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(54) High function lifelike pipe and pipe cartridge therefor

(57) Providing with a high function lifelike pipe and pipe cartridge, which can improve the air conductance of the smoking pipe and expand the scope of the available materials for the inhalation. A high function lifelike pipe comprises a pipe body (10) which a cartridge (2) for holding both one ore more luxury goods and a heater for heating the luxury goods are inserted inside, has a mouthpiece (11) at the proximal end and a bowl (12,13) at the distal end with the cartridge (2) being inserted and an air hole (17), an electro-mechanical switch (14) which rotationally deflects responding to the air flow generated by the inhalation through the mouthpiece (11) and changes its ON/OFF state, a light emitting device (15) arranged so as to partially mask the opening of the distal end of the bowl (12,13), a control circuit (19) for detecting the inhalation based on the ON/OFF of the electro-mechanical switch (14) to control the light emitting device (15) to emit a light, and an electric power supply (16), embedded in the bowl (12,13), for at least supplying the electric power to the light emitting device (15) and control circuit (19), wherein a portion of bowl (12) is separable from the other (13).

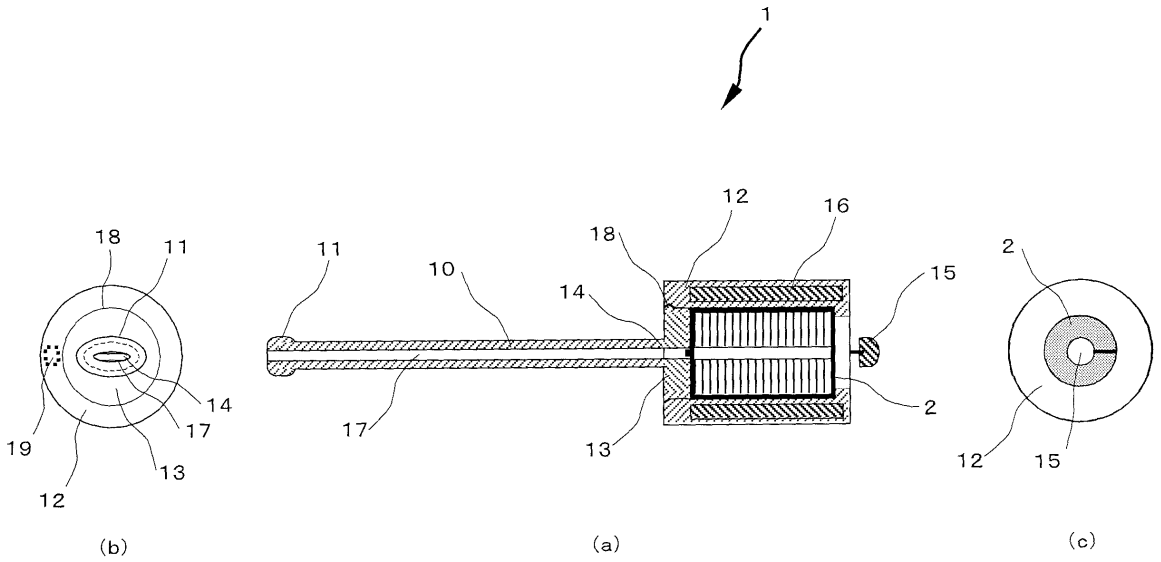

FIG.1

EP 1 891 867 A2

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a high function lifelike pipe and pipe cartridge for inhaling such as perfume, herb, essential oil with perfume, tobacco leaf, and tobacco powders.

[0002] Heretofore, a tobacco has been regularly used by us as a luxury for a long time. In the meanwhile, imitated products of smoking products such as a paper tobacco, smoking pipe for the smoking of a paper wrapped tobacco, and the like helpful for quitting the smoking habit are also spread as well as luxury goods such as a candy and the like helpful for quitting the smoking habit. Particularly, as a pipe for quitting the smoking habit, it is also publicly known a plurality kinds of pipes which are easy to purchase and contain a different kind of taste inside.

[0003] On the other hand, it is pointed out that people suffer from strong mental stress in case that a long-time non-smoking is enforced. For example, depending on such as profession and circumstance, there may be cases that the smoking is limited for a long time. In such cases, although it is conceivable to take a taste such as a chewing gum instead of the smoking, taking such a taste is not adequate at a certain place such as customer office. In addition, there are also cases that they refrain from the smoking by considering the influence of the passive smoking on other persons, which imparts smokers more than few opportunities suffering stress.

[0004] Also, in addition to the smoking, there are also demands to alter the essence of the luxury goods for inhaling depending on their feeling. For example, the demands are to alter the kind of essence such as mint, lemon, orange and the like. Also, there are demands to consciously enjoy the fine atmosphere produced by the smoking, or to relax through this atmosphere indirectly. As for realizing such a demand from a visual point of view, a technology is also publicly known, which is connected with an imitated products of a smoking pipe used for the smoking of paper wrapped tobacco, comprising a light emitting means at the distal end, a battery inside, and an electro-mechanical switch having a coil spring aligned between them; the coil spring moves responding to an inhalation, which affects the light emitting means to emit a light (see, for example, patent document 1).

[Patent document 1] Japanese Patent Application Laid-Open Publication No. 2004-166660

[0005] However, since in addition to the electro-mechanical switch includes a spring coil moving translationally, the light emitting means covers the most portion of the opening at the distal end, the imitated products of the smoking pipe for a paper wrapped tobacco of the prior art has a problem that the air conductance inside the pipe is largely reduced. Also, there is a problem that the switch has a large size, adjustment takes time, and the like. In addition, there is also a problem that available materials are limited to those having adequate vapor pressure. Further, there is also the other problem that enough feeling such as feel of material, etc. is not obtainable from the imitated products of the smoking pipe of a paper wrapped tobacco.

[0006] Considering the aforementioned present situation, the object of the present invention is to provide with a high function lifelike pipe and pipe cartridge, which can improve the air conductance of the smoking pipe and expand the scope of the available materials for the inhalation.

SUMMARY OF THE INVENTION

[0007] In order to solve the aforementioned problem, the present invention provides with following configurations.

[0008] The present invention of claim 1 is characterized by a high function lifelike pipe comprising: a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, an electro-mechanical switch which changes its ON/OFF state depending on the rotational deflection of its own metal chip responding to the air flow generated by inhalation through the mouthpiece, a light emitting device arranged to mask an opening at the distal end of the bowl partially, a control circuit for detecting the inhalation based on the ON/OFF of the electro-mechanical switch to control the light emitting device to emit a light, and an electric power supply embedded in the bowl at least supplying the electric power to the light emitting device subject to the control by the control circuit.

[0009] The present invention of claim 2 is characterized by a high function lifelike pipe comprising: a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, a sensor for transforming the stress occurs depending on the air flow generated by the inhalation through said mouthpiece to electrical signals to be output, a light emitting device arranged to mask an opening at the distal end of said bowl partially, a control circuit for controlling said light emitting device responding to said electrical signal transmitted by said sensor, and an electric power supply embedded in said bowl at least supplying the electric power to said light emitting device subject to the control by said control circuit.

[0010] The present invention of claim 3 is characterized by the high function lifelike pipe of claim 1 or 2, wherein a portion of the bowl is detachable from the other part

[0011] The present invention of claim 4 is characterized by a pipe cartridge being inserted in the bowl of the high function lifelike pipe of any one of claim 1 through claim 3, storing one or more luxury goods and a heater for heating the luxury goods inside.

[0012] The present invention of claim 5 is characterized by the pipe cartridge of claim4, wherein the heater contains a material showing an exothermic reaction.

[0013] The present invention of claim 6 is character-

ized by the pipe cartridge of claim4 or 5, wherein the heater is replenished from outside.

[0014] The present invention of claim 7 is characterized by the pipe cartridge of any one of claims 4 through 6, wherein the heater starts heating through the formation of an opening to itself.

[0015] The present invention of claim 8 is characterized by the pipe cartridge of claim 4, wherein the heater is formed by an electrical heater, the electrical heater is connected to the electric power supply of the high function lifelike pipe of any one of claims 1 through 3.

[0016] The present invention of claim 9 is characterized by the pipe cartridge of any one of claims 4 through 8, wherein at least one of the luxury goods has a shape of a hollow cylinder.

[0017] According to the present invention of claim 1, it is possible to realize the high function lifelike pipe which improves the air conductance inside the smoking pipe and expands the scope of the available materials for inhalation, since the high function lifelike pipe comprises a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, an electro-mechanical switch which changes its ON/OFF state depending on the rotational deflection of its own metal chip responding to the air flow generated by inhalation through the mouthpiece, a light emitting device arranged to mask an opening at the distal end of the bowl partially, a control circuit for detecting the inhalation based on the ON/OFF of the electro-mechanical switch to control the light emitting device to emit a light, and an electric power supply embedded in the bowl at least supplying the electric power to the light emitting device subject to the control by the control circuit.

[0018] According to the present invention of claim 2, it is possible to realize the high function lifelike pipe which improves the air conductance inside the smoking pipe and expands the scope of the available materials for inhalation, since the high function lifelike pipe comprises a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, a sensor for transforming the stress occurs depending on the air flow generated by the inhalation through the mouthpiece to electrical signals to transmit it, a light emitting device arranged to mask an opening at the distal end of the bowl partially, a control circuit for controlling the light emitting device responding to the electrical signal transmitted by the sensor, and an electric power supply embedded in the bowl at least supplying the electric power to the light emitting device subject to the control by the control circuit.

[0019] According to the present invention of claim 3, in addition to the effects of the aforementioned claim 1 or claim 2, it is also possible to make it easy to maintain the inside of the pipe body, exchange parts, and do the like, since a portion of the bowl is detachable from the other part.

[0020] According to the present invention of claim 4, it is possible to realize the high function lifelike pipe which reduces the burden necessary to the inhalation, exchange and the like of the luxury goods, since the pipe cartridge is arranged to be inserted in the bowl of the high function lifelike pipe of any one of claim 1 through claim 3, storing one or more luxury goods and a heater for heating the luxury goods inside.

[0021] According to the present invention of the claim 5, in addition to the effect of the aforementioned claim 4, it is possible to realize compact configuration, since the heater contains a material showing an exothermic reaction.

[0022] According to the present invention of claim 6, in addition to the effect of the aforementioned claim 4 or claim 5, it is possible to do refilling and the like as the need arises, since the heater is replenished from outside.

[0023] According to the present invention of claim 7, in addition to the any one of effects of the aforementioned claims 4 through 6, it is possible to make it simple to start generating heat, since the heater starts heating through the formation of an opening to itself.

[0024] According to the present invention of claim 8, in addition to the effect of the aforementioned claim 4, it is possible to make it compact, since the heater is formed by an electrical heater, and the electrical heater is connected to the electric power supply of the high function lifelike pipe of any one of claims 1 through 3.

[0025] According to the present invention of claim 9, in addition to the any one of effects of the aforementioned claims 4 through 8, it is possible to ensure a large air-contact area along the air flowing direction, since at least one of the luxury goods has a shape of a hollow cylinder.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026]

FIG.1 illustrates views roughly showing an embodiment of a high function lifelike pipe according to the present invention: a front view (a), a left side view (b), and a right side view (c).

FIG.2 illustrates a left side view showing the schematic configuration of an electro-mechanical switch, when the high function lifelike pipe and pipe cartridge are rotated 90 deg. with respect to the air hole.

FIG.3 illustrates views showing an example of an electrical connection among a light emitting device, electric power supply, and control circuit, when the high function lifelike pipe is rotated 90 deg. with respect to the air hole: a front view (a), a left side view (b), and a right side view (c).

FIG.4 illustrates a circuit diagram showing an embodiment of a control circuit.

FIG.5 illustrates views showing an embodiment of a cartridge to be inserted into the bowl, according to

the present invention: a transversal sectional view (a) and longitudinal sectional view (b).

FIG.6 illustrates views showing the other embodiment of the cartridge to be inserted into the bowl, according to the present invention: a transversal sectional view (a) and longitudinal sectional view (b).

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0027] Hereinafter, referring to the accompanying drawings which show several embodiments, descriptions are made on the embodiments according to the present invention. FIG.1 illustrates views schematically showing an embodiment of a high function lifelike pipe according to the present invention: a front view (a), a left side view (b), and a right side view (c). As shown in FIG.1(a), a high function lifelike pipe, in which a cartridge 2 for holding both not showing one ore more luxury goods and a heater for heating the luxury goods is inserted inside, comprises a pipe body 10 having a mouthpiece 11 at the proximal end and a bowl 12, 13 at the distal end to be inserted the cartridge 2, an electro-mechanical switch 14 which rotationally deflects responding to the air flow generated by the inhalation through the mouthpiece 11 and changes its ON/OFF state, a light emitting device 15 arranged so as to partially mask the opening of the distal end of the bowl 12, 13, a control circuit 19 for detecting the inhalation based on the ON/OFF of the electro-mechanical switch 14 to control the light emitting device 15 to emit a light, and an electric power supply 16 embedded in the bowl 12, 13 for at least supplying the electric power to the light emitting device 15 and control circuit 19.

[0028] The pipe body 10 is formed by using, for example, a wood, resin, ceramic, metal and the like, and has an air hole 17 inside for communicating with the mouthpiece 11 and bowl 12, 13 so as that air flows. It is also possible, for example, that the pipe body 10 is arranged such that a portion of the bowl 12 is separable at the connection position 18 from the other portion of the pipe body 10.

[0029] Hereinafter, the bowl 12, 13 is supposed to be separable at the connection position 18 into a detached portion (hereinafter referred to as "bowl distal portion") 12 and a portion at the proximal end (hereinafter referred to as "bowl proximal portion") 13. In this case, it is also possible that the bowl distal portion 12 is arranged to be detachable with the bowl proximal end 13, for example, by employing a pair of screws to maintain each corresponding contact surface attached. It is also possible to arrange such that the bowl distal portion 12 has a distal dent 12a, the bowl proximal portion 13 has a proximal projection 13a, the proximal projection 13a engages with the distal dent 12a, and the positioning of the bowl proximal portion 13 to the bowl distal portion 12 is performed.

[0030] In the bowl proximal portion 13, the electro-mechanical switch 14 is provided so as that it rotationally deflects into the air hole 17. FIG.2 illustrates a left side view showing the schematic configuration of the electro-mechanical switch, when the high function lifelike pipe is rotated 90 deg. with respect to the air hole. The electro-mechanical switch 14 includes, as shown in FIG. 2, a thin planar metal chip 14a rotationally deflects responding to the air flowing into or through the air hole 17 by the inhalation, an electrically conducting recover pin 14b made of metal, having a capability of elastic recovery through a not shown coaxial helical spring, and working as a rotation axis of the metal chip 14a, a metal electrode 14c separating from the metal chip 14a by the inhalation, and electrical leads 14d, 14e connected to each one of the electrically conducting recover pin 14b and metal electrode 14c. The bowl distal portion 12 has a pair of electrically isolated connection pins 12b, each of which is connected to the corresponding electrical leads 14d, 14e. Also, the bowl proximal portion 13 has a pair of electrically isolated connection pins 13b, each of which is connected to the corresponding connection pins 12b, when the bowl distal portion 12 is attached and aligned to it. Each connection pin 13b is electrically connected to the aforementioned control circuit 19.

[0031] FIG.3 illustrates views showing an example of an electrical connection among the light emitting device, electric power supply, and control circuit, when the high function lifelike pipe is rotated 90 deg. with respect to the air hole: a front view (a), a left side view (b), and a right side view (c). The light emitting device 15 is arranged by, for example, a LED (Light Emitting Diode), LD (Laser Diode) and the like, which emits a light with a certain wavelength band of a warm color like red color, or an electric right bulb having a filament, covered with a film of a warm color.

[0032] The light emitting device 15 is connected to the control circuit 19 with a pair of electrically isolated electric leads 19a such as an enamel coated wire, and similarly connected from the control circuit 19 to the electric power supply 16 with a pair of electrically isolated electric leads 19b, 19c. The light emitting device 15 is connected to the electric-mechanical switch 14 with the connection pins 13b, etc., and is turned on/off by the control circuit 19 depending on the ON/OFF of the electric-mechanical switch 14, that is, either the metal chip 14a being in contact with or separated from the metal electrode 14c. Hereupon, it is also possible to increase the air conductance as the need arises by enlarging the size of the opening of the air hole 17 at a portion where the electric-mechanical switch 14 is fixed in the bowl proximal portion 13.

[0033] The electric power supply 16 includes, for example, a primary cell such as Manganese battery, Alkaline Manganese battery, Lithium battery, or a secondary battery such as Lead-acid battery, Lithium-ion battery, and Nickel-metal hydride battery. Hereinafter, the bowl proximal portion and the bowl distal portion are separable from each other at the position where the electric power supply 16 is removable, and the electric power supply 16 is also detachable with the electric leads 19b, 19b, etc.

[0034] FIG.4 illustrates a circuit diagram showing an embodiment of the control circuit. In FIG. 4, the control circuit 19 has an electric terminal T1 to be connected to the anode of the electric power supply 16, an electric terminal T2 to be connected to one of the connection pins 13b, an electric terminal T3 to be connected to both of the cathode of the electric power supply 16 and the other of the connection pins 13b, terminals T4, T5 to be connected to the light emitting device 15, a FET (Field Effect Transistor) Tr, a first bias resistor Rg provided on the path between the terminal T1 and the gate G of the FET Tr, a second bias resistor Rgs provided on the path between the gate G and source S of the FET Tr, and a load resistor Rl provided on the path between the terminal T1 and terminal T4.

[0035] Hereupon, the terminal T5 is connected to the drain D of the FET Tr. Also, in case that the light emitting device 15 is a polar device such as diode, the anode is connected to the terminal T4 and the cathode is connected to the terminal T5. The bias resistors Rg, Rgs and load resistor Rl are arranged such that each has a resistance determined depending on the properties of the light emitting device 15, the FET Tr, the electric power supply 16, etc., and the light emitting device 15 emits a light with a certain quantity of the light.

[0036] FIGS.5 and 6 illustrate views showing an embodiment of a cartridge, according to the present invention, to be inserted into the bowl respectively: a transversal sectional view (a) and longitudinal sectional view (b). The cartridge shown in FIG.5 has a housing 21 made of a resign, glass, ceramic, etc., an essence of the luxury goods 23 having a pierced opening 22 and a shape of a hollow cylinder, and a heater 24 for heating the essence of the luxury goods 23. Hereupon, the opening 22 is formed so as that, during the inhalation, it allows to flow air from the distal edge of the bowl distal portion 12 to the air hole 17, i.e., in the direction along an arrow shown in the drawing, is pierced through, for example, the central portion of the essence of the luxury goods 23 as shown in FIG.5.

[0037] The essence of the luxury goods 23 includes, for example, perfume, herb, Chinese medicine, essential oil solution containing them, and the like which can obtain such as cool down effect, treatment effect on the stomach, relaxation effect, and effect helpful for getting asleep, as well as a nicotine film and the like which can compensate the low nicotine density in the blood and obtain some stress relaxation effect. By utilizing herb and the like for the essence of the luxury goods 23, the so-called aroma therapy effect, for example, is obtainable. Also, ukon (turmeric) is known to have treatment effect on the stomach, and this effect is obtainable by utilizing the essential oil solution containing ukon (turmeric) as the essence of the luxury goods 23. Furthermore, Mint and the like have good relaxation effect.

[0038] Also, heater 24 is arranged, for example, to contain in a certain package micro-powders made of iron and the like react exothermically with oxygen gas, a combination of materials such as that of aluminum and hydroxide that shows a hydration reaction, and the other material or combination of materials that shows an exothermic reaction. The heater 24 starts the exothermic reaction depending on the included materials. For example, in case of containing the aforementioned micro-powders made of iron and the like, it is also possible to start heating by rubbing the distal end of the heater 24 with a pin, or by forming one or more openings by sticking the aforementioned package with a pin. However, in case that the cartridge is sealed and its content is isolated from outer atmosphere prior to the insertion, it is also possible to start heating by removing its sealant. Further, in case of a combination of materials used for the hydration reaction, it is also possible to start heating, for example, by dropping one or more drops of water with the aforementioned pin.

[0039] The cartridge shown in FIG.6 is arranged such that the essence of the luxury goods 26 which has a pierced opening 25 and hollow cylinder shape is held by a spacer 28 so as to be separated from the side wall of the housing 21 and form an opening 27 between the side walls of the essence of the luxury goods 26 and that of the housing 21. In this arrangement, the heater is stored in, for example, a spherical capsule of a few mm diameters or ellipsoidal capsule of a few mm in both major and minor axes diameters, and can be replenished into the opening 27 from the outside. This capsule is arranged to, for example, be breakable, crushable, allowable to make holes, etc. by sticking with a pin, and thereby able to start heating through this operation. However, the shape, dimensions and the like of the aforementioned capsule are not restricted to those described above.

[0040] The aforementioned cartridge is set in the high function lifelike pipe, for example, by inserting the cartridge into the bowl distal portion 12 from the direction along an arrow shown in the FIG.3 (a) until it reaches to the bottom projection of the distal end of the bowl distal portion 12, and then fixing the bowl distal portion 12 to the bowl proximal portion13. However, it is also possible to arrange the heater to be formed by an electrical heater such as NiCr wire, thin film resistor with a high resistance, etc. In this case, the heater is arranged to be connectable to, for example, the aforementioned electric power supply 16.

[0041] Although, in the aforementioned description, explanations are performed by employing the exemplified configuration such that the opening of the bowl 12, 13 is connected linearly to the air hole 17, the present invention is similarly applicable to the smoking pipe of, for example, a billiard type, bent type and like with the opening of the bowl being connected to the air hole with a certain angle of such as 90 deg. In this case, the aforementioned electric-mechanical switch is arranged so as that metal chip is aligned at the bottom of the opening inside the bowl to allow the rotational deflection, and the control circuit is arranged to detect the deflection of the metal chip and control the light emitting device on re-

sponding to the inhalation. Also, it is also possible that the air hole is formed to have a curved path similar to the Oom Paul type pipe.

[0042] Further, although, in the aforementioned description, explanations are performed by employing the configuration such that the electric power supply is embedded in the member of the bowl distal portion, the electric power supply is also allowable to be aligned in the opening of the bowl or other position. Also, it is also possible to arrange to increase the air conductance as the need arises by enlarging the opening relating to the rotational deflection of the metal chip. In addition, it is also possible to arrange such that the electro-mechanical switch is substituted by a sensor which transforms the stress occurs depending on the air flow generated by the inhalation through the mouthpiece to electrical signal to be transmitted to the control circuit.

Claims

1. A high function lifelike pipe comprising: a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, an electro-mechanical switch which changes its ON/OFF state depending on the rotational deflection of its own metal chip responding to the air flow generated by inhalation through said mouthpiece, a light emitting device arranged to mask an opening at the distal end of said bowl partially, a control circuit for detecting the inhalation based on the ON/OFF of said electro-mechanical switch to control said light emitting device to emit a light, and an electric power supply embedded in said bowl at least supplying the electric power to said light emitting device subject to the control by said control circuit.

2. A high function lifelike pipe comprising: a pipe body having a mouthpiece at the proximal end and a bowl to store one or more luxury goods and a heater at the distal end, a sensor for transforming the stress occurs depending on the air flow generated by the inhalation through said mouthpiece to electrical signals to be output, a light emitting device arranged to mask an opening at the distal end of said bowl partially, a control circuit for controlling said light emitting device responding to said electrical signal transmitted by said sensor, and an electric power supply embedded in said bowl at least supplying the electric power to said light emitting device subject to the control by said control circuit.

3. The high function lifelike pipe of claim 1 or 2, wherein a portion of said bowl is detachable from the other part.

4. A pipe cartridge being inserted in the bowl of the high function lifelike pipe of any one of claim 1 through claim 3, storing one or more luxury goods and a heater for heating said luxury goods inside.

5. The pipe cartridge of claim4, wherein said heater contains a material showing an exothermic reaction.

6. The pipe cartridge of claim4 or 5, wherein said heater is replenished from outside.

7. The pipe cartridge of any one of claims 4 through 6, wherein said heater starts heating through the formation of an opening to itself.

8. The pipe cartridge of claim 4, wherein said heater is formed by an electrical heater, said electrical heater is connected to the electric power supply of the high function lifelike pipe of any one of claims 1 through 3.

9. The pipe cartridge of any one of claims 4 through 8, wherein at least one of said luxury goods has a shape of a hollow cylinder.

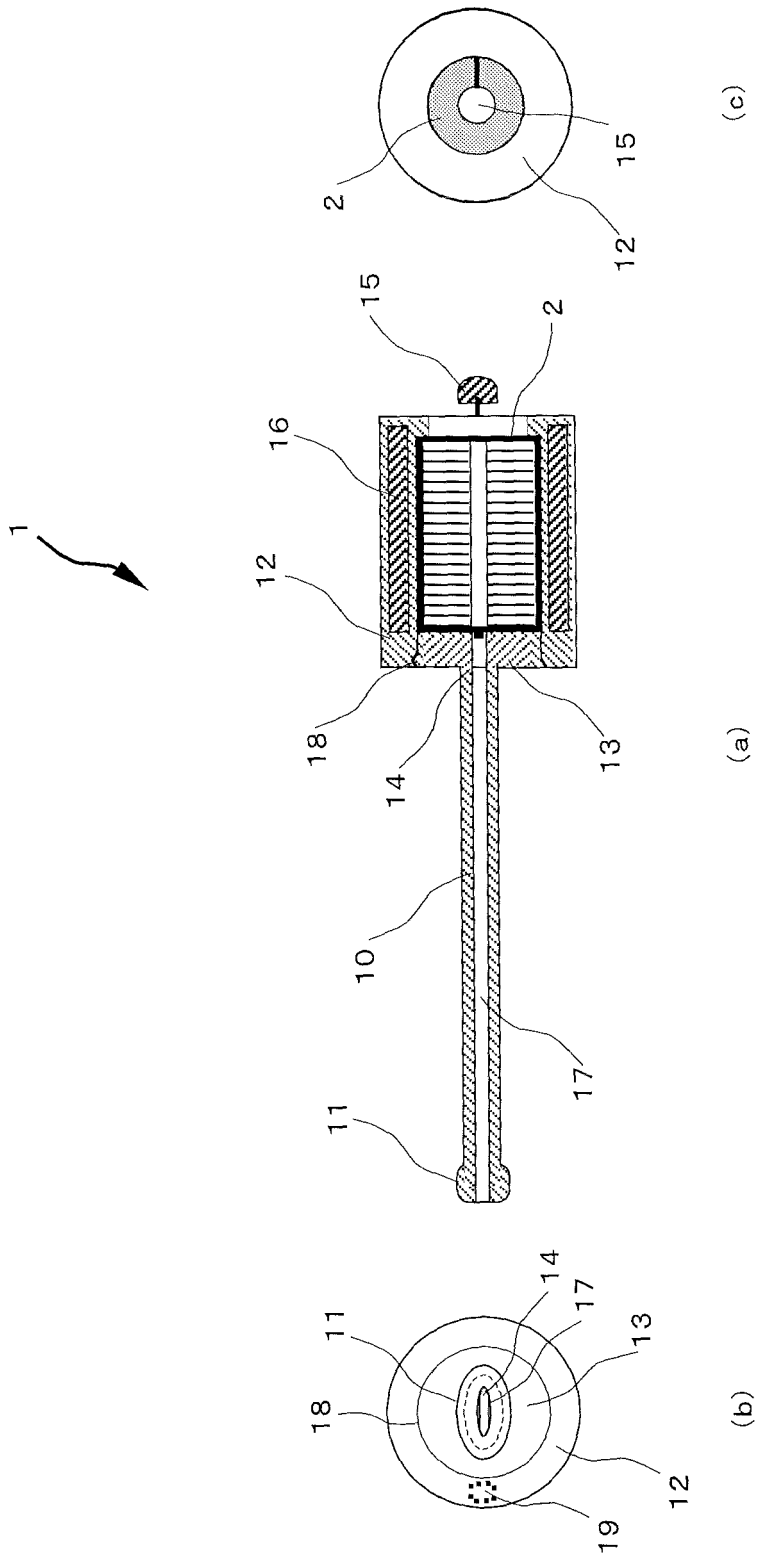

FIG.1

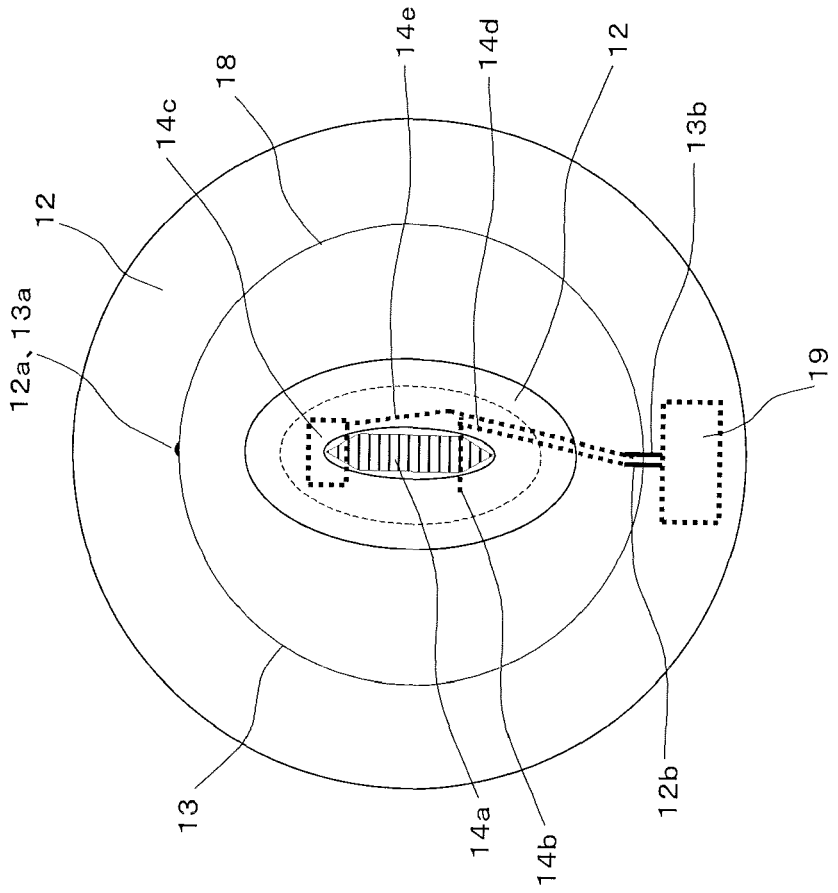

FIG.2

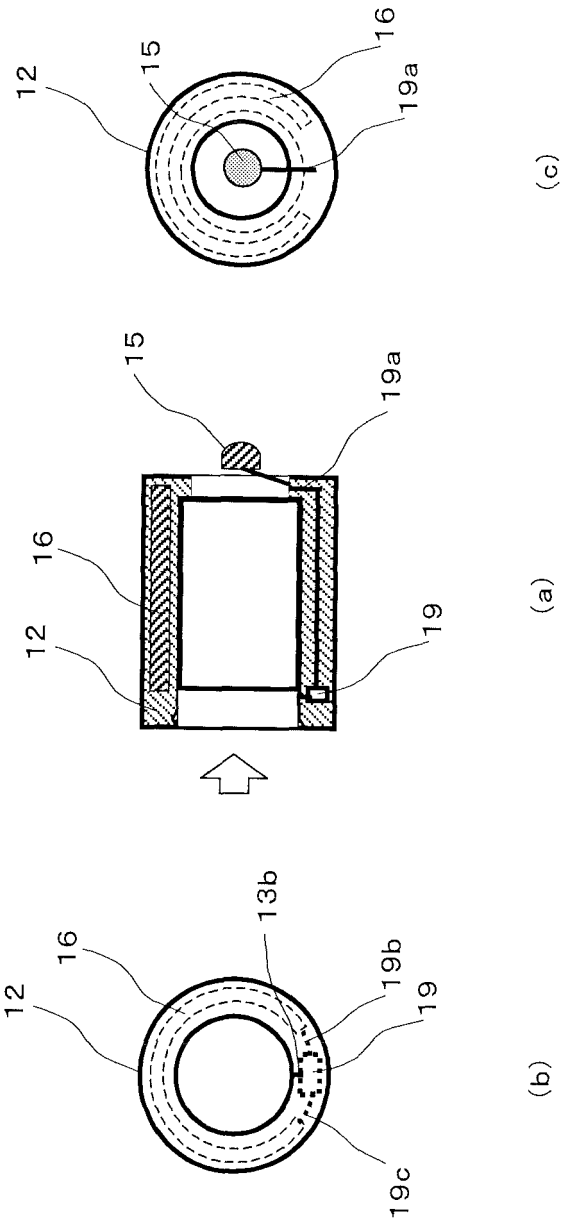

FIG.3

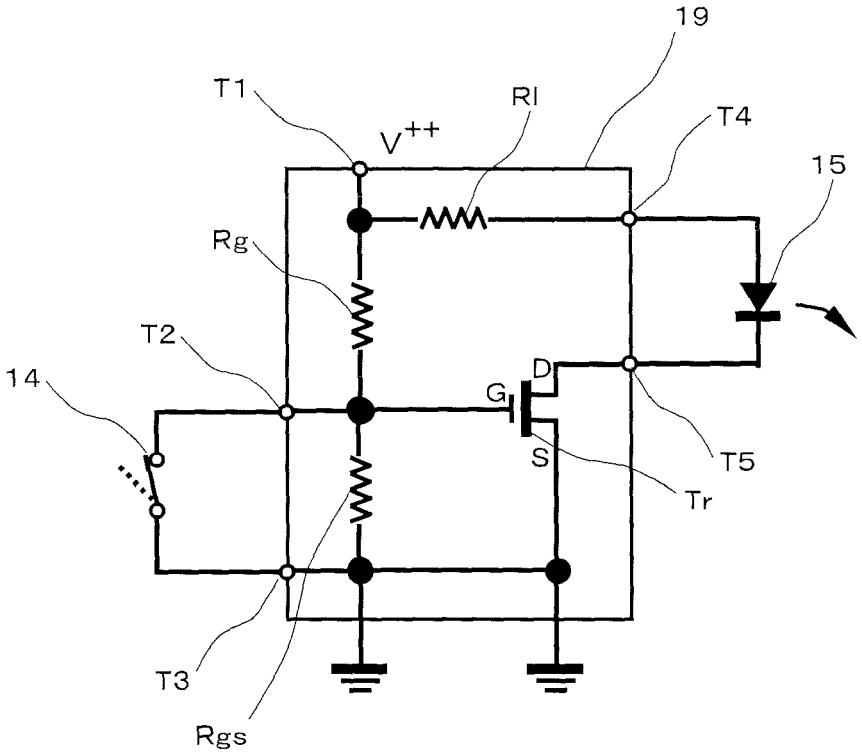

FIG.4

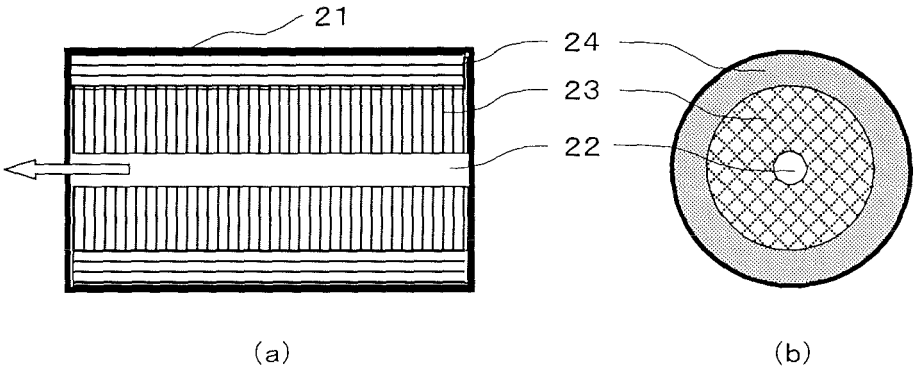

FIG.5

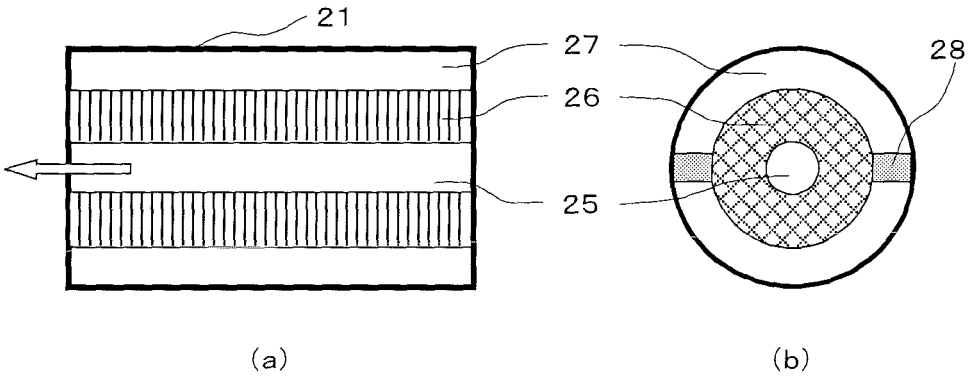

FIG.6

REFERENCES CITED IN THE DESCRIPTION

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