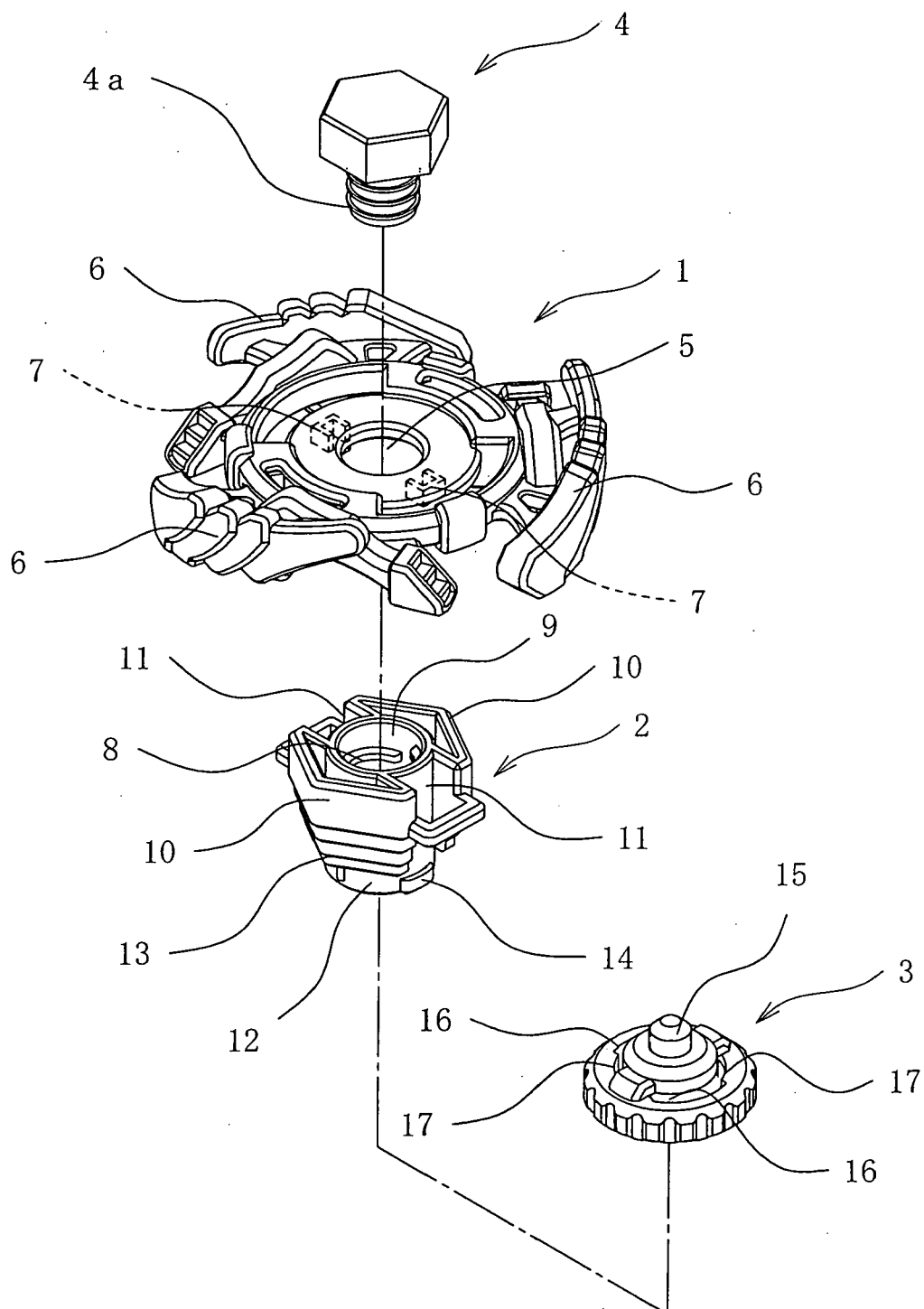


FIG.2



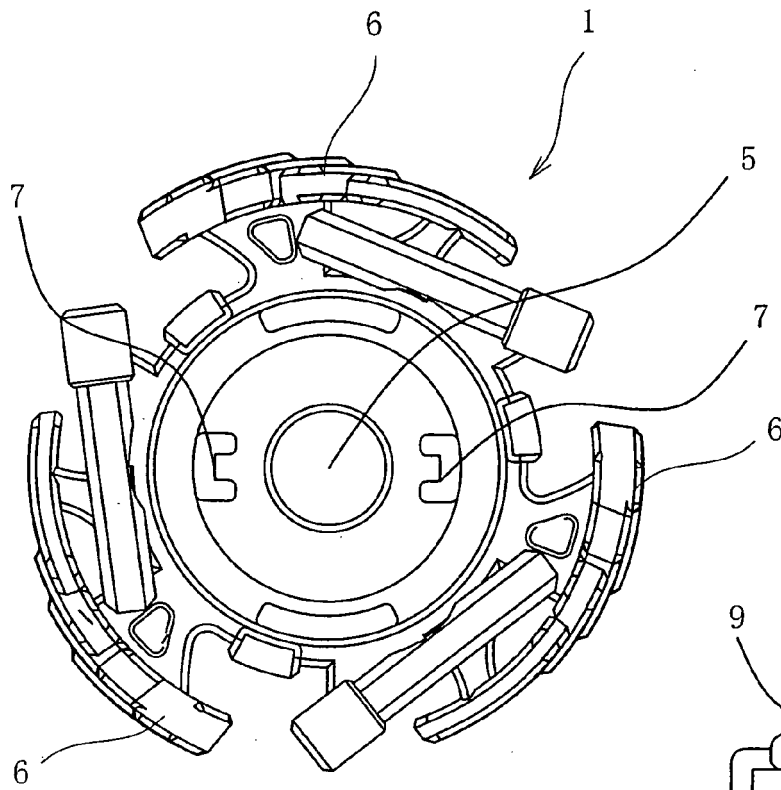


FIG. 3

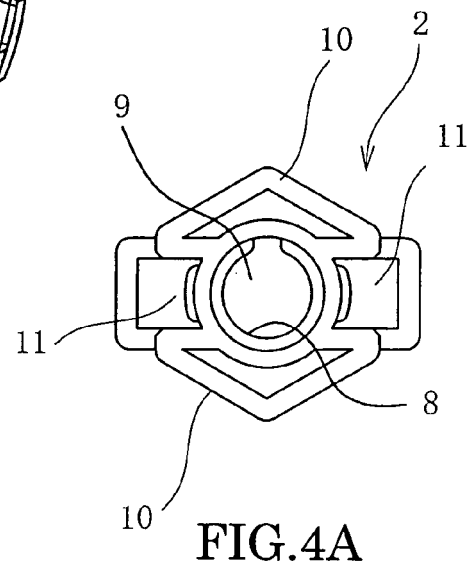


FIG. 4A

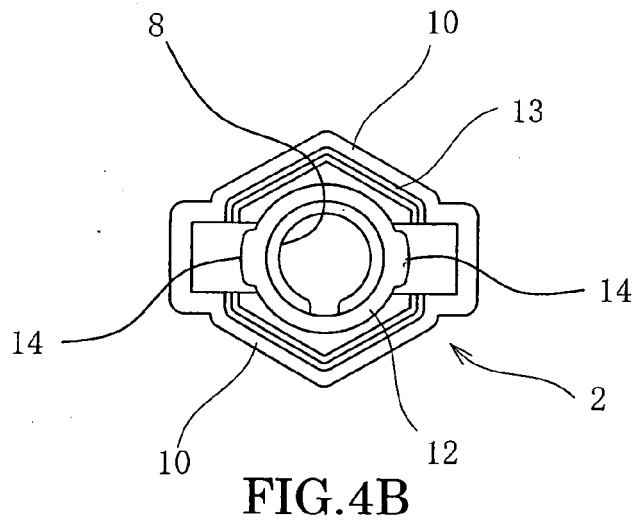


FIG. 4B

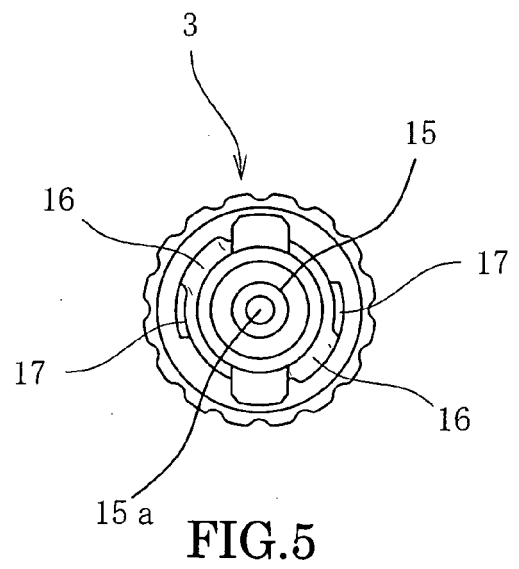


FIG. 5

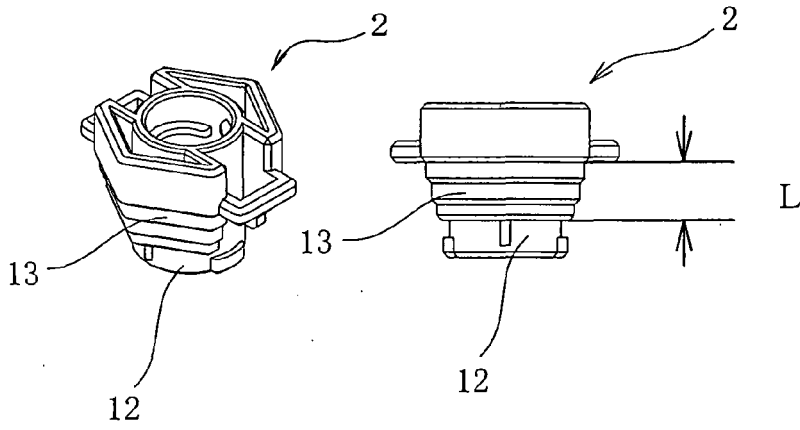


FIG. 6A

FIG. 6B

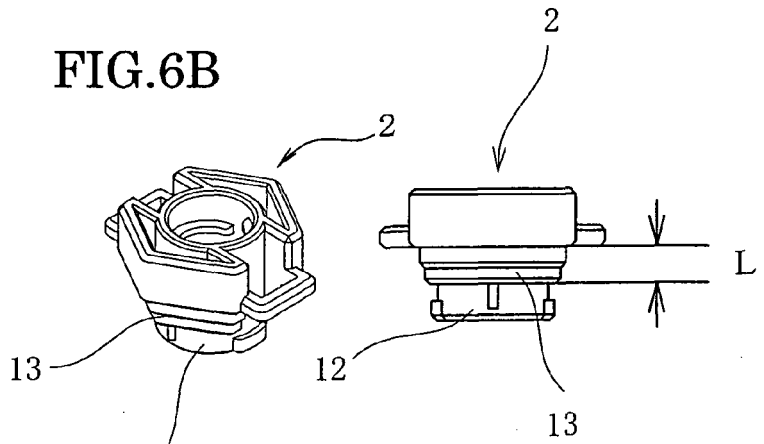


FIG. 6C

FIG. 6D

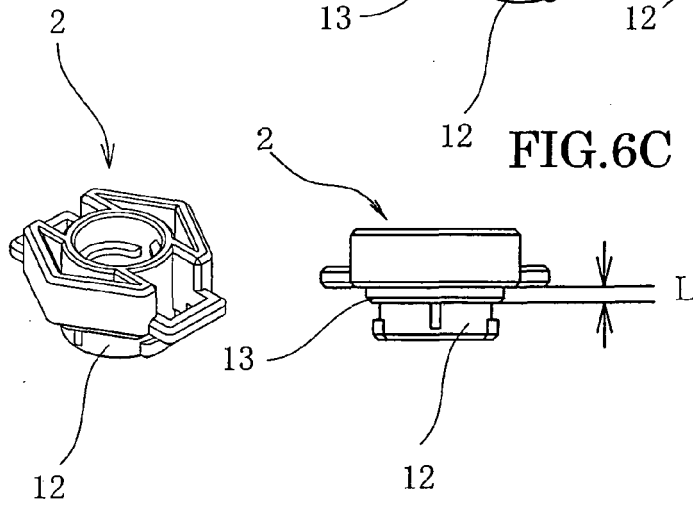


FIG. 6E

FIG. 6F

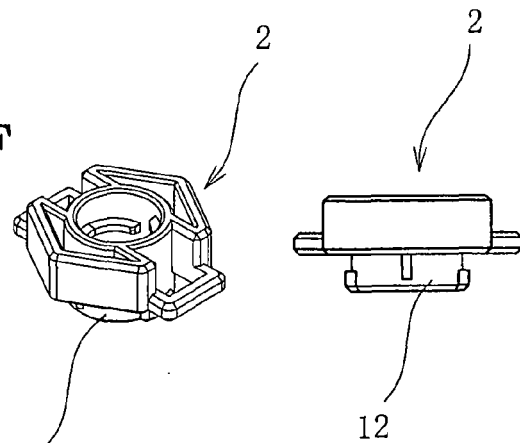


FIG. 6G

FIG. 6H

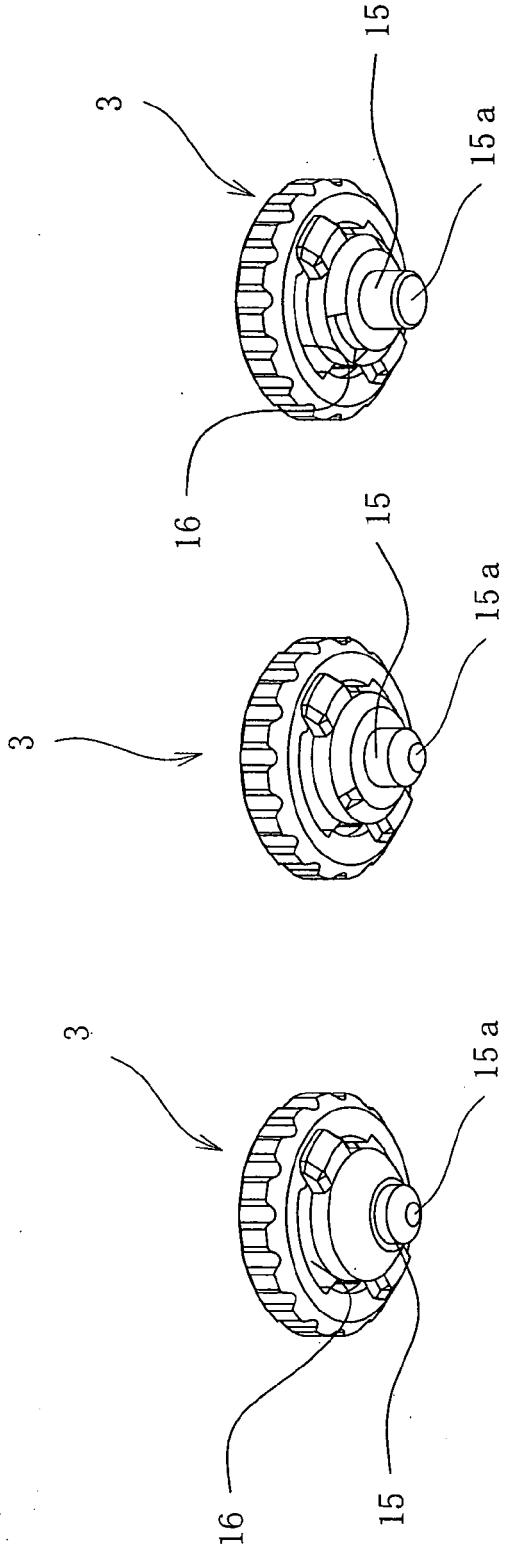


FIG. 7A

FIG. 7B

FIG. 7C

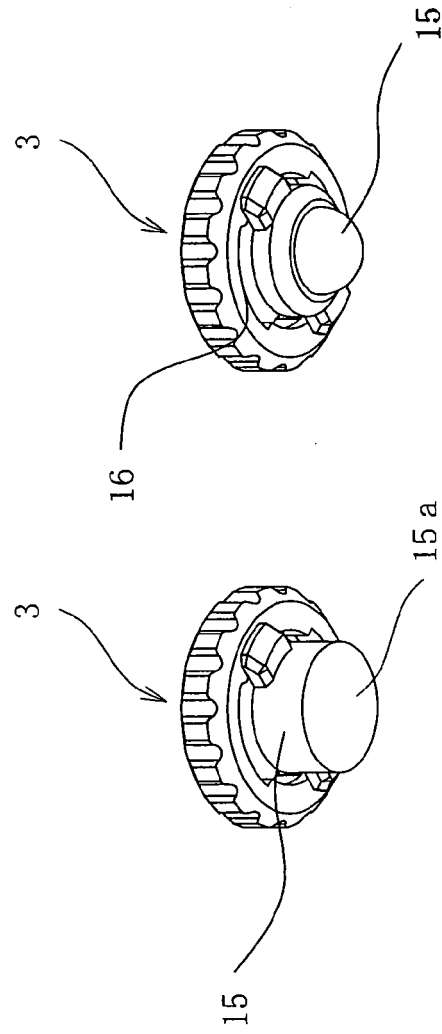


FIG. 7D

FIG. 7E

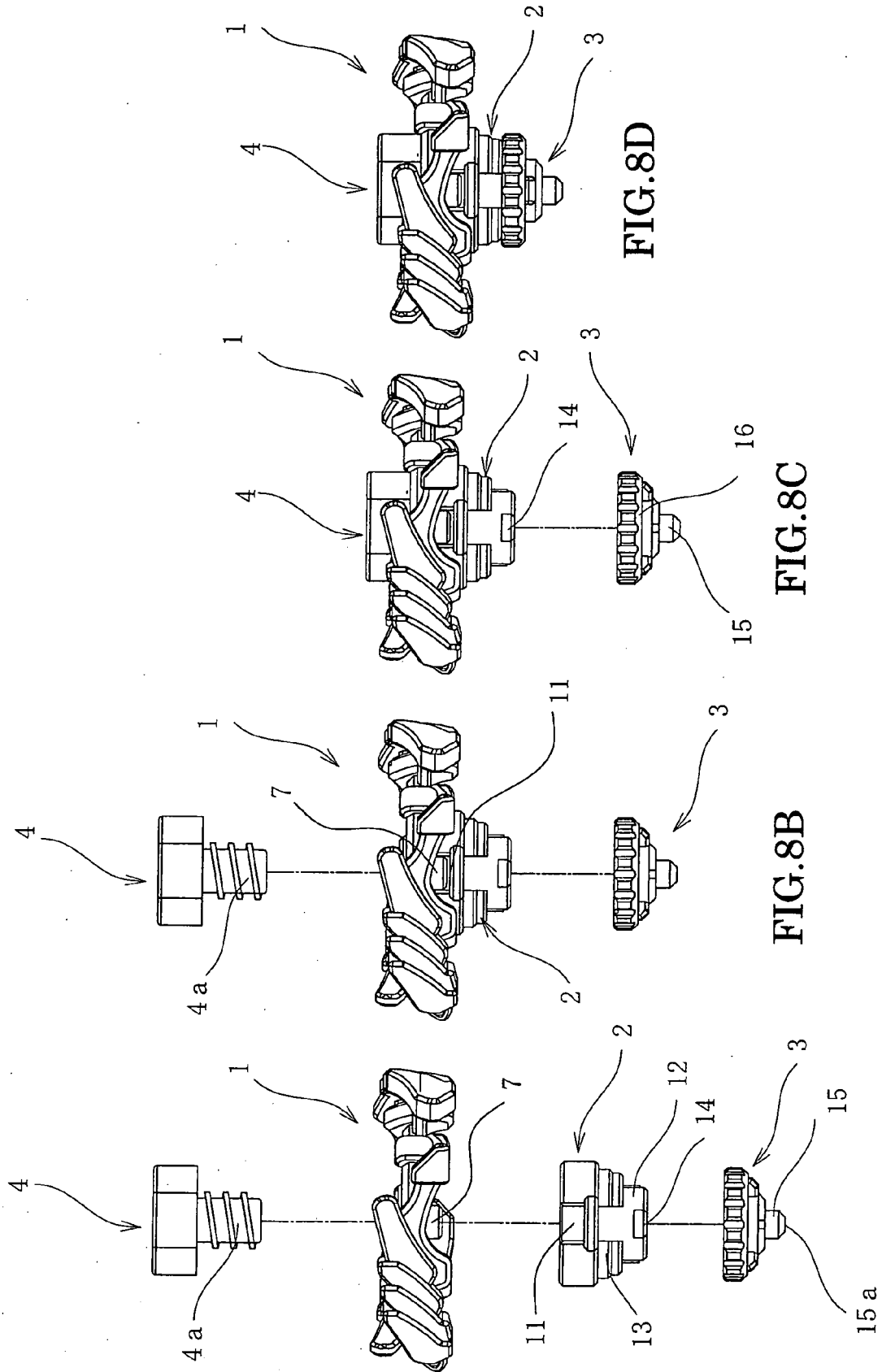


FIG. 8A

FIG. 8B

FIG. 8C

FIG. 8D



EUROPEAN SEARCH REPORT

Application Number
EP 08 25 3264

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2002/102907 A1 (OSAWA TAKASHI [JP]) 1 August 2002 (2002-08-01) * paragraphs [0026] - [0049]; figures * -----	1-6	INV. A63H1/02
A	US 2004/198152 A1 (MATSUKAWA HIROYUKI [JP]) 7 October 2004 (2004-10-07) * paragraphs [0059] - [0061]; figures 13-16 *	1-6	
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A	DE 202 07 253 U1 (TAKARA CO LTD [JP]) 19 September 2002 (2002-09-19) * page 13, line 11 - page 14, line 23; figures 13-16 * -----	1-6	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A63H A63F
Place of search		Date of completion of the search	Examiner
Munich		17 June 2009	Lucas, Peter
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			

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

EP 08 25 3264

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REFERENCES CITED IN THE DESCRIPTION

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