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(72) Inventor: **PARK, Kyung Hwa**
Bucheon
Gyeonggi-do 422-240 (KR)

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(74) Representative: **ABG Patentes, S.L.**
Avenida de Burgos, 16D
Edificio Euromor
28036 Madrid (ES)

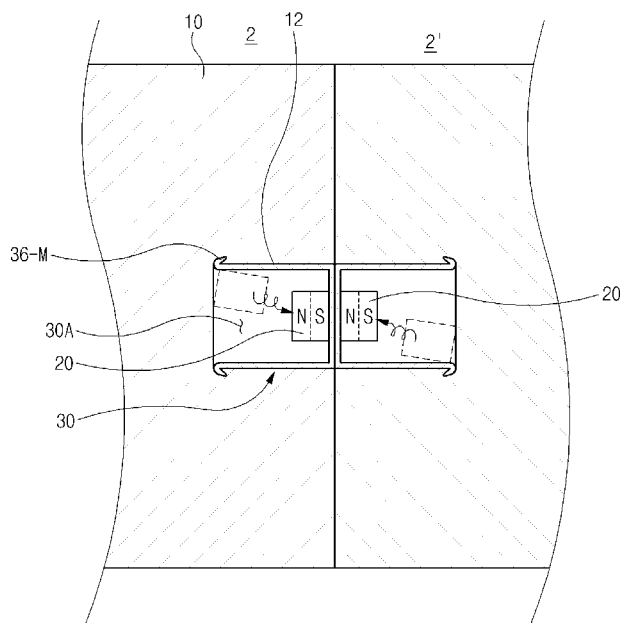
(71) Applicant: **Orda Korea Co., Ltd.**
Seoul 137-130 (KR)

(54) **COMPONENT FOR MAGNETIC ATTACHMENT AND A MAGNETIC TOY**

(57) The present disclosure relates to a toy, and particularly, to a magnet mounting component 30 for mounting magnets, and a magnet toy 2 having the same. Disclosed is a magnet mounting component 30 configured to rotatably accommodate a magnet 20 therein, wherein

a closure part 32A to which the accommodated magnet 20 clings by an attraction force with an external magnet 20' is formed to be non-magnetic, and wherein a magnetic part M is formed of a material to which the accommodated magnet 20 can cling, and is formed on at least part rather than the closure part 32A.

Fig. 9



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present disclosure relates to a toy, and particularly, to a magnet mounting component for mounting magnets, and a magnet toy.

2. Background of the Invention

[0002] Recently, a magnet toy is being much developed as a toy for enhancing a child's creative power. The magnet toy allows a child to enjoy while creating buildings, automobiles, robots, etc. by assembling a plurality of blocks to each other using magnets.

[0003] The magnet toy has a structure that magnets are mounted to each surface of a toy body, and each toy can be freely coupled to each other as the mounted magnets are bonded to each other.

[0004] Every magnet has an 'N' pole and an 'S' pole. When the same poles are put together, a repulsive force occurs. This may allow components not to be coupled to each other. To prevent this, a method for freely rotating magnets is being proposed.

[0005] Furthermore, demands for a method for enhancing a child's creative power are continuously required.

SUMMARY OF THE INVENTION

[0006] Therefore, an aspect of the detailed description is to provide a magnet mounting component capable of enhancing a child's creative power and allowing the child to have continuous interests by stimulating the child's hearing, and a magnet toy.

[0007] To achieve these and other advantages and in accordance with the purpose of this specification, as embodied and broadly described herein, there is provided a magnet mounting component 30, configured to rotatably accommodate a magnet 20 therein, wherein a closure part 32A is formed to be non-magnetic, and to which the accommodated magnet 20 clings by an attraction force with an external magnet 20', and wherein a magnetic part M is formed of a material to which the accommodated magnet 20 can cling, and is formed on at least part rather than the closure part 32A.

[0008] The magnet mounting component 30 may be formed of a non-magnetic material, austenite-based stainless steel. As the austenite-based stainless steel undergoes a structure change into martensite which exhibits magnetism through processing, the magnetic part M may be provided.

[0009] The magnet mounting component may further comprise a body portion 32 having a magnet accommodating space 30A, and having one open surface for accommodating the magnet 20 therein; and a separation

preventing portion 34 configured to prevent the magnet 20 accommodated in the magnet accommodating space 30A of the body portion 32 from being separated from the body portion 32 through the one open surface, wherein the body portion 32 is non-magnetic, and at least part of the separation preventing portion 34 is formed so that the magnet 20 can cling thereto.

[0010] The magnet mounting component may further comprise a body portion 32 having a magnet accommodating space 30A, and having one open surface for accommodating the magnet 20 therein; and a wedge portion 36 outward-protruding from the body portion 32, wherein the body portion 32 is non-magnetic, and at least part of the wedge portion 36 is formed so that the magnet 20 can cling thereto.

[0011] The non-magnetic part may be formed of a metallic material.

[0012] According to another aspect of the present invention, there is provided a magnet mounting component 30, comprising: a body member 100 formed of a non-magnetic material, and having a magnet 20 rotatably accommodated therein; and a magnetic part forming member 110 provided at an inner side of the body member 100, and formed of a material to which the magnet 20 accommodated in the body member 100 can cling.

[0013] According to still another aspect of the present invention, there is provided a magnet mounting component 30, comprising: a first member 120 formed of a non-magnetic material, and constituting part of a magnet accommodating space 30A for rotatably accommodating a magnet 20; and a second member 130 constituting the rest of the magnet accommodating space 30A so as to implement the magnet accommodating space 30A by being coupled to the first member 120, and formed of a material to which the magnet 20 accommodated in the magnet accommodating space 30A can cling.

[0014] To achieve these and other advantages and in accordance with the purpose of this specification, as embodied and broadly described herein, there is also provided a magnet toy 2, comprising: the aforementioned magnet mounting component 30; a magnet 20 accommodated in the magnet mounting component 30; and a body 10, on one surface of which the magnet mounting component 30 is installed..

[0015] Non-magnetic part of the magnet mounting component 30 may be formed of a metallic material.

[0016] According to another aspect of the present invention, there is provided a magnet toy 2, comprising: a body 10 having a magnet accommodating groove 12; a magnet 20 rotatably accommodated in the magnet accommodating groove 12 of the body 10; a covering member 200 formed of a non-magnetic material, and configured to cover the magnet accommodating groove 12 of the body 10; and a magnetic part forming member 110 provided at one side of the magnet accommodating groove 12 of the body 10, and formed of a material to which the magnet 20 can cling.

[0017] The covering member 200 may be formed of a

metallic material.

[0018] The present invention may have the following advantages.

[0019] Since the magnets can generate sound by a resonance phenomenon while rolling continuously, a child's hearing can be stimulated. This can enhance the child's creative power, and allow the child to have continuous interests.

[0020] Further scope of applicability of the present application will become more apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from the detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate exemplary embodiments and together with the description serve to explain the principles of the invention.

[0022] In the drawings:

FIG. 1 is a view showing a magnet mounting component and a magnet toy according to the present invention, which shows a perspective view of a magnet toy according to a first embodiment;
 FIG. 2 is a sectional view of FIG. 1;
 FIG. 3 is a sectional view of a magnet mounting component of FIG. 2;
 FIG. 4 is a perspective view of a magnet mounting component of FIG. 2;
 FIG. 5 is a sectional view of a magnet mounting component according to a second embodiment;
 FIG. 6 is a sectional view of a magnet mounting component according to a third embodiment;
 FIG. 7 is a sectional view of a magnet mounting component according to a fourth embodiment;
 FIG. 8 is a sectional view of a magnet mounting component according to a fifth embodiment;
 FIG. 9 is a sectional view showing an assembled state between a magnet toy and another magnet toy;
 FIG. 10 is a sectional view showing a disassembled state between a magnet toy and another magnet toy; and
 FIG. 11 is a sectional view of a magnet toy according to still another embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0023] Description will now be given in detail of the exemplary embodiments, with reference to the accompanying drawings. For the sake of brief description with

reference to the drawings, the same or equivalent components will be provided with the same reference numbers, and description thereof will not be repeated.

[0024] Hereinafter, preferred embodiments of the present invention will be explained in more details with reference to the attached drawings.

[0025] As shown in Fig. 1, a magnet toy 2 of the present invention basically includes a body 10 having a magnet 20 mounted thereto.

[0026] The body 10 may be provided with one or more magnet accommodating grooves 12 for mounting the magnet 20 therein so that the magnet 20 can be mounted therein without protruding outward.

[0027] As shown in FIGS. 1 to 10, the magnet 20 may be mounted to a magnet mounting component 30.

[0028] The magnet mounting component 30 basically includes a body portion 32 having a magnet accommodating space 30A, and having one open surface for accommodating the magnet 20 therein. The magnet mounting component 30 has a cap structure. More specifically, the body portion 32 of the magnet mounting component 30 may include a closure part 32A to which the magnet 20 accommodated in the magnet accommodation space 30A clings by an attraction force with an external magnet 20' (i.e., a magnet mounted to another toy 2), and a circumference part 32B extending from the closure part 32A so as to form the aforementioned magnet accommodation space 30A together with the closure part 32A. The magnet accommodating space 30A may be formed to be larger than the magnet 20 so that the magnet 20 accommodated in the magnet accommodating space 30A can sufficiently rotate with rolling continuously.

[0029] The magnet mounting component 30 may further comprise a separation preventing portion 34 for preventing the magnet 20 accommodated in the magnet accommodating space 30A of the body portion 32 from being separated the body portion 32 through the one open surface.

[0030] As shown in FIGS. 5 and 6, the separating preventing portion 34 may have a structure extending from the end of the one open surface (i.e., the end of the circumference part 32B of the body portion 32), to an inner region of the one open surface of the body portion 32. Under such configuration, the one open surface of the body portion 32 can be partially covered. Alternatively, as shown in FIG. 8, the separation preventing portion 34 may be implemented as a cover coupled to the body portion 32, and configured to cover the one open surface of the body portion 32. The separation preventing portion 34 may be formed in various manners.

[0031] The magnet mounting component 30 may comprise a wedge portion 36 outward-protruding from the body portion 32 so as to be fixed to the body 10 of the magnet toy 2 where the magnet mounting component 30 is installed. The wedge portion 36 may be formed in various manners.

[0032] Especially, the closure part 32A of the magnet mounting component 30 is formed to be non-magnetic,

whereas at least part rather than the closure part 32A is formed of a magnetic part M to which the accommodated magnet 20 can cling.

[0033] That is, as shown in FIGS. 2, 3, 5, 6, 7, 8 and 10, if an external force for attracting the magnet 20 to the closure part 32A of the magnet mounting component 30 is not applied, the magnet 20 clings to the magnetic part M. On the contrary, as shown in FIG. 9, if an external force is applied to attract the magnet 20 to the closure part 32A of the magnet mounting component 30 by an attraction force between the magnet 20 and the magnet 20 mounted to another magnet toy 2', in a state where the magnet 20 has clung to the magnetic part M, the magnet 20 is moved towards the closure part 32A from the magnetic part M thus to cling to the closure part 32A. Here, the magnet 20 can move with rolling continuously.

[0034] Therefore, once the magnet 20 separated from the closure part 32A of the magnet mounting component 30 clings to the closure part 32A of the magnet mounting component 30, a resonance phenomenon occurs from the magnet accommodating space 30A of the magnet mounting component 30. As the magnet 20 collides with the magnet mounting component 30, a sound may occur.

[0035] The generated sound may stimulate a child's hearing, so that the child's imagination power can be enhanced and the child can have continuous interests.

[0036] If at least non-magnetic part of the magnet mounting component 30 is formed of a metallic material rather than wood or plastic, more clear and cheerful sound may be generated.

[0037] In a state where the magnet 20 has clung to the magnetic part M of the magnet mounting component 30, if the magnet toy 2 is shaken or the body 10 of the magnet toy 2 or the magnet mounting component 30 is beat, the magnet 20 bounces off the magnet part M of the magnet mounting component 30. This may allow a user to have tension, and to have another interests and fun.

[0038] The magnet mounting component 30 may be formed in various manners. In order for the magnet toy 2 to be bonded to the another magnet toy 2' by an attraction force between the magnets 20, the magnet mounting component 30 is preferably formed so that a magnetic force between the magnet 20 of the magnet toy 2 and the magnetic part M can be smaller than a magnetic force between the magnet 20 of the magnet toy 2 and the magnet 20 of the another magnet toy 2'.

[0039] To this end, the magnetic part M is preferably formed of a material having magnetism less than that of a material (e.g., ferrite) of the magnet 20.

[0040] As shown in FIGS. 1 to 6 and FIGS. 9 and 10, once austenite-based stainless steel is changed to martensite through processing, the changed part exhibits magnetism.

[0041] Accordingly, the magnet mounting component 30 is formed of a non-magnetic material, austenite-based stainless steel. And, part of the magnet mounting component 30 corresponding to the magnetic part M is processed to have a structural change into martensite. Or,

magnetism occurring from the processing is not removed by a subsequent process. As a result, the magnet mounting component 30 having the magnetic part M and formed of a non-magnetic material can be fabricated.

[0042] More specifically, the body part 32 including the closure part 32A of the magnet mounting component 30 is non-magnetic, and the separation preventing portion 34 or the wedge portion 36 constitute the magnetic part M through processing. And, the separation prevention portion 34 or the wedge portion 36 are disposed on the opposite side to the closure part 32A. Therefore, the magnet 20 accommodated in the magnet accommodating space 30A collides with the closure part 32A or the separation preventing portion 34 or the wedge portion 36 to generate a loud sound, while rotating according to whether a magnetic force between the magnet 20 and the external magnet 20' has been formed or not.

[0043] As shown in FIG. 7, the magnet mounting component 30 may comprise a body member 100 formed of a non-magnetic material (e.g., austenite-based stainless steel), and having the magnet 20 rotatably accommodated therein; and a magnetic part forming member 110 formed of a material to which the magnet 20 accommodated in the body member 100 can cling, and provided at an inner side of the body member 100 to constitute the magnetic part M.

[0044] The body member 100 may include the separation preventing portion 34 and the wedge portion 36 as well as the body portion 32. If magnetism occurs from the body member 100 through processing, the magnetism may be removed by a subsequent process such as a thermal process. The magnetic part forming member 110 is preferably formed of a metallic material such as iron, rather than the material of the magnet 20 such as ferrite, so as to have a magnetic force smaller than a magnetic force between the magnet 20 and the magnet 20. It is advantageous for the magnetic part forming member 110 to be spaced from the closure part 32A so that a loud sound can be generated from the rotating magnet 20. Therefore, the magnetic part forming member 110 is preferably positioned at the end of the body member 100 opposite to the closure part 32A.

[0045] The magnet mounting component 30 may comprise a first member 120 formed of a non-magnetic material, and constituting part of the magnet accommodating space 30A for rotatably accommodating the magnet 20 therein; and a second member 130 constituting the rest of the magnet accommodating space 30A so as to implement the magnet accommodating space 30A by being coupled to the first member 120, and formed of a material to which the magnet 20 accommodated in the magnet accommodating space 30A can cling.

[0046] If magnetism occurs from the first member 120 through processing, the magnetism may be removed by a subsequent process such as a thermal process. The second member 130 is preferably formed of a metallic material such as iron, rather than the material of the magnet 20 such as ferrite, so as to have a magnetic force

smaller than a magnetic force between the magnet 20 and the magnet 20.

[0047] The first member 120 and the second member 130 may be formed in various shapes. Preferably, each of the first member 120 and the second member 130 is formed to have a cap structure.

[0048] As shown in FIG. 11, a magnet toy 2 according to still another embodiment of the present invention, a magnet 20 may be directly mounted to a magnet accommodating groove 12 of a body 10. That is, the magnet toy 2 may include a body 10 having a magnet accommodating groove 12; a magnet 20 rotatably accommodated in the magnet accommodating groove 12 of the body 10; a covering member 200 formed of a non-magnetic material and covering the magnet accommodating groove 12 of the body 10; and a magnetic part forming member 110 provided at one side of the magnet accommodating groove 12 of the body 10, and formed of a material to which the magnet 20 can cling.

[0049] If an attraction force with the external magnet 20' is not applied, the magnet 20 maintains a clung state to the magnet part forming member 110. On the contrary, if an attraction force with the external magnet 20' is applied, the magnet 20 is bonded to the covering member 200.

[0050] For a clear and cheerful sound, the covering member 200 may be formed of a metallic material. Preferably, the magnetic part forming member 110 is spaced from the covering member 200.

[0051] The foregoing embodiments and advantages are merely exemplary and are not to be considered as limiting the present disclosure. The present teachings can be readily applied to other types of apparatuses. This description is intended to be illustrative, and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art. The features, structures, methods, and other characteristics of the exemplary embodiments described herein may be combined in various ways to obtain additional and/or alternative exemplary embodiments.

[0052] As the present features may be embodied in several forms without departing from the characteristics thereof, it should also be understood that the above-described embodiments are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be considered broadly within its scope as defined in the appended claims, and therefore all changes and modifications that fall within the metes and bounds of the claims, or equivalents of such metes and bounds are therefore intended to be embraced by the appended claims.

Claims

1. A magnet mounting component, configured to rotatably accommodate a magnet 20, wherein a closure part 32A to which the accommo-

dated magnet 20 clings by an attraction force with an external magnet 20' is formed to be non-magnetic, and

wherein a magnetic part M is formed of a material to which the accommodated magnet 20 can cling, and is formed on at least part rather than the closure part 32A.

2. The magnet mounting component of claim 1, wherein the magnet mounting component is formed of a non-magnetic material, austenite-based stainless steel, and wherein magnetic part M is formed by processing through which the austenite-based stainless steel undergoes a structure change into martensite which exhibits magnetism.

3. A magnet mounting component, comprising:

a body member 100 formed of a non-magnetic material, and having a magnet 20 rotatably accommodated therein; and
a magnetic part forming member 110 provided at an inner side of the body member 100, and formed of a material to which the magnet 20 accommodated in the body member 100 can cling.

4. A magnet mounting component, comprising:

a first member 120 formed of a non-magnetic material, and constituting part of a magnet accommodating space 30A for rotatably accommodating a magnet 20; and
a second member 130 constituting the rest of the magnet accommodating space 30A so as to implement the magnet accommodating space 30A by being coupled to the first member 120, and formed of a material to which the magnet 20 accommodated in the magnet accommodating space 30A can cling.

5. The magnet mounting component of one of claims 1 to 4, comprising:

a body portion 32 having a magnet accommodating space 30A, and having one open surface for accommodating the magnet 20 therein; and
a separation preventing portion 34 configured to prevent the magnet 20 accommodated in the magnet accommodating space 30A of the body portion 32 from being separated from the body portion 32 through the one open surface, wherein the body portion 32 is non-magnetic, and at least part of the separation preventing portion 34 is formed so that the magnet 20 can cling thereto.

6. The magnet mounting component of one of claims

1 to 4, comprising:

a body portion 32 having a magnet accommodating space 30A, and having one open surface for accommodating the magnet 20 therein; and 5
a wedge portion 36 outward-protruding from the body portion 32,
wherein the body portion 32 is non-magnetic, and at least part of the wedge portion 36 is 10
formed so that the magnet 20 can cling thereto.

7. The magnet mounting component of one of claims 1, 3 and 4, wherein the non-magnetic part is formed of a metallic material. 15

8. A magnet toy, comprising:

the magnet mounting component 30 of one of claims 1 to 4;
a magnet 20 accommodated in the magnet mounting component 30; and 20
a body 10, on one surface of which the magnet mounting component 30 is installed.

9. The magnet toy 2 of claim 7, wherein a non-magnetic part of the magnet mounting component 30 is formed of a metallic material. 25

10. A magnet toy, comprising: 30

a body 10 having a magnet accommodating groove 12;
a magnet 20 rotatably accommodated in the magnet accommodating groove 12 of the body 10; 35
a covering member 200 formed of a non-magnetic material, and configured to cover the magnet accommodating groove 12 of the body 10; and
a magnetic part forming member 110 provided 40
at one side of the magnet accommodating groove 12 of the body 10, and formed of a material to which the magnet 20 can cling.

11. The magnet toy of claim 10, wherein the covering member 200 is formed of a metallic material. 45

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Fig. 1

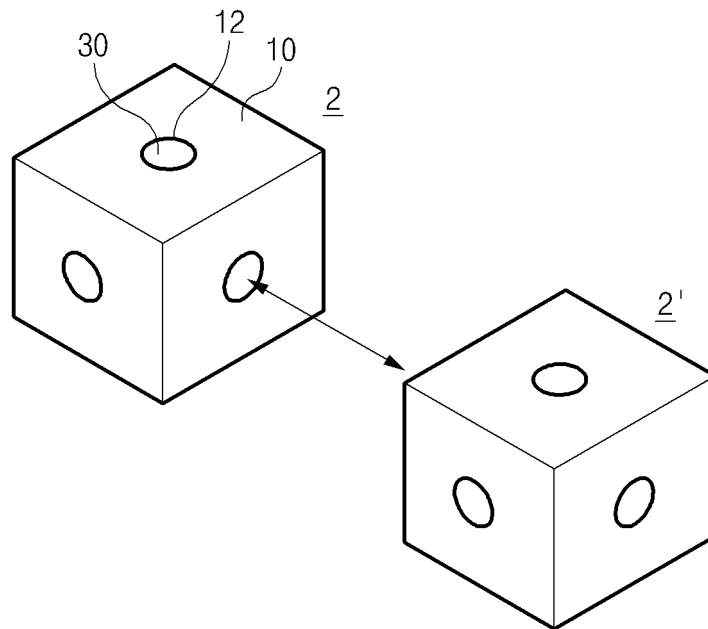


Fig. 2

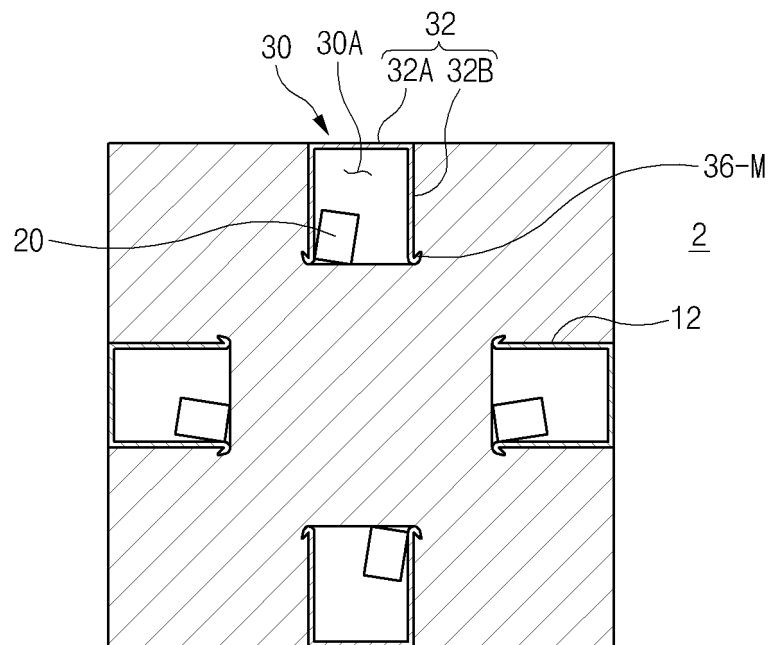


Fig. 3

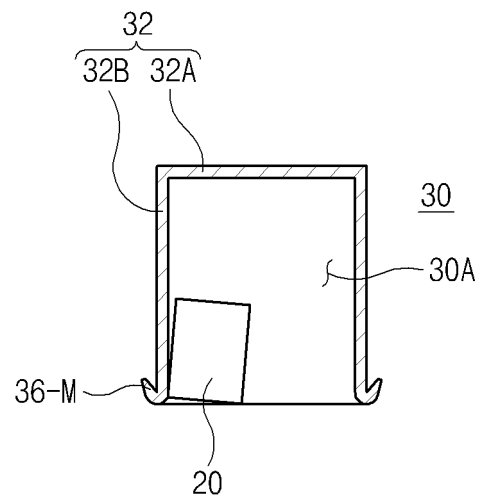


Fig. 4

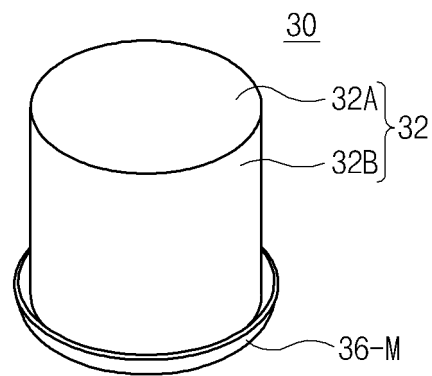


Fig. 5

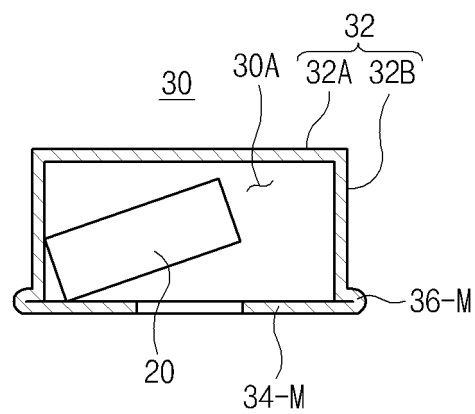


Fig. 6

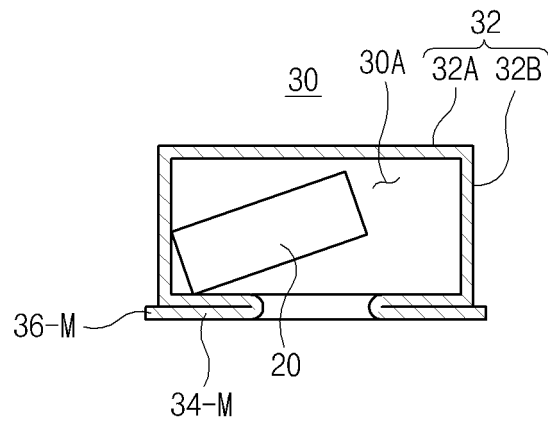


Fig. 7

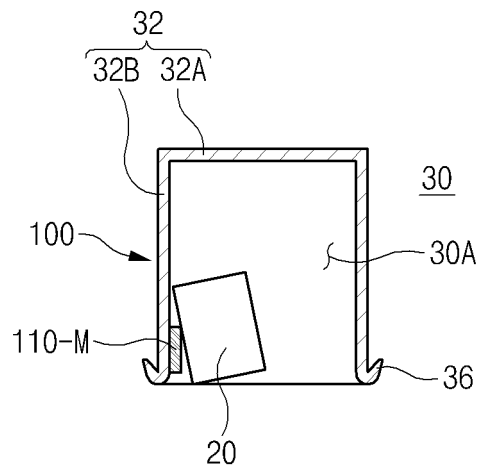


Fig. 8

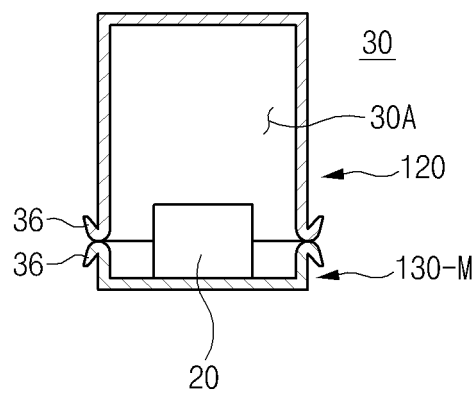


Fig. 9

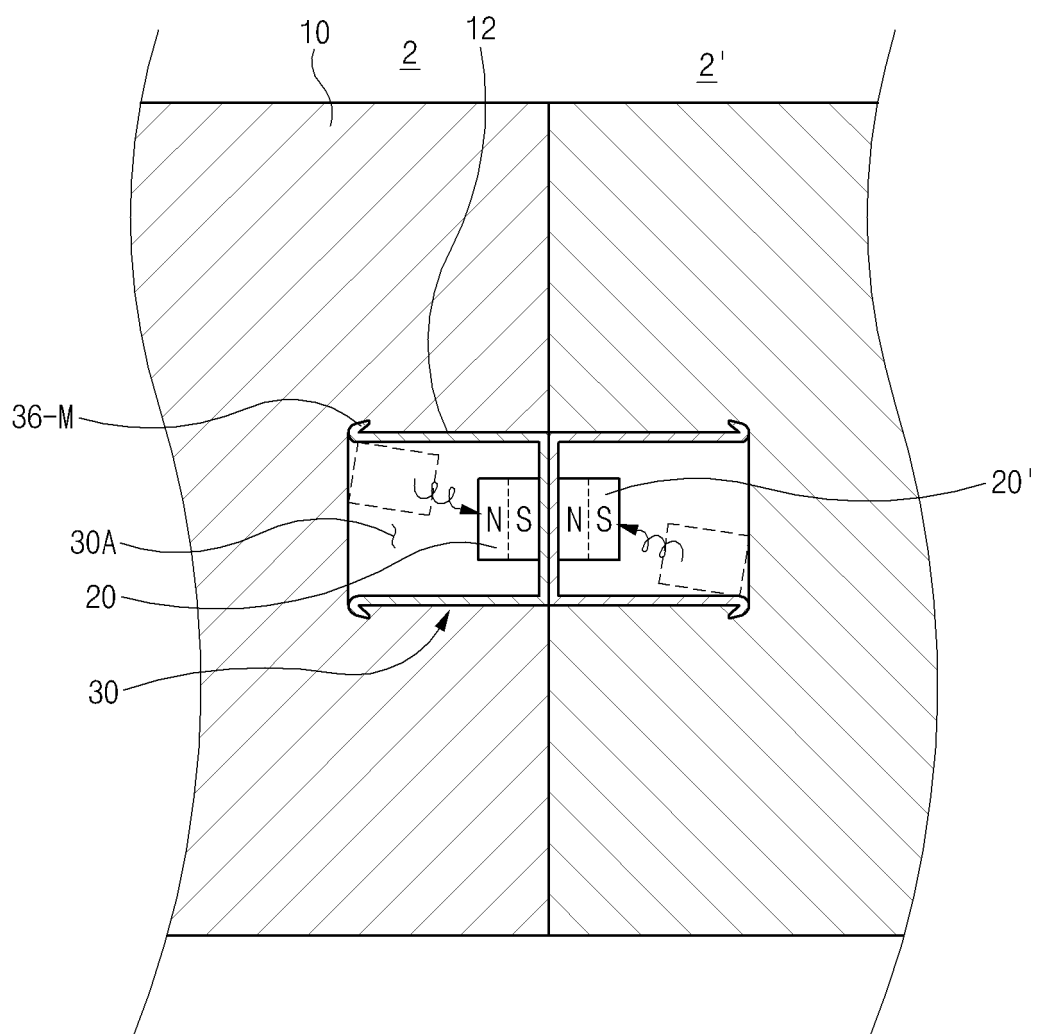


Fig. 10

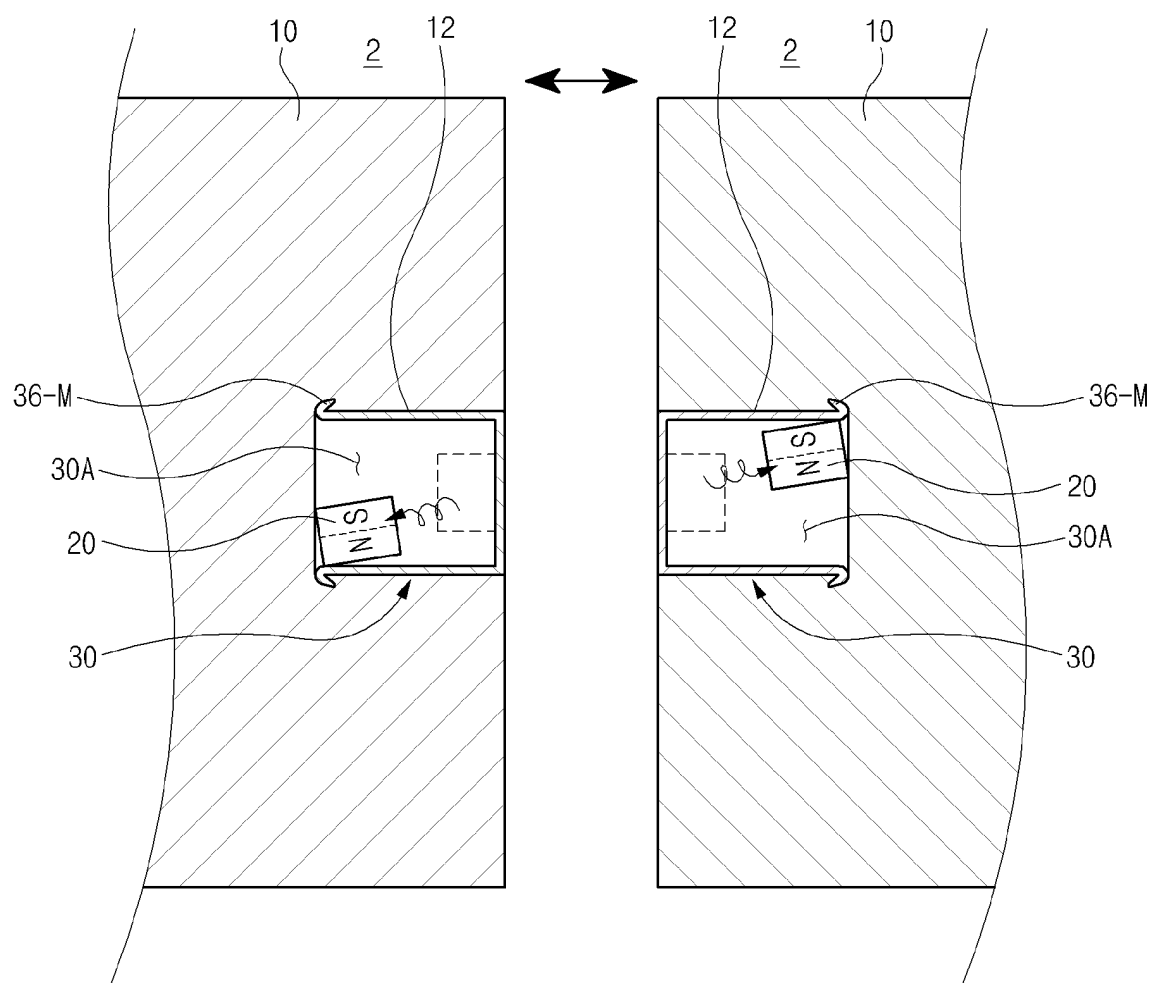


Fig.11

