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(54) **ROTARY WAVE SEX TOY**

(57) A rotary wave sex toy comprising a hollow housing (1), an accommodation cavity (2), and at least three vibrator sets arranged between the housing (1) and the accommodation cavity (2) and distributed along the outer periphery of the cavity (2). Each vibrator set comprises at least two vibrator units arranged in columns; the at least two vibrator units are arranged along the axial direction of the outer wall of the cavity (2). The rotary wave sex toy also comprises a control box (6) for use in controlling vibration sequence, vibration duration, and vibra-

tion mode of each vibration unit, thus generating with vibration either a rotary wave that surrounds the axial direction of the accommodation cavity (2) or a spiral rotary wave along the axial direction of the accommodation cavity (2). The rotary wave sex toy is provided with a beneficial effect of: an intense massage effect during male masturbation or female masturbation for great user experience, thus enriching the function of the rotary wave sex toy.

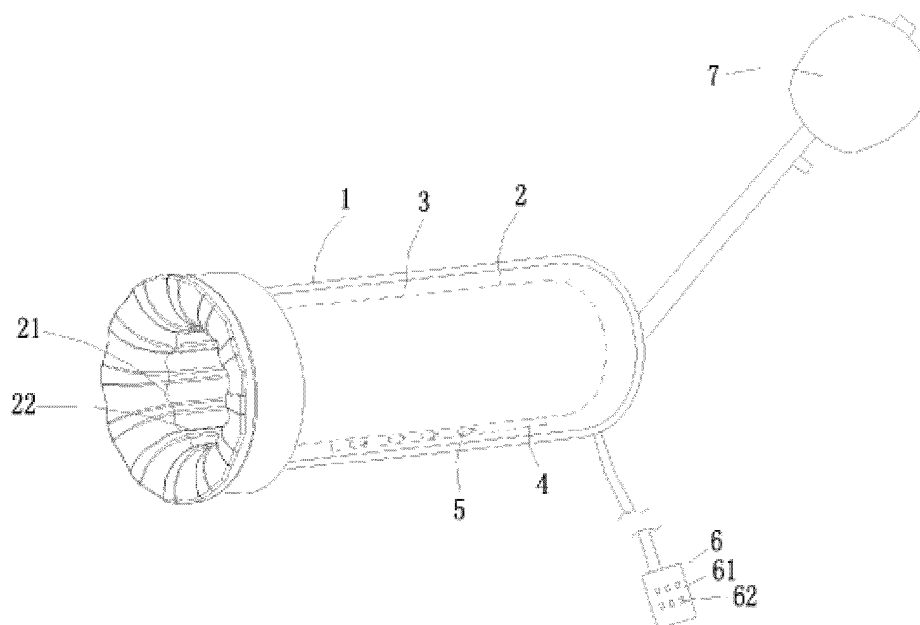


FIG. 1

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Description

Technical Field

[0001] The present invention relates to a sex body, especially relates to a rotary wave sex body.

Background Art

[0002] A number of men needing masturbation is increased due to a rhythm of people's life is accelerated and men's physiological needs. A male masturbation product among the many male masturbation products can work through air pressure. The male masturbation product includes a flexible cavity used to receive a penis, an outer housing coiled around the flexible cavity, and a gas bag, the gas storage bag can be connected with the outer housing, a gas storage interlayer can be formed between the flexible cavity and the outer housing, gas received in the gas storage bag can be filled into the gas storage interlayer. An expanding force of the gas received in the gas storage interlayer can press the flexible cavity, such that the flexible cavity can resist and press the penis.

[0003] A PCT patent (Applicant number: PCT/CN2012/081667) describes a pneumatic toy for males, the pneumatic toy for males can include a flexible cavity, one end of the flexible is closed, a opposite end of the flexible cavity has an opening used to receive the penis, the flexible cavity can be made of a plurality of thin plates connected with each other, a tapered bar can be located between each two adjacent thin plates, the tapered bars can support the flexible cavity, the pneumatic toy for males further includes an outer housing and a gas storage interlayer, the gas storage interlayer can receive outside pressure gas, such that the gas storage interlayer is expanded to press the flexible cavity, such that the flexible cavity can resist and press the penis, and the thin plates can move towards a middle of the flexible cavity to press the penis due to the expansion of the pressure gas received in the gas storage interlayer.

[0004] However, the usage of the pneumatic toy for males is single, and the flexible cavity can only resist and press the penis by inletting pressure gas into the gas storage interlayer, and the massage effect on the penis is also single, such that user may give up the pneumatic toy for males easily.

[0005] Meanwhile, a masturbation product among the many female masturbation products can include an outer housing and a motor located in the outer housing. The masturbation product for females can produce rotary waves through a vibration of the motor, such that the masturbation product for females can massage female. However, the masturbation product for females usually only has one motor, and the motor can only rotate in one fixed direction, such that the rotary waves produced by the masturbation product for females is also single which causes the massage effect is poor.

[0006] In conclusion, the traditional masturbation prod-

ucts exists defects, such as the usage of the traditional masturbation products is single, the massage effect of the traditional masturbation products is poor, and user may give up the traditional masturbation products easily.

Summary of Invention

[0007] In view of the disadvantage of existing technology, such as the usage of the traditional masturbation products is single, the massage effect of the traditional masturbation products is poor, and user may give up the traditional masturbation products easily, the aim of the present invention is to provide a rotary wave sex body, it can provide strong massage effect for male masturbation or female masturbation, and it also provide user a better felling experience, such that the functions of the rotary wave sex body can be enriched.

[0008] In order to achieve the above objects, the present invention provides a rotary wave sex body comprising a outer housing 1 having a hollow structure, a cavity 2 and at least three groups of vibration components positioned between the outer housing 1 and the cavity 2, the vibration components are located on an peripheral circle of the cavity 2, each vibration component includes at least two arrayed vibration elements, each at least two vibration elements is located on an outer surface of the cavity 2 along an axis of the cavity 2; the rotary wave sex body further includes a controlling box 6, the controlling box 6 controls a vibration order, a vibration time and a vibration mode of each vibration element, such that the vibration elements vibrates to produce rotary waves around the axis of the cavity 2 or spiral rotary waves along the axis of the cavity 2.

[0009] The cavity 2 is flexible, one end if the flexible cavity 2 is closed, an opposite end of the flexible cavity 2 has an opening; an gas storage interlayer 3 is formed between the outer housing 2 and the flexible cavity 2, the gas storage interlayer 3 expands with outside pressure gas, such that the expanded gas storage interlayer 3 resist and press the flexible cavity 2; the gas storage interlayer 3 has a plurality of accommodations 4, a number of the accommodations 4 corresponds to a number of the vibration elements, one vibration element is positioned in one corresponding accommodation 4.

[0010] A plurality of inner housings 41 are located in the accommodations 4, the vibration elements are mounted in inner housings, each inner housing 41 includes a first half housing 411 and a second half housing 412 corresponding to the first half housing 411, the vibration elements are located in the first half housing 411 orderly, an axis of each vibration element is paralleled to an axis of the first half housing 411.

[0011] The rotary wave sex body further includes a gas storage bag 7 connected with the outer housing 1, the gas storage bag 7 provides pressure gas to the gas storage interlayer 3.

[0012] The vibration mode is a step voltage wave, a triangular voltage wave, a rising voltage wave or a re-

duced voltage wave.

[0013] The flexible cavity 2 is formed by a plurality of thin plates 21 connected with each other end-to-end, a tapered bar 22 is located between each two adjacent thin plates 21, the tapered bars 22 support the flexible cavity 2, the thin plates 21 is pressed to move towards a middle of the flexible cavity 2 due to an expansion of gas received in the gas storage interlayer 3.

[0014] Each vibration element is polarized hammer and motor 5 driving the polarized hammer to rotate, or electromagnet element, or electromagnetic vibration element.

[0015] The controlling box 6 includes a housing 61, a plurality of controlling keys 62 formed on the housing 61, a controlling module located in the housing 61, the controlling module is connected with the controlling keys 62; the controlling module drives the vibration components to work orderly, motors 5 belonged to one vibration component start to rotate at the same time, and stop rotating at the same time, such that vibrations produced by the motors 5 is superposed along an axis of the motors 5, forming rotary waves around the axis of the flexible cavity 2; or the controlling module control all of the motors 5 of the vibration components to rotate according to a spiral order, such that vibrations produced by the motors 5 are superposed along a spiral direction, forming spiral-rotary waves along the axis of the flexible cavity 2.

[0016] The outer housing 1 further includes a first controlling chip 14 located in the outer housing 1, an input end of the first controlling chip 14 is connected with an output end of the controlling module, an output end of the first controlling chip 14 is connected with an input end of the motors 5.

[0017] The rotary wave sex body further includes a driving power, the driving power drives the controlling box 6 and the motors 5 to work.

[0018] The flexible cavity 2 is made of a silicone, the flexible cavity 2 is integrally formed with the accommodations 4.

[0019] A rotary wave sex body comprises: a case 9 and at least three groups of the vibration components located in the case 9, each vibration component includes at least two arrayed vibration elements, the at least two vibration elements are positioned in the case 9 along a length direction of the case 9; the case 9 further includes a printed circuit board 11 along the length direction of the case 9, the vibration elements are located on the printed circuit board 11; the rotary wave sex body further includes a controlling box 6 connected with the printed circuit board 11, the controlling box 6 controls a vibration order and a vibration time of each vibration element, such that the vibration elements vibrates to produce rotary waves around the length direction of the case 9 or spiral-rotary waves along the length direction of the case 9.

[0020] The case 9 includes a third half housing 12 and a fourth half housing 13 corresponding to the third half housing 12.

[0021] A flexible cover 8 is arranged around the outer

housing 1.

[0022] Each vibration element is polarized hammer and motor 5 driving the polarized hammer to rotate, or electromagnet element, or electromagnetic vibration element.

[0023] A second controlling chip 15 is located on the printed circuit board 11, an input end of the second controlling chip 15 is connected with the controlling box 6, an output end of the second controlling chip 15 is connected with the vibration elements.

[0024] The advantage of the present invention: male or female can get a strong massage effect by using the rotary wave sex body, and the rotary wave sex body provides user a fine feeling experience, such that the functional of the rotary wave sex body is enriched.

Brief Description of Drawings

[0025]

FIG. 1 is an isometric view of a rotary wave sex body, according to a first exemplary embodiment.

FIG. 2 is an isometric view of a controlling box of the rotary wave sex body shown in FIG. 1.

FIG. 3 is an isometric view of a flexible cavity of the rotary wave sex body shown in FIG. 1.

FIG. 4 is an isometric view of the flexible cavity and a first controlling chip of the rotary wave sex body shown in FIG. 1.

FIG. 5 is a cross section view taking along a line of A-A shown in FIG. 4.

FIG. 6 is an exploded, isometric view of an inner housing and accommodations of the rotary wave sex body shown in FIG. 4.

FIG. 7 is an exploded, isometric view of a first half housing and a second half housing of the inner housing shown in FIG. 6.

FIG. 8 is a cross section view of a flexible cavity of a rotary wave sex body, according to a second exemplary embodiment.

FIG. 9 is an isometric view of a rotary wave sex body, according to a third exemplary embodiment.

FIG. 10 is an exploded, isometric view of a flexible cover and a case of the rotary wave sex body shown in FIG. 9.

FIG. 11 is an exploded view shown in FIG. 9.

FIG. 12 is an isometric view of a rotary wave sex body, according to a fourth exemplary embodiment.

FIG. 13 is an exploded, isometric view of a flexible cover and a case of the rotary wave sex body shown in FIG. 12.

FIG. 14 is an exploded view shown in FIG. 12.

Reference Signs List

[0026]

1- outer housing, 2- flexible cavity, 3- gas storage

interlayer, 4- accommodation, 5- motor, 6- controlling box, 7- gas bag, 8- flexible cover, 9- case; 11- printed circled board, 12- a third half housing, 13- a fourth half housing, 14- a first controlling chip, 15- a second controlling chip; 21- thin plate, 22- tapered bar; 41- inner housing, 411- a first half housing, 412- a second half housing; 61- housing, 62- controlling keys.

Description of Embodiments

[0027] Following will describe the present invention in detail with the reference of drawings and example embodiments in order to illustrate the aim of the invention, the technical solution of the invention, and advantages of the invention. It is to be understood that the example embodiments are used to explain the invention, not used to limit the invention.

[0028] The rotary wave sex body according to the present disclosure, has two types which can be used to male masturbation and female masturbation respectively. One type of the rotary wave sex body used for male masturbation is illustrated first.

Embodiment 1:

[0029] As illustrated in FIG. 1, FIG. 1 is an isometric view of the rotary wave sex body according to a first exemplary embodiment.

[0030] In at least one exemplary embodiment, the rotary wave sex body used for male masturbation can include an outer housing 1 having a hollow structure, a cavity 2 and at least three groups of vibration components located at an peripheral circle of the cavity, each vibration component includes at least two arrayed vibration elements, the at least two arrayed vibration elements can be located at the cavity 2 along an axis of an outer wall of the cavity 2; the rotary wave sex body further includes a controlling box 6, the control box 6 can be used to control a vibration order, a vibration time and a vibration mode of the each vibration element, such that the vibration elements can vibrate to produce rotary waves around an axis of the cavity 2 or spiral rotary waves along the axis of the cavity 2. In at least one exemplary embodiment, each vibration element can be a polarized hammer and a motor 5, the polarized hammers can be driven by the motors 5 to rotate. In at least one exemplary embodiment, the vibration element can be electromagnet element, or electromagnetic vibration element.

[0031] The vibration mode can be a step voltage wave, a triangular voltage wave, a rising voltage wave or a reduced voltage wave. Furthermore, the vibration elements can be driven to vibrate by the step voltage wave, the triangular voltage wave, the rising voltage wave or the reduced voltage wave. Each of the vibration modes corresponds to one of the step voltage wave, the triangular voltage wave, the rising voltage wave and the reduced

voltage wave.

[0032] The cavity 2 can be a flexible cavity, one end of the flexible cavity 2 can be closed, an opposite end of the flexible cavity 2 can have an opening, that is, the flexible cavity 2 can include a closing end and an opening end; a gas storage interlayer 3 can be formed between the outer housing 1 and the flexible cavity 2, the gas storage interlayer 3 can accommodate outside pressure gas, such that the gas storage interlayer 3 can be expanded to press the flexible cavity 2. A plurality of accommodations 4 can be formed inside of the gas storage interlayer 3, a number of the accommodations 4 corresponds to a number of the vibration components. One vibration component can be received in one corresponding accommodation 4.

[0033] Furthermore, The outer housing 4 can have a cylinder-shaped structure, and can be made of a plastic. In at least one exemplary embodiment, the outer housing 1 can also be made of a metal, the metal can be a stainless steel. Two opposites ends of the outer housing 1 can both have an opening respectively, and one opening of the outer housing 1 corresponds to an opening end of the flexible cavity 2 used to received a penis, outside pressure gas can pass through the other opening of the outer housing 1.

[0034] Referring to FIGS. 2-5, FIG. 2 is an isometric view of a controlling box 6 of the rotary wave sex body shown in FIG. 1. FIG. 3 is an isometric view of a flexible cavity 2 of the rotary wave sex body shown in FIG. 1. FIG. 4 is an isometric view of the flexible cavity 2 and a first controlling chip 14 of the rotary wave sex body shown in FIG. 1. FIG. 5 is a cross section view taking along a line of A-A shown in FIG. 4. The flexible cavity 2 can be made of a silicone, the silicone could not hurt the penis, and the silicone can also provide user a good massage felling when the penis is received in the cavity 2. A closing end of the flexible cavity 2 is sealed, the opening end of the flexible cavity 2 can have an opening used to receive the penis, the closing end of the flexible cavity 2 can be located at an end of the outer housing 1 for receiving the outside pressure gas, the opening end of the flexible cavity 2 corresponds to an opposite end of the outer housing 1, the opening end of the flexible cavity 2 can be hermetically connected with the opposite end of the outer housing 1 though a sealing ring (not shown).

[0035] The flexible cavity 2 can include a plurality of thin plates 21, the thin plate 21 can be connected with each other end-to-end to form the flexible cavity 2. A tapered bar 22 can be located between each two adjacent thin plate 21, the tapered bars 22 can support the flexible cavity 2, the tapered bars 22 can be forced to move towards a middle of the flexible cavity 2 to press the penis due to the expansion of gas received in the gas storage interlayer 3. When user having a thin penis uses the rotary wave sex body, the penis received in the flexible cavity 2 can support the tapered bars 22, such that a cross section of the flexible cavity 2 can be enlarged; when user having a thick penis uses the rotary wave sex

body, the tapered bars 22 can be pressed by the expansion of gas received in the gas storage interlayer 3, such that the tapered bars 22 can move towards the middle of the flexible cavity 2 until the tapered bars 22 contact with the penis, such that the cross section of the flexible cavity can be reduced. The cross section of the flexible cavity 2 can be adjusted according to the thickness of the penis. The flexible cavity 2 can be shaped through the tapered bars 22, the shape of the flexible cavity 2 can be maintained during the using of the rotary wave sex body, and the flexible cavity 2 could not be deformed during an up-and-down motion of the rotary wave sex body.

[0036] The gas storage interlayer 3 can be used to receive the outside pressure gas, an expansion of the gas storage interlayer 3 can press and resist the flexible cavity 2, such that the flexible cavity 2 can resist on and press the penis, the pressure gas passes through the end of the outer housing 1 for receiving the outside pressure gas, and then comes into the gas storage interlayer 3. Preferably, a check valve can be positioned on the end of the outer housing 1 for receiving the outside pressure gas, such that after the pressure gas come into the gas storage interlayer 3 through the check valve, the end of the outer housing 1 for receiving the outside pressure gas would not leak the pressure gas. The outer housing can be made of a hard material, and the flexible cavity 2 can be made of a soft material, such that after the pressure gas comes into the gas storage interlayer 3, the pressure gas can press and resist the flexible cavity 2 due to an expansion of a volume of the pressure gas, such that the flexible cavity 2 can resist and press the penis.

[0037] Referring to FIG. 6, FIG. 6 is an exploded, isometric view of the inner housing 41 and the accommodations 4 of the rotary wave sex body shown in FIG. 4. In at least one exemplary embodiment, a number of the accommodation 4 can be three, and each accommodation 4 can have four motors 5. It is to be understood that, in another exemplary embodiment, the number of the accommodation 4 can be four or five, that is, the number of the accommodation 4 can be no less than three, and each accommodation 4 can have two motors 5, four motors 4 or five motors 5, that is, a number of the motors 5 located at each accommodation 4 can be no less than two. Referring to FIG. 7, FIG. 7 is an exploded, isometric view of the first half housing 411 and the second half housing 412 of the inner housing 41 shown in FIG. 6. A plurality of inner housings 41 can be located in one accommodation 4, motors 5 can be mounted in the inner housing 4, the inner housing 4 can have a strip-shaped structure, the inner housing 41 can include a first half housing 411 and a second half housing 412 corresponding to the first half housing 411, motors 5 can be located in the first half housing 411 orderly, an axis of the first half housing 411 is the paralleled to an axis of the motor 5. The axis of the motor 5 is the paralleled to the axis of the first half housing 411, such that the axis of the motor

5 can be the paralleled to the axis of the flexible cavity 2. Preferably, the flexible cavity 2 can be made of a silicon, and the flexible cavity 2 can be integrally formed with the accommodation 4.

[0038] In at least one exemplary embodiment, each accommodation 4 can have one vibration element, and each vibration element can have four motors 5. Referring to FIG. 7, in at least one exemplary embodiment, a rotor of each motor 5 can be connected with a polarized hammer, the axis of the motors 5 can be the paralleled to the axis of the flexible cavity 2, that is, a rotation direction of each polarized hammer is perpendicular to the axis of the flexible cavity 2, such that the polarized hammer can be driven by the motors 5 to rotate and produce rotary waves perpendicular to the axis of the flexible cavity 2.

[0039] The controlling box 6 can include a housing 61, a plurality of controlling keys 62 formed on the housing 61, a controlling module located in the housing 61, the controlling module can be connected with the controlling keys 62.

[0040] The controlling module can be used to control the vibration elements to work in an order, the motors 5 belonged to the same vibration element can rotate at the same time and stop rotating at the same time, such that, vibrations produced by the motors 5 can be superposed along the axis of the motors 5, the superposed vibrations can also produce rotary waves perpendicular to the axis of the outer housing 1, such that the rotary waves can massage the penis received in the flexible cavity 2. As one accommodation 4 has one corresponding vibration element, such that the three accommodations 4 can be presented by A, B, C respectively for convenience, according to at least one exemplary embodiment, the controlling module can control the four motors 5 received in the accommodation A to rotate at the same time, the rotary time can be 0.3 seconds, then the controlling module can control the four motors 5 received in the accommodation A to stop rotating at the same time, the rotation of the four motors 5 received in the accommodation A can produce rotary waves perpendicular to the axis of the flexible cavity 2; when the rotary waves produced by the four motors 5 received in the accommodation A are transmitted to the accommodation B, the controlling module can control the four motors 5 received in the accommodation B to rotate at the same time, the rotary time can be 0.3 seconds, then the controlling module can control the four motors 5 received in the accommodation B to stop rotating at the same time, the rotation of the motors 5 received in the accommodation B can produce rotary waves perpendicular to the axis of the flexible cavity 2, the rotary waves produced by the motors 5 received in the accommodation A can be superposed with the rotary waves produced by the motors 5 received in the accommodation B along the axis of the motors 5; and by this analogy, the four motors 5 received in the accommodation C can also produce rotary waves superposed with the rotary waves produced by the motors 5 received in the accommodation A and rotary waves produced by the

motors 5 received in the accommodation B; such that the rotary waves perpendicular to the axis of the flexible cavity 2 can be produced by the motors 5, and can be superposed, as the rotary waves can be perpendicular to the axis of the flexible cavity 2 and can be superposed gradually, the rotary waves can be regarded as driving-rotating waves. Of course, the rotary waves around the axis of the flexible cavity 2 can work best when the rotary waves are perpendicular to the axis of the flexible cavity 2, in at least one exemplary embodiment, the rotary waves are not perpendicular to the axis of the flexible cavity 2, and the rotary waves and the axis of the flexible cavity 2 can form a certain angle, the certain angle is not 90°, at this time, the rotary waves cannot work as well as the rotary waves perpendicular to the axis of the flexible cavity 2.

[0041] In another exemplary embodiment, the controlling module can control the motors 5 of the vibration elements to work according to a spiral order, such that vibrations produced by the motors 5 can be superposed along a spiral direction, such that the superposed vibrations can produce spiral rotary waves along the axis of the outer housing 1, the spiral rotary waves can massage the penis received in the flexible cavity 2. In at least one exemplary embodiment, the three accommodations 4 can be respectively presented as A, B, C for convenience, four motors 5 received in the accommodation A can be respectively presented as A-M1, A-M2, A-M3, A-M4 along a direction from the opening end of the flexible cavity 2 to the closing end of the flexible cavity 2, four motors 5 received in the accommodation B can be respectively presented as B-M1, B-M2, B-M3, A-M4 along a direction from the opening end of the flexible cavity 2 to the closing end of the flexible cavity 2, four motors 5 received in the accommodation C can be respectively presented as C-M1, C-M2, C-M3, C-M4 along a direction from the opening end of the flexible cavity 2 to the closing end of the flexible cavity 2, the controlling module can control the motors 5 to work according a following working order: A-M1, B-M2, C-M3, A-M4, B-M3, C-M2, A-M1. The working order of the motors 5 is according to the spiral order, such that the motors 5 can produce vibrations superposed along the spiral direction, forming the spiral rotary waves; the spiral rotary waves can be continuously produced by repeating the working order, of course, the motors 5 can also work according to another working orders, such as A-M2, B-M3, C-M4, A-M3, B-M2, C-M1, A-M2.

[0042] The outer housing 1 further includes a first controlling chip 14 located in the outer housing 1, an input end of the first controlling chip 14 can be connected with an output end of the controlling module, an output end of the first controlling chip 14 can be connected with an input end of the motors 5, the first controlling chip 14 can decode control signals sent out by the controlling module to produce corresponding decoded signals for controlling the motors 5, which the decoded signals can order the motors 5 to work as ordered.

[0043] The rotary wave sex body further includes a gas storage bag 7 connected with the outer housing 1, the gas storage bag 7 can provide pressure gas to the gas storage interlayer 3, the gas storage bag 7 can be similar to an air bag of a sphygmomanometer, that is, the air bag 7 can be connected with a gas feeding pipe, pressure gas can be formed when the gas storage bag 7 is pressed by hand, the pressure bag can come into the gas storage interlayer 3 through the gas feeding pipe. In at least one exemplary embodiment, the air bag 7 is not connected with the gas feeding pipe, and the air bag 7 can be directly connected with the outer housing 1, and the air bag 7 can provide pressure gas to the gas storage interlayer 3. The rotary wave sex body further includes a driving power, the driving power can driven the controlling box 6 and the motors 5 to work. The driving power can be an outer direct current power.

[0044] When using the rotary wave sex body, the rotary wave sex body should be powered on, and then the penis can be put into the flexible cavity 2, the gas storage bag 7 can be pressed to provide pressure gas to the gas storage interlayer 3, when the gas storage bag 3 is filled with pressure gas, the flexible cavity 2 can be pressed due to the expansion of the gas storage interlayer 3, such that the flexible cavity 2 can resist and press the penis received in the flexible cavity 2, the controlling keys 62 located on the controlling box can be pushed, such that the working time and working frequency of the motors 5 can be controlled by the controlling keys 62, the motors 5 can produce driving-rotary waves and spiral-rotary waves, the driving-rotary waves and spiral-rotary waves can massage the penis received in the flexible cavity 2. After the massage is finished, the pressure gas received in the gas storage interlayer 3 can be exhausted through a vent formed on the outer housing 1, the pressure gas received in the gas storage interlayer 3 can also be exhausted through a vent formed on the gas storage bag 7, finally the penis can be put out from the flexible cavity 2.

Embodiment 2

[0045] Referring to FIG. 8, FIG. 8 is a cross section view of a flexible cavity 2 of a rotary wave sex body, according to a second exemplary embodiment. In at least one exemplary embodiment, the number of the accommodations 4 can be five, each accommodation 4 can accommodate three motors 3; each thin plate 21 can be a bit of an arc of a circle of the flexible cavity 2, the tapered bars 22 can be evenly formed a surface of an outer circumference of the flexible cavity 2, a cross section of each tapered bar 22 can have a triangle structure. The other properties of the rotary wave sex body according to the second exemplary embodiment is the same with the rotary wave sex body the according to the first exemplary embodiment, and need not be repeated here.

Embodiment 3

[0046] Referring to FIGS. 9, 10, 11, FIG. 9 is an isometric view of a rotary wave sex body, according to a third exemplary embodiment, FIG. 10 is an exploded, isometric view of the flexible cover 8 and the case 9 of the rotary wave sex body shown in FIG. 9, FIG. 11 is an exploded view shown in FIG. 9. In the third exemplary embodiment, the rotary wave sex body can be used for female.

[0047] Furthermore, in the third exemplary embodiment, the rotary wave sex body includes a case 9 and at least three groups of vibration components located in the case 9, each vibration component can include at least two arrayed vibration elements, each at least two vibration elements can be located in the case 9 along a length direction of the case 9;

the case 9 further include a printed circuit board 11 along the length direction of the case 9, the printed circuit board 11 can have the same length with the case 9, the vibration elements can be located on the printed circuit board 11; the rotary wave sex body further includes a controlling box 6 connected with printed circuit board 11, the controlling box 6 can control a vibration order and a vibration time of each vibration element, such that the vibration elements can vibrate to produce rotary waves around the length of the case 9 or spiral-rotary waves along the length direction of the case 9.

[0048] The case 9 includes a third half housing 12 and a fourth half housing 13 corresponding to the third half housing 12; a flexible cover 8 can be arranged around the case 9.

[0049] In at least one exemplary embodiment, the vibration element can be polarized hammers and motors 5 which can drive the polarized hammer to rotate, in another exemplary embodiment, the vibration element can be electromagnet element, or electromagnetic vibration element.

[0050] The printed circuit board 11 defines a second controlling chip 15, an input end of the second controlling chip 15 can be connected with the controlling box 6, an output end of the second controlling chip 15 can be connected with the motors 5, the second controlling chip 15 can encode control signals sent out by the controlling box 6 and produce corresponding decoded signals which can control the motors 5 to work as ordered.

[0051] In at least one exemplary embodiment, the rotary wave sex body can have three groups of vibration components, two groups of the vibration components can be located at a surface of the printed circuit board 11, the other group of the vibration components can be located at the opposite surface of the printed circuit board 11, the polarized hammers can be located on the motors 5 in the same direction; on at least one exemplary embodiment, the case 9 can be a straight bar, an outer surface of the flexible cover 8 can have a wave-shaped structure, the wave-shaped structure can provide user a better feeling experience.

[0052] The other properties of the rotary wave sex body according to the third exemplary embodiment is the same with the rotary wave sex body the according to the first exemplary embodiment, and need not be repeated here.

Embodiment 4

[0053] Referring to FIGS. 12, 13, 14, FIG. 12 is an isometric view of a rotary wave sex body, according to a fourth exemplary embodiment, FIG. 13 is an exploded, isometric view of the flexible cover 8 and the case 9 of the rotary wave sex body shown in FIG. 12, FIG. 14 is an exploded view shown in FIG. 12. The rotary wave sex body according to the forth exemplary embodiment can be used for female masturbation.

[0054] In forth exemplary embodiment, the case 9 can be a bent rod, and a cross section of an end of the case 9 far away from the second controlling chip 15 is bigger than a cross section of an end of the case 9 near to the second controlling chip 15 (referring to FIG. 14), such that, the rotary wave sex body can provide user a better feeling experience. The other properties of the rotary wave sex body according to the fourth exemplary embodiment is the same with the rotary wave sex body the according to the third exemplary embodiment, and need not be repeated here.

[0055] Example embodiments have been described hereinabove regarding the rotary wave sex body, however the invention is not limited to the above example embodiments, and the example embodiments are merely preferred embodiments of the present invention, which are merely illustrative, and not restrictive. Various modifications to and departures from the disclosed example embodiments will occur to those having ordinary skill in the art. The subject matter that is intended to be within the spirit of this disclosure is set forth in the following claims.

Claims

1. A rotary wave sex body, comprising a outer housing (1) having a hollow structure, a cavity (2) and at least three groups of vibration components positioned between the outer housing (1) and the cavity (2), the vibration components being located on a peripheral circle of the cavity (2), each vibration component including at least two arrayed vibration elements, each at least two vibration elements being located on an outer surface of the cavity (2) along an axis of the cavity (2); the rotary wave sex body further including a controlling box (6), the controlling box (6) controlling a vibration order, a vibration time and a vibration mode of each vibration element, such that the vibration elements vibrating to produce rotary waves around the axis of the cavity (2) or spiral rotary waves along the axis of the cavity (2).

2. The rotary wave sex body as set forth in claim 1, wherein the cavity (2) is flexible, one end of the flexible cavity (2) is closed, an opposite end of the flexible cavity (2) has an opening; a gas storage interlayer (3) is formed between the outer housing (1) and the flexible cavity (2), the gas storage interlayer (3) expands with outside pressure gas, such that the expanded gas storage interlayer (3) expansion resists and presses the flexible cavity (2); the gas storage interlayer (3) has a plurality of accommodations (4), a number of the accommodations (4) corresponds to a number of the vibration elements, one vibration element is positioned in one corresponding accommodation (4). 5
3. The rotary wave sex body as set forth in claim 2, wherein inner housings (41) are located in the accommodation (4), the vibration elements are mounted in inner housings (41), each inner housing (41) includes a first half housing (411) and a second half housing (412) corresponding to the first half housing (411), the vibration elements are located in the first half housing (411) orderly, an axis of each vibration element is parallel to the axis of the first half housing (411). 10
4. The rotary wave sex body as set forth in claim 1, wherein the rotary wave sex body further includes a gas storage bag (7) connected with the outer housing (1), the gas storage bag (7) provides pressure gas to the gas storage interlayer (3). 15
5. The rotary wave sex body as set forth in claim 1, wherein the vibration mode is a step voltage wave, a triangular voltage wave, a rising voltage wave or a reduced voltage wave. 20
6. The rotary wave sex body as set forth in claim 2, wherein the flexible cavity (2) is formed by a plurality of thin plates (21) connected with each other, a tapered bar (22) is located between each two adjacent thin plates (21), the tapered bars support the flexible cavity (20), the thin plates (21) are pressed to move towards a middle of the flexible cavity (2) due to an expansion of gas received in the gas storage interlayer (3). 25
7. The rotary wave sex body as set forth in one of claims 1-6, wherein each vibration element is polarized hammer and motor (5) which drives the polarized hammer to rotate, or electromagnet element, or electromagnetic vibration element. 30
8. The rotary wave sex body as set forth in claim 7, wherein the controlling box (6) includes a housing (61), a plurality of controlling keys (62) formed on the housing (61), a controlling module located in the housing (61), the controlling module is connected with the controlling keys (62); the controlling module drives the vibration components to work orderly, motors (5) belonging to one vibration component start to rotate at the same time, and stop rotating at the same time, such that vibrations produced by the motors (5) are superposed along an axis of the motors, forming rotary waves around an axis of the flexible cavity (2); or the controlling module controls all of the motors (5) of the vibration components to rotate according to a spiral order, such that vibrations produced by the motors are superposed along a spiral direction, forming spiral-rotary waves along the axis of the flexible cavity (2). 35
9. The rotary wave sex body as set forth in claim 8, wherein the outer housing (1) further includes a first controlling chip (14) located in the outer housing (1), an input end of the first controlling chip (14) is connected with an output end of the controlling module, an output end of the first controlling chip (14) is connected with an input end of the motors (5). 40
10. The rotary wave sex body as set forth in claim 8, wherein the rotary wave sex body further includes a driving power, the driving power drives the controlling box (6) and the motors (5). 45
11. The rotary wave sex body as set forth in claim 2, wherein the flexible cavity (2) is made of a silicone, the flexible cavity (2) is integrally formed with the accommodations (4). 50
12. A rotary wave sex body, comprising: a case (9) and at least three groups of the vibration components located in the case (9), each vibration component including at least two arrayed vibration elements, the at least two vibration elements being positioned in the case (9) along a length direction of the case (9); the case (9) further including a printed circuit board (11) along the length direction of the case (9), the vibration elements being located on the printed circuit board (11); the rotary wave sex body further including a controlling box (6) connected with the printed circuit board (11), the controlling box (6) controlling a vibration order and a vibration time of each vibration element, such that the vibration elements vibrate to produce rotary waves around the length direction of the case (9) or spiral-rotary waves along the length direction of the case (9). 55
13. The rotary wave sex body as set forth in claim 12, wherein the case (9) includes a third half housing (12) and a fourth half housing (14) corresponding to the third half housing (12).
14. The rotary wave sex body as set forth in claim 12, wherein a flexible cover (8) is arranged around the outer housing (9).

15. The rotary wave sex body as set forth in claim 12, wherein each vibration element is polarized hammer and motor which drive the polarized hammer to rotate, or electromagnet element, or electromagnetic vibration element. 5
16. The rotary wave sex body as set forth in claim 12, wherein a second controlling chip (15) is located on the PCB (11), an input end of the second controlling chip (15) is connected with the controlling box (6), an output end of the second controlling chip (15) is connected with the vibration elements. 10

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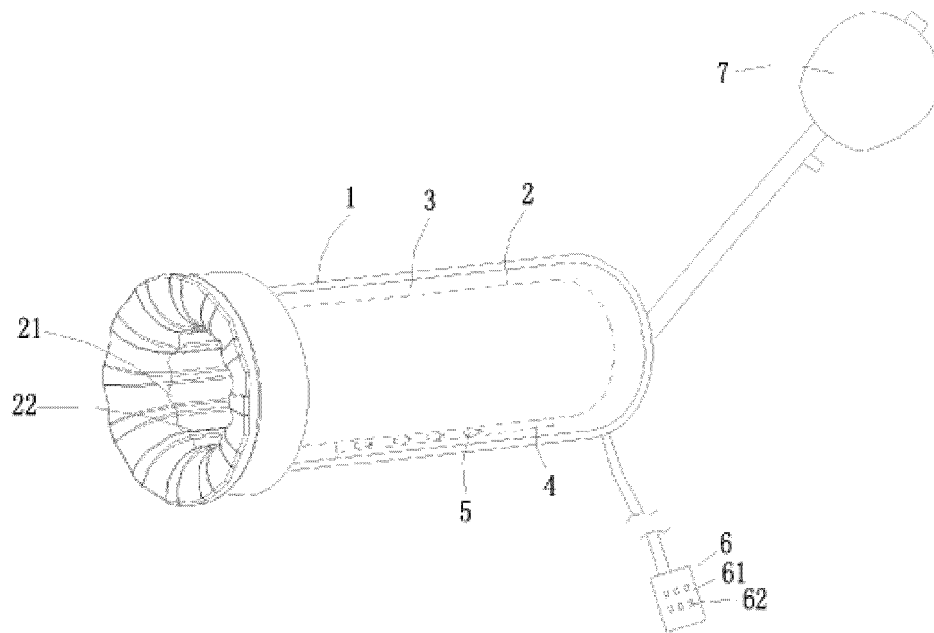


FIG. 1

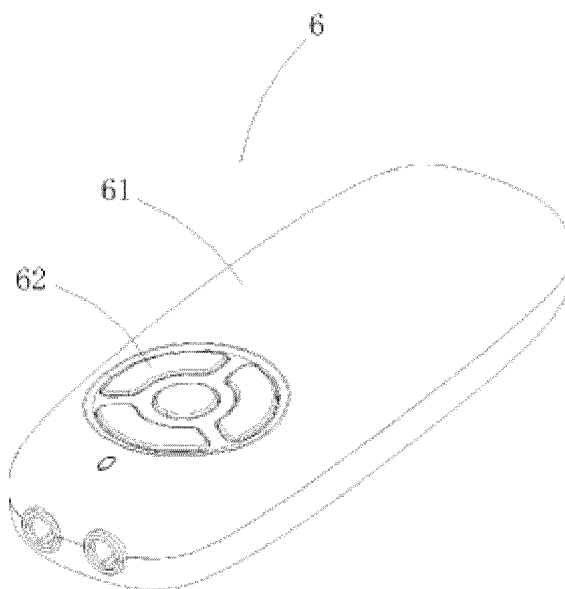


FIG. 2

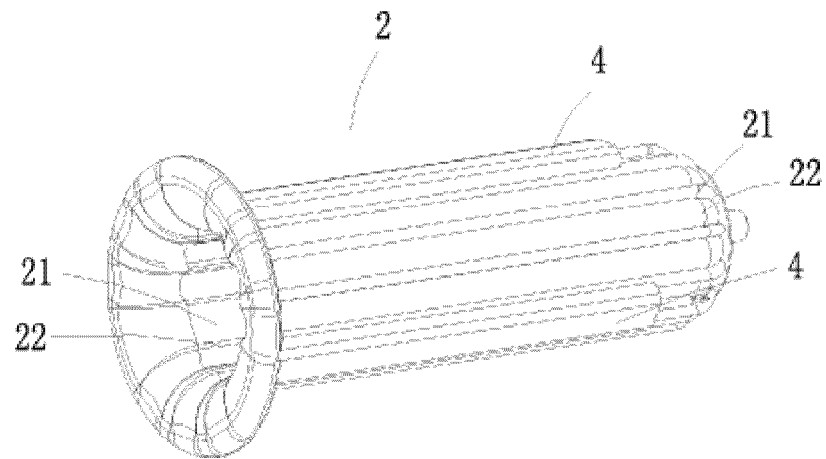


FIG. 3

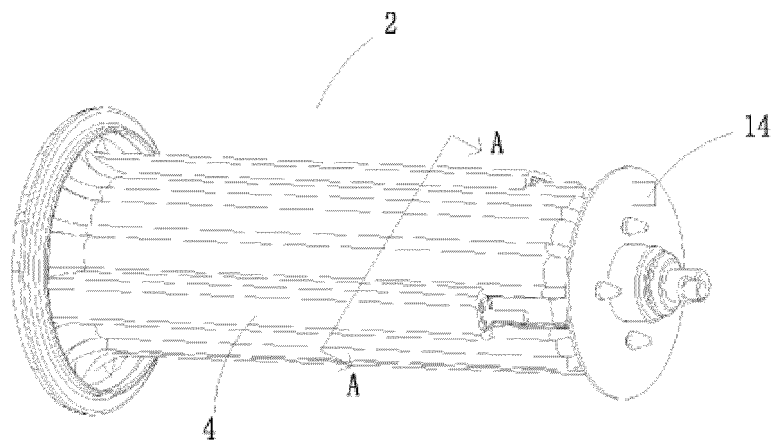


Fig. 4

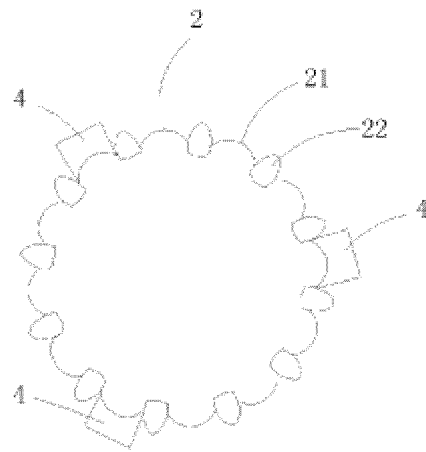


FIG. 5

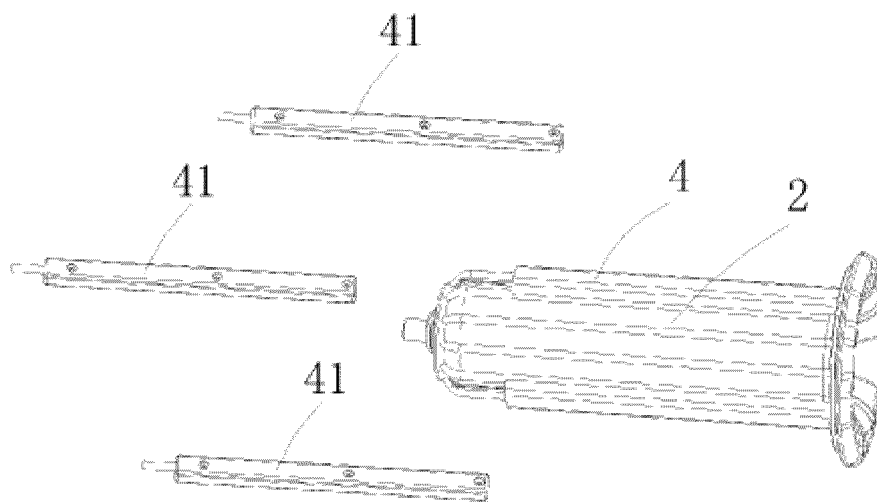


FIG. 6

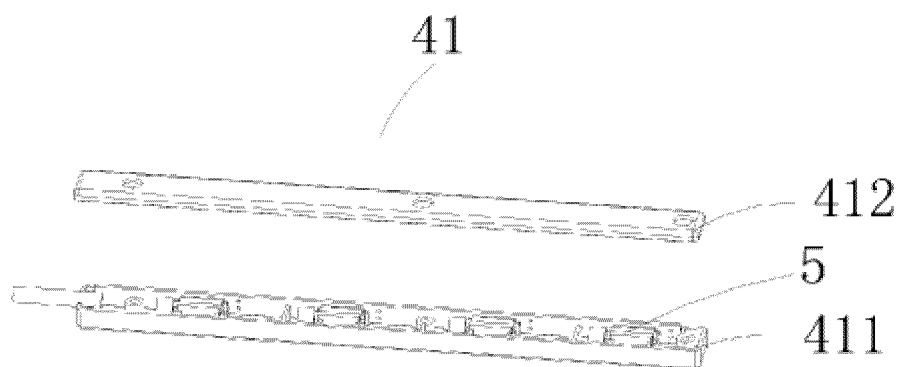


FIG. 7

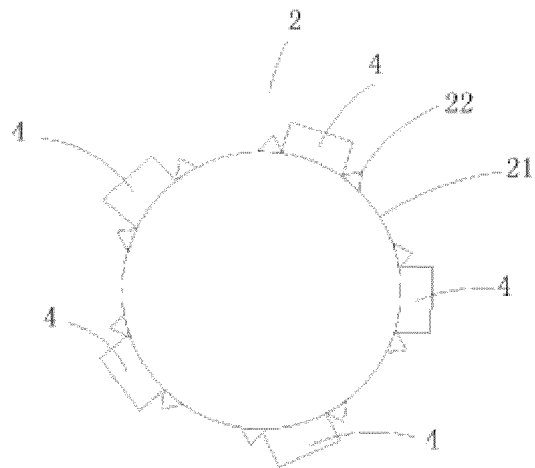


FIG. 8

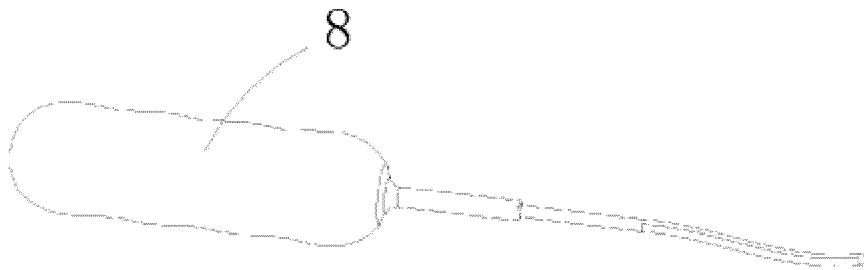


FIG. 9

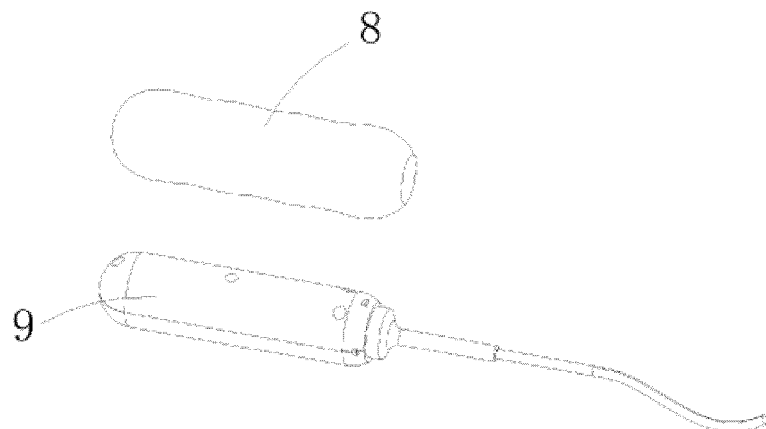


FIG. 10

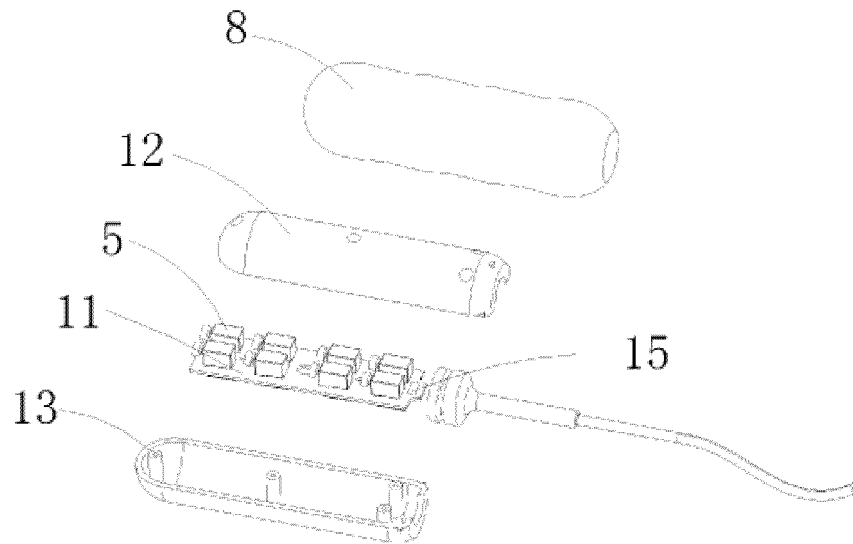


FIG. 11

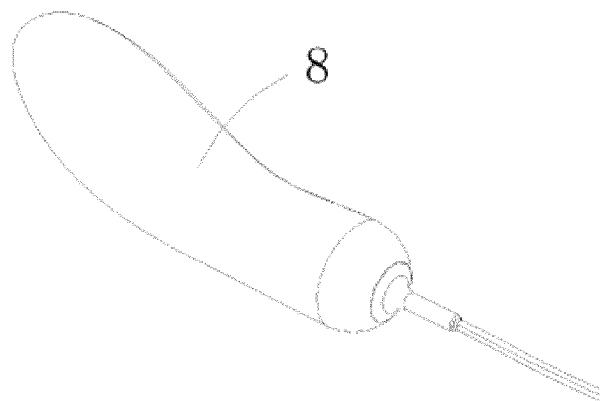


FIG. 12

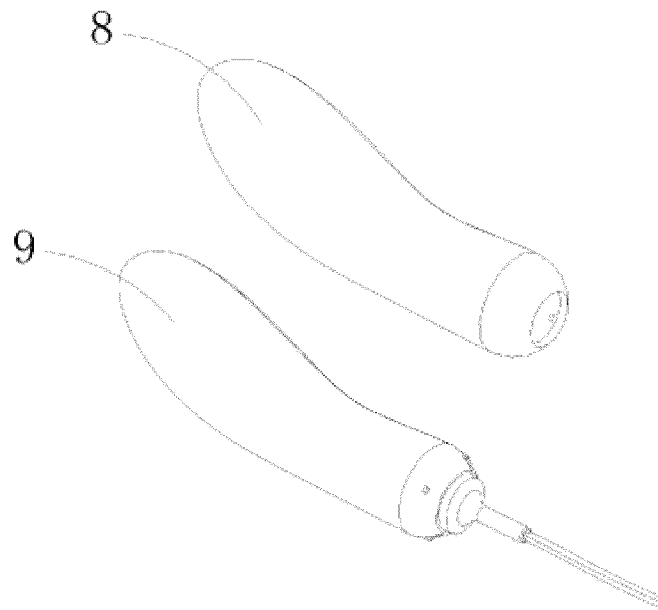


FIG. 13

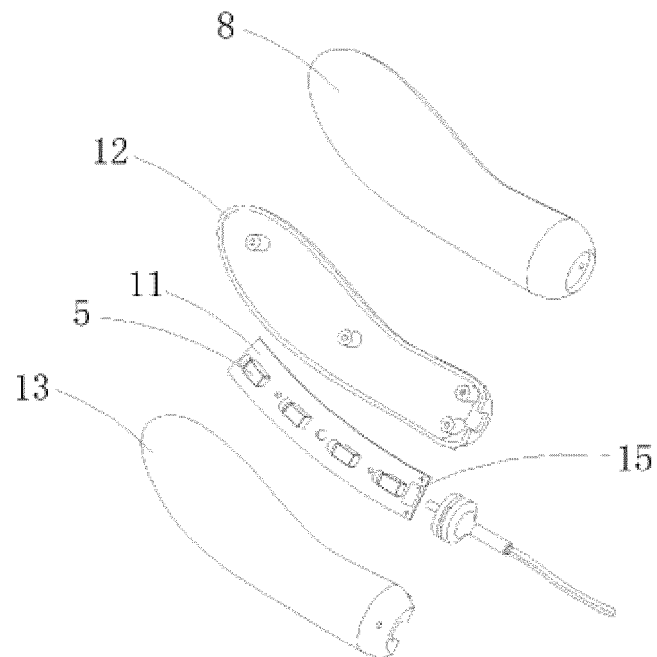


FIG. 14

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/070393

A. CLASSIFICATION OF SUBJECT MATTER

See the extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A61F 5/41, A61H 19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, CNPAT, CNKI: vibrat+, motor?, assembl???, group?, set?, control+, sequence?, order?, mode?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	CN 101848688 A (VIBROTRON AS), 29 September 2010 (29.09.2010), description, paragraphs [0043]-[0054], and figures 2-3	1-11
Y	CN 101969912 A (JEX CO., LTD.), 09 February 2011 (09.02.2011), description, paragraphs [0035]-[0043], and figures 1-3	2-4, 6-11
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A	DE 202008011722 U1 (BARSOM, S.), 13 November 2008 (13.11.2008), the whole document	12-16
A	CN 2768758 Y (GUANGDONG CHUYI ENTERPRISES (GROUP) CO., LTD.), 05 April 2006 (05.04.2006), the whole document	1-16

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
19 August 2013 (19.08.2013)Date of mailing of the international search report
05 September 2013 (05.09.2013)Name and mailing address of the ISA/CN:
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Facsimile No.: (86-10) 62019451Authorized officer
ZHENG, Qiwei
Telephone No.: (86-10) 62085633

INTERNATIONAL SEARCH REPORT
 Information on patent family members

International application No.

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Form PCT/ISA/210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/070393

CLASSIFICATION OF SUBJECT MATTER

A61H 19/00 (2006.01) i

A61F 5/41 (2006.01) i

REFERENCES CITED IN THE DESCRIPTION

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