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[12] Utility Model Patent Specification

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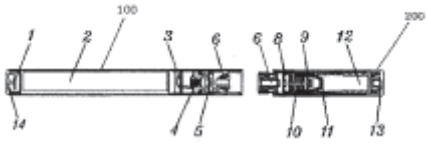
Claims: 2 pages Specification: 9 pages
Drawings: 4 pages

[54] Name of Invention

A Non-Combusted Mist Electronic Cigarette

[57] Abstract

The present utility model discloses a non-combusted mist electronic cigarette, which comprises a controller and a generator. An indicator light cover, a power supply device, an integrated circuit board, a miniature gas transmission switch, and a connecting conductor are sequentially provided in the described control assembly. A connecting conductor, a secondary air pressure holding chamber, a liquid blocking piece, a secondary liquid storage chamber, a heater, a liquid guiding mechanism, a liquid storage chamber, and a suction mouthpiece are sequentially provided in the described generator. An air inlet hole is provided on one side of the described connecting conductor, and a through hole is opened in the middle of the connecting conductor between the described controller and the generator. The technical effect of the present utility model is that the inhaled smoke has no harmful substances such as tar and carbon monoxide, which greatly reduces the risk of carcinogenesis. The user still has the feeling of smoking but does not need to ignite a cigarette, and there is no fire hazard; in addition, the exhaled smoke is actually the water vapor vaporized from the liquid medicine with no environmental pollution.



1. A non-combusted mist electronic cigarette, characterized in that: It comprises a controller and a generator, and an indicator light cover, a power supply device, an integrated circuit board, a miniature gas transmission switch, and a connecting conductor are sequentially provided in the described control assembly. A connecting conductor, a secondary air pressure holding chamber, a liquid blocker, a secondary liquid storage chamber, a heater, a liquid guiding mechanism, a liquid storage chamber and a suction mouthpiece are sequentially provided in the described generator. An air inlet hole is provided on one side of the described connecting conductor, and a through hole is opened in the middle of the described connecting conductor between the described controller and the generator.

2. A non-combusted mist electronic cigarette according to Claim 1, characterized in that: A pair of concealed vent holes are opened on the side of the described indicator light cover, and a light-emitting LED is provided under the indicator light cover.

3. A non-combusted mist electronic cigarette according to Claims 1 or 2, characterized in that: A stainless steel shell is provided outside the described indicator light cover, power supply device, integrated circuit board, miniature gas transmission switch, and connecting conductor, and a thermal insulation layer and a stainless steel shell are provided on the outside of the described connecting conductor, liquid blocking piece, secondary liquid storage chamber, heater, liquid guiding mechanism, liquid storage chamber, and the suction mouthpiece.

4. A non-combusted mist electronic cigarette according to Claim 1, characterized in that: An elastic ring is provided inside the described miniature gas transmission switch to open the miniature gas transmission switch into two independent chambers.

5. A non-combusted mist electronic cigarette according to Claim 4, characterized in that: The described miniature gas transmission switch further comprises a fixed contact piece, a plastic base and a moving contact piece, the moving contact piece is connected to the elastic ring through a plastic rod, the elastic ring is fixed in the plastic base, and the fixed contact piece is fixed outside the plastic base.

6. A non-combusted mist electronic cigarette according to Claim 1, characterized in that: The right side of the described connecting conductor is also provided with a secondary air on-off valve and a secondary air pressure holding chamber formed therefrom, and an air inlet hole is provided on the side.

7. A non-combusted mist electronic cigarette according to Claim 6, characterized in that: The described connecting conductor comprises two hollow cylindrical conductors, an internal thread, and an external thread, the described hollow cylindrical conductor is connected to the anode of the lead-in wire of the heater, and the described internal thread and external thread are connected to the cathode of the lead-in wire of the heater.

8. A non-combusted mist electronic cigarette according to Claim 1, characterized in that: The described heater comprises a heating wire and a thermal insulation seat outside the heater, and the bottom and sides of the thermal insulation seat are respectively provided with injection holes and overflow holes.

9. A non-combusted mist electronic cigarette of Claim 1, characterized in that: The outside of the described suction mouthpiece extends to the bottom of the liquid blocker, and a liquid blocking groove is also opened on the inside of the suction mouthpiece.

A NON-COMBUSTED MIST ELECTRONIC CIGARETTE

Technical field

The utility model relates to a non-combusted mist electronic cigarette.

Background Art

Nowadays, “smoking is harmful to your health” has become common knowledge; however, there are still more than 1 billion smokers in the world, and the U.S. Environmental Protection Agency currently declares tobacco smoke in the air as a Group A carcinogen. According to figures released by the World Health Organization and other departments, about 4.9 million people die from smoking-related diseases each year; however, for various reasons, it is extremely difficult for smokers to quit smoking completely.

Nicotine is a small molecular alkaloid, which can make people addicted to smoking; in addition, it is basically harmless to the human body in small doses and has an extremely short half-life in the blood. Harmful substances in tobacco include cigarette tar, carbon monoxide, benzo(a)pyrene, polycyclic aromatic hydrocarbons, nitrosamines, azo impurities, etc. that are all strong carcinogens and have caused great harm to human survival and health, while the harm caused by second-hand smoking to the surrounding people is even greater! The pollution of tobacco to the environment cannot be ignored. The latest research by Italian scientists has shown that the pollution caused by the smoke from smoking may exceed the pollution caused by the exhaust from some car engines!

In order to find a solution that can meet the needs of the addiction of smokers to smoking and also minimize the harm of tobacco until they eventually quit smoking, many utility models create products with small doses of nicotine in them such as “smoking cessation patch,” “nicotine mouthwash,” “nicotine chewing gum,” and other products. Although these products have certain effects and are not as harmful as cigarette tar and hazardous substances, they are not compatible with the “sucking and inhaling” habit developed from many years of smoking, which is difficult for the smokers to accept.

Contents of the Invention

The purpose of the present utility model is to provide an environmentally friendly non-combusted mist electronic cigarette that can be used as a cigarette substitute, avoids the above shortcomings, and is closer to a real humanized cigarette without environmental pollution.

The purpose of the present utility model is achieved through the following technical solution: a non-combusted mist electronic cigarette, including a controller and a generator. An indicator light cover, a power supply device, an integrated circuit board, a miniature gas transmission switch, and a connecting conductor are sequentially provided in the described control assembly. A connecting conductor, a secondary air pressure holding chamber, a liquid blocking piece, a secondary liquid storage chamber, a heater, a liquid guiding mechanism, a liquid storage chamber, and a suction mouthpiece are sequentially provided in the described generator. An air inlet hole is provided on one side of the described connecting conductor, and a through hole is opened in the middle of the described connecting conductor between the described controller and the generator.

The technical scheme of the present utility model further includes: A pair of concealed vent holes are opened on the side of the described indicator light cover, and a light-emitting LED is provided under the indicator light cover.

The technical scheme of the present utility model further includes: A stainless steel shell is provided outside the described indicator light cover, power supply device, integrated circuit board, miniature gas transmission switch, and connecting conductor, and a thermal insulation layer and a stainless steel shell are provided on the outside of the described connecting conductor, liquid blocking piece, secondary liquid storage chamber, heater, liquid guiding mechanism, liquid storage chamber, and the suction mouthpiece.

The technical scheme of the present utility model further includes: An elastic ring is provided inside the described miniature gas transmission switch to open the miniature gas transmission switch into two independent chambers.

The technical scheme of the present utility model further includes: The described miniature gas transmission switch further comprises a fixed contact piece, a plastic base and a moving contact piece, the moving contact piece is connected to the elastic ring through a plastic rod, the elastic ring is fixed in the plastic base, and the fixed contact piece is fixed outside the plastic base.

The technical scheme of the present utility model further includes: The right side of the described connecting conductor is also provided with a secondary air on-off valve and a secondary air pressure holding chamber formed therefrom, and an air inlet hole is provided on the side.

The technical scheme of the present utility model further includes: The described connecting conductor comprises two hollow cylindrical conductors, an internal thread, and an external thread, the described hollow cylindrical conductor is connected to the anode of the lead-in wire of the heater, and the described internal thread and external thread are connected to the cathode of the lead-in wire of the heater.

The technical scheme of the present utility model further includes: The described heater comprises a heating wire and a thermal insulation seat outside the heater, and the bottom and sides of the thermal insulation seat are respectively provided with injection holes and overflow holes.

The technical scheme of the present utility model further includes: The outside of the described suction mouthpiece extends to the bottom of the liquid blocker, and a liquid blocking groove is also opened on the inside of the suction mouthpiece.

The technical effect of the present utility model is that the inhaled smoke has no harmful substances such as tar and carbon monoxide, which greatly reduces the risk of carcinogenesis. The user still has the feeling of smoking but does not need to ignite a cigarette, and there is no fire hazard; in addition, the exhaled smoke is actually the water vapor vaporized from the liquid medicine with no environmental pollution

The characteristics and advantages of the present utility model will be described in detail through the embodiments in conjunction with the drawings.

Brief Introduction of the Drawings

Figure 1 is a schematic view of the disassembled structure of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 2 is a schematic view of the overall structure of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 3 is a schematic view of the structure of the miniature gas transmission switch of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 4 is a view of the structure of the connection between the liquid guiding mechanism and the atomizing chamber and the liquid storage core of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 5 is a schematic view of the pneumatic transmission switch of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 6 is a schematic view of the structure of the heater and liquid guiding mechanism of a non-combusted mist electronic cigarette according to an embodiment of the present utility model;

Figure 7 is a view of the integrated circuit board of a non-combusted mist electronic cigarette according to an embodiment of the present utility model.

Detailed Description of the Preferred Embodiments

Please refer to Figure 1 showing a non-combusted mist electronic cigarette of this embodiment that includes a controller 100 and a generator 200.

As shown in Figure 1, a transparent signal indicator light cover 14 is provided at one end of the controller 100, a pair of concealed vent holes are opened on the side of the indicator light cover 14, and a connection conductor 6 is provided on the other end to connect with the generator 200 into a whole; a light-emitting LED is under the indicator light cover 14; a rechargeable lithium battery 2, an integrated circuit board 3, a miniature gas transmission switch 4, and a negative pressure chamber 5 are sequentially provided in the connection from the indicator light cover 14 to the connecting conductor 6; and the outside of the controller 100 is a stainless steel shell. The rechargeable lithium battery 2 is built in. The connecting conductor 6 of the controller 100 can realize charging when connected to the charger and can form an environmentally friendly non-combusted mist electronic cigarette when connected to the generator 200.

One side of the generator 200 is also provided with a connecting conductor 6, and the other side is provided with a mouthpiece 13. A liquid storage chamber 12, a liquid guiding mechanism 11, a heater 9, a secondary liquid storage chamber 10, a liquid blocking piece 8, and a secondary air pressure holding chamber 7 are sequentially provided on the other side of the mouthpiece 13. The outside of the generator 200 respectively has a thermal insulation layer and a stainless-steel shell, and the extended part of the suction mouthpiece 13 includes the generator 200 inside. An air inlet hole is also opened on one side of the conductor 6 of the generator 200, an air flow passage is provided between the suction mouthpiece 13 and the liquid reservoir 12, and a liquid blocking groove is opened at the bottom of the suction mouthpiece 13. The controller 100 and the generator 200 are connected by a side connecting conductor 6 with a vent hole in the middle that connects the negative pressure chamber 5 and the secondary air pressure holding chamber 7, there is an air inlet hole on the side where the controller and the generator are connected, and the liquid blocking piece 8 prevents the liquid from flowing back. The secondary liquid storage chamber 10 temporarily stores the liquid medicine, the liquid guiding mechanism 11 is in contact with the liquid medicine, and an atomizing chamber is provided inside the liquid guiding mechanism 11. A vapor passage is opened around the periphery of the liquid medicine core with the liquid medicine stored in the middle.

As shown in Figure 3, there is an elastic ring 401 inside the miniature gas transmission switch 4, and the cross section of the elastic ring 401 is W-shaped to open the miniature gas transmission switch into two independent chambers. An extending soft rubber piece is connected to the described elastic ring 401, and a plastic rod 402 is installed in the soft rubber piece to connect the elastic ring 401 and the moving contact piece 406. The elastic ring 401 is fixed in the plastic base 405. The integrated circuit board 3 is provided with two fixed contact pieces 403 and 404 that extend toward the elastic ring 401, and the fixed contact pieces 403 and 404 are fixed outside the plastic base 405.

As shown in Figure 4, a secondary switch air valve 701 is also provided on the right side of the connecting conductor 6, and an air inlet hole 702 is provided on the side. When the user sucks and inhales, the airflow enters from the air inlet hole 702, and the secondary switch air valve 701 is opened by the air flow to form a negative pressure chamber 5 between the right side of the elastic ring 401 and the connecting conductor 6 under the action of the airflow. Under the action of negative pressure, the elastic ring 401 moves to the right and drives the moving contact piece 406 connected to the plastic rod 402 to move to the right at the same time so as to be connected to the fixed contact piece 403 that is connected to the integrated circuit board 3.

When the suction force of the user decreases, the secondary switch air valve 701 is closed, blocking the air inlet hole 702 so that the negative pressure chamber 5 is maintained for a certain period of time. Only when the user stops sucking and inhaling, the airflow quickly enters the negative pressure chamber 5 from the hollow passage 606 of the connecting conductor 6, and the negative pressure disappears immediately. The elastic ring 401 returns to its original position under the action of the elastic force, and the plastic rod 402 moves to the left so that the contact piece 406 is disconnected from the fixed contact piece 403, which can realize the connection and disconnection of the switch under the action of a small amount of air flow, thereby controlling the real-time heating of the heater 9. Among them, the elastic ring 401 can be made of rubber or silica gel.

The connecting conductor 6 is used on the cathode of the lead-in wire of the heater through a connected outer ring that is formed respectively by an inner thread 603 and an outer thread 604 and is connected to the anode of the lead-in wire of the heater through two hollow cylindrical conductors 601 and 603, and the middle of the two connecting conductors is separated by an insulating material ring 605. The controller 100 and the generator 200 are connected with the contact copper cap with the middle open through the thread.

As shown in Figure 5, the heater 9 comprises a heating wire 901 and a thermal insulation seat 902 on the outside. The bottom and sides of the thermal insulation seat 902 are respectively provided with an injection hole 904 and an overflow hole 903, a liquid guiding mechanism is provided on the right side of the heater 9, and the liquid guiding mechanism is formed by a support frame 1101 and a liquid guiding element 1102 with the support frame 1101 playing the role of fixing. The liquid guiding element 1102 is made of multiple layers of foamed nickel mesh or other metal porous materials. The left side of the heater 9 are a secondary liquid storage chamber 10 and a blocking piece liquid blocker 8, the heating wire 901 can be made of platinum wire, nickel-chromium alloy or iron-chromium-aluminum alloy wire containing rare earth elements, or it can be made into a sheet or ring, and the thermal insulation seat 902 can be made of ceramics. The secondary liquid storage chamber 10 is composed of multiple layers of foamed nickel mesh filled at the bottom and the periphery of the thermal insulation seat 902, one end of the liquid guiding mechanism 11 is connected to the secondary liquid storage chamber 10 through the liquid guiding element 1101, and the other end is in contact with the liquid storage chamber 12. The liquid storage chamber 12 is a tube with an open end. After medicinal cotton fibers are placed in the middle, the stock solution of the medicine is filled in, and the liquid medicine stored in the liquid storage chamber 12 is conducted into the secondary liquid storage chamber 10 through the capillary action of the liquid guiding mechanism 11.

Under the action of the airflow, small droplets are sucked into the other side of the thermal insulation seat 902 through the injection hole 904 of the thermal insulation seat 902, and the liquid is instantly atomized under the action of the heating wire 901 and is sucked out through the suction mouthpiece 13 opened on the outside of the liquid storage chamber12. The liquid blocker 8 can prevent accidental overflow of the liquid in the secondary liquid storage chamber12. The described liquid guiding element 1102 can also be made of stainless-steel fiber felt, polymer foam, and foam ceramics.

Please also refer to Figure 6. The cigarette holder 1301 on the outside of the suction mouthpiece 13 is extended to the bottom of the liquid blocker 8, and its material can be made of environmentally friendly materials such as polypropylene, which can effectively prevent internal heat from being transmitted outside. A vent hole 1302 is also opened on the inside of the suction mouthpiece 13, and a liquid blocking groove 1303 is also opened on the inside of the suction mouthpiece hole 1304 to prevent liquid from being sucked into the mouth.

As shown in Figure 7, the described integrated circuit board 3 uses IC control and is powered by a 3.7V lithium-ion battery. The VCC connects to the anode of the battery, the GND connects to the cathode of the battery, and S1 is connected to the miniature gas transmission that is a normally open switch. The IC1 is a core intelligence control unit and is mainly responsible for receiving and determining the input signal while controlling the signal indicator and heater at the same time. When S1 (connected to the aforementioned miniature gas transmission switch) is closed, IC1 receives this signal and first determines whether the voltage of the power supply is higher than 3:3V at this time. If it is, it outputs a control signal to the heating circuit to connect the field effect tube. The heating wire connects the power supply to generate heat, and the heater 9 works to instantly heat up the liquid nicotine while outputting a display signal to make the LED emit a red or orange light at the same time that simulates the flame of a cigarette, and it can also output a delay signal to make the LED light gradually turn on or off to emulate a cigarette more vividly. If the voltage of the battery is below 3.3V, the signal is not output to the heating circuit, and the heating chamber does not produce any action at this time, while the LED outputs a flashing signal to make the LED emit 1Hz flashing that continuously flashes for 20 seconds, indicating that the battery is low and needs to be charged. When the whole cigarette is inactive, the IC1 enters a dormant state, and the power consumption of the whole cigarette is < 5uA so as to extend the standby time of the whole cigarette as much as possible (theoretically, the standby time is 6 and a half years).

When the device is used continuously for 15 times within one minute, the IC1 will send out a signal to cut off the output of the heating circuit while outputting a signal to the LED indicator that blinks continuously for 10 seconds; when S1 is turned on continuously for 6 seconds or longer, the heating circuit will be automatically cut off while outputting a signal to the LED, etc. Other programs can also be written into this single chip to realize more functions and provide convenience for subsequent updates and improvements. An LCD display can also be connected to the signal output end to display more information.

The present utility model uses the IC to control its working process to ensure that the electronic cigarette works reliably, and the smoking method is more vivid. The “smoke” exhaled from the cigarette is actually the “water vapor” from the atomized liquid medicine that does not contain tobacco tar, benzo(a)pyrene, polycyclic aromatic hydrocarbons, nitrosamines, azo impurities, and other strong carcinogens, and the “water vapor” will quickly liquefy in the air and will not pollute the environment. The heating part is instantaneously heated under low voltage and low current, and it will not burn and has no fire hazard. The shell is made of special stainless steel, which can effectively shield electromagnetic waves.

The working process of the non-combusted mist electronic cigarette of the present utility model is as follows: The controller 100 and the generator 200 are connected through the connecting conductor 6 to form an environmentally friendly non-combusted mist electronic cigarette. When the user sucks and inhales, the air flows through the air inlet hole on the side of the connecting conductor 6 to enter the generator 200, passes through the secondary air pressure holding chamber, the liquid blocking piece 8, the heater 9, and is eventually sucked out from the suction mouthpiece 13; in addition, a through hole is opened in the middle of the connecting conductor 6 between the controller 100 and the generator 200. When the user sucks and inhales, the air flow inside the controller 100 flows to the generator 200, thereby driving the free-standing cavity on the right side of the elastic ring 401 of the controller 100 to be lower than the normal atmospheric pressure; in addition, a vent hole is also opened on the side of the indicator light cover, which is on the other side of the generator 200, and connects the cavity of the battery with the atmospheric pressure so that the switch air nozzle is extended towards the side of the connecting conductor 6 under the action of negative air pressure on one side of the generator 200, thereby driving the moving contact piece and the static contact piece on it to conduct and conduct current. At this time, the indicator light slowly lights up under the control of the IC, and the current flows through the connecting conductor to make the heater work.

In the heating chamber, the liquid medicine is sprayed into the atomizing chamber in the form of droplets due to the action of the airflow, and the liquid medicine is instantly atomized by the action of the heater 9. The atomized droplets with a large diameter are attached to the wall under the action of the vortex and are reabsorbed by the liquid guiding mechanism 11 through the overflow hole, while the droplets with a small-diameter are suspended in the airflow to form the water vapor that is sucked out through the mist passage and the suction mouthpiece.

The above are only the preferred examples of the present utility model and are not intended to limit the protection scope of the present utility model. Any changes that can be easily conceived by those skilled in the art within the technical scope disclosed by the present utility model shall be covered by the protection scope of the present utility model.

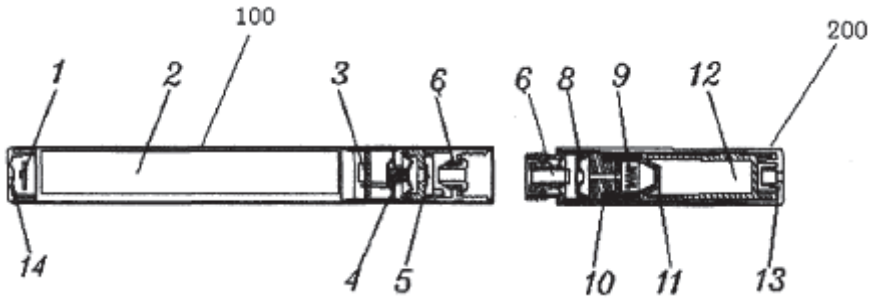


Figure 1

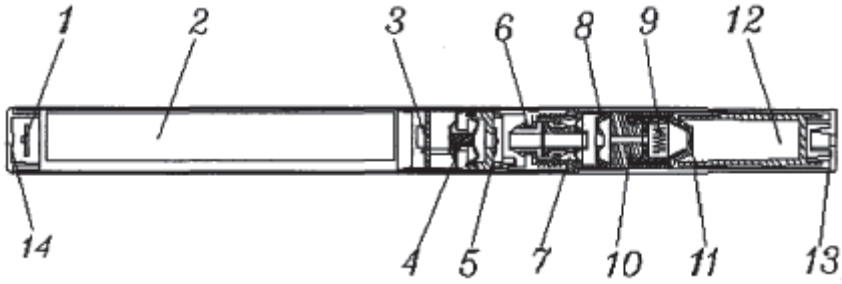


Figure 2

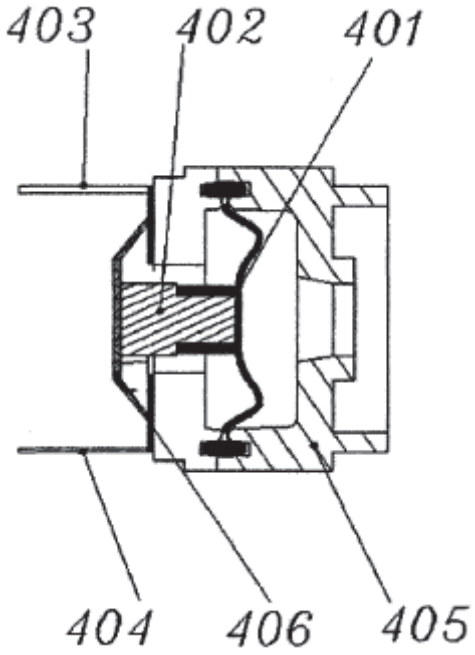


Figure 4

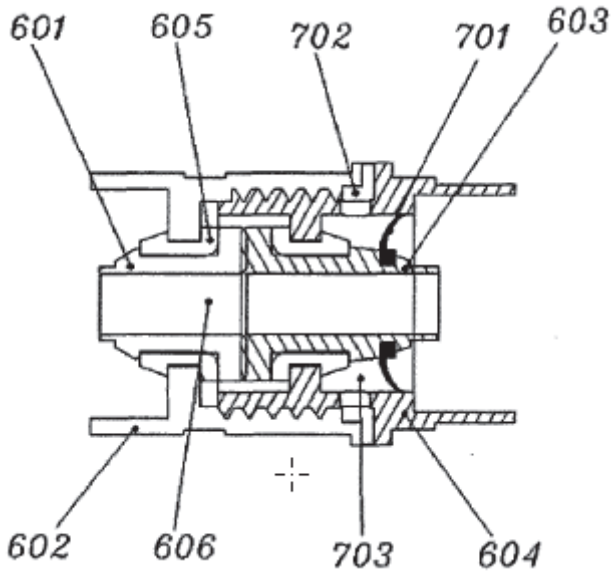


Figure 4

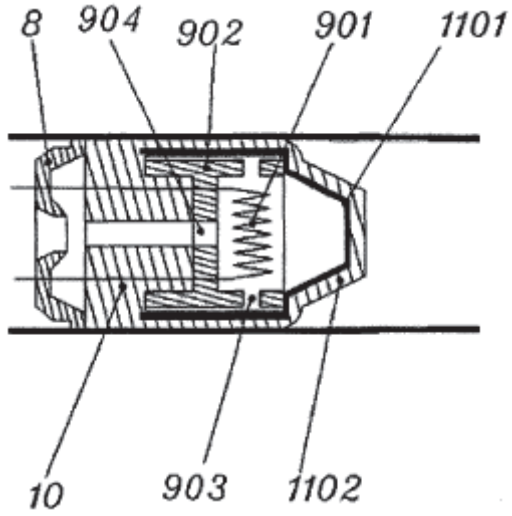


Figure 5

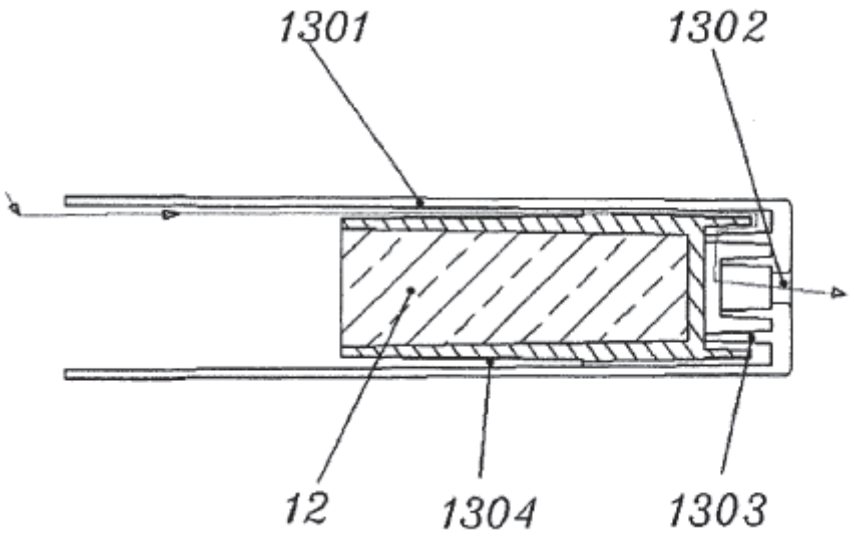


Figure 6

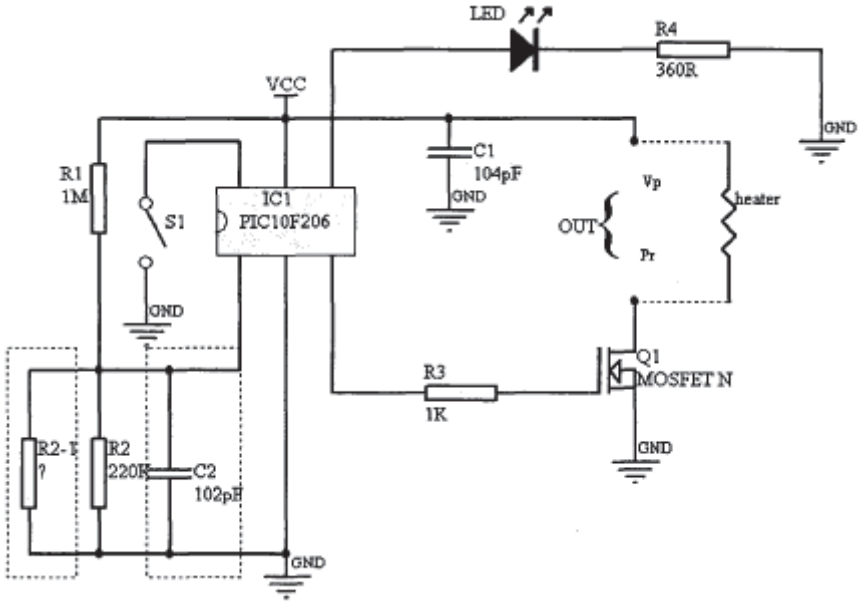


Figure 7

CERTIFICATION OF TRANSLATION ACCURACY

I, Alex J. Wang, declare:

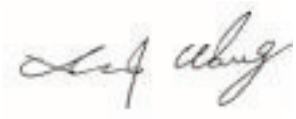
1. I am a professional translator specializing in translating Chinese to English and vice versa.

2. I have over 30 years of experience translating technical, legal, and business documents from Chinese to English and vice versa.

3. I certify that the Chinese to English translation of the patent document identified below is a true, correct, and complete translation, to the best of my knowledge and ability, of the source document.

CN201104488Y (laid open August 27, 2008)

I hereby certify under penalty of perjury that the foregoing is true and correct. Executed this 15th day of February 2021 in the Hennepin of the state of Minnesota.



By: _____
Alex J. Wang

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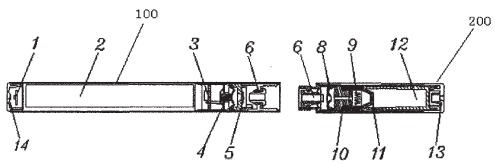
权利要求书 2 页 说明书 9 页 附图 4 页

[54] 实用新型名称

一种非可燃性喷雾电子香烟

[57] 摘要

本实用新型公开了一种非可燃性喷雾电子香烟，包括控制器与发生器，所述控制组件内依次设有指示灯盖、电源装置、集成线路板、微型气体传动开关和连接导体，所述发生器内依次设有连接导体、次级气压保压室、阻液片、次级贮液室、加热器、导液机构、贮液室和吸嘴，所述连接导体一侧上开有进气孔，所述控制器与发生器的连接导体中间开有通孔。 本实用新型的技术效果在于：吸烟无焦油、一氧化碳等有害物，大大降低致癌风险，使用者仍然有吸烟的感觉，无需点燃，无火灾危险，其吸出的烟雾其实是药液气化的水蒸气，无环境污染。



1、一种非可燃性喷雾电子香烟，其特征在于：包括控制器与发生器，所述控制组件内依次设有指示灯盖、电源装置、集成线路板、微型气体传动开关和连接导体，所述发生器内依次设有连接导体、次级气压保压室、阻液片、次级贮液室、加热器、导液机构、贮液室和吸嘴，所述连接导体一侧上开有进气孔，所述控制器与发生器的连接导体中间开有通孔。

2、如权利要求 1 所述的非可燃性喷雾电子香烟，其特征在于：所述指示灯盖侧边开有一对隐蔽的通气孔，指示灯盖下面设有发光 LED。

3、如权利要求 1 或 2 所述的非可燃性喷雾电子香烟，其特征在于：所述指示灯盖、电源装置、集成线路板、微型气体传动开关和连接导体外侧设有不锈钢壳体，所述连接导体、阻液片、次级贮液室、加热器、导液机构、贮液室和吸嘴外侧设有隔热层和不锈钢外壳。

4、如权利要求 1 所述的非可燃性喷雾电子香烟，其特征在于：所述微型气体传动开关内部设有弹性圆环，将微型气体传动开关开成两个独立的腔室。

5、如权利要求 4 所述的非可燃性喷雾电子香烟，其特征在于：所微型气体传动开关还包括定接触片、塑料底座和动接触片，所述动接触片通过塑料棒连接弹性圆环，弹性圆环固定于塑料底座内，定接触片固定于塑料底座外。

6、如权利要求 1 所述的非可燃性喷雾电子香烟，其特征在于：所述连接导体的右侧还设有一个次级开关气阀，以及由此形成的次级

气压保压室，侧边设有进气孔。

7、如权利要求 6 所述的非可燃性喷雾电子香烟，其特征在于：所述连接导体包括两个中空的柱形导体、内螺纹与外螺纹，所述中空的柱形导体连接加热器的引入导线的正极，所述内螺纹与外螺纹连接加热器的引入导线的负极。

8、如权利要求 1 所述的非可燃性喷雾电子香烟，其特征在于：所述加热器包括加热丝和其外面的隔热座，在隔热座底部和侧面分别开有喷射孔和溢流孔。

9、如权利要求 1 所述的非可燃性喷雾电子香烟，其特征在于：所述吸嘴外侧延长至阻液器底部，在吸嘴的内侧还开有阻液槽。

一种非可燃性喷雾电子香烟

技术领域

本实用新型涉一种非可燃性喷雾电子香烟。

背景技术

当今“吸烟有害健康”，已成为人所共知的常识，全世界仍然有10 亿以上的烟民，美国环境保护署目前将空气中的烟草雾宣布为 A 级致癌物。据世界卫生组织等部门公布的数字，全球每年约有 490 万人死于与吸烟有关的疾病；但是由于种种原因，要吸烟者完全戒烟是一件极其困难的事。

烟碱是小分子生物碱，它能使人吸烟成瘾，在小剂量下对人体基本无害，而且在血液中的半衰期极短。烟草中的有害物质如：烟焦油，一氧化碳，苯并芘，多环芳烃，亚硝胺、偶氮杂质等都是强致癌物，对人类的生存和健康造成了巨大的危害，而二手烟对周围人群的危害则更大！而烟草对环境的污染亦不能忽视，意大利科学家的最新研究表明，吸烟冒出的烟雾造成的污染可能超过某些汽车发动机尾气造成的污染！

为了寻找即能满足吸烟对烟瘾的需求，而又将烟草的危害降到最低，最终戒烟。许多实用新型都是将小剂量的烟碱做成诸如：“戒烟贴”、“烟碱嗽口水”、“烟碱口香糖”等产品，这些产品虽然有其

一定的功效，没有烟焦油等其它有害物质的危害，但与吸烟都多年养成的习惯“抽吸”习惯格格不入，很难为烟民所接受。

发明内容

本实用新型的目的在于提供一种具有香烟代用品作用的环保型非可燃性喷雾电子香烟，避免了上述缺点，更接近真实的人性化香烟，没有环境污染。

本实用新型的目的是通过以下技术方案来实现的：一种非可燃性喷雾电子香烟，包括控制器与发生器，所述控制组件内依次设有指示灯盖、电源装置、集成线路板、微型气体传动开关和连接导体，所述发生器内依次设有连接导体、次级气压保压室、阻液片、次级贮液室、加热器、导液机构、贮液室和吸嘴，所述连接导体一侧上开有进气孔，所述控制器与发生器的连接导体中间开有通孔。

本实用新型的技术方案还包括：所述指示灯盖侧边开有一对隐蔽的通气孔，指示灯盖下面设有发光 LED。

本实用新型的技术方案还包括：所述指示灯盖、电源装置、集成线路板、微型气体传动开关和连接导体外侧设有不锈钢壳体，所述连接导体、阻液片、次级贮液室、加热器、导液机构、贮液室和吸嘴外侧设有隔热层和不锈钢外壳。

本实用新型的技术方案还包括：所述微型气体传动开关内部设有弹性圆环，将微型气体传动开关开成两个独立的腔室。

本实用新型的技术方案还包括：所微型气体传动开关还包括定接触片、塑料底座和动接触片，所述动接触片通过塑料棒连接弹性圆环，

弹性圆环固定于塑料底座内，定接触片固定于塑料底座外。

本实用新型的技术方案还包括：所述连接导体的右侧还设有一个次级开关气阀，以及由此形成的次级气压保压室，侧边设有进气孔。

本实用新型的技术方案还包括：所述连接导体包括两个中空的柱形导体、内螺纹与外螺纹，所述中空的柱形导体连接加热器的引入导线的正极，所述内螺纹与外螺纹连接加热器的引入导线的负极。

本实用新型的技术方案还包括：所述加热器包括加热丝和其外面的隔热座，在隔热座底部和侧面分别开有喷射孔和溢流孔。

本实用新型的技术方案还包括：所述吸嘴外侧延长至阻液器底部，在吸嘴的内侧还开有阻液槽。

本实用新形的技术效果在于：吸烟无焦油、一氧化碳等有害物，大大降低致癌风险，使用者仍然有吸烟的感觉，无需点燃，无火灾危险，其吸出的烟雾其实是药液气化的水蒸气，无环境污染。

本实用新型的特征及优点将通过实施例结合附图进行详细说明。

附图说明

图 1 是本实用新型实施例的非可燃性喷雾电子香烟拆分结构示意图；

图 2 是本实用新型实施例的非可燃性喷雾电子香烟整体结构示意图；

图 3 是本实用新型实施例非的可燃性电子喷雾香烟中微型气体

传动开关结构示意图；

图 4 是本实用新型实施例非的可燃性电子喷雾香烟中导液机构与雾化室及与贮液芯的连接结构图；

图 5 是本实用新型实施例的非可燃性喷雾电子香烟中气压传动开关的结构示意图；

图 6 是本实用新型实施例的非可燃性喷雾电子香烟中加热器和导液机构结构示意图；

图 7 是本实用新型实施例的非可燃性喷雾电子香烟中集成线路板电路图。

具体实施方式

请参阅图 1，本实施例的非可燃性喷雾电子香烟包括控制器 100 与发生器 200。

如图 1 所示，在控制器 100 的一端设有一透明信号指示灯盖 14，并在指示灯盖 14 侧边开有一对隐蔽的通气孔，在另一端设有连接导体 6 用于和发生器 200 连成一个整体；在指示灯盖 14 下面有一个发光 LED；在指示灯盖 14 至连接导体 6 依次设有可充电锂电池 2、集成线路板 3、微型气体传动开关 4 、负压腔室 5，控制器 100 外面是不锈钢壳体。可充电锂电池 2 是内置的，控制器 100 的连接导体 6 连入充电器即可实现充电，而与发生器 200 连接后可组成一环保型非可燃性喷雾电子香烟。

发生器 200 的一侧也设有连接导体 6，另一侧设有烟嘴 13，从烟

嘴 13 一侧起依次设有贮液室 12、导液机构 11、加热器 9、次级贮液室 10、阻液片 8 和次级气压保压室 7；发生器 200 外面分别有隔热层和不锈钢外壳，而吸嘴 13 的延长部份将发生器 200 外包括在其中，在发生器 200 的连接导体 6 的一侧上也开有进气孔，在吸嘴 13 与贮液器 12 中间有气流通道，在吸嘴 13 的底部开有阻液槽。控制器 100 与发生器 200 之间通过边接导体 6 相连，中间开有通气孔，连接着负压腔 5 与次级气压保压室 7；在控制器与发生器连接的侧边开有进气孔；阻液片 8 防止液体倒流；次级贮液室 10 暂存药液，导液机构 11 与药液相接触，在导液机构 11 内部设有雾化工作室；药液芯外围四周开有雾气通道，中间装有药液。

如图 3 所示，微型气体传动开关 4 内部有一弹性圆环 401，弹性圆环 401 剖面呈 W 形，将微型气体传动开关开成两个独立的腔室，在所述弹性圆环 401 上连有一伸出软胶片，软胶片内装有一塑料棒 402 用于连接弹性圆环 401 与动接触片 406。弹性圆环 401 固定于塑料底座 405 内。集成线路板 3 上设有两片伸向弹性圆环 401 的定接触片 403 和 404，定接触片 403 和 404 固定于塑料底座 405 外。

如图 4 所示，在连接导体 6 的右侧还设有一个次级开关气阀 701，侧边设有进气孔 702，在使用者抽吸时，气流从进气孔 702 进入，次级开关气阀 701 被气流打开，在气流的作用下，在弹性圆环 401 的右侧与连接导体 6 之间形成一个负压腔室 5；在负压的作用下弹性圆环 401 向右移动，同时带动连接在塑料棒 402 上的动接触片 406 向右移动，从而与连接在集成线路板 3 上的定接触片 403 导通；而当使用者

吸力减小时，次级开关气阀 701 关闭，挡住进气孔 702，从而使负压腔室 5 维持一定时间，只有当使用者停止抽吸时，气流从连接导体 6 的中空通道 606 迅速进入负压腔室 5，负压立即消失，弹性圆环 401 在弹力作用下回复原位，塑料棒 402 左移，动接触片 406 与定接触片 403 断开，即可实现在小气流的作用下接通和断开开关，从而控制加热器 9 的实时加热。其中，弹性圆环 401 可用橡胶或硅胶制成。

连接导体 6 分别由内螺纹 603 与外螺纹 604 组成连接的外圈，用于连接加热器的引入导线的负极，由两个中空的柱形导体 601、603 连接加热器的引入导线的正极；在两个连接导体中间用绝缘材圈 605 隔开。控制器 100 与发生器 200 通过螺纹与中通的接触铜帽连接。

如图 5 所示，加热器 9 包括加热丝 901 和其外面的隔热座 902，在隔热座 902 底部和侧面分别开有喷射孔 904 和溢流孔 903，在加热器 9 右侧设有导液机构 11，导液机构 11 由支撑架 1101 与导液体 1102 组成，其支撑架 1101 起固定作用，导液体 1102 由多层泡沫镍网或其它金属多孔体制成，加热器 9 的左侧是次级贮液室 10、阻液片 8，加热丝 901 可用铂丝、镍铬合金或含有稀土元素的铁铬铝合金丝制成，也可制成片状体或环状，隔热座 902 可用陶瓷等制成。次级贮液室 10 为多层泡沫镍网填充在隔热座 902 底部与周边构成，导液机构 11 的一端通过导液体 1101 与次级贮液室 10 相连，另一端与贮液室 12 接触，贮液室 12 是一一端开口的筒状物，中间置入药用棉纤，然后装入药原液，通过导液机构 11 的毛细作用，装存在贮液室 12 内的药液导入次级贮液室 10。在气流的作用下，将小液滴通过隔热座 902

中的喷射孔 904 吸入隔热座 902 的另一侧，在加热丝 901 的作用下，液体瞬间雾化，然后由开在贮液室 12 外侧的通孔经吸嘴 13 吸出。阻液器 8 可防止次级贮液室内 12 中的液体意外溢出。所述的液导液体 1102 还可用不锈钢纤维毡、高分子多聚物发泡体及泡沫陶瓷制成。

请一并参阅图 6，所述吸嘴 13 外侧的烟嘴套 1301 延长至阻液器 8 底部，其材料可用聚丙烯 PP 等环保材料制成，可有效防止内部热量的传出。在吸嘴 13 的内侧还开有通气孔 1302，在吸嘴孔 1304 的内侧还开有阻液槽 1303 以防止液体吸入口中。

如图 7 所示，所述集成线路板 3 使用 IC 控制，用 3.7V 锂离子电池供电，VCC 接电池正极，GND 接电池负极，S1 为连接微型气体传动，属常开开关，IC1 为核心智能控制单元，主要负责接收并判别输入信号，同时对信号指示灯与加热器进行控制。当 S1（与前面所述微型气体传动开关相连）闭合时，IC1 接收到此信号，首先判断此时电源电压是否高于 3.3V，如果是，则输出控制信号给加热电路，使场效应管导通，发热丝接通电源发热，加热器 9 工作，把液态的烟碱液瞬间加热，同时输出显示信号使 LED 发出红色或橙色光，模拟香烟的火头，也可输出延时信号使 LED 灯渐亮或渐灭。使模拟烟头更加形像；如果电池电压低于 3.3V，则不对加热电路输出信号，此时加热室不产生任何动作，同时 LED 输出闪烁信号，使 LED 发出 1Hz 的闪烁并连续闪烁 20 秒钟，提示电池电量不足，需要充电。当整机无动作时，IC1 进入休眠状态，整机功耗＜5uA，使整机待机时间尽可能延长（理论待机时间 6 年半）；当使用都在一分钟内连续使用本

装置十五次时，IC1 将发出信号，切断加热电路输出，同时输出信号给 LED 指示灯，连续闪烁 10 秒；当 S1 连续接通 6 秒以上时，则自动切断加热电路，同时输出信号给 LED 等。此单片还可写入其它程序以实现更多的功能和为后序的更新改善提供便利。也可以在信号输出端接一 LCD 显示屏来显示更多的信息。

本实用新型用 IC 来控制其工作过程，保证电子烟工作可靠，吸烟方式更加形象。其吸出的“烟”其实是药液气化后的“水蒸气”，不含烟焦油，一氧化碳，苯并芘，多环芳烃，亚硝胺、偶氮杂质等都是强致癌物，“水蒸气”在空气中很快会液化，不污染环境。其加热部份是低电压低电流下瞬间加热，不燃烧，没有火灾隐患。其外壳用特种不锈钢制成，可有效屏蔽电磁波。

本实用新型的非可燃性喷雾电子香烟工作过程如下：控制器100与发生器200通过连接导体6连接后组成一环保型非可燃性喷雾电子香烟；当使用都抽吸时，气流经连接导体6侧的进气孔进入发生器200，经过次级气压保压室，阻液片8，加热器9，最后由吸嘴13吸出；而控制器100与发生器200的连接导体6中间开有通孔，在使用者抽吸时，控制器100内部的气流流向发生器200，从而带动控制器100的弹性圆环401右侧独立形腔部份低于正常大气压，而在控制器200的另一侧在指示灯盖侧也开有通气孔，使电池部份型腔与大气压相通，这样在控制器200一侧负气压的作用下，开关气嘴向连接导体6一侧拉伸，从而带动其上面的动接触片与静接触片导通，导通电流，此时指示灯IC控制下慢慢变亮，同时电流通过连接导体使加热器工作；在加热室由

于气流作用药液以微滴形式喷射进雾化室，药液通过加热器9的作用瞬间雾化，雾化后的大直径微滴在涡流的作用下附壁经溢流孔被导液机构11重吸收，小直径微滴悬浮在气流中形成水蒸气经雾汽通道和吸嘴吸出。

以上所述，仅为本实用新型的较佳实例而已，并非用于限制本实用新型的保护范围。任何熟悉本技术领域的技术人员在本实用新型揭露的技术范围内，可轻易想到的变化，都应涵盖在本实用新型的保护范围之内。

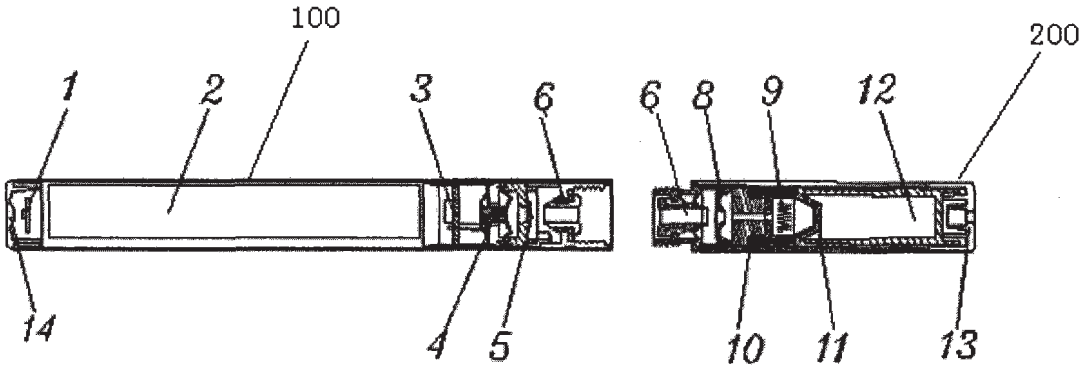


图 1

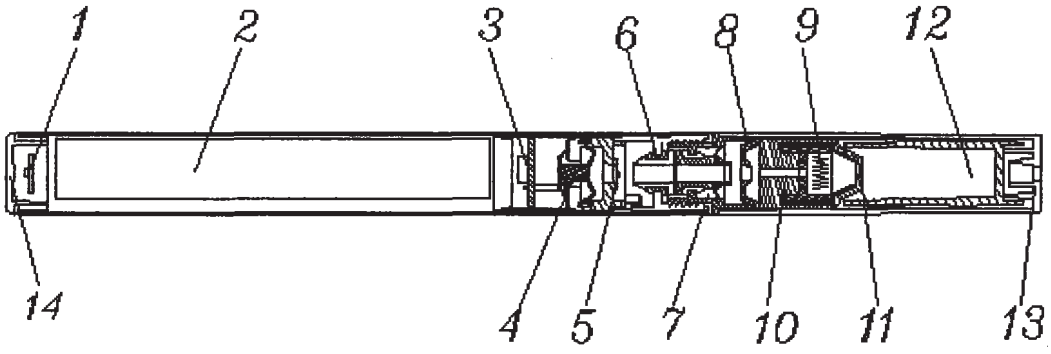


图 2

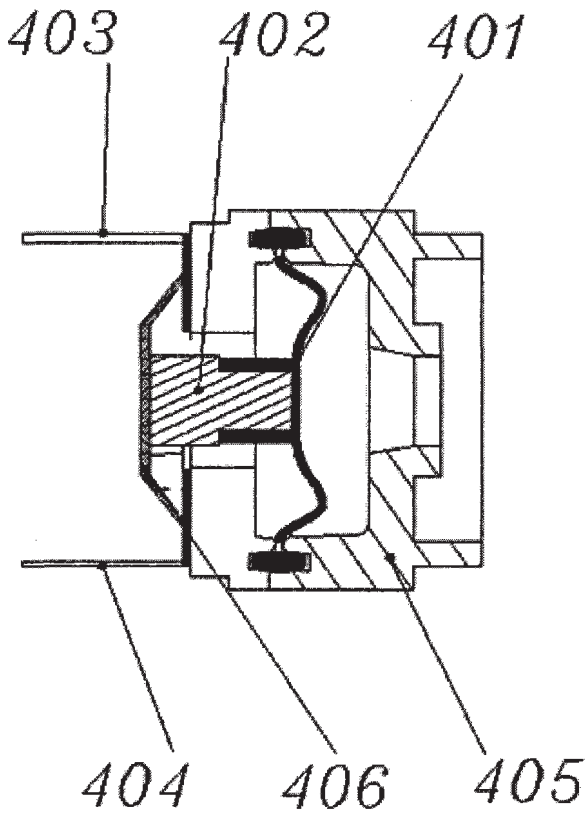


图 3

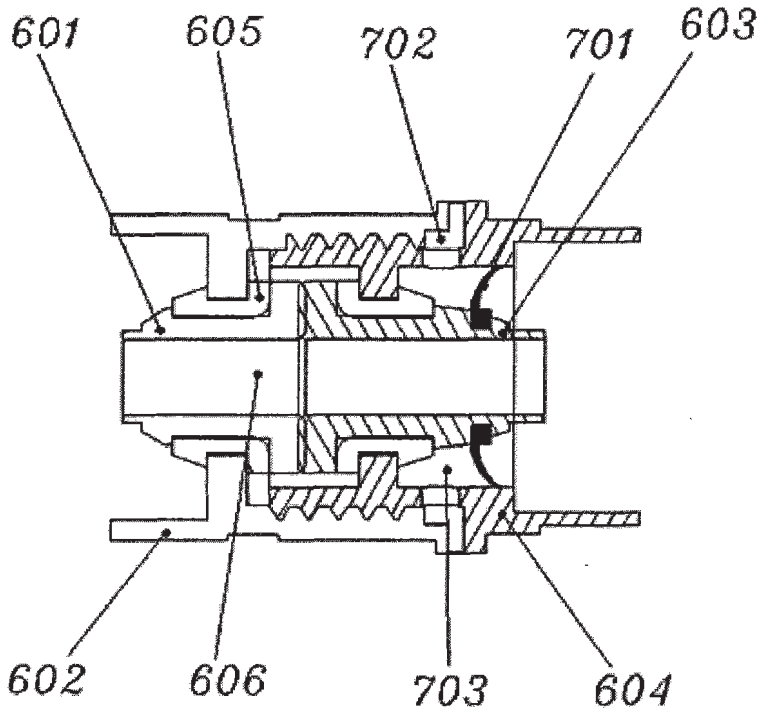


图 4

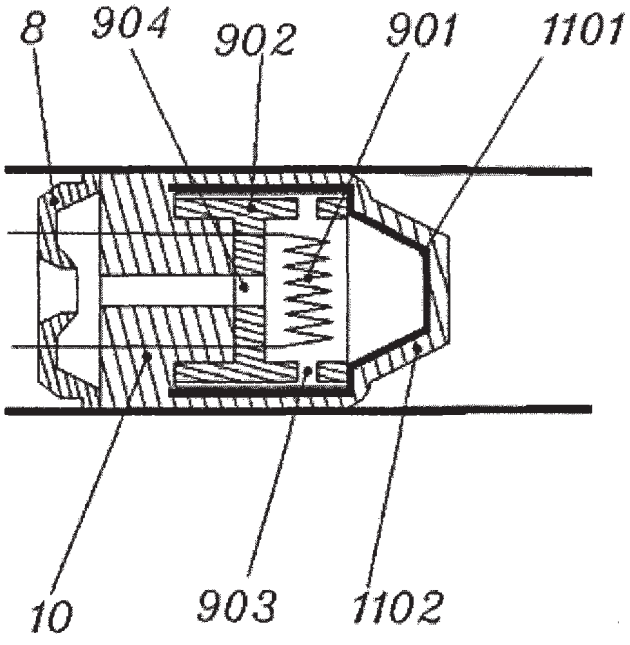


图 5

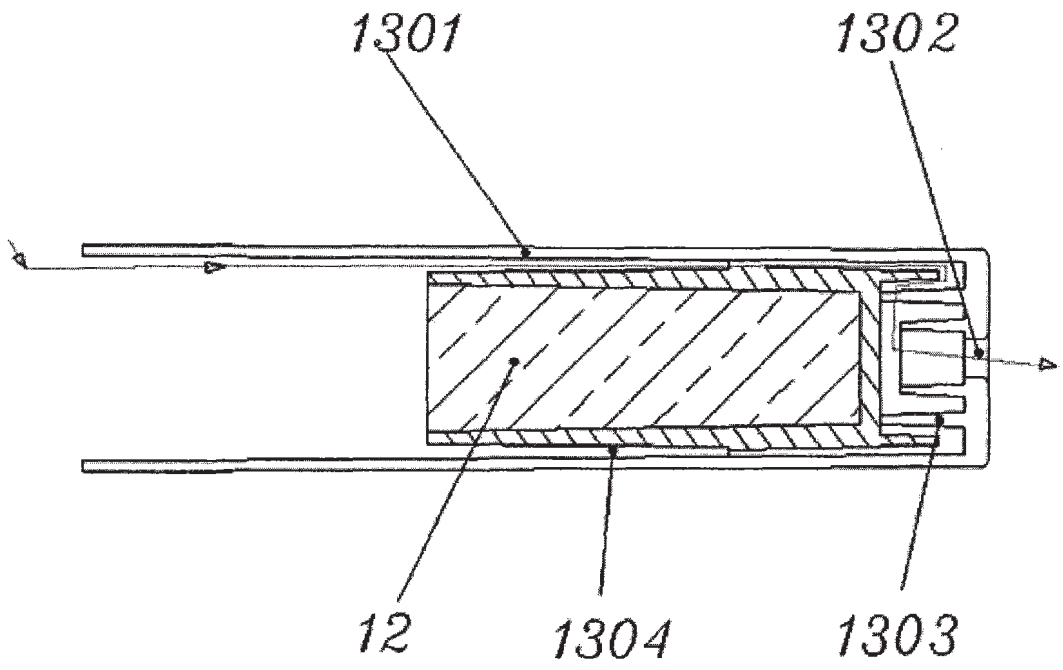


图 6

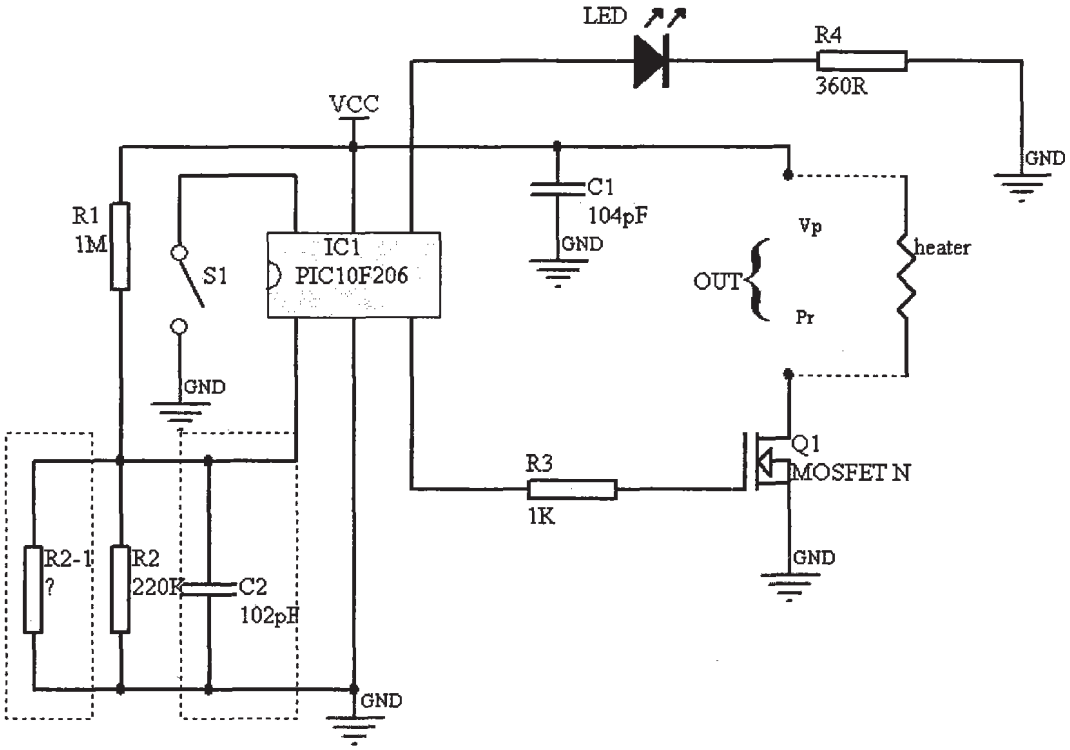


图 7