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(54) DEVICE FOR MALE SEXUAL STIMULATION

(57) The invention relates to a device for male sexual stimulation, of the type that comprises a hollow body which can receive a penis and which has been specially designed to stimulate the male erogenous member.

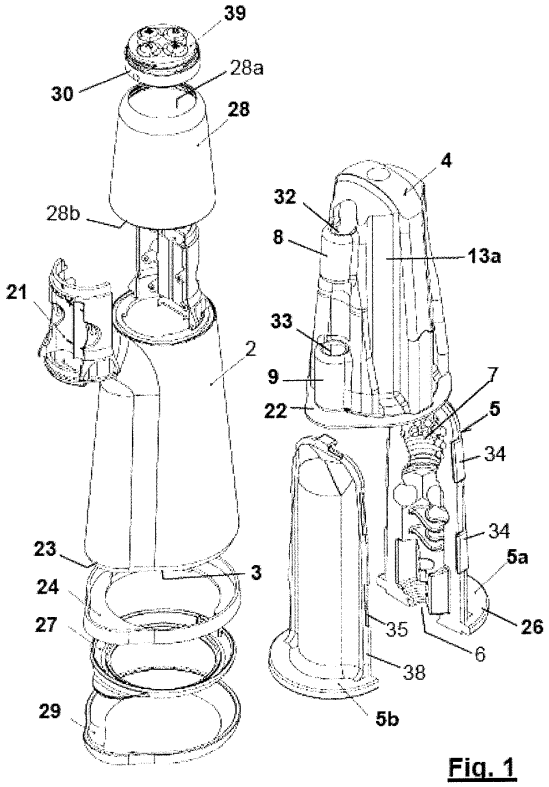

Fig. 1

EP 2 777 679 A1

Description

Technical field of the Invention

[0001] The invention relates to a device for male sexual stimulation, of the type comprising a hollow body suitable for receiving the insertion of a penis and especially suitable for stimulating this male erogenous member.

Background of the Invention

[0002] Different devices intended for male sexual stimulation are known today. A known type of device basically comprises a hollow body that can generally be gripped with one hand, having an opening through which a penis can be inserted therein.

[0003] Inside the body there are arranged a series of elements which press and stimulate this male erogenous member if there is an intentional relative movement between the penis and the hollow body that promotes rubbing and, accordingly, certain sexual pleasure.

[0004] A first drawback associated with such devices is hygiene, especially if fluids enter them, such as fluids resulting from ejaculation for example.

[0005] An objective of the invention is a device solving this drawback, in which the tasks of cleaning and drying the components that may come into direct contact with the penis are facilitated.

[0006] On the other hand, the lack of devices offering better stimulation capacity is also noted. In this sense other types of devices are known, such as dildos for example incorporating electric motors capable of transmitting a vibration movement to the erotic toy in question, promoting the user's stimulation.

[0007] The incorporation of such motors occasionally becomes complex for several reasons, the most notable being the fact that the constructive solutions become more complex and therefore increase the manufacturing cost, and fixing or support elements such as screws and the like are necessary, which may cause possible disadjustments with use of the device in addition to also affecting the assembly and manufacturing cost, as discussed above.

[0008] Therefore a secondary objective of the invention is a device which, while being constructively simple, allows incorporating electric motors or similar assemblies.

[0009] Another objective of the invention is a more versatile a device which allows different operating modes beyond those that may be pre-programmed in the device.

Description of the Invention

[0010] The device of the invention is of the type comprising a hollow body comprising a first end with an opening for the insertion of the penis of a user.

[0011] The device is essentially characterized in that the mentioned hollow body is provided with an inner lining determining a housing in which there is tightly and removably inserted a sleeve intended for receiving the penis through a corresponding elastically deformable mouth which is accessed through the opening of the hollow body.

[0012] As the sleeve is the only component having direct contact with the penis, the removal of said sleeve greatly facilitates cleaning the device, furthermore the sleeve becomes a consumable component that can be easily replaced with others which offer another type of performance, which have a different size or which simply have not been previously used.

[0013] In one variant of the invention, the sleeve has a general blind tubular shape and is formed by two halves mutually coupleable according to a longitudinal section plane of the sleeve.

[0014] Advantageously, since the two halves of the sleeve can be separated, the bottom of said sleeve can be accessed, facilitating cleaning tasks.

[0015] The sleeve is preferably made of latex or silicone and is provided with a rough inner surface for stimulating the penis.

[0016] According to another feature of the invention, the inner lining of the hollow body is formed from a single part and has a general frustoconical shape, being provided with at least one housing suitable for containing a vibrating motor or a transducer element.

[0017] The housing of the motors in the lining prevents direct contact of the latter with a rigid component of the device, such as the hollow tubular body and assures that the transmitted impulses are not attenuated by this hollow body and reach the sleeve, and accordingly the user's penis, to a greater extent.

[0018] According to one embodiment, the mentioned housings are pocket-shaped, being provided with respective openings that can only be accessed from the outer face of the lining.

[0019] This feature allows supporting vibrating motors, or transducers where appropriate, without using screws or auxiliary support elements. This solution facilitates assembling the components and accessing them in the event of a malfunction.

[0020] On the other hand, the fact that the openings can only be accessed from the outer face of the lining assures that any fluid leaking out from inside the sleeve cannot reach the vibrating motors or the transducer elements.

[0021] In one variant of interest, the lining comprises at least two housings, one of which contains a vibrating motor and the other a transducer.

[0022] In a preferred embodiment, at least one transducer element is a force sensor capable of generating a signal according to the value of the force exerted on it.

[0023] According to another feature of the invention, the inner lining of the hollow body is impermeable and is provided on its inner face with a series of grooves extending in an axial direction, determining respective channels suitable for evacuating a liquid that may enter it.

[0024] According to a variant of interest, the inner face of the lining has, in cross section, an inner contour with a crenellated configuration which is slightly deformed when the sleeve is inserted therein and contributes to retaining the mentioned sleeve when the latter is expanded upon receiving a penis due to the elastic reaction of the material forming the lining.

[0025] According to another aspect of the device according to the invention, the hollow body comprises support means for a processor and means for housing at least one battery electrically connected to the processor and to the vibrating motors and/or transducers, the device further comprising a series of switches for controlling the mentioned motors and transducers according to different operating modes controlled by the processor.

[0026] In one operating mode, the speed of at least one of the vibrating motors is determined according to the value of the signal generated by at least one of the transducers.

[0027] It is also contemplated that the device comprises means for setting up wireless communication with another apparatus such that in one operating mode, the speed of the vibrating motors is determined by the information transmitted to them from this other apparatus, such apparatus being able to be, for example, a device having similar features, a PC, a mobile telephone, a tablet, etc.

[0028] According to one embodiment, the means for housing at least one battery and the processor are arranged at the second end of the hollow body, protected by a tubular cap axially coupleable to the hollow body and the outer surface of which connects without interruption with the outer surface of the hollow body when the tubular cap is in the correct coupling position.

[0029] In this embodiment, the switches can be accessed preferably through the opening of the tubular cap opposite the coupling opening for coupling with the tubular body such that they are easily accessible with the thumb of the same hand with which the user can grip the device.

[0030] According to a constructive shape that assures leak-tightness, as the inner lining of the hollow body is a component that may or may not be detached from said hollow body, the lining comprises in its mouth an outer projection which, like a gasket, is arranged between the edge of the opening of the hollow body and a first retaining ring which is applied on said edge, the first retaining ring being provided on its outer face with an annular surface on which there is placed an outer shoulder of the sleeve which is arranged between the first retaining ring and a second retaining ring externally coupleable on the first retaining ring.

Brief Description of the Drawings

[0031]

Figure 1 is an exploded view of a variant of the device according to the invention;

Figure 2 is a longitudinal section view of the device of Figure 1 with its components duly assembled; and

Figure 3 is a cross section of the device illustrated in Figure 2 according to section plane AA indicated in said Figure 2.

Detailed Description of the Drawings

[0032] Structurally, the device 1 illustrated in Figure 1 comprises three main components that fit one inside the other, the outermost component being a hollow body 2 intended for being gripped by a user; the intermediate component being an one-piece molded inner body forming an inner lining 4 of the mentioned hollow body 2 and determining a housing in which there is tightly and removably inserted the third component formed by a sleeve 5 intended for receiving the penis through a corresponding elastically deformable mouth 6 which is accessed through the opening 3 of the hollow body 2.

[0033] With respect to the sleeve 5, it is seen in Figure 1 that it has a general blind tubular shape and is formed by two halves 5a, 5b mutually coupleable according to a longitudinal section plane of the sleeve 5.

[0034] This sleeve 5 is made of a flexible material, such as latex or silicone, which adjusts to the shape of a penis, slightly pressing it, and is provided with a rough inner surface 7 for stimulating the penis.

[0035] The two halves 5a and 5b are provided with complementary coupling means 34 and 35, respectively, which in the depicted embodiment are formed by a series of hook-shaped tabs arranged in one of the halves of the sleeve 5 which cooperate with recesses arranged in the other half and retain the tabs when the two halves 5a and 5b of the sleeve 5 are applied one against the other. Figure 1 shows the two halves 5a and 5b of the sleeve 5 in a facing position prior to their mutual coupling.

[0036] Other solutions for the detachable coupling of the two halves 5a and 5b of the sleeve 5 are naturally contemplated, such as for example providing the two halves with protuberances in one half and corresponding recesses in the other half intended for cooperating in retaining the two halves 5a and 5b together enough to help them remain correctly juxtaposed while the operation of inserting the sleeve 5 inside the hollow body 2, and more specifically inside the housing determining the inner lining 4 of the mentioned hollow body 2, takes place.

[0037] With respect to this inner lining 4 of the hollow body 2, in the depicted variant it is also formed from a single part made of an impermeable material, such as silicone for example, and has a general frustoconical shape.

[0038] The body forming the lining 4 is introduced inside the hollow body 2 through its opening 3 and is firmly held against the mentioned hollow body 2. While the sleeve 5 is a component that can be removed from the device 1, the inner lining 4 is a component that must not be manipulated in order to reuse the device 1.

[0039] The lining 4 can be permanently held against the hollow body 2, or it can alternatively be detachable. In any case, it is preferable for the outer face of the lining to form, together with the inner surface of the hollow body 2, a leak-tight chamber or compartment. One way to achieve this objective is described in detail below.

[0040] As shown in Figure 3, the inner lining 4 is advantageously provided on its inner face 13b with a series of grooves 14 extending in an axial direction and determining respective channels suitable for evacuating a fluid that may enter and leak out of the sleeve 5 when it is inserted inside the hollow body 2.

[0041] It is further observed that the inner face 13b of the lining 4 has, in cross section, an inner contour 15 with a crenellated configuration. As the inner lining 4 is made of a flexible material, this configuration allows the lining to be slightly deformed when the sleeve 5 is inserted therein and contributes to retaining the mentioned sleeve 5 when the latter is expanded upon receiving a penis due to the elastic reaction of the material forming the lining 4.

[0042] It is further pointed out that this particular configuration solves another drawback of known devices. The grooves 14 prevent a vacuum effect from occurring which prevents removing the sleeve 5 from inside the hollow body 2, a situation that occurs in known devices and complicates removing the sleeve 5.

[0043] In the example of Figure 3, two diametrically opposed recesses 37 are distinguished in the inner contour 15 of the inner lining 4, the purpose of which is to receive the fit of the juxtaposed longitudinal shoulders 38 of respective halves 5a and 5b of the sleeve 5 acting like a flange to facilitate the attachment of the mentioned two halves 5a and 5b of said sleeve 5.

[0044] According to another aspect of the device 1 of the invention, said device incorporates a series of vibrating motors and of transducers, specifically force sensors, for the purpose of increasing penile stimulation and allowing different ways of using the device 1.

[0045] In the embodiment, the body forming the lining 4 is provided with five housings of which only housings 8 and 9 can be seen in Figure 1 and all five housings 8, 9, 10, 11 and 12 can be seen in Figure 2.

[0046] These housings 8, 9, 10, 11 and 12 are integrally formed with the body forming the inner lining 4 and are pocket-shaped, being provided with respective openings (only openings 32 and 33 corresponding to housings 8 and 9 are seen in Figure 2) that can only be accessed from the outer face 13a of the lining 4, i.e., from the leak-tight compartment formed by the outer face 13a of the inner lining 4 and the inner surface of the hollow body 2. It must be noted that the dimensions of the housings 8 and 9 are suitable for tightly receiving the vibrating motors 16 and 17, respectively, without requiring auxiliary elements such as screws or the like for supporting the inner lining 4. Similarly, the dimensions of the housings 10, 11 and 12 are preferably selected according to the dimensions of the transducers 18, 19 and 20 formed in the embodiment by force sensors capable of generating a signal according to the value of the force exerted on them.

[0047] In Figure 3 it is seen that the lining 4 is provided with a longitudinal rib 36 resting directly on the inner surface of the hollow body 2, the purpose of which is to prevent the unwanted movement of the force sensors contained in the housings 10 to 12, which are aligned.

[0048] Going back to Figures 1 and 2, the hollow body 2 is provided at its distal end with support means for a processor 30 and with means for housing at least one battery 21 electrically connected to the processor 30 and to the vibrating motors and/or transducers 16 to 20. The device 1 further comprises a series of switches 39 for controlling the mentioned motors and transducers according to different operating modes controlled by the processor 30, some of which are explained below by way of example.

[0049] In a possible operating mode, the speed of at least one of the vibrating motors 16, 17 is determined according to the value of the signal generated by at least one of the transducers 18, 19 and 20. This operating mode allows certain user interaction such that according to the force, rhythm or other factors which alter the signal generated by the force sensor through the penis, the rotating speed of the vibrating motors will be consistent with it. Therefore, for example, in a non-limiting scenario, the greater force captured by the sensors, the greater the rotating speed of the vibrating motors, or vice versa. This interactive operating mode will ultimately be managed by an algorithm stored in the processor 30.

[0050] In another operating mode for which it is envisaged that the device 1 comprises means for setting up wireless communication with other apparatus, the speed of the vibrating motors 16, 17 will be determined by the information transmitted to them from this other apparatus, which in turn can be associated with signals generated by transducers incorporated in similar devices, i.e., in other male or female sexual stimulation apparatuses.

[0051] It is observed that the means for housing at least one battery 21 and the processor 30 are arranged at the second end of the hollow body 2, protected by a tubular cap 28 axially coupleable to the hollow body 2.

[0052] The outer configuration of said tubular cap 28 is such that when it is in the correct coupling position with the hollow body 2, its outer surface connects the outer surface of the mentioned hollow body 2 without interruption, which increases the ergonomics of the device 1.

[0053] The switches 39 can be accessed through the opening 28a of this tubular cap 28, opposite the coupling opening 28b for coupling with the tubular body 2 such that they are easily accessible with the thumb of the same hand with which the user can grip the device 1.

[0054] To assure leak-tightness of the device 1, and especially of the chamber determined by the inner surface of the hollow body 2 and the outer face of the inner lining 4, and accordingly to insulate the vibrating motors 16 and 17 from any fluid, the lining 4 comprises in its mouth an outer projection 22 which, like a gasket, is arranged between the edge 23 of the opening 3 of the hol-

low body 2 and a first retaining ring 24 which is applied on said edge 23.

[0055] In turn, for retaining the sleeve 5 in its operating position, the first retaining ring 24 is provided on its outer face with an annular surface 25 on which there is placed an outer shoulder 26 of the mouth 6 of the sleeve 5, which is arranged between the first retaining ring 24 and a second retaining ring 27 externally coupleable on the first retaining ring 24.

[0056] Finally, the device 1 comprises an outer removable cover 29 closing the access to the inside of the hollow body 2, and hence to the sleeve 5, and protecting the latter when the device 1 is not being used.

Claims

1. A device (1) for male sexual stimulation, comprising a hollow body (2) comprising a first end with an insertion opening (3) for the insertion of a user's penis, **characterized in that** the mentioned hollow body is provided with an inner lining (4) determining a housing in which there is tightly and removably inserted a sleeve (5) intended for receiving the penis through a corresponding elastically deformable mouth (6) which is accessed through the opening of the hollow body.

2. The device (1) according to claim 1, **characterized in that** the sleeve (5), having a general blind tubular shape, is formed by two halves (5a,5b) mutually coupleable according to a longitudinal section plane of the sleeve.

3. The device (1) according to claim 2, **characterized in that** the sleeve (5) is made of latex or silicone and is provided with a rough inner surface (7) for stimulating the penis.

4. The device (1) according to any one of the preceding claims, **characterized in that** the inner lining (4) of the hollow body (2) is formed from a single part and has a general frustoconical shape, being provided with at least one housing (8, 9, 10, 11, 12) suitable for containing a vibrating motor or a transducer element.

5. The device (1) according to the preceding claim, **characterized in that** the mentioned housings (8, 9, 10, 11,12) are pocket-shaped, being provided with respective openings (32, 33) that can only be accessed from the outer face (13a) of the lining (4).

6. The device according to claim 4 or 5, **characterized in that** it comprises at least two housings (8, 9, 10, 11), one of which contains a vibrating motor (16, 17) and the other a transducer (18, 19, 20).

7. The device according to any one of claims 4 to 6, **characterized in that** at least one transducer element (18, 19, 20) is a force sensor capable of generating a signal according to the value of the force exerted on it.

8. The device (1) according to any one of the preceding claims, **characterized in that** the inner lining (4) of the hollow body is impermeable and is provided on its inner face (13b) with a series of grooves (14) extending in an axial direction, determining respective channels suitable for evacuating a liquid that may enter it.

9. The device (1) according to the preceding claim, **characterized in that** the inner face (13b) of the lining (4) has, in cross section, an inner contour (15) with a crenellated configuration which is slightly deformed when the sleeve (5) is inserted therein and contributes to retaining the mentioned sleeve (5) when the latter is expanded upon receiving a penis due to the elastic reaction of the material forming the lining (4).

10. The device (1) according to any one of claims 4 to 9, **characterized in that** the hollow body comprises support means for a processor (30) and means for housing at least one battery (21) electrically connected to the processor (30) and to the vibrating motors and/or transducers (16 to 20), the device further comprising a series of switches (39) for controlling the mentioned motors and transducers according to different operating modes controlled by the processor (30).

11. The device (1) according to the preceding claim, **characterized in that** in one operating mode, the speed of at least one of the vibrating motors (16,17) is determined according to the value of the signal generated by at least one of the transducers (18, 19, 20).

12. The device (1) according to claim 10, **characterized in that** it comprises means for setting up wireless communication with another apparatus such that in one operating mode, the speed of the vibrating motors (16,17) is determined by the information transmitted to them from this other apparatus.

13. The device (1) according to any one of claims 10 to 12, **characterized in that** the means for housing at least one battery (21) and the processor (30) are arranged at the second end of the hollow body (2), protected by a tubular cap (28) axially coupleable to the hollow body (2) and the outer surface of which connects without interruption with the outer surface of the hollow body (2) when the tubular cap (28) is in the correct coupling position.

14. The device (1) according to the preceding claim, **characterized in that** the switches (39) can be accessed through the opening (28a) of the tubular cap (28) opposite the coupling opening (28b) for coupling with the tubular body (2) such that they are easily accessible with the thumb of the same hand with which the user can grip the device (1).

15. The device (1) according to any one of the preceding claims, **characterized in that** as the inner lining (4) of the hollow body (2) is a component that can be detached from said hollow body (2), it comprises in its mouth an outer projection (22) which, like a gasket, is arranged between the edge (23) of the opening (3) of the hollow body and a first retaining ring (24) which is applied on said edge (23), the first retaining ring (24) being provided on its outer face with an annular surface (25) on which there is placed an outer shoulder (26) of the mouth (6) of the sleeve (5) which is arranged between the first retaining ring (24) and a second retaining ring (27) externally coupleable on the first retaining ring (24).

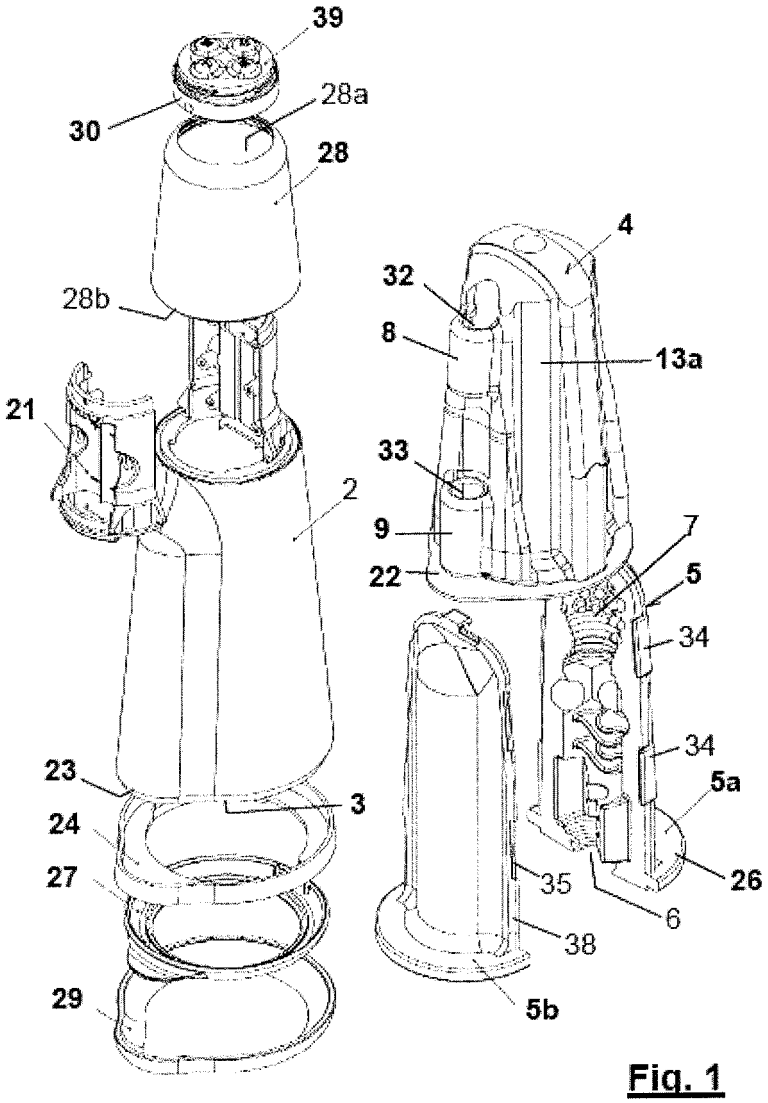
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Fig. 1

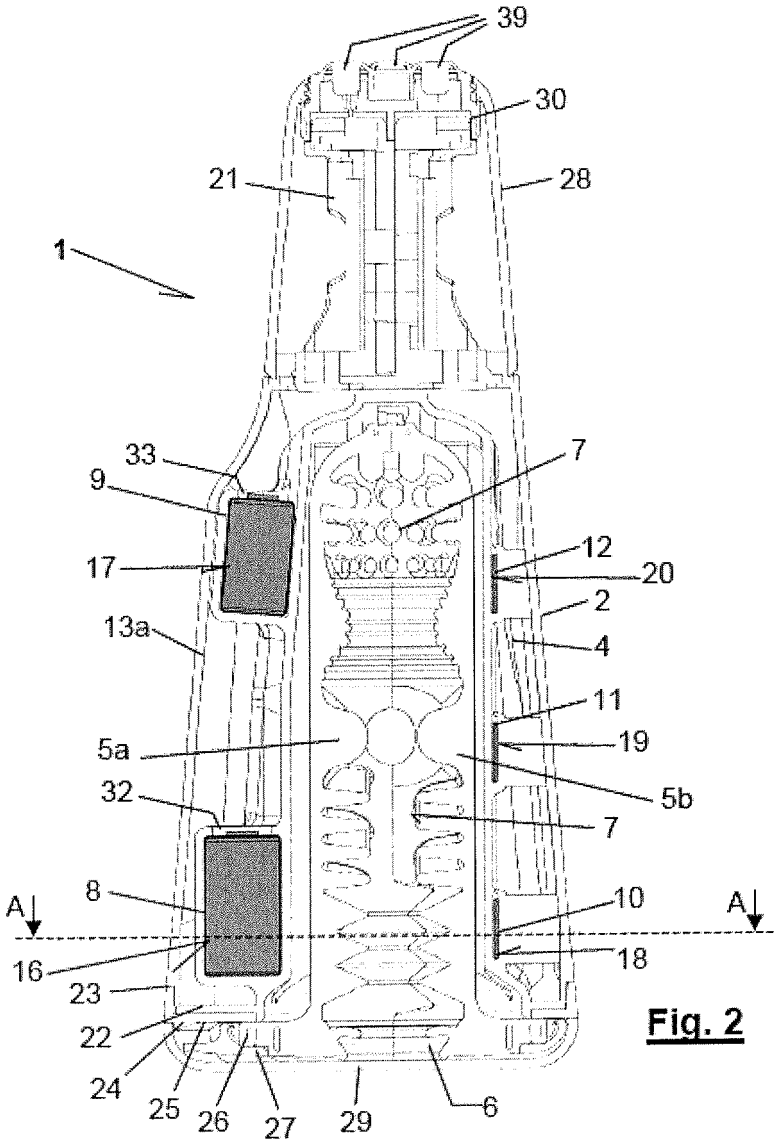
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Fig. 2

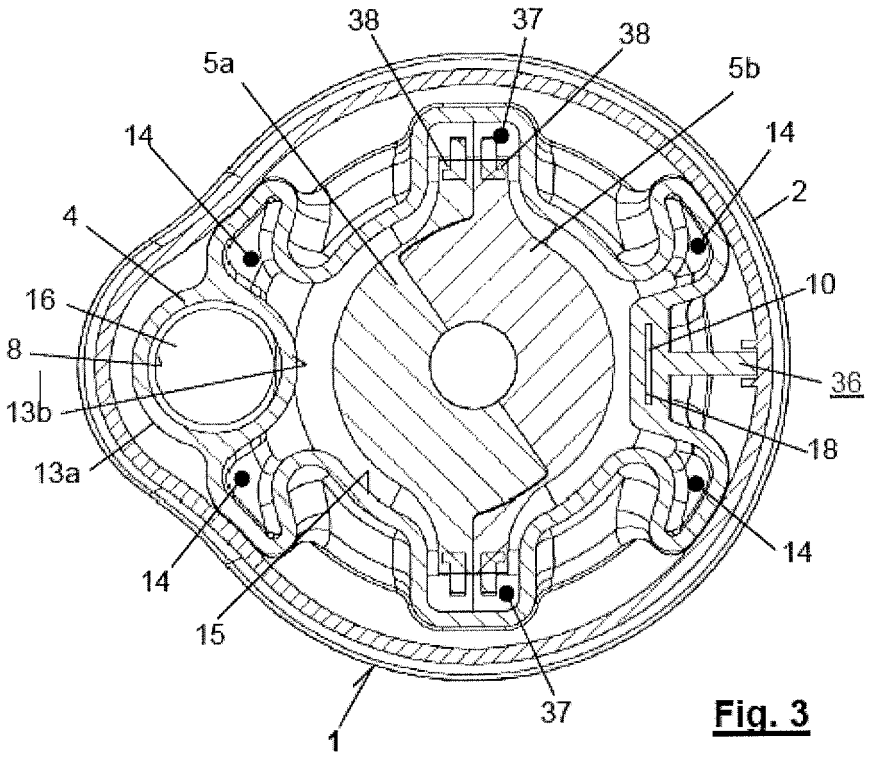

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2012/000282

A. CLASSIFICATION OF SUBJECT MATTER

A61H19/00 (2006.01)

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)
A61H

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

DOCUMENTOS DE PATENTES Y MODELOS DE UTILIDAD DE ESPAÑA.

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

EPODOC, INVENES, WPI, PAJ, ECLA.

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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A	figures 6a, 6b, 13-19.	2-15
X	US 4059100 A (GLAGE ULRICH) 22/11/1977, column 2, line 1 - column 3, line 11; figure.	1
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A	WO 2005099366 A2 (KARGULA CHRISTOPHER) 27/10/2005, pages 3-5; figures.	1-15

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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08/02/2013	**(11/02/2013)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer J. Cuadrado Prados Telephone No. 91 3495522

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INTERNATIONAL SEARCH REPORT

International application No.
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C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 2010041944 A1 (LEVY DAVID) 18/02/2010, paragraphs [28-42]; figures 1-13b.	1-15

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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