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(54) **Container for a movable toy and combination with a movable toy**

(57) The present invention concerns a container (3) for an anthropomorphic movable toy (2), wherein the movable toy (2) is operated by a spring and has a walking feature, and the container (3) can be split into two portions (3A, 3B) when the movable toy (2) is contained therein,

once a predetermined time (T) has elapsed, wherein the predetermined time (T) is not calculated from the time of release of the container (3) but from the moment in which the user operates suitable actuation means (8) capable of directly operating on the movable toy (2) from outside said container (3).

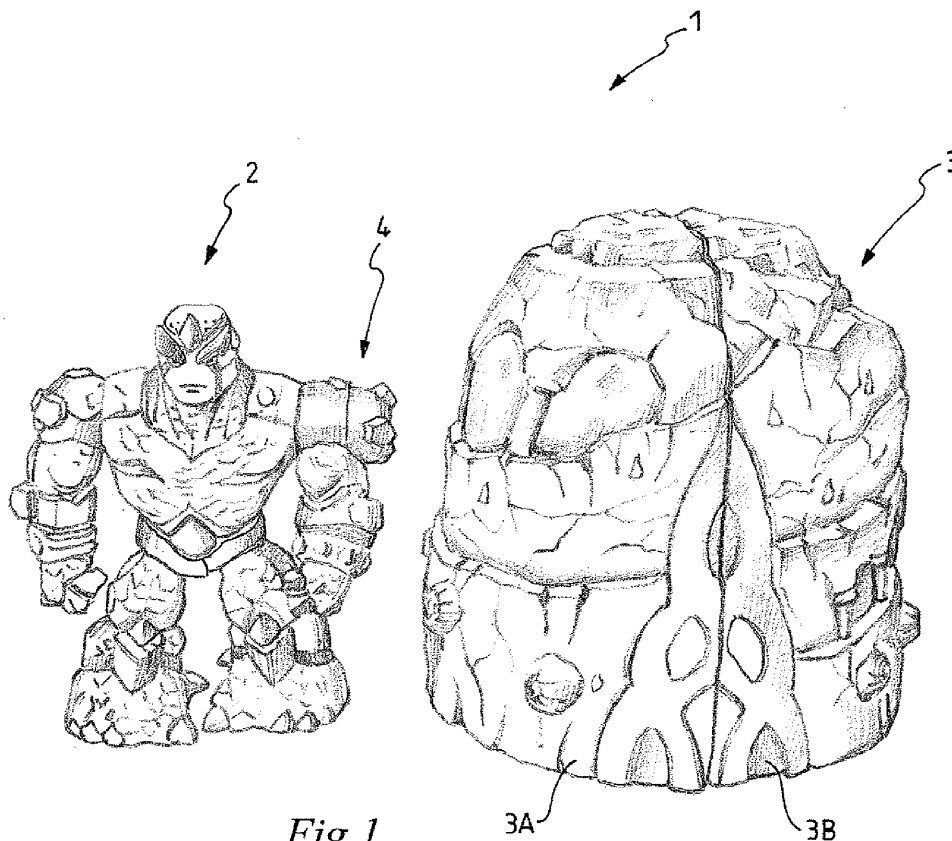


Fig.1

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Description

[0001] The present invention relates to a container for a movable toy and a combination of the container and with such movable toy.

[0002] Toys are known in the art which comprise:

- a hollow container having a unitary form in an undivided state, and separation means adapted to change the state of said container from an undivided state to a divided state,
- a movable toy operably contained in the hollow container in its undivided state, the movable toy having spring winding means,
- the container allowing the movable toy to come out of the container as the container changes from the unitary state to the divided state upon release of the spring of the movable toy, so that said toy is free to move.

[0003] Examples of these combinations of a movable toy and a container are disclosed in patent documents US4736943 and US4817936.

[0004] Particularly, in the embodiments described in these documents, the spring mechanism of the movable toy is only wound up when the movable toy is within the hollow container, by actuation of the wind-up means on the outer surface of the container. Once the spring mechanism of the movable toy has been wound up, after a certain period of time, the container opens.

[0005] When the container is open, the movable toy is free to move.

[0006] It should be noted that the period of time from the action of winding up the spring of the movable toy to the opening of the container may be delimited by minimum and maximum thresholds that are fixed once they are set.

[0007] The problem of the toy combination as described in the above documents lies in the consequentiality of the steps involved. Particularly, once the spring in the movable toy has been wound up and a predetermined time has elapsed from such winding step, the container is opened and the movable toy comes out. In other words, when a user winds the spring of the movable toy, the container opens within a predetermined time, with a duration that cannot be adjusted as desired.

[0008] This means that, although the container opening time is somewhat delayed relative to the action of winding the spring of the movable toy, it is still determined by the time at which the spring winding action is completed.

[0009] As a result, the toy, intended as the movable toy-container combination, is only usable when the user operates the spring winding mechanism.

[0010] In light of the above prior art, the object of the present invention is to provide a container for a wind-up movable toy which affords increased usability of the toy and the toy-container combination by its final user.

[0011] According to the present invention, this object is fulfilled by a container for a movable toy as defined in claim 1.

[0012] With the present invention, a container may be provided which is adapted to contain a movable toy so that, once the spring of the movable toy is wound up and the movable toy is introduced into the container, the container only opens (and hence the movable toy comes out of it) when the user actuates an element, such as a button.

[0013] Advantageously, the container of the present invention can transfer the potential energy stored in the container to suitable means, to only divide the container when a user actuates a button external to the container, with the toy in the container.

[0014] Furthermore, in an advantageous aspect of the present invention, once the button has been actuated, a certain period of time, or delay, elapses from the actuation of the pushbutton by the user and the opening of the container.

[0015] The characteristics and advantages of the invention will appear from the following detailed description of one practical embodiment, which is illustrated without limitation in the annexed drawings, in which:

- Figure 1 shows a movable toy and a container adapted to contain such movable toy to form the toy combination of the present invention;
- Figures 2A to 2E show the steps through which a movable toy is introduced into a container to form the toy combination of the present invention;
- Figure 3 is an exploded view of the components of the movable toy and container of the present invention;
- Figure 4 is another exploded view of part of the components of the container of Figure 3;
- Figure 5 is a further exploded view of certain components among those shown in Figure 4.

[0016] Referring to the attached figures, numeral 1 designates a combination of a movable toy 2 and a container 3 adapted to contain such movable toy 2 therein, according to the present invention.

[0017] Particularly, the movable toy 2 is embodied, for instance, by a movable toy comprising an elastic energy accumulation system, such as a spring. Preferably, once the spring has been wound up, this movable toy 2 is designed to walk during the spring unwinding time.

[0018] In the attached figures, the movable toy 2 preferably has anthropomorphic features (i.e. a head, two arms and hands, two legs and a trunk, each formed, for instance, of front and rear polymeric half-shells, generally designated by 2A and 2B), the features being for instance similar to those of the monster known with the trade name of Gormiti (® by Giochi Preziosi).

[0019] The container 3 is a hollow container comprising at least two portions 3A and 3B. The portions 3A and 3B are preferably formed of corresponding half-shells (i.e. elements of relatively small thickness, defined by a

thin outer edge). The container 3 has a unitary state, in which the two portions 3A and 3B are integral with each other. In this state, the two portions 3A and 3B define a cavity therein, which is adapted to contain the movable toy 2 and other inner mechanisms, as further explained below. Nevertheless, the other inner mechanisms are advantageously integral with at least one of the two portions 3A, 3B and the remaining cavity has a size substantially corresponding to that of the toy contained therein.

[0020] As shown in the attached figures, the hollow container 3 preferably has the appearance of a rock.

[0021] Referring now to Figures 2A to 2E, which shows the various steps for introducing the movable toy 2 into the hollow container 3 to form the toy combination of the present invention, it will be appreciated that the movable toy 2 is operably contained in the hollow container 3 in its unitary state, as described in greater detail hereinafter.

[0022] Referring now to Figures 3, 4 and 5, it can be seen that, in addition to the usual components required for the walking function, well known and not further described herein, the movable toy 2 comprises:

- first wind-up means 4 for winding up a first spring mechanism 5,
- first lock means 6 for locking the release of the first spring mechanism 5 once it has been wound up by operating the first wind-up means 4;
- first motion transfer means, for transferring motion to the hollow container 3;
these first motion means may be integral with the first wind-up means 4.

[0023] The operation and interconnection of the above mentioned first wind-up means 4, first spring mechanism 5 and first lock means 6 may be easily understood by looking at the attached figures, and will be not described in further detail herein.

[0024] For the purposes of the present disclosure and according to the particular embodiment of the movable toy 2, it should be noted that:

- the first wind-up means 4 are rotatably mounted, through a tubular element 4A open at one end, to a drive shaft 5A of the first spring mechanism 5; such tubular element 4A has a radial flange 4B at its open end and is coupled at the other end to a cylindrical element 4C which has an axially extending pin 4D coupled to the flange 4B to transfer the rotary motion of the first wind-up means 4 to the first spring mechanism 5 and to simulate the pivotal motion of an arm.

[0025] A further cylindrical element 4E is coupled to the cylindrical element 4C and acts as a shoulder extension of the movable toy 2. Such extension 4E is capable of free clockwise or counterclockwise rotation; when the extension 4E is actuated in the clockwise direction, the first spring mechanism 5 is wound up; radial elements

4F project out of such extension 4E and assist the holding and winding action of the user; the extension 4E has a suitable seat in its free end, which is adapted to ensure a form fit with delay means, as described below;

- the first spring mechanism 5 is held within the trunk of the toy 2 and is mechanically connected to the first wind-up means 4 through the drive shaft 5A;
- the first lock means 6 are adapted to move from a locked position to an unlocked position and include a peg 6A with a holding pawl adapted for engagement with the shaft 5A; in the locked position, the first lock means 6 allow clockwise and prevent counterclockwise rotation of the shaft 5A, whereas no restriction to the motion of the shaft 5A is provided in the unlocked position.

[0026] More generally, referring to the embodiment as shown in the figures, the above mentioned first motion transfer means include a first driving member (the seat 4C) preferably formed in the shoulder extension 4E of the toy 2, which has a non circular, e.g. a star shape, thereby allowing a form-fit with a special driven member 9A (e.g. part of the delay means 9, see below).

[0027] Furthermore, the user-operable first lock means 6 can stop motion transfer to the driven member 9A (in this example they prevent counterclockwise rotation of the shaft 5A). They may consist of a mechanical switch, such as a slider (the peg 6A), advantageously movable along an axis that, with the toy 2 in its proper orientation, has a horizontal extension. In case of an anthropomorphic toy 2, the first lock means 6 are advantageously placed at a shoulder of the toy 2, with the axis of the slider possibly parallel to the forward walking direction of the toy when it is driven by the motion transfer means.

[0028] Advantageously, these motion transfer means are integral with the wind-up means 4; nevertheless, they may not be coincident therewith if the toy 2 is not spring-operated but, for instance, battery-powered.

[0029] Also referring to Figure 4, in addition to two portions 3A and 3B the hollow container 3 comprises:

- separation means 7 designed to turn said container from a unitary state to a divided state;
- first actuation means 8 operably connected to said first lock means 6 for unlocking said spring mechanism 5, thereby allowing release of the potential energy stored in said spring mechanism 5, said actuation means 8 being disposed on the outer surface of the hollow container 3 and
- delay means 9 operably connected between said separation means 7 and said first wind-up means 4 of the movable toy 2, said delay means 9 being designed to delay the operation of the separation means 7 by a predetermined non-zero time T, relative to the time of operation of the first actuation means 8, i.e. to delay the operation of said separation

means 7 to the end of a first unwinding period of the spring mechanism 5.

[0030] The separation means 7 include second wind-up means 12 for winding up a spring 13 in the hollow container 3; this spring is wound up as the hollow container moves from said divided state to said unitary state, said separation means 7 being operably connected to said second wind-up means 12 through said delay means 9.

[0031] More generally, the portions 3A, 3B of the hollow container 3 are movable relative to each other. In the unitary state, the first actuation means 8 allow a user to actuate an element held within the volume of the container 3 from outside the container 3, and hence to operate through the container 3.

[0032] The first actuation means 8 advantageously consist of a button, a switch or a lever. Mechanical actuation means are preferable for their simple construction and easy use.

[0033] The hollow container 3 may further include a driven member 9A (here part of the delay means 9), which can receive energy, preferably as motion, for instance as rotary motion, from a member placed in the inner volume of the container 3 (here the seat 4C, the driving member of the toy 2). Therefore, the driven member 9A projects into the inner volume of the hollow container.

[0034] Advantageously, the driven member 9A is connected to second actuation means for actuating a device within the container. In the particular embodiment of the figures, the second actuation means are the delay means 9, which cause the container 3 to open by separating the two portions 3A, 3B.

[0035] Obviously, the second actuation means may cause a motion other than that of mutual separation of the portions 3A, 3B: for example, relative rotation thereof may be envisaged.

[0036] In a preferred embodiment, the driven member 9A is connected to delay means 9, which improves the usability of the toy 2, by both allowing a user to choose the time of operation of the first actuation means 8 on the outer surface of the hollow container 3, and allowing delayed opening to be not necessarily dependent on the time of release of the wind-up device by the user.

[0037] Advantageously, the container 3 includes no wind-up device for the toy 2, which means that no action is required to be made on the container 3 to wind up the motion mechanism in the movable toy 2. Namely, the container 3 has no rotary driving member that can be operated from outside and transfer rotary motion into the inner volume of the container 3.

[0038] It shall be noted that the portion 3A of the hollow container 3 comprises a subframe 10 associated by fastening means with the inner wall 3A' of the portion 3A, whereas the portion 3B of the container 3 comprises another subframe 11 associated by fastening means with the inner wall 3B' of the portion 3B.

[0039] Particularly, a substantially cylindrical pushing

member 10A projects from the subframe 10 with a substantially perpendicular orientation, and has a groove formed thereon that defines an abutment surface perpendicular to the axis of the pushing member 10A.

[0040] Furthermore, the subframe 11 has:

- a seat 11B in its front wall 11A for ensuring a form fit with the movable toy 2, particularly for receiving the extension 4E of the wind-up means 4
- a through hole 11C for receiving the pushing member 10A and
- another seat in its back wall 11D for accommodating the delay means 9, which are covered by a case 12 associated with said back wall 11D by fastening means.

[0041] As shown in Figure 3, the delay means 9 include the driven member 9A which receives motion from the toy 2 and a cam 9E (visible in Figure 5 only).

[0042] The cam 9E is operably connected to a catch 12, which in turn may include a cylindrical central portion extending along an axis of rotation and two radial projecting elements, one in such a position as to contact the cam 9E during rotation thereof, and the other in such a position as to create a counteracting surface for the abutment surface of the pushing member 10A.

[0043] In the embodiment of Figure 3, the delay means 9 include first, second and third gears 9B, 9C, 9D, in serially meshed relation. Appropriate selection of gear ratios allows adjustment of the time required for the cam 9E to run one complete turn about its axis, and hence of the predetermined delay time T from the operation of the first actuation means 8 (the button) and the actuation of the separation means 7. It shall be noted that the delay time T corresponds to less than one complete turn of the cam 9E.

[0044] As an alternative to the three gears 9B, 9C, 9D other arrangements known in the art may be envisaged, such as a belt.

[0045] In Figures 3 and 4, numeral 14 designates a safety button for opening the container 3 when the toy 2 is not inserted in the container 3, with the latter in the unitary state. It comprises a cam 14A which operates against a third radial element of the catch 13, thereby causing a rotation similar to that caused by the cam 9E of the delay means 9, but driven by the user.

[0046] In practice, once the toy 2 is wound up, with the first lock means 6 in the locked position, it will not be automatically unwound and may be inserted in the inner volume of the container 3 by assembling its two portions 3A, 3B.

[0047] Then, the user may operate the first actuation means 8, which in turn operate on the first lock means 6 to move them from the locked position to the unlocked position.

[0048] The energy stored in the toy 2 rotates the driving member, which transfers its rotary motion to the driven member 9A.

[0049] The delay means 9 will cause the container 3 to remain in its unitary state for a period of time T, which is calculated from the moment in which the user operates the first actuation means 8. At the end of the time T, the separation means will open the container 3, for the latter to move to the divided state.

[0050] Those skilled in the art will obviously appreciate that a number of changes and variants may be made to the arrangements as described hereinbefore to meet incidental and specific needs.

[0051] All of these variants and changes fall within scope of the invention, as defined in the following claims.

Claims

1. A hollow container (3) for a toy (2), comprising at least two half-shells (3A, 3B), having a unitary shape in its unitary state, and separation means (7) designed to cause said container (3) to change its state from a unitary state to a divided state, said container (3) an inner volume in its unitary state, which volume is adapted to receive a movable toy (2) comprising motion transfer means (5),

- said container (3) allowing the movable toy (2) to come out of it, as it changes from said unitary state to said divided state,

characterized in that

said container (3) comprises:

- first actuation means (8) on the outer surface of said container (3), which can operate within the inner volume of said container (3);
- delay means (9) operably connected with said separation means (7) and designed to delay the operation of said separation means (7) by a predetermined time (T), relative to the time of operation of said first actuation means (8), said delay means (9) delaying the operation of said separation means (7) by a first period of actuation of the motion transfer means (5) of said movable toy (2).

2. A container as claimed in claim 1, wherein said delay means comprise a driven member adapted to receive the motion generated by the motion transfer means of said toy when said toy is within the inner volume of said container; said delay means being kinematically connected with said separation means.

3. A container as claimed in claim 1 or 2, wherein said separation means include a spring and said container comprises second wind-up means for winding up said spring, said spring being wound up as the hollow container moves from said divided state to said unitary state, said separation means being operably connected to said second wind-up means.

4. A container as claimed in claim 3, wherein said container comprises a catch, which is movable from an unlocked position to a locked position to unlock/lock said separation means to allow or prevent release of the energy stored within said spring.

5. A container as claimed in any preceding claim, wherein said first actuation means are placed on said hollow container in such a position as to operate on said first lock means, and said driven element of said delay means is arranged to receive motion from said driving element, when said movable toy is contained in said inner volume of said container.

6. A container as claimed in claim 5, comprising a kinematic chain which receives motion from said elastic potential energy storage mechanism and transfers it to said separation means, said kinematic chain having at least:

- a first gearwheel kinematically connected to said driven member,
- a second gearwheel meshing with said first gearwheel and
- a third gearwheel meshing with said second wheel, the shaft of said third wheel having a radially projecting profile which engages with said first unlocking means, so that after a substantially complete or incomplete turn of said third gearwheel, said first unlocking means are unlocked, and the spring of said hollow container unwinds, thereby causing the hollow container to change from the unitary state to the divided state.

7. A container as claimed in claim 6, wherein said radially projecting profile is embodied by a cam having a first curved surface and a second rectilinear surface.

8. A combination of a container as claimed in any preceding claim and a movable toy, comprising said motion transfer means, systems for storing and selectively releasing energy, and first lock means designed to move from an unlocked position to a locked position, to unlock or lock the release of the energy stored in said movable toy.

9. A combination as claimed in the preceding claim, wherein said first actuation means directly engage said first lock means, when the latter are in the locked position, to move them into the unlocked position and thus allow the release of said storage mechanism.

10. A combination as claimed in any claim 8 or 9, wherein said movable toy has anthropomorphic features, and said first lock means are placed in the proximity of a

shoulder of said movable toy and/or said driving member is placed in the proximity of a shoulder of said movable toy.

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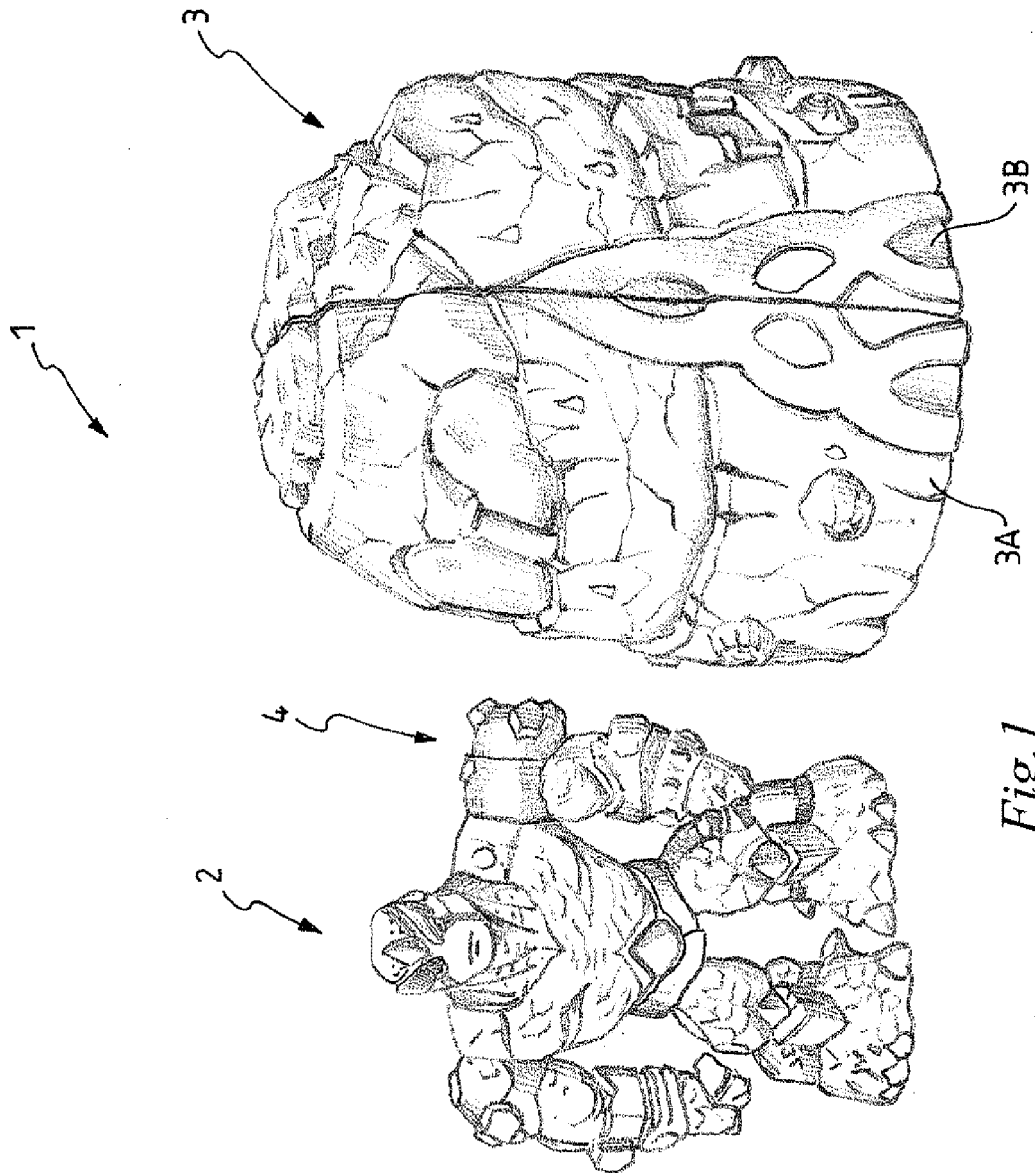


Fig. 1

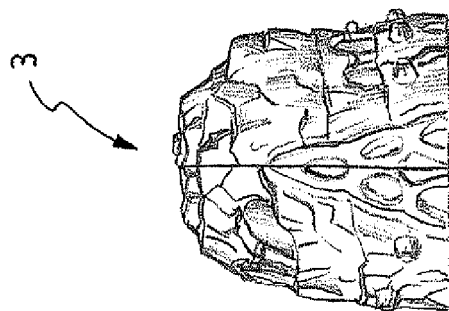


Fig. 2E

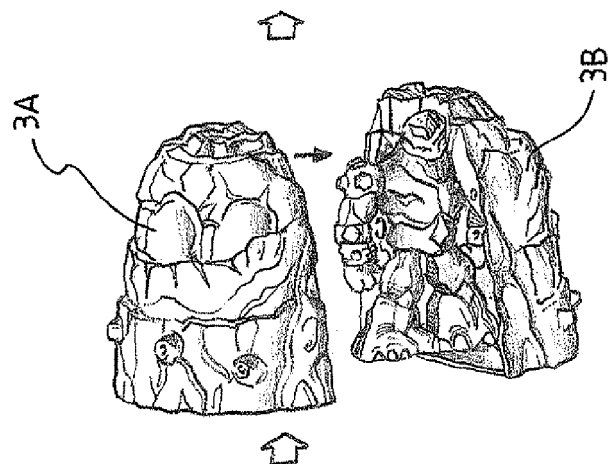


Fig. 2D

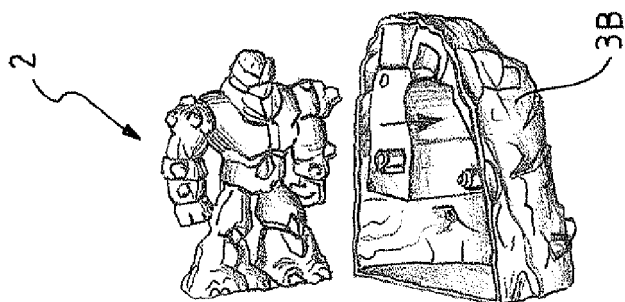


Fig. 2C

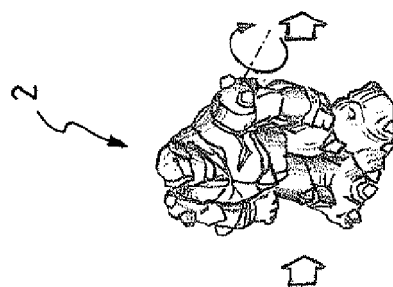


Fig. 2B



Fig. 2A

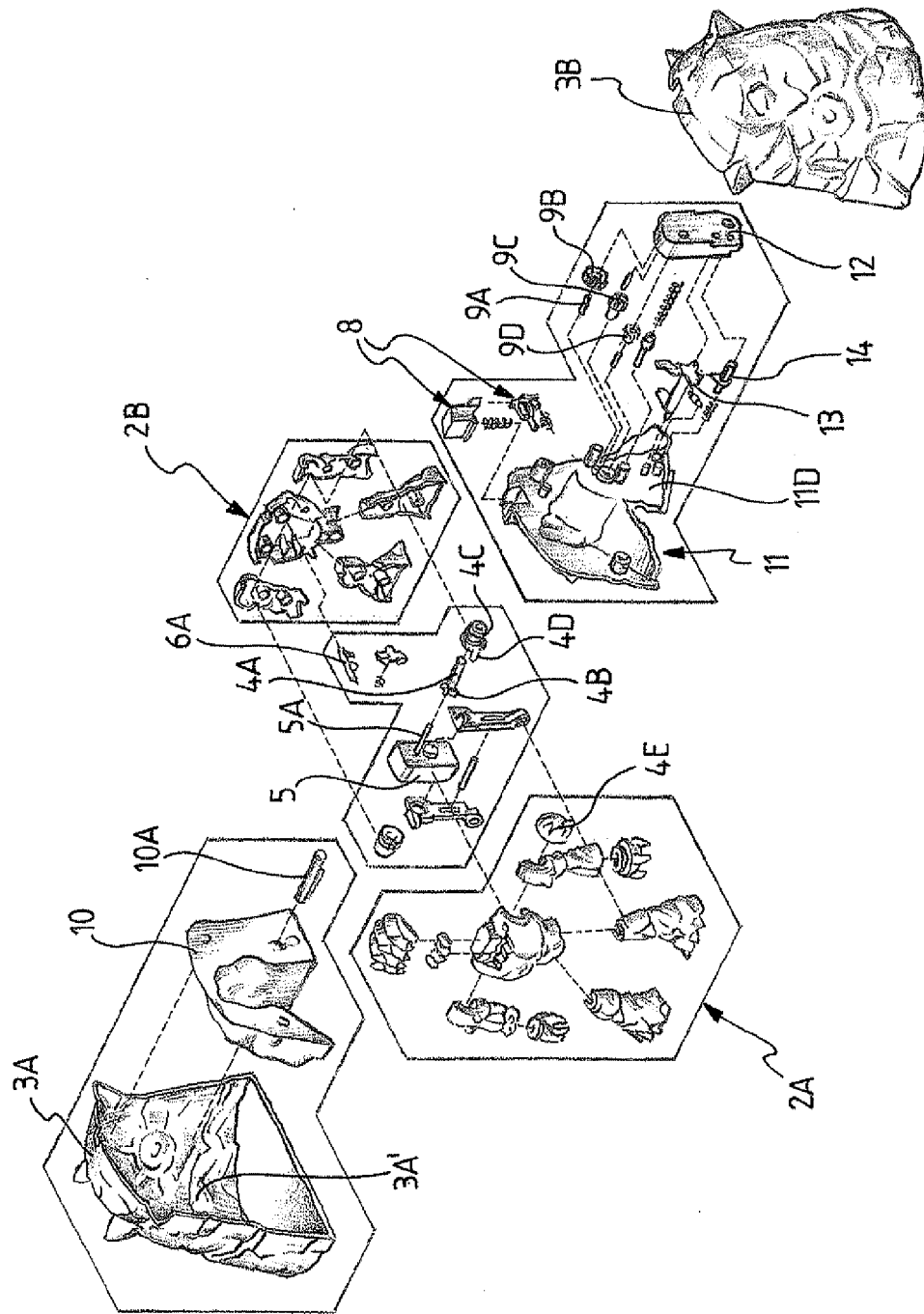
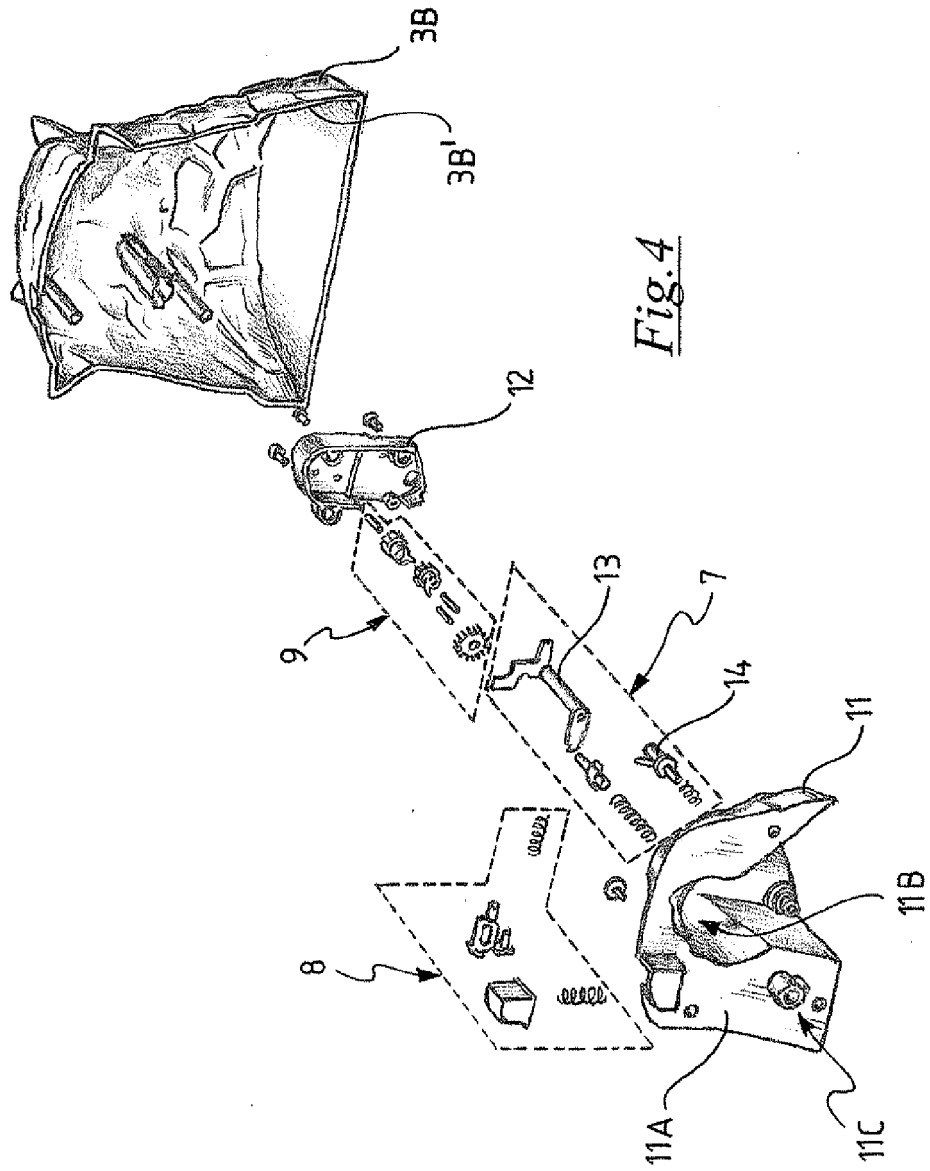


Fig.3



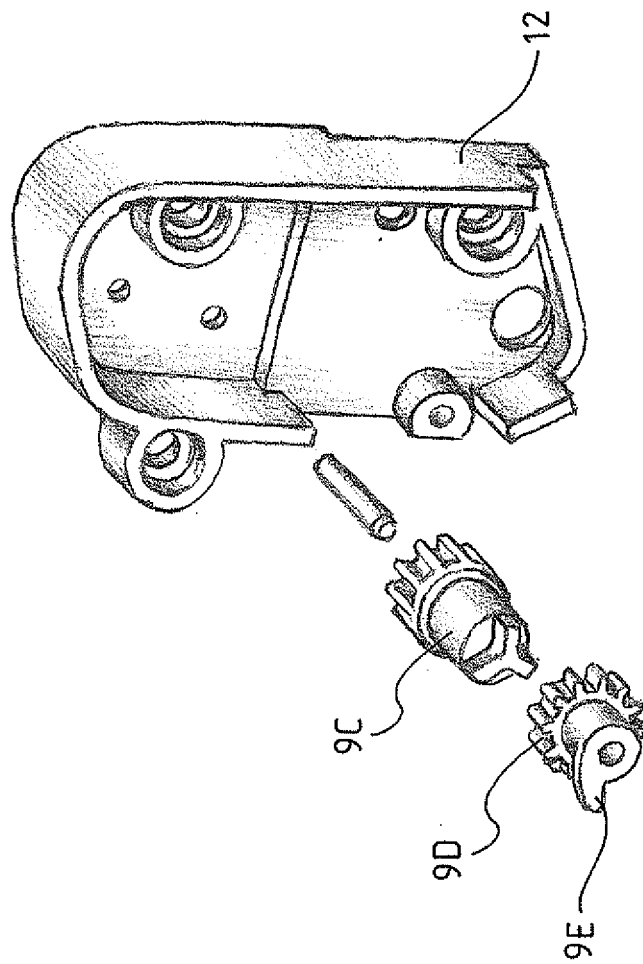


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 10 42 5056

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	GB 2 267 225 A (PLASTRONICS MFG LIMITED [HK]) 1 December 1993 (1993-12-01) * page 4, line 19 - page 8, line 3; figures *	1-10	INV. A63H13/06 A63H29/04
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A	US 2005/075041 A1 (NORMAN CASEY [GB]) 7 April 2005 (2005-04-07) * paragraph [0036] - paragraph [0053]; figures *	1-10	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 June 2011	Examiner Lucas, Peter
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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29-06-2011

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

REFERENCES CITED IN THE DESCRIPTION

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