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(54) **Massage vibrator**

(57) According to the present invention there is provided a miniature electrically powered massage vibrator including an outermost shell (2) slidably holding a vibrating body (3). The vibrating body contains a power source (11) of button cells for powering a motor (17) of the vibration generator encased inside the body, and a power switching mechanism (21,35). The sliding movement of the outermost shell relative to the vibrating body provides the switching on/off functions of the electric power. If the mini vibrator is worn on the base of a penis in a lateral way, the function of switching On/Off can only be actuated by a relative movement between outermost shell and vibrating body and in a lateral direction. Whereas the motions of the massage action - both from the penis and the vibrator - are in a longitudinal direction.

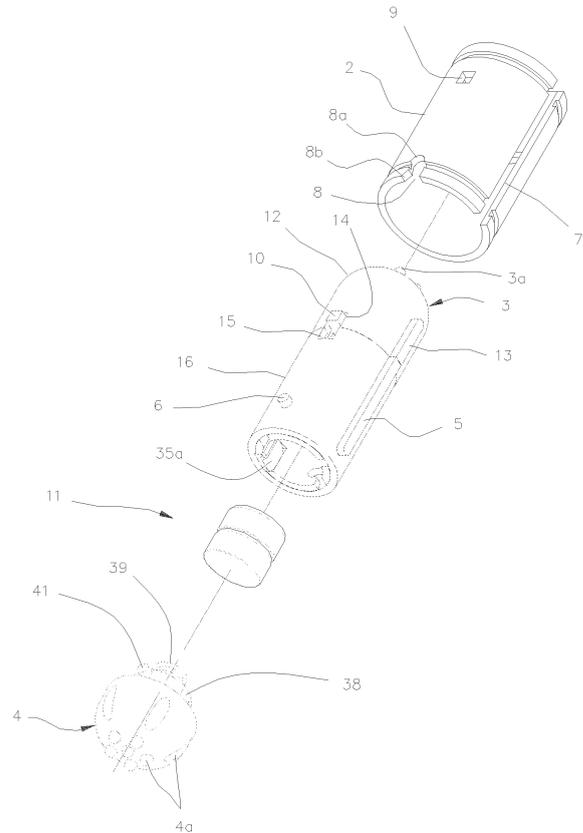


FIG. 3

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Description

[0001] The present invention relates generally to sexual assistance or marital aid devices, and particularly to a miniature electrically powered massage vibrator that is encased in resilient housing that is worn on the base of the penis for vibrating the female clitoris during the intercourse.

[0002] Prior art miniature sexual aid or stimulating devices with mini massage vibrator are generally having a mechanical switch which is manually actuated for the On/Off operation of the vibrator. There is known a miniature electrically powered massage vibrator that is encased in resilient housing that is worn on the base of the penis for vibrating the female clitoris during the intercourse.

[0003] The existing designs of the switch are facing the problem that the On/Off switch is too small to be operated by a finger. However, on the other hand the switch is not allowed to be made in larger size as it may affect the normal application by irritating the skin or by the danger of unintended switching off operation during massage. Another problem that the existing designs are facing is the orientation of the switching direction relative to the device body which tends to be mistakenly actuated (switched off) by the motions of the massage action. Another problem in the existing designs is the battery carry means as some of them don't have the battery changing capacity while the others don't have a secure battery cover.

[0004] It is therefore the objective of the invention to provide an improved massage vibrator.

[0005] The above mentioned objective can be achieved by a massage vibrator according to the introductory portion of claim 1 with the features of the characterizing portion of claim 1. Advantageous embodiments of the invention are subject matter of the dependent claims.

[0006] According to the present invention there is provided a miniature electrically powered massage vibrator including an outermost shell slidably holding a vibrating body. The vibrating body contains a power source of button cells for powering a motor of the vibration generator encased inside the body, and a power switching mechanism. The sliding movement of the outermost shell relative to the vibrating body provides the switching on/off functions of the electric power, If the mini vibrator is worn on the base of a penis in a lateral way, the function of switching On/Off can only be actuated by a relative movement between outermost shell and vibrating body and in a lateral direction. Whereas the motions of the massage action - both from the penis and the vibrator - are in a longitudinal direction. As the longitudinal direction and the lateral direction are perpendicular to each other, there will not be a force into direction causing a relative movement between the outmost shell and the vibrator body which tends to mistakenly actuate the switch. In a preferred application, this miniature vibrator can be encased

in a casing, preferably a soft resilient casing, providing lateral orientation of the mini vibrator when worn on the base of the penis for providing stimulation to clitoris in an intercourse action.

[0007] Generally spoken, it is preferred that there are means to attach the mini vibrator to the human body in such a way, that the outermost shell slidably holding the vibrating body and being connected with the power switching mechanism as to enable by a sliding movement of the outermost shell relative to the vibrating body the switching on/off functions is slidably perpendicular to the motions of the massage action, especially during sexual intercourse.

[0008] According to the invention the outermost shell is slidably holding the vibrating body and is being connected with the power switching mechanism as to enable by a sliding movement of the outermost shell relative to the vibrating body the switching on/off functions. The outermost shell thus serves a the switch to be operated by the user. Therefore the switch can be easily handled as it is not too small to be operated by a finger - even under wet conditions. On the other hand the outermost shell serving a the switch can be formed smooth and skin-friendly and does not affect the normal application by irritating the skin.

[0009] According to a further embodiment of the invention the outermost shell comprises a longitudinal slot as to enable spreading the outermost shell for mounting on the vibrating body. Thus the outermost shell can be mounted securely avoiding to get lost. On the other hand mounting becomes easier, as projecting elements projecting radial from the vibrating body, like the arm of a switch ring or the block (see description of FIGs) are much easier to handle during mounting of the outermost shell.

[0010] According to a further embodiment of the invention stopping means are provided at the outermost shell whereby the vibration body as to the On and Off position of the power switching mechanism. Unintended dismounting during the switching operation is avoided thereby. If the stopping means are formed as to provide that the power switching mechanism is forced from a intermediate position into one of the On or Off position, unintended switching off operation during massage is avoided. Even if the outermost shell should move during operation, it is forced back into the On position. When switching between On and Off the mechanism passes over the intermediate position.

[0011] According to a further embodiment of the invention a battery cover is detachable connected to the vibrating body and forms a portion of the vibrating body thereby providing battery changing capacity saving costs to the user.

[0012] According to a further embodiment of the invention the battery cover can be detached from the vibrating body by in combination moving against a spring force the battery cover in a direction to the vibrating body and rotating the battery cover with respect to the vibrating body

thereby providing a secure battery cover which can not be opened unintended. Thus there is provided a massage device with a mini vibrator having an effective battery changing means.

[0013] According to a further embodiment of the invention the vibrating body comprises at its opposing ends anti-slippery gripping means the switching operation under wet conditions is easier. The vibrator is fixed between the user's thumb and a finger gripping on the gripping means. The vibrator can not slip out between the fingers. Now the user can grip and move the outermost shell with the other hand into the On or Off position. Preferably the opposing ends are rounded providing less irritation during operation. In this case the opposing wet ends without any anti-slippery gripping means would be extremely slippery. Further preferably the anti-slippery gripping means are also rounded, for example by a plurality of rounded protrusions on the surface of the battery cover. The gripping means also allow easier handling of the battery cover.

[0014] The present invention provides a massage device with a mini vibrator having an effective on/off switch arrangement which is ergonomically convenient for the operation and will not mistakenly be actuated by movements of the massage action.

[0015] According to a further embodiment of the invention the vibrator has a length from 20 mm to 35 mm and a diameter from 12 mm to 25 mm. This size is based on the consideration of manufacturing cost and ergonomically optimization. Too small vibration motors will involve a high manufacturing cost. There will be a range of the dimensions of the vibrator that can provide an optimized massage effect. Larger vibrators can not be used for as many purposes and can not be attached to or inserted into many different sex toys. For example the vibrator is connected to a soft resilient casing in which the vibrating body and the outermost shell can be encased, whereby soft resilient casing is formed as to be worn on the base of the penis for providing stimulation to clitoris in an intercourse action. A massage device with a mini vibrator worn on the penis for stimulating female clitoris during the intercourse action is provided. There is provided a massage device with a mini vibrator having a minimized overall dimension which can be effectively disposed at and providing vibrations to the sexual regions of the partners.

[0016] According to a further embodiment of the invention the vibration generator is formed by an electric motor with an eccentric mass fixed on its shaft providing a simple means for generating intense vibration stimulation.

[0017] According to a further embodiment of the invention the electrical power source is formed by button cells which are small and have a good power/size ratio.

[0018] Preferred embodiment of the present invention is presented, by way of example only, with reference to the accompanying drawings, in which:

FIG. 1 shows a perspective-type view of the massage

device of the present invention;

FIG. 2 shows a perspective-type view of the massage device shown in FIG. 1 with the battery cover and batteries detached from the vibration body;

FIG. 3 shows a perspective-type view of the massage device shown in FIG. 2 with the outermost shell detached from the vibrating body;

FIG. 4 shows an exploded view of the components making up the device of FIG. 1;

FIG. 5 shows a perspective-type view of the components forming the power switching mechanism; and

FIG. 6 shows how the mini vibrator is worn on the base of a penis in a lateral way

[0019] Referring to **FIG. 1**, in one preferred embodiment of the present invention, powered miniature vibrator **1** comprises an outmost shell **2** slidably holding a vibrating body **3** with a battery cover unit **4** containing an electric motor, a battery chamber carrying batteries and a power switching mechanism.

[0020] Outmost shell **2** is a cylindrical hollow tube having a longitudinal slot **7** which is slidably engaged to a guiding rail or a key portions **5** and **13** on the surface of vibration body **3**. The engagement of slot **7** and the key portion provides a sliding guide for a longitudinal relative movement between outermost shell **2** and vibrating body **3**, and it also introduces a restriction of preventing the rotational relative movement between the outmost shell and the vibrating body. There is a cylindrical block **6** protruded outwardly from the surface of vibrating body **3**. At proximal end of outermost shell **2** there is a curved slot **8** having two ends **8a** and **8b**. Cylindrical block **6** is engaged with the slot **8**. When the outermost shell **2** is made to move relatively to vibrating body **3**, the block **6** has to overcome a larger friction at the middle portion of the slot **8** due to its curved shape and the restriction of rotational relative movement between the outmost shell and the vibrating body, so that the block **6** tends to stay at either **8a** or **8b** of the slot. At the distal end of outermost shell **2** there are two holes **9** disposed circumferentially at 180° apart. Each one of holes **9** is engaged with an arm **10** of a switch ring encased in the vibrating body **3**. Stop positions of the block **6** at **8a** and **8b** in the slot respectively define the On and Off positions of the power switching system.

[0021] Referring to **FIG. 2**, twisting battery cover **4** relative to vibrating body **3** and about the axis A-A is to unfasten the battery cover from the vibrating body, and batteries **11** are loaded into or unloaded from the battery chamber of the vibrating body. A plurality of protrusions **3a** on the outer surface of the distal end of vibrating body **3**, and a plurality of protrusions **4a** on the surface of the battery cover **4** provide an anti-slippery gripping means.

[0022] Referring to **FIG. 3**, the outmost shell **2** is detached from vibrating body **3**, whereas the battery cover **4** is detached from the vibrating body as well.

[0023] Referring to FIG. 4, the distal hollow casing 12 has one opening 24 at the proximal end for accommodating an electric motor 17, a plurality of protrusions 3a on the outer surface of the distal end, a key portion 13 on the outer surface. At the edge of the opening end of the casing 12 there are two slots 14 disposed circumferentially at 180° apart for accommodating arms 10 of a switch ring 21. Also, at the edge of the opening end of the casing 12 there are circular shoulder segments 34 for engaging to the hole of cylindrical casing 16 at its distal end 25, whereby the circular shoulder segments 34 are to fitting to be inserted into the hole. Further, at the edge of the opening end of the casing 12 and on the internal surface there is a recess 23 for accommodating the contact plate 35. and allowing operational movement of the same.

[0024] The vibration generator formed by electric motor 17 has an eccentric mass 18 fixed on its shaft, an electric pole 19 defined by the outer surface of the motor, and another electric pole 20 disposed at the end of the motor. The Switch ring 21 has a centre hole slidably engaged with the external diameter of electric motor 17, and an external flat face 22 for engaging with the contact plate 35.

[0025] On the edge of the distal end 25 of the cylindrical casing 16 there are two slots 15 disposed circumferentially at 180° apart for accommodating the arms 10 of the switch ring 21. On the outer surface of the casing 16 there is an outer guide rail or key portion 5. On the outer surface of the casing 16 there is a cylindrical block 6 for engaging with slot 8, 8a, 8b of the outermost shell 2. On the internal surface of the casing 16 there is an inner longitudinal guide rail or key portion 26 for engaging with a slot 28 of the inner sleeve 30, and on the other side of the internal surface there is a longitudinal recess 27 for accommodating contact plate 35.

[0026] On the edge of the proximal end of inner sleeve 30 there are two L-shape slots 29 disposed circumferentially at 180° apart for engaging with locking blocks 41 of the battery cover 4 to lock the cover on to the vibrating body 3. Also, at the proximal end of inner sleeve 30 and on the internal surface there is a recess 33 for securing the fixing end 35a of contact plate 35. The inner sleeve 30 is inserted, from the opening 44, into the cylindrical casing 16 and fixed for providing the internal structural features. Contact spring assembly 45 is formed by a metallic plate 37 with two locating tags 38 carrying a compression spring 39. Spring assembly 45 is fixed with its locating tags 38 seated in recesses 42 in the battery cover 4.

[0027] Referring to FIG. 5, when the battery cover 4 is locked on the vibrating body 3, spring assembly 45 is brought to push battery set 11 towards the electric motor 17 that causes the positive pole (not shown) of the first battery contact the pole 20 of the motor, and at the same time a tag 38 of the assembly 45 is connected to the fixing end 35a of the contact plate 35. When switch ring 21 is moved in the direction B, it is equivalent to move

the block 6 towards the slot position 8a (FIG. 1), then contact plate 35 will bias and contact to contact the pole 19 of the motor which closes the power circuit that provides the switch-on function. On the other hand, when switch ring 21 is moved in the direction C it is equivalent to move the block 6 towards the slot position 8b (FIG. 1), the switch ring 21 will push the portion 35b of contact plate 35 and make it move away from the pole 19 that opens the power circuit and provides the switch-off function.

[0028] Fig. 6 explains how the mini vibrator is worn on the base of a penis in a lateral way. The function of switching On/Off can only be actuated by a relieve movement between outermost shell 2 and vibrating body 3 and in a lateral direction X - being the same as the direction B of Fig. 5. The motions of the massage action - both from the penis and the vibrator - are in a longitudinal direction Y. As the longitudinal direction Y and the lateral direction X are perpendicular to each other, there will not be a force into direction X causing a relative movement between the outmost shell 2 and the vibrator body 3 which tends to mistakenly actuate the switch. In a preferred embodiment, this miniature vibrator can be encased in a soft resilient casing providing lateral orientation of the mini vibrator when worn on the base of the penis for providing stimulation to clitoris in an intercourse action. As the shape and kind of the casing and the method for attaching it to the penis will vary according to the specific application requirements, the resilient casing is not illustrated.

Claims

1. Electrically powered massage (1) vibrator comprising a vibrating body (3) containing and encasing a vibration generator (17, 18) and an electrical power source (11) for powering the vibration generator and a power switching mechanism (35,21) for electrically connecting the vibration generator and the electrical power source for powering the vibration generator; **characterized by** an outermost shell (2) slidably holding the vibrating body (3) and being connected with the power switching mechanism as to enable by a sliding movement (B,C) of the outermost shell (2) relative to the vibrating body (3) the switching on/off functions by electrically connecting the vibration generator and the electrical power source for powering the vibration generator.
2. Vibrator according to claim 1, whereby the outermost shell comprises a longitudinal slot (7) as to enable spreading the outermost shell for mounting on the vibrating body.
3. Vibrator according to any of the preceding claims,

whereby stopping means (6,8,8a,8b) are provided at the outermost shell and the vibration body as to the On and Off position of the power switching mechanism, preferably formed as to provide that the power switching mechanism is forced from a intermediate position into one of the On or Off position. 5

4. Vibrator according to any of the preceding claims, whereby a battery cover (4) is detachable connected to the vibrating body and forms a portion of the vibrating body 10
and/or the battery cover (4) can be detached from the vibrating body by in combination moving against a spring force the battery cover in a direction to the vibrating body and rotating the battery cover with respect to the vibrating body. 15
5. Vibrator according to any of the preceding claims, whereby the vibrating body comprises at its opposing ends (3,4) anti-slippery gripping means (3a,4a) 20
6. Vibrator according to any of the preceding claims, whereby the vibrator has a length of 20 - 35 mm and a diameter of 12 - 25 mm. 25
7. Vibrator according to any of the preceding claims, whereby there are means to attach the mini vibrator to the human body in such a way, that the outermost shell slidably holding the vibrating body is slidably perpendicular to the motions of the massage action, 30
8. Vibrator according to any of the preceding claims, whereby the vibrator is connected to a casing, preferable a soft resilient casing in which the vibrating body and the outermost shell can be encased, whereby casing is formed as to be worn on the base of the penis for providing stimulation to clitoris in an intercourse action. 35
9. Vibrator according to any of the preceding claims, whereby the casing is constructed as to be worn on the base of the penis in such a way that the vibrator has a lateral orientation, 40
10. Vibrator according to any of the preceding claims, whereby the vibration generator (17, 18) is formed by an electric motor (17) with an eccentric mass (18) fixed on its shaft. 45
11. Vibrator according to any of the preceding claims, whereby the electrical power source (11) is formed by button cells 50

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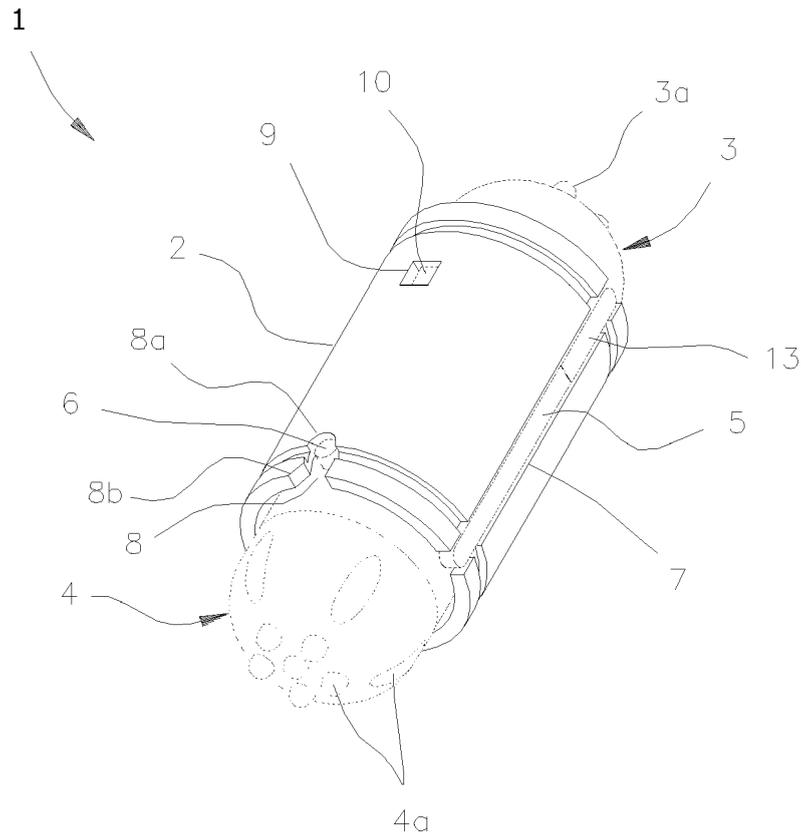


FIG. 1

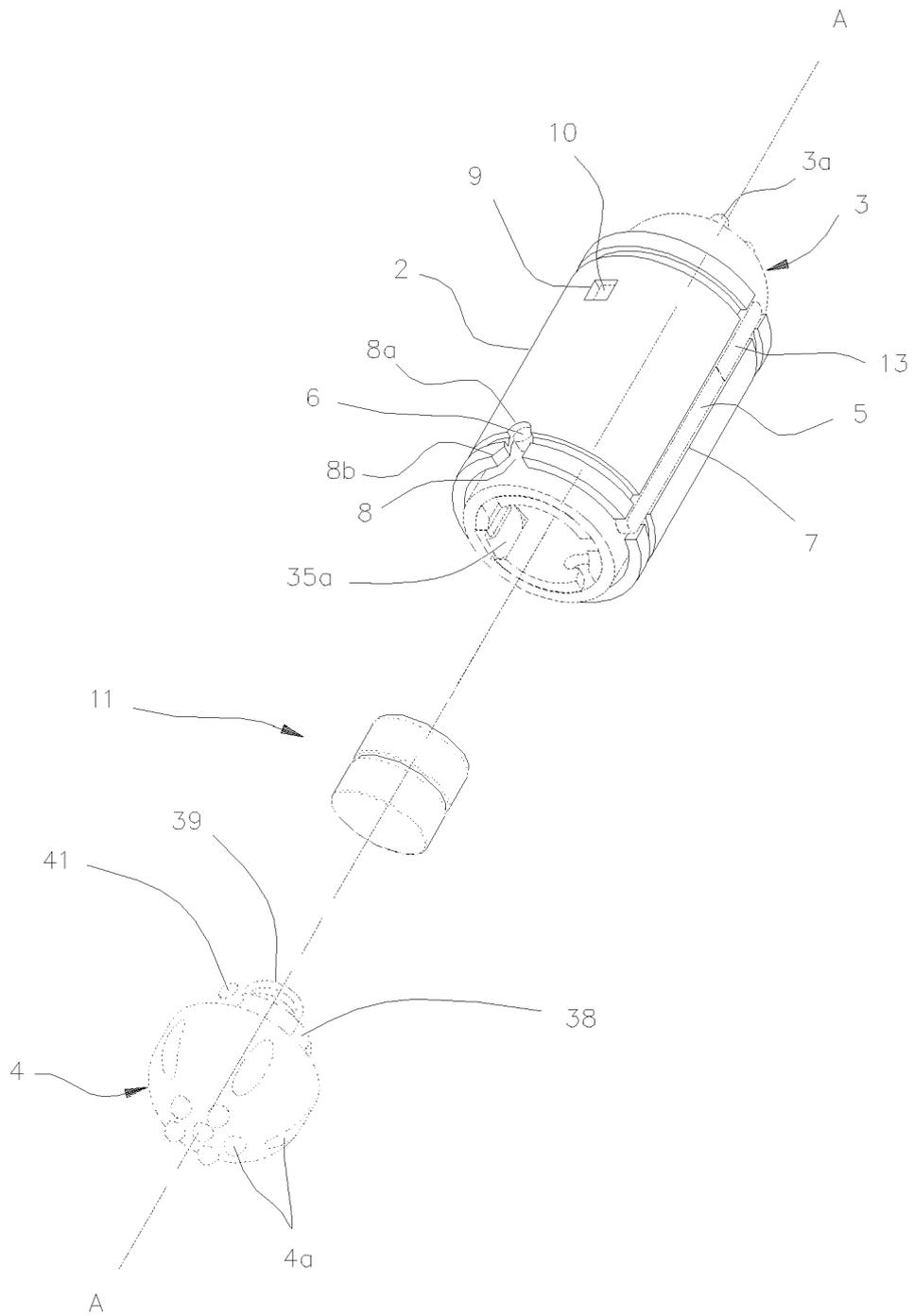


FIG. 2

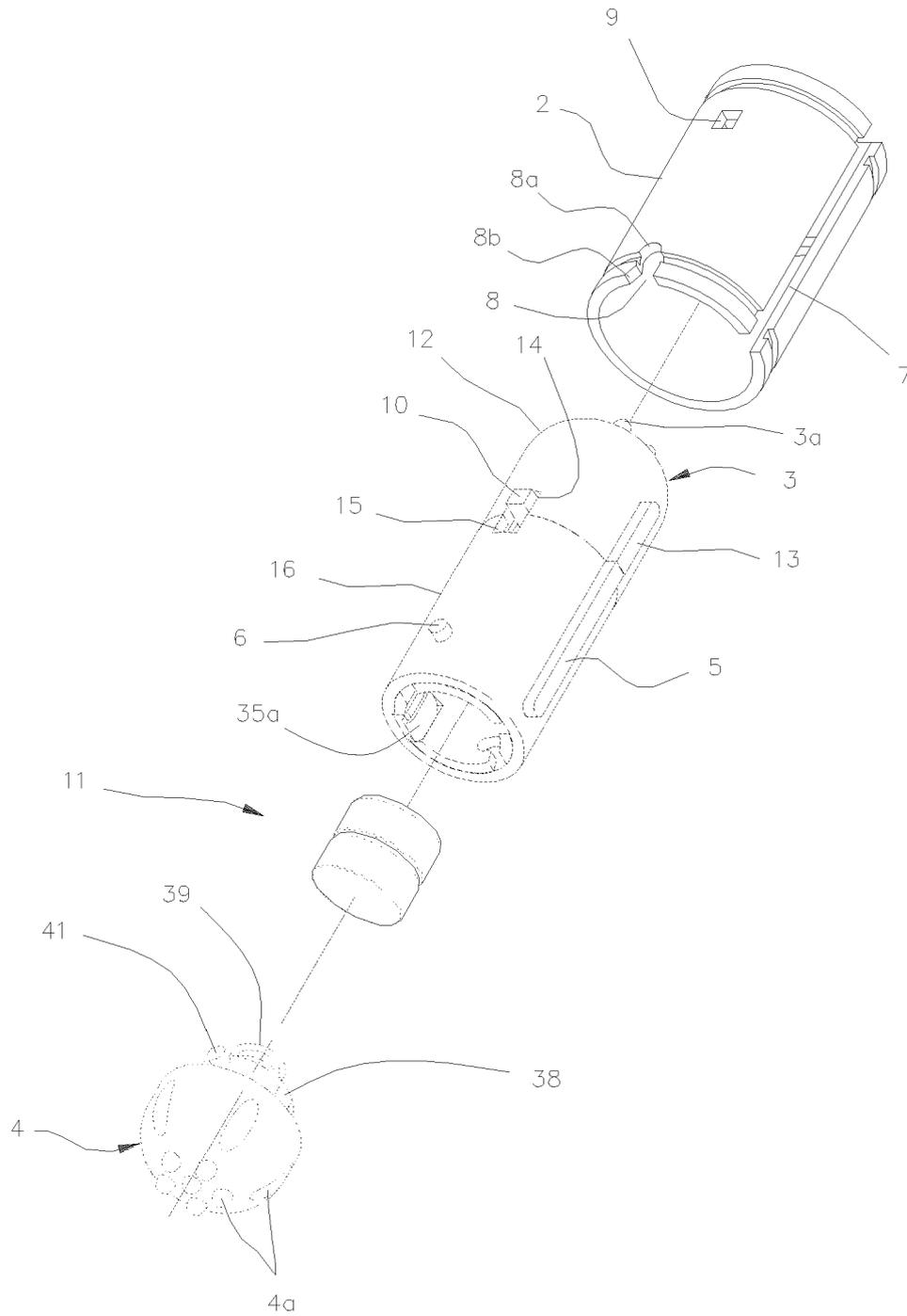


FIG. 3

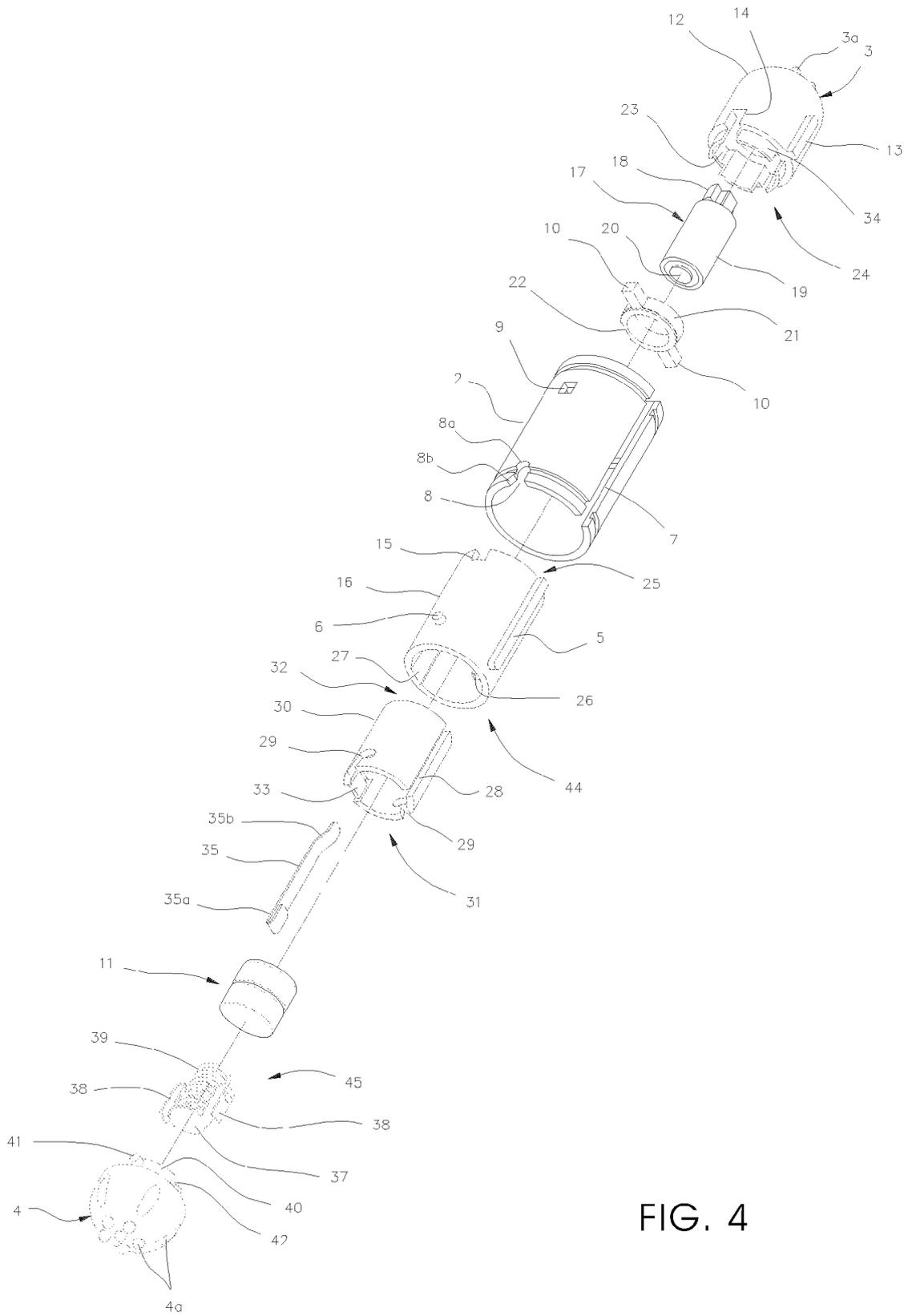


FIG. 4

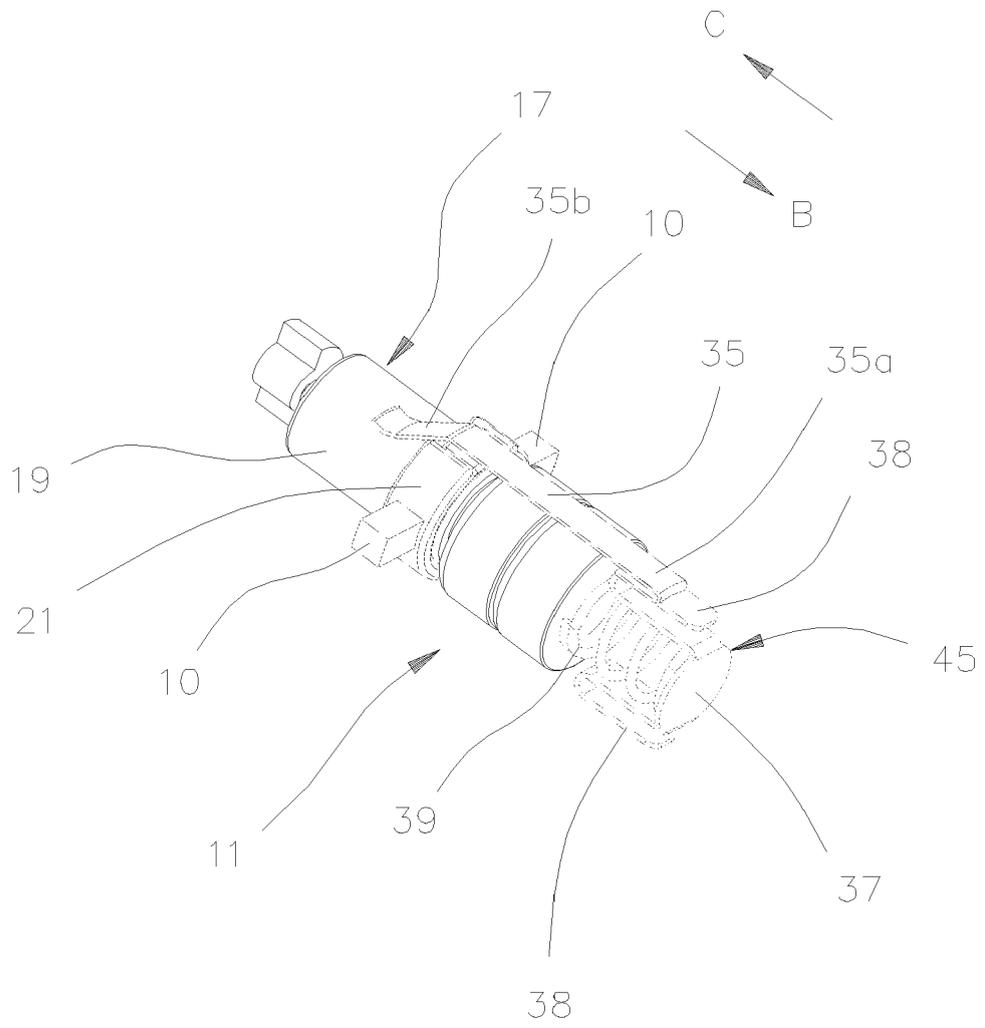


FIG. 5

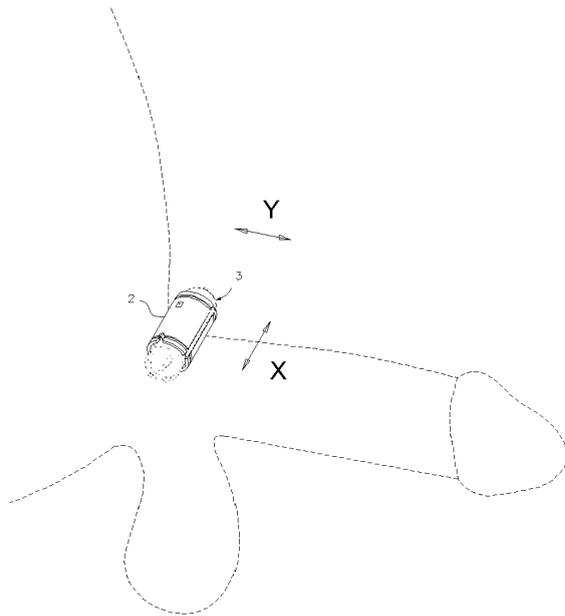


FIG. 6



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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 August 2007	Examiner Schut, Timen
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons	
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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