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(54) **GAME DEVICE WHICH HAS UNEXPECTEDNESS AND GIMMICKS.**

(57) Provided is a game device which has unexpectedness and gimmicks. The game device includes: a swinging shaft, which is able to swing between a first position and a second position lower than the first position with a first shaft that is horizontal as a center, and is able to rotate with a central axis as a center; a first gear, which is fixed on the swinging shaft; an arm, which is fixed on the swinging shaft; and a basket, which is provided on the arm and is able to be in a third position that is lower than the swinging shaft and a fourth position that is higher than the swinging shaft with a rotation of the swinging shaft. Through a weight of the rolling body entering the basket, the first gear engages with a second gear which is coupled to an operation element.

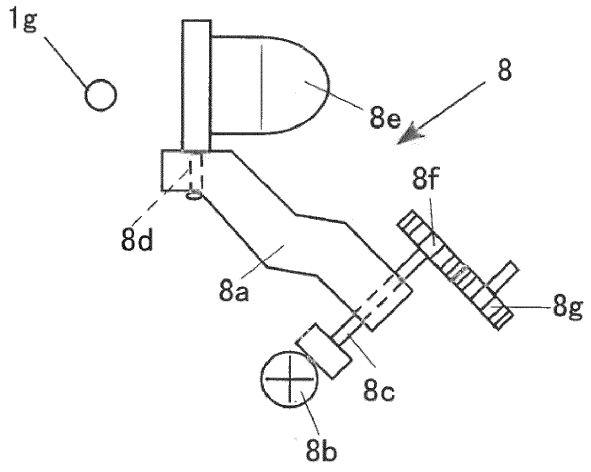

Fig. 8B

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a game device.

BACKGROUND ART

CITATION LIST

[0002] There is a known game device with the following construction: multiple gimmicks which become obstacles and multiple operation elements for operating the gimmicks are provided on a game board, and a ball is transported from a start location to a goal location by operating the gimmicks with the operation elements (for example, referring to PTL1).

PATENT LITERATURE

[0003] PTL1: Japanese Published Utility Model No. 57-5009

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] According to the game device, if a gimmick is not operated well with an operation element, the ball cannot move forward or return to a predetermined position for enjoying an exciting game.

[0005] In such a game device, there is an urgent need to introduce a new gimmick which has unexpectedness.

[0006] The present disclosure is accomplished in view of this, and aims to provide a game device including a gimmick which has unexpectedness.

SOLUTION TO PROBLEM

[0007] Features of a first solution are as follows:

a game device, which transports a rolling body from a start location to a goal location, characterized in that,
the game device includes:

a swinging shaft, which is able to swing between a first position and a second position lower than the first position with a first shaft that is orthogonal to a back panel provided vertically as a center, and is able to rotate with a central axis of the swinging shaft as a center;
a first gear, which is fixed on the swinging shaft;
an arm, which is fixed on the swinging shaft;
a basket, which is provided on the arm and is able to be in a third position that is lower than the swinging shaft and a fourth position that is higher than the swinging shaft with a rotation of the swinging shaft;
a force applying member, which applies a force on the swinging shaft toward the first position; and
a second gear, which is configured to be able to rotate through an operation of an operation element, and is configured to engage with the first gear when the swinging shaft is located at the second position and disengage with the first gear when the swinging shaft is located at the first position,
wherein when the swinging shaft is located at the first position and the basket is located at the third position, the basket is able to receive the rolling body, the swinging shaft is swung to the second position through a weight of the rolling body received, and through an operation of the operation element, the basket moves until the basket reaches the fourth position to discharge the rolling body.

[0008] According to the first solution, features of the second solution are as follows:

when located at the first position and the second position, the swinging shaft extends obliquely with an upward slope gradient from a base end side to a front end side.

[0009] According to the first solution, features of the third solution are as follows:

the operation element is a knob.

[0010] According to the first solution, features of the fourth solution are as follows:

the arm and the basket move at a front surface side of the back panel.

[0011] According to the first solution, features of the fifth solution are as follows:

the basket is mounted on the arm via a third shaft which extends in a direction orthogonal to the swinging shaft, and
when the arm rotates relative to the swinging shaft and the basket reaches the fourth position, the basket abuts against a protrusion provided on the back panel to roll over relative to the third shaft.

ADVANTAGEOUS EFFECTS OF INVENTION

[0012] According to the first solution, when the ball enters the basket, the first gear and the second gear engage with each other. In this state, through the operation of the operation element, the basket is enabled to generally roll over relative to the swinging shaft, so that the rolling body can be discharged at a position where the basket generally rolls over. That is, the arm moves in a manner of throwing to discharge the rolling body at a higher position, so as to realize the game device which has unexpectedness and high enjoyment.

[0013] According to the second solution, the swinging

shaft located at the first position and the second position slopes with an upward slope gradient from the base end side to the front end side, so that when the basket moves from the third position to the fourth position, the arm swings toward an obliquely upper position, so as to realize the game device which has more unexpectedness and enjoyment than the first solution.

[0014] According to the third solution, the arm is rotated through the operation of an operation knob, so as to perform a visual operation, thereby realizing the game device which has excellent operability.

[0015] According to the fourth solution, the arm and the basket move at a front surface side of the back panel, so that it is easy observe the movement of the arm and the basket, thereby enjoying the pleasure when observing the movement.

[0016] According to the fifth solution, the rolling body is discharged by a general rolling-over of the basket at the fourth position, so as to realize the game device which has more unexpectedness and high enjoyment.

BRIEF DESCRIPTION OF DRAWINGS

[0017]

Fig. 1 is a perspective view of a game board of a game device according to an embodiment.
Fig. 2 is a back view of the game board.
Fig. 3 is a perspective view of a helical body included in a gimmick G1.
Fig. 4A and Fig. 4B are views of a ladder-like member included in a gimmick G2.
Fig. 5A and Fig. 5B are views of a shelf-like member included in a gimmick G3.
Fig. 6 is a perspective view of an arc-like member included in a gimmick G4.
Fig. 7 is a front view of three rotation bodies included in a gimmick G5.
Fig. 8A and Fig. 8B are front views of a throwing mechanism included in a gimmick G7.
Fig. 9 is a perspective view of a swinging passage included in a gimmick G8.
Fig. 10 is a perspective view of a zigzag member and a push-up rod included in a gimmick G9.
Fig. 11 is a perspective view of a frame included in a gimmick G10.
Fig. 12 is a perspective view of a swinging passage component included in a gimmick G11.
Fig. 13 is a perspective view of a step-like passage member and a push-up rod included in a gimmick G12.
Fig. 14 shows a rotation body included in a gimmick G13.
Fig. 15 is a perspective view of a funnel-like member and a swinging arm included in a gimmick G15.

DESCRIPTION OF EMBODIMENTS

[0018] Hereinafter, a game device in an embodiment of the present disclosure is described.

[0019] Fig. 1 is a perspective view of a game board 1 of a game device 100 according to an embodiment, and Fig. 2 is a back view of the game board 1.

[0020] The game device 100 is a game device as follows: a ball B (referring to Fig. 3) is transported from a lower-right start location S to a lower-left goal location L by operations of three operation elements, and a front surface of the game device is open.

[0021] Herein, a ball formed by a magnetic substance, for example, is used as the ball B.

[0022] In addition, the three operation elements, such as a knob OP1, a slide knob OP2, and a push-button OP3, are provided on an upper surface of a base 1a. On the other hand, main gimmicks G1 ~ G15 are provided on a back panel 1b which stands relative to the base 1a. A front surface of the back panel 1b is open.

[0023] Besides, the game device 100 is constructed as follows: the knob OP1, the slide knob OP2, and the push-button OP3 are operated properly, to as to enable the ball B placed at the start location S to pass through the gimmicks G1 ~ G15 in sequence and be transported to the goal location L.

[0024] Hereinafter, details of the game device 100 are described.

(Start Location S)

[0025] The start location S is a location where the ball B is placed at the beginning of the game.

[0026] A tray 1c is provided at the start location S. An upper surface of the tray 1c slopes, so as to guide the placed ball B to the start location S.

〈Gimmick G1〉

[0027] Fig. 3 is an enlarged perspective view of a helical body 2 included in the gimmick G1.

[0028] The gimmick G1 picks up the ball B at the start location S through a rotation of the helical body 2, lifts the ball B to a first position, and discharges the ball B.

[0029] In the helical body 2, a helical plate 2b is formed around a shaft 2a. The helical plate 2b winds around the shaft 2a with an upward slope gradient in a counter-clockwise direction seen from the above.

[0030] As shown in Fig. 2, the helical body 2 is coupled to the knob OP1 via a gear train 50. If the knob OP1 is rotated in a clockwise direction seen from the above, the helical body 2 rotates in the clockwise direction seen from the above; and on the other hand, if the knob OP1 is rotated in the counter-clockwise direction seen from the above, the helical body 2 rotates in the counter-clockwise direction seen from the above.

[0031] According to this gimmick G1, if the knob OP1 is rotated in the clockwise direction seen from the above,

the ball B located at the start location S is picked up by the helical plate 2b, and with the further rotation of the helical body 2, the ball B is restricted by the back panel 1b and a guiding sidewall 1c and is lifted until the ball B reaches the first position. At the first position, the guiding sidewall 1c is cut off, so that the ball B is discharged because restriction by the guiding sidewall 1c disappears. The discharged ball B descends on a downhill slope (referring to Fig. 1) and reaches a gimmick G2.

(Gimmick G2)

[0032] Fig. 4A and Fig. 4B are views of a ladder-like member 3 included in the gimmick G2.

[0033] The gimmick G2 transports the ball B from right to left on the ladder-like member 3 in a transversely placed state, and enables the ball B to fall.

[0034] In the gimmick G2, the ladder-like member 3 is mounted, in the transversely placed state with a downward slope gradient toward the left, on the back panel 1b.

[0035] The ladder-like member 3 is formed by a comb-teeth-like member 3a and a comb-teeth-like member 3b which have a generally same shape with each other. A U-shaped recess (a reference numeral of which is omitted) for placing the ball B is formed on an upper surface of each tooth of the comb-teeth-like member 3a and the comb-teeth-like member 3b. The tooth of the comb-teeth-like member 3a and the tooth the comb-teeth-like member 3b are combined in such a manner that teeth of the comb-teeth-like member 3a and teeth of the tooth the comb-teeth-like member 3b are in an alternate arrangement.

[0036] The comb-teeth-like member 3a is fixed on the back panel 1b via two bosses, i.e., a boss 3d and a boss 3e. In addition, two bosses of the comb-teeth-like member 3b, i.e., a boss 3f and a boss 3g are fit with a slot hole 3h and a slot hole 3i (referring to Fig. 2) of the back panel 1b in such a manner that the comb-teeth-like member 3b can move obliquely relative to the comb-teeth-like member 3a.

[0037] The comb-teeth-like member 3b can move between a position where the upper surface of the tooth of the comb-teeth-like member 3b and the upper surface of the tooth of the comb-teeth-like member 3a are in a same plane (referring to Fig. 4A) and a position where the upper surface of the tooth of the comb-teeth-like member 3b and the upper surface of the tooth of the comb-teeth-like member 3a are staggered in a height direction and transversely (referring to Fig. 4B). That is, the comb-teeth-like member 3b can move by an amount of a thickness of a support of the comb-teeth-like member 3b in the height direction and move transversely between gaps of adjacent teeth of the comb-teeth-like member 3a. In addition, when the upper surface of the tooth of the comb-teeth-like member 3b and the upper surface of the tooth of the comb-teeth-like member 3a are in the same plane, each tooth of the comb-teeth-like member 3b is close to one of adj acent teeth of the comb-teeth-like member 3a, and a large gap is formed between the tooth of the comb-teeth-like member 3b and the other one of the adjacent teeth of the comb-teeth-like member 3a to such a degree that the ball B can pass through the gap.

[0038] As shown in Fig. 2, the comb-teeth-like member 3b moves through a connecting rod 53, and the connecting rod 53 is connected to a swinging body 52 which rotates with a shaft 51 as a center through an operation of the slide knob OP2. At this time, when the upper surface of the tooth of the comb-teeth-like member 3b and the upper surface of the tooth of the comb-teeth-like member 3a are in the same plane, the large gap is formed between the tooth of the comb-teeth-like member 3b and the other one of the adjacent teeth of the comb-teeth-like member 3a to such a degree that the ball B can pass through the gap. Accordingly, it is required to operate the slide knob OP2 little by little in a manner of avoiding falling of the ball B, so as to experience the excitement during transporting of the ball B.

[0039] In this gimmick G2, the ball B transported by the ladder-like member 3 to a left end falls off from the ladder-like member 3.

[0040] In addition, a fixed slope 4 is provided below the ladder-like member 3 (referring to Fig. 1). A top of the fixed slope 4 is slightly to the left under the left end of the ladder-like member 3, and when the ball B falls to a right side of the top, the ball B returns to the start location S. On the other hand, when the ball B falls to a left side of the top, the ball B is guided to a gimmick G3.

(Gimmick G3)

[0041] Fig. 5 shows a shelf-like member 5 included in the gimmick G3.

[0042] The gimmick G3 receives the ball B from the fixed slope 4, and the ball B is lifted to a predetermined position and is discharged by movement of the shelf-like member 5.

[0043] The shelf-like member 5 has five layers of shelves. The number of shelf layers is not limited to five. The shelf-like member 5 has a left shelf half 5a and a right shelf half 5b, and has a shape that a front end of the left shelf half 5a and a front end of the right shelf half 5b are connected with each other. Each shelf of the shelf-like member 5 has such a size that two balls B can be placed on a left side and a right side. In addition, an upper surface of each shelf of the shelf-like member 5 curves to form a central recess.

[0044] In addition, the right shelf half 5b is fixed on the back panel 1b via two bosses (not shown). As shown in Fig. 2, the left shelf half 5a is fit with a slot hole 5f and a slot hole 5g via two bosses, i.e., a boss 5d and a boss 5e, in such a manner that the left shelf half 5a can move in an up-down direction relative to the shelf half 5a. Moreover, the shelf half 5a can move in the up-down direction between a position where a shelf of the shelf half 5a and a shelf of the shelf half 5b of the same layer are at a same height and a position where the shelf of the shelf half 5a

and a shelf of the shelf half 5b of an upper layer are at a same height.

[0045] The shelf half 5a of the shelf-like member 5 is coupled to the push-button OP3, and moves through an operation of the push-button OP3. For example, as shown in Fig. 2, an end of a seesaw member (rod) 54 whose central portion is supported by a shaft is provided under the push-button OP3. By pressing the push-button OP3, one end of the seesaw member 54 descends while the other end ascends. In this way, a vertical shaft 55 which abuts against the other end is lifted, so that the shelf half 5a ascends via a coupling piece 56. If the hand moves off the push-button OP3, the vertical shaft 55 descends, so that the shelf half 5a descends.

[0046] In this gimmick G3, the ball B is lifted layer by layer through a movement of the shelf-like member 5, so that the ball B transported to an uppermost layer of the shelf half 5a is discharged to a gimmick G4 through an upper surface of the shelf half 5b.

(Gimmick G4)

[0047] Fig. 6 is a perspective view of an arc-like member 6a included in the gimmick G4.

[0048] The gimmick G4 enables the ball B to roll in a left-right direction through the arc-like member 6a, and the ball B is guided by a striking member 6g (referring to Fig. 2) to a discharging frame 6c, so as to enable the ball B to fall.

[0049] The gimmick G4 has an arc-like member 6a extending in a left-right direction. The arc-like member 6a has a U-shaped groove-like road surface, and has an arc shape which bulges downward in a front view. A capturing frame 6d extending forward from a middle portion in the left-right direction is formed on the arc-like member 6a, and a discharging frame 6c extending forward is formed on a left side of the capturing frame 6d. A D-shaped hole 6e is formed at an inner side of the capturing frame 6d, and a circular hole 6f is formed at an inner side of the discharging frame 6c. The D-shaped hole 6e has such a size that the ball B can be embedded into the D-shaped hole 6e but cannot pass through the D-shaped hole 6e. On the other hand, the circular hole 6f has such a size that the ball B can pass through the circular hole 6f.

[0050] In addition, a hole 1e (referring to Fig. 1) is formed on a portion of the back panel 1b which corresponds to the discharging frame 6c. A front end of a striking member 6g (referring to Fig. 2) can go through this hole 1e.

[0051] The striking member 6g moves through a rotating operation of the knob OP1. For example, as shown in Fig. 2, a mechanism, which converts a rotating movement of a vertical shaft 57 which rotates through the knob OP1 into a rotating movement of a transverse shaft 58 which is orthogonal to the vertical shaft 57, is provided at an inner side of the back panel 1b, and the striking member 6g is additionally provided on the transverse shaft 58 via an arm 59. Moreover, when the knob OP1 is rotated in a direction at a good time, the front end of the striking member 6g protrudes through the hole 1e and pushes the ball B to the discharging frame 6c.

[0052] In this gimmick G4, the ball B entering the gimmick G4 goes back and forth in a right-left direction on the arc-like member 6a. Then, when the ball B reaches to a location corresponding to the discharging frame 6c and when the knob OP1 is rotated at a good time, the ball B enters the discharging frame 6c and falls into the hole 6f of the discharging frame 6c.

(Gimmick G5)

[0053] Fig. 7 shows three rotation bodies, i.e., a rotation body 7a, a rotation body 7b, and a rotation body 7c, included in a gimmick G5.

[0054] The Gimmick G5 transports the ball B from left to right through rotations of the three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c.

[0055] The three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, have a same size, and are constructed transversely into one row with an end surface facing frontward. The three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, are generally externally connected with an adjacent rotation body. A cut 7d, a cut 7e, and a cut 7f, which are U-shaped, face forward, and are open at a peripheral position, are respectively formed on the rotation body 7a, the rotation body 7b, and the rotation body 7c. The cut 7d, the cut 7e, and the cut 7f have such a size that they receive the ball B. In addition, the three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, rotate in a rotation direction that is different from an adjacent rotation body and in a same speed, and adjacent cuts are opposite to each other by rotation.

[0056] The three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, moves through a rotating operation of the knob OP1. For example, as shown in Fig. 2, a crown gear 61, which is engaged with a gear 60 additionally provided on the vertical shaft 57 that rotates by the knob OP1, is provided at the inner side of the back panel 1b. Three gears, i.e., a gear 62a, a gear 62b, and a gear 62c, which correspond to the three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, are rotated by rotational power of the crown gear 61, so that the three rotation bodies, i.e., the rotation body 7a, the rotation body 7b, and the rotation body 7c, move. The three gears, i.e., the gear 62a, the gear 62b, and the gear 62c, have a same shape and same teeth in quantity, and are engaged with an adjacent gear.

[0057] According to this gimmick G5, the ball falling into the hole 6f of the discharging frame 6c is temporarily hindered from falling by a periphery of the rotation body 7a. Then, the rotation body 7a is rotated by a rotating operation of the knob OP1, and when the cut 7d of the

rotation body 7a reaches an upper position, the ball falls into the cut 7d. Then, the rotation body 7a is rotated in the clockwise direction through the rotating operation of the knob OP1, so that the cut 7d of the rotation body 7a and the cut 7e of the rotation body 7b are consistent, and the ball B is moved from the cut 7d to the cut 7e. Then, the knob OP1 is operated reversely, so that the rotation body 7b is rotated in the clockwise direction, and the ball B is moved to the cut 7f of the rotation body 7c. After that, the rotation body 7c is rotated in the clockwise direction, and when the cut 7f faces the helical body 2, the ball B is moved to the helical body 2.

(Gimmick G6)

[0058] The same method is used at the gimmick G6 as that used at gimmick G1. The ball B is lifted to a second position by the helical body 2, so that the ball B is discharged.

[0059] According to the gimmick G6, the ball B is lifted while being restricted by the back panel 1b and the guiding sidewall 1c, until the ball B reaches a second position. The guiding sidewall 1c is cut off at the second position, so that restriction by the guiding sidewall 1c disappears and that the ball B is discharged. The discharged ball B goes through the inner side of the back panel 1b, goes out of a hole 1f (referring to Fig. 1) of the back panel 1b, and reaches a gimmick G7.

(Gimmick G7)

[0060] Fig. 8A and Fig. 8B show a throwing mechanism 8 included in the gimmick G7.

[0061] The gimmick G7 transports the ball B to a higher position and discharges the ball B by a movement of the throwing mechanism 8.

[0062] The throwing mechanism 8 has an arm 8a for a throw. A base end of the arm 8a is fixedly provided on a swinging shaft 8c which swings with a shaft 8b mounted on the back panel 1b as a center. The swinging shaft 8c can rotate with its own central axis as a center. A basket 8e is mounted at a free end of the arm 8a via a shaft 8d. The basket 8e receives the ball B from the hole 1f of the back panel 1b.

[0063] A gear 8f is fixedly provided at a free end of the swinging shaft 8c. In addition, a gear 8f, which is in a dynamic-coupling with the knob OP1, is provided near the gear 8f. A spring (not shown) applies a force to the swinging shaft 8c, and the swinging shaft 8c is at an upper swinging position (referring to Fig. 8A) in a normal state. In this state, the gear 8f and the gear 8g do not engage with each other. On the other hand, when the basket 8e receives the ball B, the swinging shaft 8c swings with the shaft 8b as the center through a weight of the ball B so as to reach a lower swinging position, and the gear 8f and the gear 8g engage with each other.

[0064] The gear 8g moves through a rotating operation of the knob OP1. For example, as shown in Fig. 2, the gear 8g is coupled to a crown gear 64, which is additionally provided on the vertical shaft 57 that rotates by the knob OP1, via a gear system (a reference numeral of which is omitted). When the gear 8f and the gear 8g engage with each other, if the knob OP1 is rotated in the counter-clockwise direction seen from the above, the swinging shaft 8c rotates, and the arm 8a performs a throwing movement at a front side of the back panel 1b. Then, the basket 8e abuts against a projection 1g which protrudes from and is provided on the back panel 1b, or the basket 8e which is kicked off by the projection 1g rotates by 180 degrees (rolls over) with the shaft 8d as a center, and the ball B is discharged from the basket 8e. After that, the arm 8a and the basket 8e restore to an initial position by a moment balance around the swinging shaft 8c.

(Gimmick G8)

[0065] Fig. 9 is a perspective view of a swinging passage 9a and a swinging passage 9b included in the gimmick G8.

[0066] The gimmick G8 enables the ball B to fall onto the gimmick G9 under the gimmick G8 through swinging of two swinging passages, i.e., the swinging passage 9a and the swinging passage 9b.

[0067] The two swinging passages, i.e., the swinging passage 9a and the swinging passage 9b, are mounted on the back panel 1b. The two swinging passages, i.e., the swinging passage 9a and the swinging passage 9b, have a generally same length. The swinging passage 9a is mounted at an upper layer, and on the other hand the swinging passage 9b is mounted at a lower layer. The swinging passage 9b at the lower layer is provided beyond the swinging passage 9a at a left side.

[0068] Middle portions of the two swinging passages, i.e., the swinging passage 9a and the swinging passage 9b, are supported by a shaft via a boss 9c and a boss 9d, so as to perform a seesaw movement.

[0069] The swinging passage 9a and the swinging passage 9b move through an operation of the slide knob OP2. For example, as shown in Fig. 2, the boss 9c and the boss 9d of the swinging passage 9a and the swinging passage 9b are mounted on a swinging member 66 which swings by a sliding contact with the above swinging body 52 and on a four-part link mechanism 67 which moves through swinging of the swinging member 66. Moreover, when the slide knob OP2 is operated to the right, the swinging passage 9a and the swinging passage 9b move with a right side of the swinging passage 9a and a right side of the swinging passage 9b descending at the same time; and on the other hand, when the slide knob OP2 is operated to the left, the swinging passage 9a and the swinging passage 9b move with a left side of the swinging passage 9a and a left side of the swinging passage 9b descending at the same time.

[0070] At this gimmick G8, the ball B is guided to the right side of the swinging passage 9b at the lower layer

and is discharged. The discharged ball B falls onto a gimmick G9 via a slope 10.

(Gimmick G9)

[0071] Fig. 10 is a perspective view of a zigzag passage 11a, a zigzag passage 11b, a push-up rod 11c, a push-up rod 11d, and a push-up rod 11e included in the gimmick G9.

[0072] At the gimmick G9, the ball B is transported from right to left on the zigzag passage 11a and the zigzag passage 11b and is discharged.

[0073] The zigzag passage 11a and the zigzag passage 11b are arranged from right to left, and are provided on the back panel 1b. Three teeth (hills) are formed on the long- strip zigzag passage 11a, and two teeth (hills) are formed on the short-size zigzag passage 11b.

[0074] The gimmick G9 has two push-up rods, i.e., the push-up rod 11c and the push-up rod 11d, which correspond to the zigzag passage 11a, and one push-up rod, i.e., the push-up rod 11e, which corresponds to the zigzag passage 11b.

[0075] The push-up rod 11c is configured to protrude through the hole 11f and jack up the ball B so as to enable the ball B to go over a central tooth (hill) of the zigzag passage 11a, and the push-up rod 11d is configured to protrude through the hole 11g and jack up the ball B so as to enable the ball B to enter a hole 1h (referring to Fig. 1) of the back panel 1b. The ball entering the hole 1h of the back panel 1b goes through a passage at the inner side of the back panel 1b and comes out of a left hole 1i. Then, the ball B is placed at a right side of the left zigzag passage 11b. The push-up rod 11e is configured to protrude through the hole 11h and be placed on the left tooth (hill) of the zigzag passage 11b.

[0076] The push-up rod 11c, the push-up rod 11d, and the push-up rod 11e are coupled to the press-button OP3, and move through an operation of the press-button OP3. For example, as shown in Fig. 2, a first seesaw member 69, which performs a seesaw movement with a shaft 68 as a center with ascending of the vertical shaft 55, is provided at an upper end of the above vertical shaft 55, and a second seesaw member 71, which performs a seesaw movement with a shaft 70 as a center, is fit with the first seesaw member 69. Moreover, through pushing-up of the second seesaw member 71, the push-up rod 11c, the push-up rod 11d, and the push-up rod 11e are pushed up integrally.

[0077] At this gimmick G9, the ball transported to the left side of the zigzag passage 11b is discharged to a gimmick G10.

(Gimmick G10)

[0078] Fig. 11 is a perspective view of a frame 12a included in the gimmick G10.

[0079] The gimmick G10 enables the frame 12a to ascend, so as to discharge the ball B at an ascending position.

[0080] The gimmick G10 has a frame 12a for receiving the ball B from the gimmick G9.

[0081] The frame 12a moves through a rotating operation of the knob OP1. For example, the frame 12a is mounted at a rack 72 (referring to Fig. 2), and a pinion 73 engaged with the rack 72 is rotated by the rotating power of the knob OP1, so as to enable the frame 12a to ascend and descend.

[0082] In addition, the frame 12a is open at a back side, and the ball B enters the frame 12a at a descending position and is discharged from the back side at the ascending position. When the frame 12a moves from the descending position to the ascending position, the ball B is prevented from falling off the frame 12a by the back panel 1b.

(Gimmick G11)

[0083] Fig. 12 is a perspective view of a swinging passage component 13a included in a gimmick G11.

[0084] The gimmick G11 includes a swinging passage component 13a which has a passage 13b extending in a left-right direction. A middle portion of the swinging passage component 13a in a length direction is shaft-supported on the game board via a U-shaped supporting frame 13c. A window 13c for observing the inside of the passage 13b is formed on a front wall of the passage 13b of the swinging passage component 13a. In addition, a hole 13d for receiving the ball B is formed at a left side of the front wall of the passage 13b.

[0085] The swinging passage component 13a moves through an operation of the slide knob OP2. For example, as shown in Fig. 2, the supporting frame 13c rotates through a movement of the above four-part link mechanism 67, so that the swinging passage component 13a moves.

[0086] At this gimmick G11, the ball B is received from the gimmick G10 when the left side of the swinging passage component 13a is at a descending position. If no operation is performed on the ball B in this state, the ball B rolls to the left in the passage 13b and falls off from the left side of the swinging passage component 13a. Therefore, after the ball B is received from the gimmick G10, it is required to operate the slide knob OP2 immediately so as to enable the swinging passage component 13a to swing in the clockwise direction and lift the left side of the swinging passage component 13a. By lifting the left side of the swinging passage component 13a at a good time, the ball is transported to a right side of the swinging passage component 13a and is discharged. The discharged ball B reaches a gimmick G12 via a passage not shown.

(Gimmick G12)

[0087] Fig. 13 is a perspective view of a step-like passage member 14a and a push-up rod 14b, a push-up rod

14c, and a push-up rod 14d included in the gimmick G12.

[0088] The gimmick G12 enables the ball B to descend on a step of the step-like passage member 14a, and enables the ball B to jump to a position right above the step.

[0089] The step-like passage member 14a is formed by two layers of steps. The ball B is received at a lower layer portion of the step-like passage member 14a.

[0090] In addition, at the gimmick G12, the push-up rod 14b, the push-up rod 14c, and the push-up rod 14d, which correspond to a hole 14e, a hole14f, and a hole 14g of the lower layer portion, a first layer portion, and an upper layer portion (a second layer portion), are provided. The push-up rod 14b, the push-up rod 14c, and the push-up rod 14d can move up and down integrally.

[0091] The push-up rod 14b, the push-up rod 14c, and the push-up rod 14d are coupled to the push-button OP3, and move through an operation of the push-button OP3. For example, as shown in Fig. 2, a third seesaw member 75 is provided at an end of the first seesaw member 69 in such a manner that the third seesaw member 75 can rotate with a shaft 74 as a center. Moreover, through a rotation of the third seesaw member 75, the other end of the third seesaw member 75 is used to push up the push-up rod 14b, the push-up rod 14c, and the push-up rod 14d.

[0092] The push-up rod 14b and the push-up rod 14c lift the ball B to board of the next layer, and the push-up rod 14d enables the ball B at an upper portion of the step to jump toward a position right above the step.

(Gimmick G13)

[0093] Fig. 14 shows a rotation body 15a included in a gimmick G13.

[0094] The gimmick G13 picks up the ball B jumping from the upper portion of the step of the gimmick G12 by the rotation body 15a, and enables the ball B to rotate approximately one circle with the shaft 2a as a center and fall off.

[0095] The rotation body 15a is mounted at an upper end of the shaft 2a of the helical body 2, and rotates with the shaft 2a as the center with the rotation of the helical body 2. A magnet 15b for adsorbing the ball B is provided on the rotation body 15a, and the magnet 15b adsorbs the jumping ball B when the magnet 15b is located right above the upper portion of the step. The adsorbed ball B is in a state of being suspended at the rotation body 15a.

[0096] In addition, the gimmick G13 has a ball striking plate 15e (referring to Fig. 1) which strikes down the suspended ball B with a rotation of the rotation body 15a.

[0097] At this gimmick G13, when the knob OP1 is operated so that the rotation body 15a rotates in the counterclockwise direction seen from the above, the ball B, which jumps from the upper portion of the step of the gimmick G12 and is adsorbed by the magnet 15b, hits the ball striking plate 15e after the rotation body 15a has rotated approximately one circle and falls off. The ball B which falls off is transported to a gimmick G14 through a slope (a reference numeral of which is omitted).

(Gimmick G14)

[0098] The gimmick G14 transports the ball B from right to left on a top 16a of the above swinging passage component 13a and discharges the ball B.

[0099] The gimmick G14 is formed by the top 16a of the above swinging passage component 13a. As shown in Fig. 12, a slot 16b, which is narrower than a passage width of the above passage 13b, is formed on the top 16a of the swinging passage component 13a and throughout the entire area in a length direction. In addition, an upper surface of the top 16a of the swinging passage component 13a has a wave shape.

[0100] At this gimmick G14, through an operation of the slide knob OP2, the ball B placed on the top 16a of the swinging passage component 13a is enabled to roll on the top 16a of the swinging passage component 13a, and the ball B is transported to the left side, so that the ball B falls off.

(Gimmick G15)

[0101] Fig. 15 is a perspective view of a funnel-like member 17a and a swinging arm 17b included in the gimmick G15.

[0102] The gimmick G15 receives the ball B falling off from the gimmick G14, and throws the ball B toward the goal location L.

[0103] The funnel-like member 17a has a receiving opening 17c for receiving the ball B falling off and a foot 17d which enables the ball B received by the receiving opening 17c to be discharged directly. On the other hand, the swinging arm 17b rotates with a central shaft 17e as a center. A hammer 17f is provided at one end of the swinging arm 17b, and a basket 17g is provided at the other end of the swinging arm 17b. In a normal state, a side where the hammer 17f is provided is at a lower position. Moreover, when the ball B from the foot 17d of the funnel-like member 17a is placed in the basket 17g, the swinging arm 17b rotates, so as to throw the ball B located in the basket 17g to the goal location L.

(Goal Location L)

[0104] A cylinder 18a for receiving the ball B thrown by the gimmick G15 is provided at the goal location L. In addition, a bell 18b is provided at the goal location L, and when the ball B enters the cylinder 18a, the ball B hits the bell 18b so that the bell 18b rings.

(Effects of the Embodiment)

[0105] The game device 100 constructed as above has the following effects.

[0106] When the ball enters the basket 8e, the gear 8f and the gear 8g engage with each other. In this state, through the operation of the knob OP1, the basket 8e is enabled to generally roll over relative to the swinging

shaft 8c. Accordingly, when the ball B is discharged at this position where the basket 8e generally rolls over, the arm 8a moves in a manner of throwing to discharge the ball B at a higher position, so as to realize the game device 100 which has unexpectedness and high enjoyment.

[0107] In addition, when the gear 8f and the gear 8g engage with each other, the swinging shaft 8c slopes with an upward slope gradient from a base end side to a front end side, and the basket 8e and the arm 8a swing toward an obliquely upper position, so as to realize the game device 100 which has more unexpectedness.

[0108] Further, the arm 8a is rotated through the operation of the knob OP1, so as to perform a visual operation, thereby realizing the game device 100 which has excellent operability.

[0109] In addition, the arm 8a and the basket 8e move at a front surface side of the back panel 1b, so that it is easy to observe the movement of the arm 8a and the basket 8e, thereby observing and enjoying the movement.

[0110] In addition, the ball B is discharged by a rolling-over of the basket 8e from an original position, so as to realize the game device 100 which has more unexpectedness.

(Variant Embodiment)

[0111] An embodiment of the present disclosure is described hereinabove, but the present disclosure is not limited to the embodiment, and various changes can be made without changing the scope of the gist.

[0112] For example, in the above embodiment, illustration is made to the circumstance that the basket 8e is provided on the arm 8a via the shaft 8d in the throwing mechanism 8 of the gimmick G7, but the basket 8e may also be fixed on the arm 8a. In a word, the following construction is provided: the gear 8f and the gear 8g engage with each other through the weight of the ball B, and the arm 8a is enabled to roll over relative to the swinging shaft 8c so as to discharge the ball B. Under such a circumstance, an opening of the basket 8a may be expanded outwardly, or an orientation of the basket 8e may be changed, so as to discharge the ball B more easily.

[0113] In addition, in the above embodiment, when the gear 8f and the gear 8g engage with each other, the swinging shaft 8c slopes at an upward angle of approximately 45 degrees relative to a horizontal axis, but the angle of the swinging shaft 8c is not limited to this. In a word, when the arm 8a moves, the ball B can be discharged from the basket 8e. For example, as long as the basket 8e is fixed on the arm 8a, the swinging shaft 8c may also be horizontal. In addition, when the gear 8f and the gear 8g engage with each other, the swinging shaft 8c may slope at a downward angle of approximately 45 degrees relative to the horizontal axis.

[0114] In addition, in the above embodiment, the ball B is used as a rolling body, but the rolling body is not limited to the ball B. An object, such as a puppet, can be used as long as the object moves by rolling.

List of reference numerals

[0115]

1: game board;
1a: base;
1b: back panel;
1g: protrusion;
2: helical body;
8: throwing mechanism;
8a: arm;
8b: shaft;
8c: swinging shaft;
8d: shaft;
8e: basket;
8f: gear;
8g: gear;
18a: cylinder;
18b: bell;
19b: swinging arm;
19g: seesaw member of the basket;
100: game device;
B: ball.

Claims

1. A game device, which transports a rolling body from a start location to a goal location, **characterized in that**,
the game device comprises:

a swinging shaft, which is able to swing between a first position and a second position lower than the first position with a first shaft that is orthogonal to a back panel provided vertically as a center, and is able to rotate with a central axis of the swinging shaft as a center;
a first gear, which is fixed on the swinging shaft;
an arm, which is fixed on the swinging shaft;
a basket, which is provided on the arm and is able to be in a third position that is lower than the swinging shaft and a fourth position that is higher than the swinging shaft with a rotation of the swinging shaft;
a force applying member, which applies a force on the swinging shaft toward the first position; and
a second gear, which is configured to be able to rotate through an operation of an operation element, and is configured to engage with the first gear when the swinging shaft is located at the second position and disengage with the first gear when the swinging shaft is located at the first position,

wherein when the swinging shaft is located at the first position and the basket is located at the third position, the basket is able to receive the rolling body, the swinging shaft is swung to the second position through a weight of the rolling body received, and through an operation of the operation element, the basket moves until the basket reaches the fourth position to discharge the rolling body.

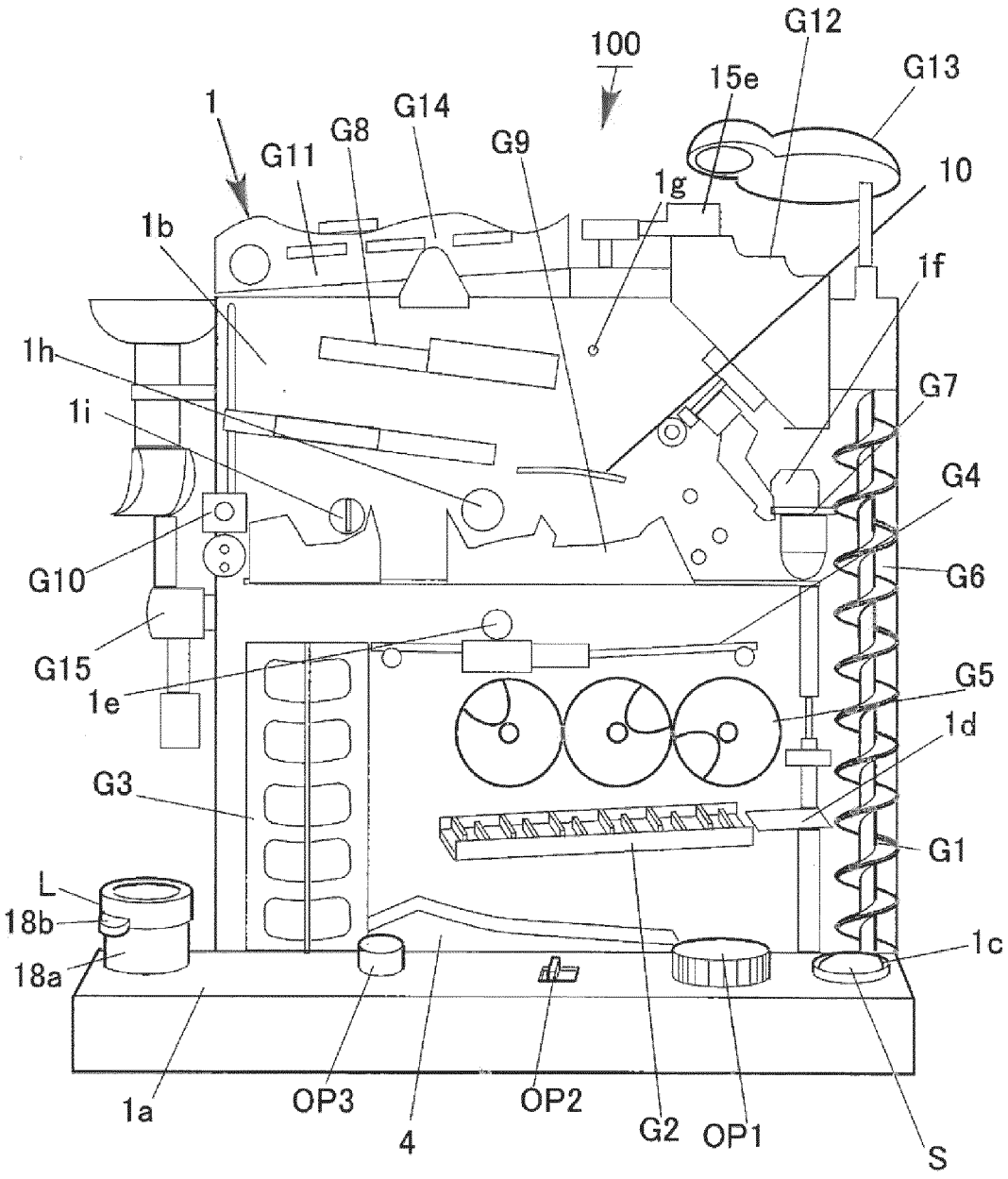
2. The game device according to claim 1, **characterized in that**,
when located at the first position and the second position, the swinging shaft extends obliquely with an upward slope gradient from a base end side to a front end side.

3. The game device according to claim 1, **characterized in that**,
the operation element is a knob.

4. The game device according to claim 1, **characterized in that**,
the arm and the basket move at a front surface side of the back panel.

5. The game device according to claim 1, **characterized in that**,

the basket is mounted on the arm via a third shaft which extends in a direction orthogonal to the swinging shaft, and
when the arm rotates relative to the swinging shaft and the basket reaches the fourth position, the basket abuts against a protrusion provided on the back panel to roll over relative to the third shaft.


100
1
G11
G8
G14
G9
G12
G13
15e
10
1g
1b
1f
1h
1i
G7
G4
G10
G6
G15
1e
G5
1d
G3
G1
L
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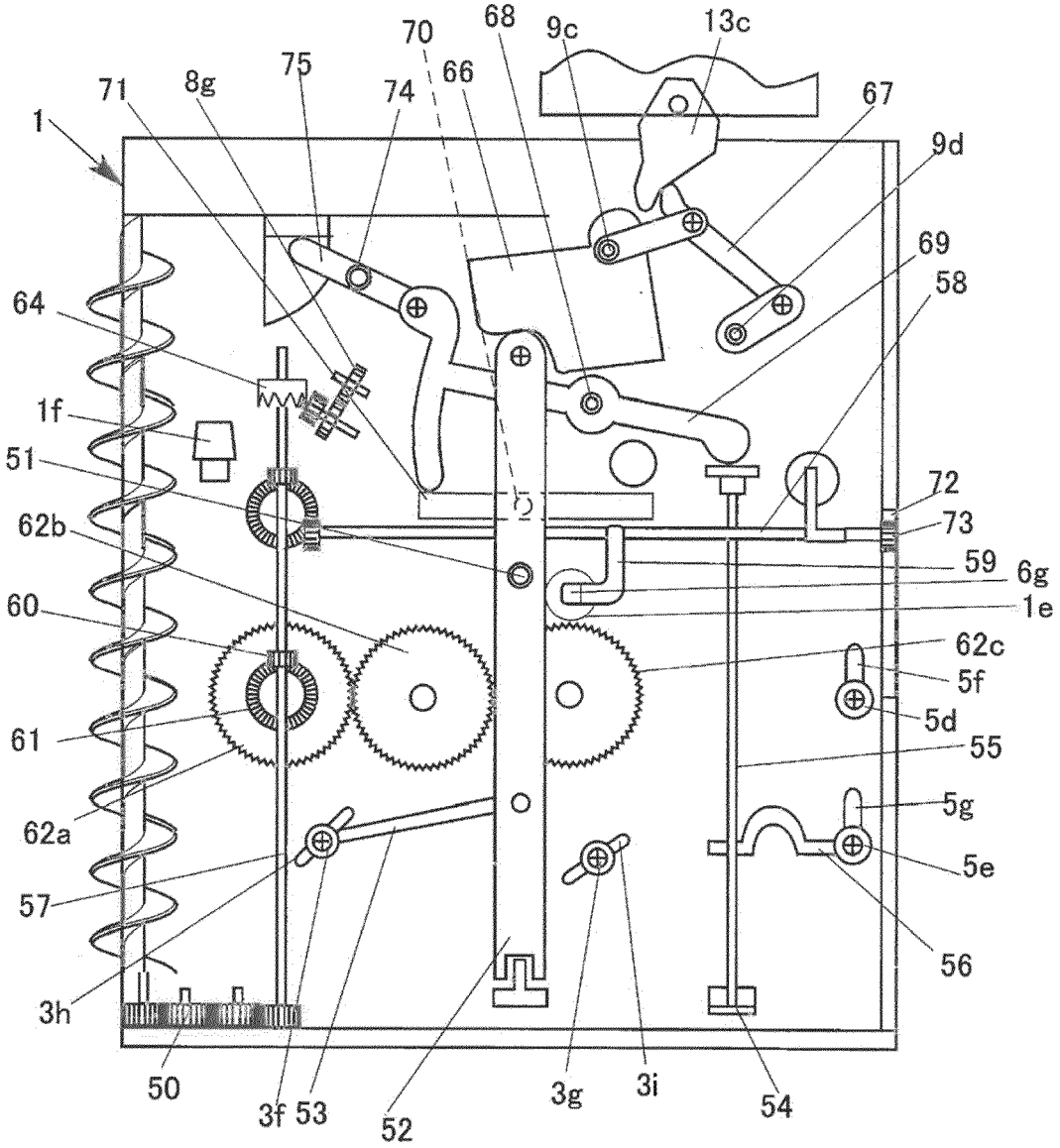
18a
1c
1a
OP3
4
OP2
G2
OP1
S

Fig. 1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9d
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1f
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61
62a
57
3h
50
3f
53
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5g
5e
56

Fig. 2

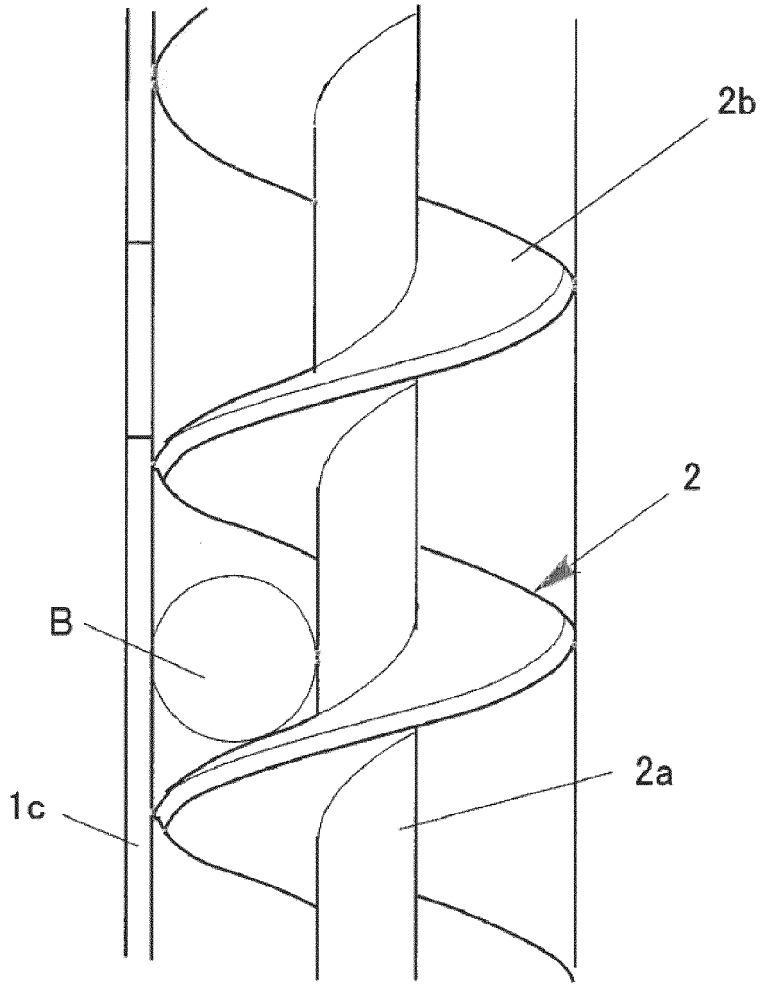

Fig. 3

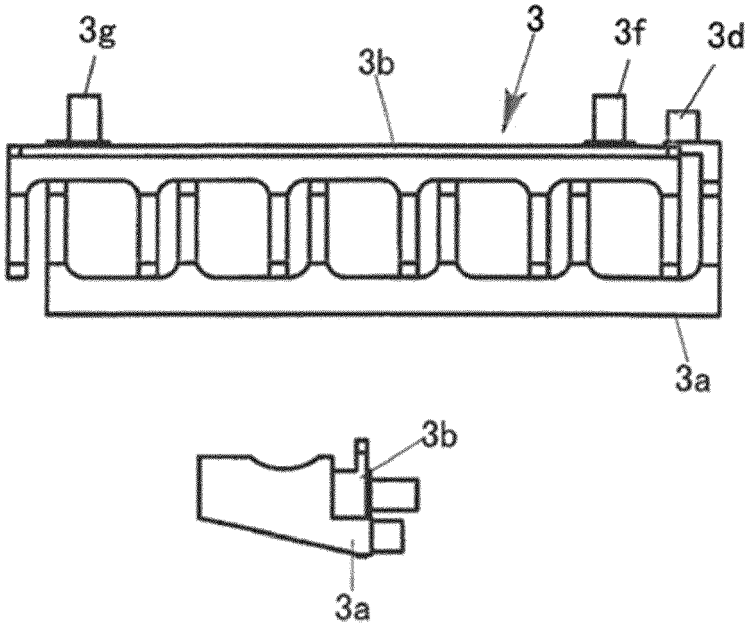

Fig. 4A

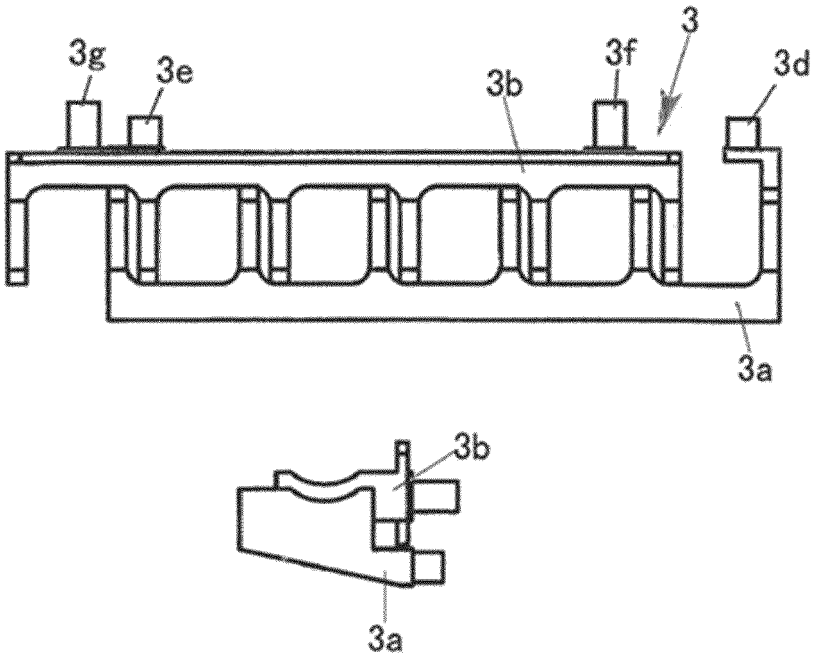

Fig. 4B

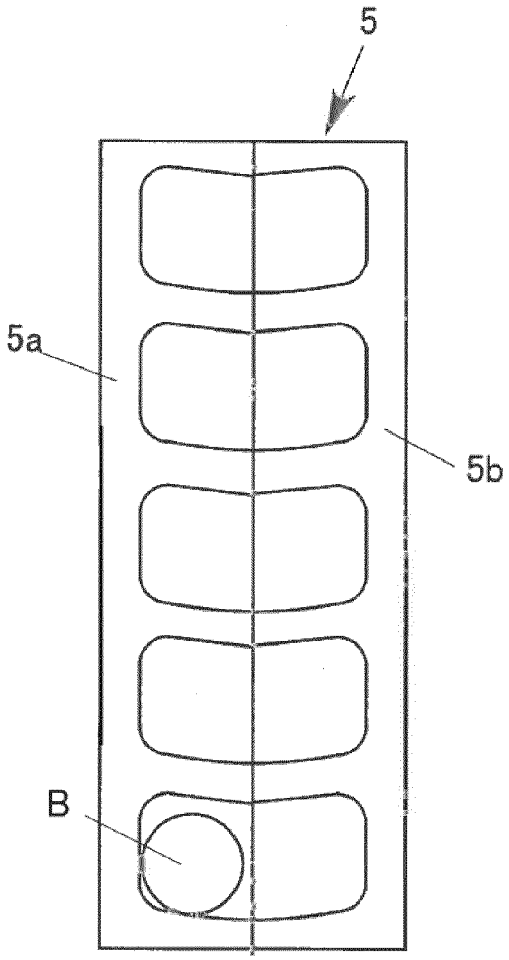

Fig. 5A

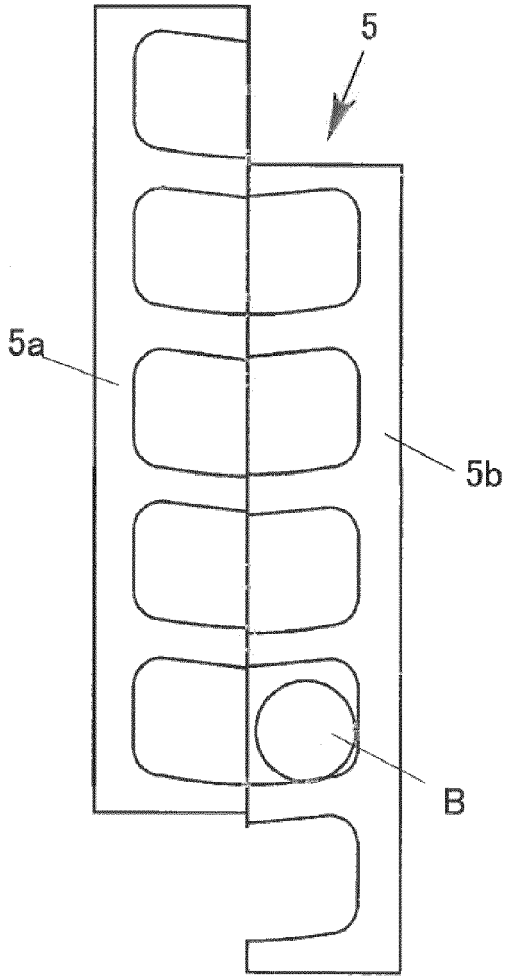

Fig. 5B

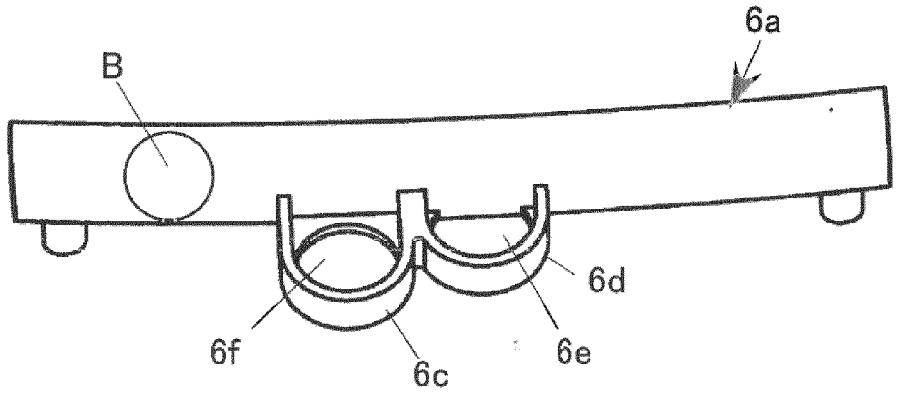

Fig. 6

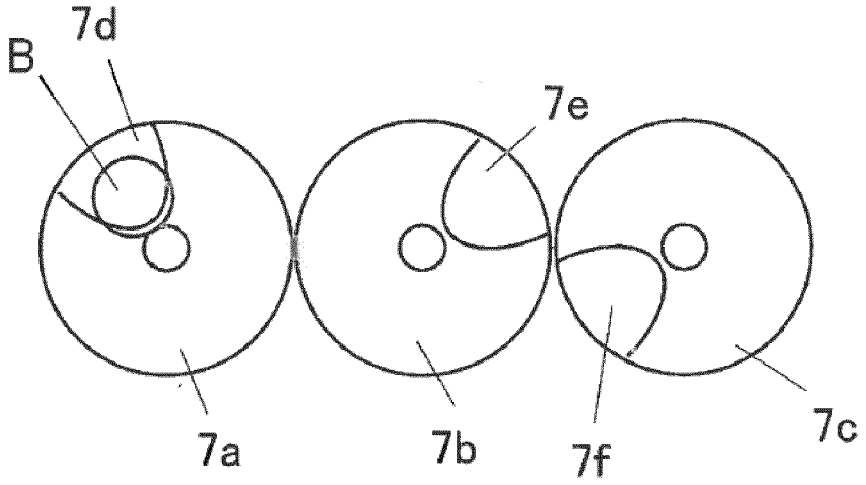

Fig. 7

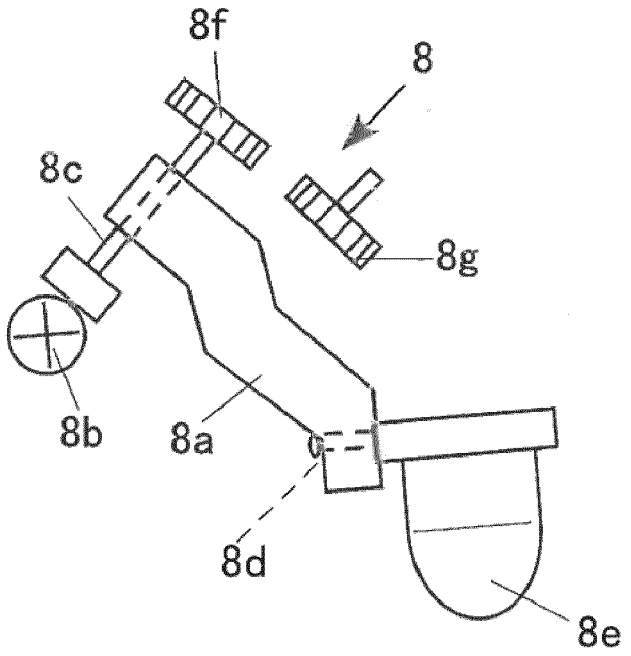

Fig. 8A

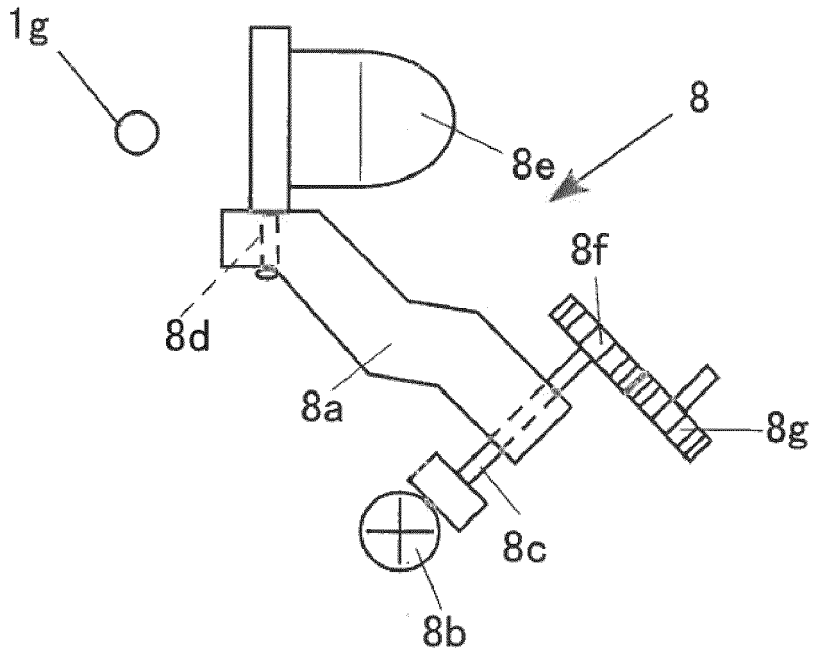

Fig. 8B

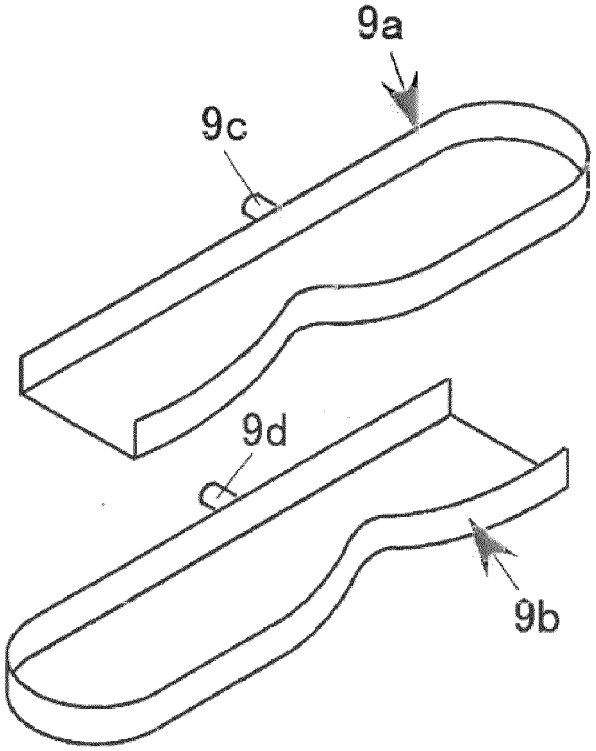

Fig. 9

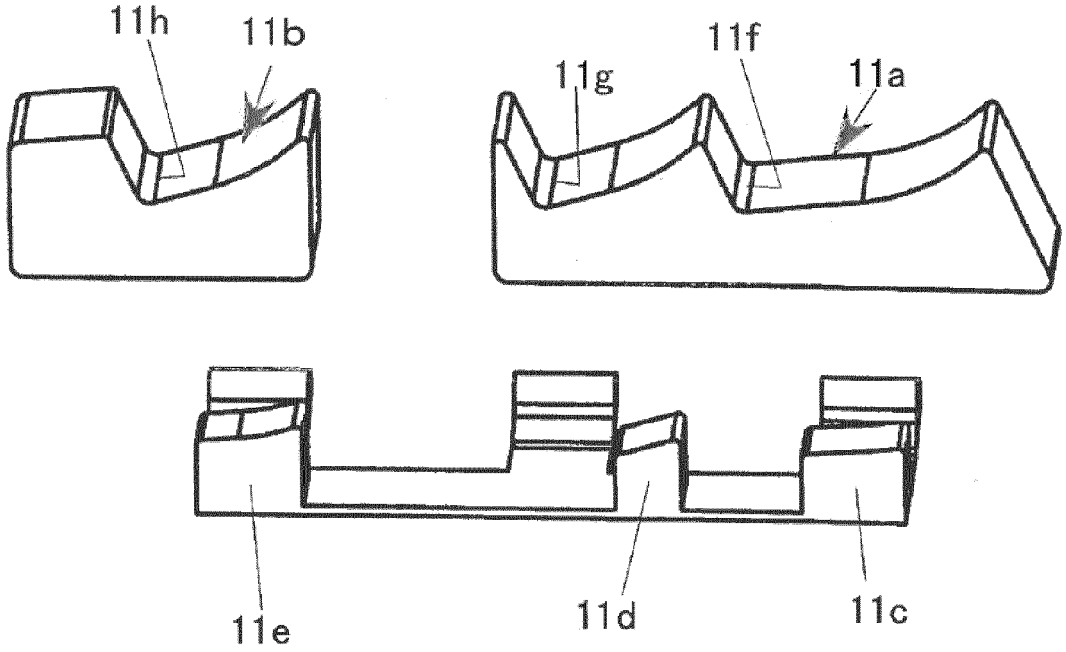

Fig. 10

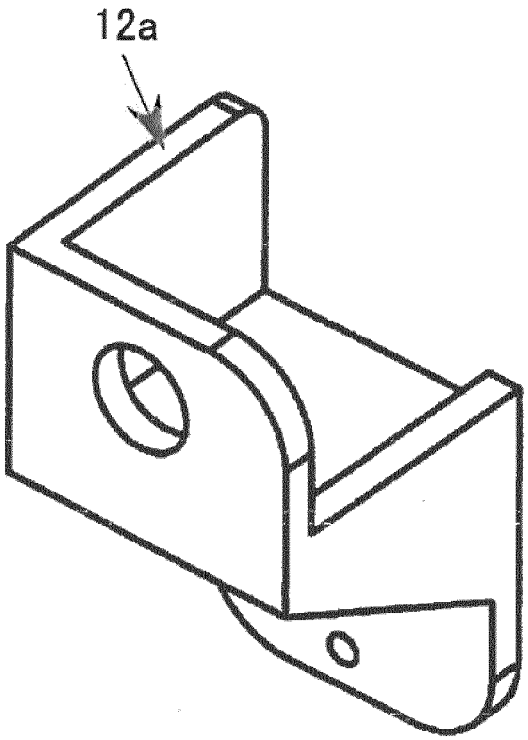

Fig. 11

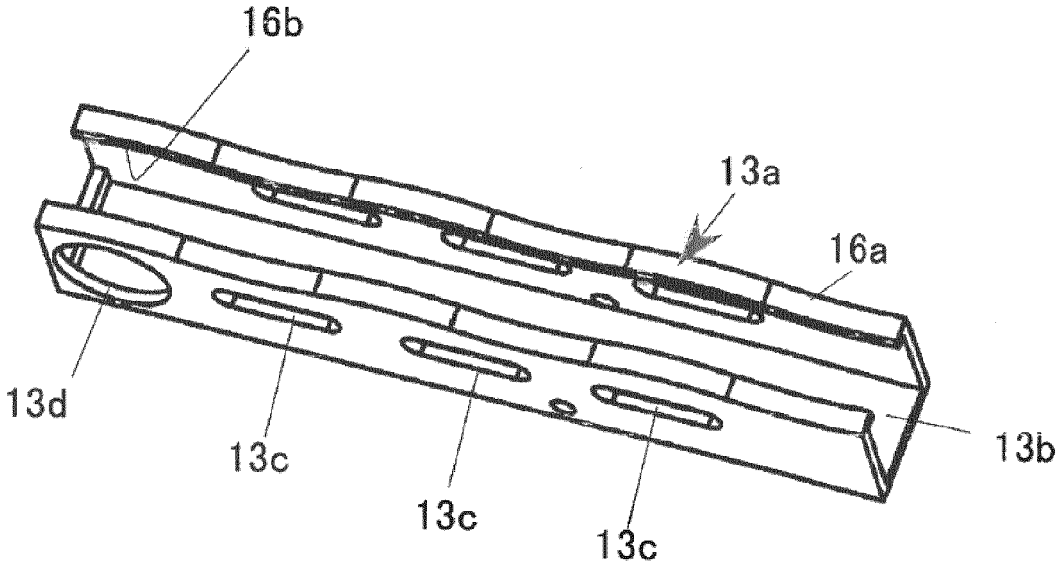

Fig. 12

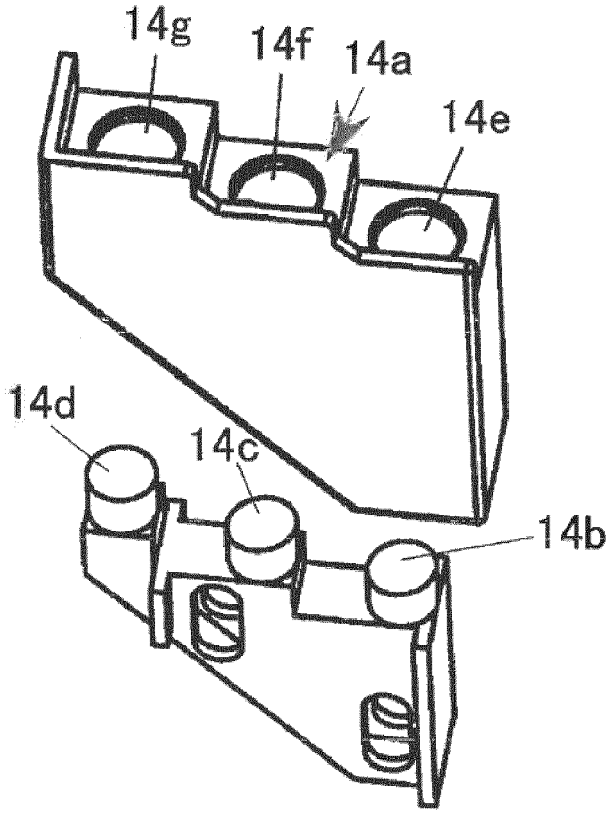

Fig. 13

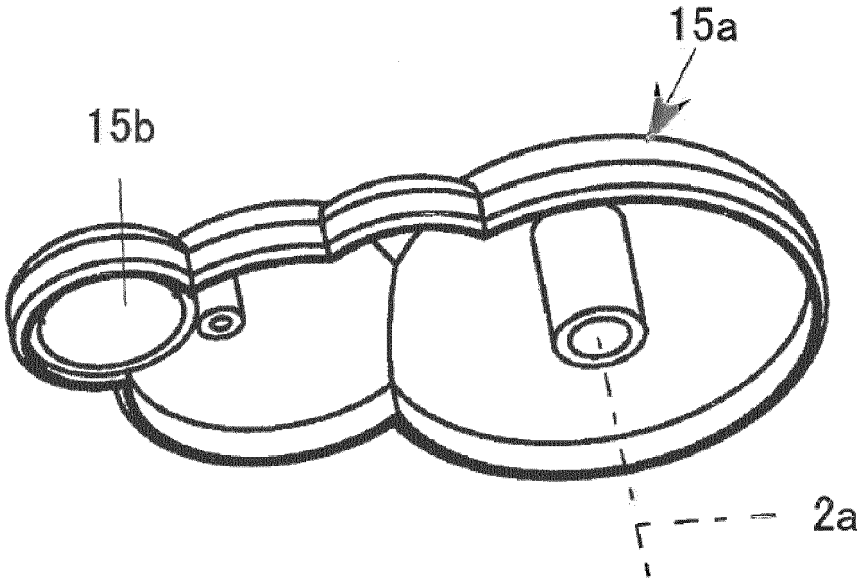

Fig. 14

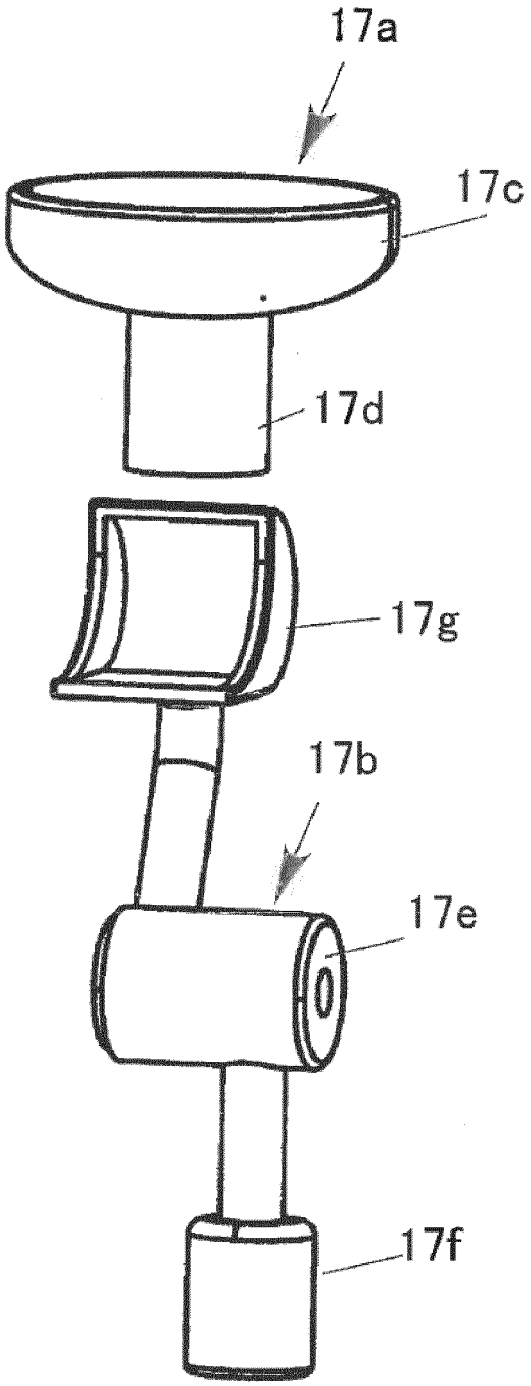

Fig. 15

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EUROPEAN SEARCH REPORT

Application Number
EP 23 16 2692

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 2019/143234 A1 (AU TSZ HO ALEX [HK] ET AL) 16 May 2019 (2019-05-16) * paragraphs [0025] - [0069]; figures *	1-5	INV. A63F7/02 A63F7/36
A	GB 2 250 208 A (TOMY CO LTD [JP]) 3 June 1992 (1992-06-03) * page 3, line 20 - page 17; figures *	1-5	ADD. A63F7/24 A63F7/28 A63F9/08
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A	US 5 855 501 A (KATO YUJI [JP] ET AL) 5 January 1999 (1999-01-05) * Figure 5 and corresponding passages in the description *	1-5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A63F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	5 December 2023	Bagarry, Damien

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 23 16 2692

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05-12-2023

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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