

Bibliographic data

Publication

CN202819631 U [2013-03-27]

Application

CN201220510827U [2012-09-29]

Classifications

IPC

A24F40/20; A24F40/50; A24F40/90; H02J7/00

CPC

A24F40/20; A24F40/50; A24F40/90

Priorities

CN201220510827U [2012-09-29]

Inventors

吴昌明; WU CHANGMING

Assignees

吴昌明; WU CHANGMING; Individual

Titles

[MT]

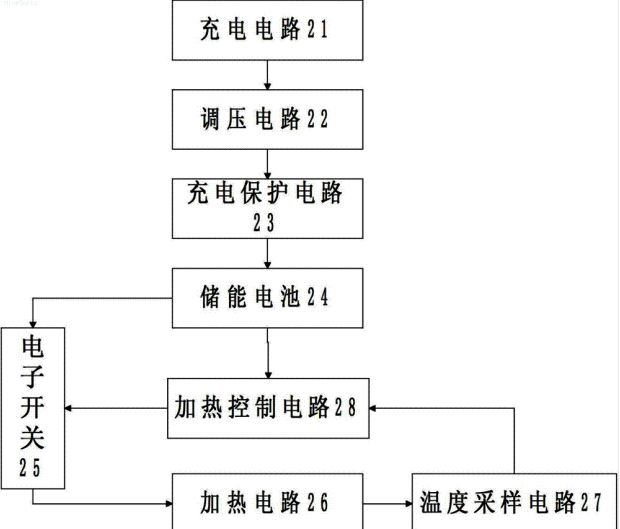
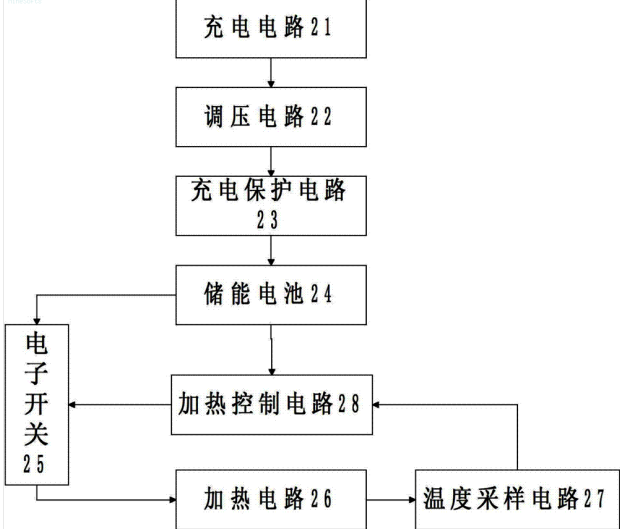
An electronic smoking device

[ZH]

一种电子吸烟装置

Abstract

ZH	MT
----	----

ZH	MT
本实用新型公开了一种电子吸烟装置，该装置包括内含烟丝容器的壳体（10）、对烟丝容器加热的加热电路（26）、装在壳体（10）内的至少一块储能电池（24）以及对储能电池（24）充电的充电电路（21），其特征在于，还包括设在所述壳体（10）上的通用接口（11），以及连接在所述充电电路（21）与所述储能电池（24）之间的调压电路（22），所述充电电路（21）与所述通用接口（11）连接。实施本实用新型，实现常规电压充电时可输出较高烤制电压，可同时充电和烤制，可调节烤制输出功率。  <pre> graph TD 21[充电电路 21] --> 22[调压电路 22] 22 --> 23[充电保护电路 23] 23 --> 24[储能电池 24] 24 --> 28[加热控制电路 28] 28 --> 26[加热电路 26] 26 --> 27[温度采样电路 27] 11[电子开关 25] --> 21 11 --> 28 </pre>	The utility model discloses an electronic smoking device, which comprises a casing (10) containing a shredded tobacco container, a heating circuit (26) for heating the shredded tobacco container, and at least one energy storage battery installed in the casing (10). (24) and the charging circuit (21) for charging the energy storage battery (24), characterized in that it also includes a universal interface (11) provided on the casing (10), and connected to the charging circuit (21) A voltage regulating circuit (22) between the energy storage battery (24), and the charging circuit (21) is connected to the universal interface (11). With the implementation of the utility model, a higher baking voltage can be output while being charged with a conventional voltage, charging and baking can be performed at the same time, and the output power of baking can be adjusted.  <pre> graph TD 21[充电电路 21] --> 22[调压电路 22] 22 --> 23[充电保护电路 23] 23 --> 24[储能电池 24] 24 --> 28[加热控制电路 28] 28 --> 26[加热电路 26] 26 --> 27[温度采样电路 27] 11[电子开关 25] --> 21 11 --> 28 </pre>

Claims

[ZH]	[MT]
1.一种电子吸烟装置，包括内含烟丝容器的壳体（10）、对烟丝容器加热的加热电路（26）、装在壳体（10）内的至少一块储能电池（24）以及对储能电池（24）充电的充电电路（21），其特征在于，还包括设在所述壳体（10）上的通用接口（11），以及连接在所述充电电路（21）与所述储能电池（24）之间的调压电路（22），所述充电电路（21）与所述通用接口（11）连接。	1. An electronic smoking device, comprising a casing (10) containing a shredded tobacco container, a heating circuit (26) for heating the shredded tobacco container, at least one energy storage battery (24) installed in the casing (10), and a The charging circuit (21) for charging the energy storage battery (24) is characterized in that it also includes a universal interface (11) provided on the casing (10), and a connection between the charging circuit (21) and the A voltage regulating circuit (22) between the energy storage batteries (24), the charging circuit (21) is connected to the universal interface (11).
2.根据权利要求1所述电子吸烟装置，其特征在于，所述通用接口（11）位于壳体（10）底部或顶部。	2. The electronic smoking device according to claim 1, characterized in that, the universal interface (11) is located at the bottom or top of the casing (10).
3.根据权利要求1所述电子吸烟装置，其特征在于，所述通用接口（11）位于壳体（10）侧面。	3. The electronic smoking device according to claim 1, characterized in that, the universal interface (11) is located on the side of the casing (10).
4.根据权利要求1-3任一所述电子吸烟装置，其特征在于，所述通用接口（11）包括USB接口。	4. The electronic smoking device according to any one of claims 1-3, characterized in that, the universal interface (11) includes a USB interface.
5.根据权利要求1所述电子吸烟装置，其特征在于，所述装置还包括加热控制电路（28）、电子开关（25）和用于进行温度反馈的温度采样电路（27），所述温度采样电路（27）将采集到的加热电路（26）的温度信号转换为电信号，并传送到加热控制电路（28），进而通过电子开关（25）控制加热电路（26）的输出功率。	5. The electronic smoking device according to claim 1, characterized in that the device further comprises a heating control circuit (28), an electronic switch (25) and a temperature sampling circuit (27) for temperature feedback, the temperature The sampling circuit (27) converts the collected temperature signal of the heating circuit (26) into an electrical signal, and transmits it to the heating control circuit (28), and then controls the output power of the heating circuit (26) through the electronic switch (25).
6.根据权利要求4所述电子吸烟装置，其特征在于，所述调压电路（22）的调压范围为4V至24V。	6. The electronic smoking device according to claim 4, characterized in that the voltage regulation range of the voltage regulation circuit (22) is 4V to 24V.
7.根据权利要求5所述的电子吸烟装置，其特征在于，所述温度采样电路（27）包括温度传感器，所述温度传感器用于反馈加热部件、加热部件的相邻部件或吸烟装置使用环境的温度。	7. The electronic smoking device according to claim 5, characterized in that the temperature sampling circuit (27) includes a temperature sensor, and the temperature sensor is used to feed back the heating component, the adjacent components of the heating component or the use environment of the smoking device temperature.

8.根据权利要求1所述电子吸烟装置，其特征在于，所述调压电路（22）包括型号为CP2121的升压芯片。	8. The electronic smoking device according to claim 1, characterized in that the voltage regulation circuit (22) includes a boost chip with a model number of CP2121.
9.根据权利要求1所述电子吸烟装置，其特征在于，所述调压电路（22）与储能电池（24）之间包括充电保护电路（23）。	9. The electronic smoking device according to claim 1, characterized in that a charging protection circuit (23) is included between the voltage regulation circuit (22) and the energy storage battery (24).

Description

[ZH]	[MT]
技术领域	technical field
本实用新型涉及电子吸烟装置，尤其涉及一种可同时充电和加热吸烟的电子吸烟装置。	The utility model relates to an electronic smoking device, in particular to an electronic smoking device capable of simultaneously charging and heating for smoking. the
背景技术	Background technique
目前电子吸烟领域，市场销售的产品主要有两种：一种是一次性产品；一种是通过螺纹电气连接的可充电产品，这种电子吸烟装置，一般包括充电电路、充电控制电路、一块电池和烤制电路，这些内部电路由只含一个接口的外壳承载。但是一次性产品不可充电，螺纹连接的虽然可充电，但是不能在充电的同时吸烟，且充电电压和内部系统电压相同，无法有效提供更优的烤制功率，影响烤制口感效果。	At present, in the field of electronic smoking, there are mainly two types of products on the market: one is a disposable product; the other is a rechargeable product connected electrically through threads. This electronic smoking device generally includes a charging circuit, a charging control circuit, and a battery. and grilling circuits, these internal circuits are carried by the housing with only one interface. However, disposable products are not rechargeable. Although the screw connection is rechargeable, it cannot be smoked while charging, and the charging voltage is the same as the internal system voltage, which cannot effectively provide better baking power and affect the baking taste. the
实用新型内容	Utility model content
本实用新型要解决的技术问题在于，针对现有技术的上述缺陷，提供一种可同时充电和加热烤烟的电子吸烟装置。	The technical problem to be solved by the utility model is to provide an electronic smoking device capable of charging and heating flue-cured tobacco at the same time, aiming at the above-mentioned defects of the prior art. the
本实用新型解决其技术问题所采用的技术方案是：一种电子吸烟装置，包括内含烟丝容器的壳体、对烟丝容器加热的加热电路、装在壳体内的至少一块储能电池以及对储能电池充电的充电电路，其特征在于，还包括设在所述壳体上的通用接口，以及连接在所述充电电路与所述储能电池之间的调压电路，所述充电电路与所述通用接口连接。	The technical solution adopted by the utility model to solve the technical problem is: an electronic smoking device, including a casing containing a shredded tobacco container, a heating circuit for heating the shredded tobacco container, at least one energy storage battery installed in the casing, and The charging circuit capable of charging the battery is characterized in that it also includes a general interface provided on the housing, and a voltage regulating circuit connected between the charging circuit and the energy storage battery, the charging circuit and the The general interface connection described above. the
优选地，所述通用接口位于壳体底部或顶部。	Preferably, the universal interface is located at the bottom or top of the casing. the

优选地，所述通用接口位于壳体侧面。	Preferably, the universal interface is located on the side of the housing. the
优选地，所述通用接口包括USB接口。	Preferably, the universal interface includes a USB interface. the
优选地，所述装置还包括加热控制电路、电子开关和用于进行温度反馈的温度采样电路，所述温度采样电路将采集到的加热电路的温度信号转换为电信号，并传送到加热控制电路，进而通过电子开关控制加热电路的输出功率。	Preferably, the device further includes a heating control circuit, an electronic switch, and a temperature sampling circuit for temperature feedback, and the temperature sampling circuit converts the collected temperature signal of the heating circuit into an electrical signal and transmits it to the heating control circuit, and then control the output power of the heating circuit through the electronic switch. the
优选地，所述调压电路的调压范围为4V至24V。	Preferably, the voltage regulation range of the voltage regulation circuit is 4V to 24V. the
优选地，所述温度采样电路包括温度传感器，所述温度传感器用于反馈加热部件、加热部件的相邻部件或吸烟装置使用环境的温度。	Preferably, the temperature sampling circuit includes a temperature sensor, and the temperature sensor is used to feed back the temperature of the heating component, adjacent components of the heating component, or the environment in which the smoking device is used. the
优选地，所述调压电路包括型号为CP2121的升压芯片。	Preferably, the voltage regulation circuit includes a boost chip with a model number of CP2121. the
优选地，所述调压电路与储能电池之间包括充电保护电路。	Preferably, a charging protection circuit is included between the voltage regulation circuit and the energy storage battery. the
实施本实用新型电子吸烟装置，操作方便，充电时无需旋下螺纹电气部件；支持充电电压与系统（MCU）电压不同，充电更便利；实现常规电压充电可同时输出较高或低的烤制电压，使得烤制效果较佳；可将加热部件或加热部件相邻部件或该吸烟装置使用的环境温度反馈至加热控制器，进而调节烤制功率，使得烤制效果更佳。	Implementing the electronic smoking device of the utility model, the operation is convenient, and there is no need to unscrew the threaded electrical components when charging; the charging voltage is different from the system (MCU) voltage, and the charging is more convenient; the conventional voltage charging can output higher or lower baking voltage at the same time, so that the roasting effect is better; the temperature of the heating part or the adjacent parts of the heating part or the ambient temperature used by the smoking device can be fed back to the heating controller, and then the roasting power can be adjusted to make the roasting effect better. the
附图说明	Description of drawings

下面将结合附图及实施例对本实用新型作进一步说明，附图中：	The utility model will be further described below in conjunction with accompanying drawing and embodiment, in the accompanying drawing:
图1是本实用新型一种电子吸烟装置的第一实施例的结构示意图；	Fig. 1 is a schematic structural view of the first embodiment of an electronic smoking device of the present invention;
图2是本实用新型一种电子吸烟装置的第二实施例的结构示意图；	Fig. 2 is a schematic structural view of the second embodiment of an electronic smoking device of the present invention;
图3是本实用新型一种电子吸烟装置的第三实施例的结构示意图；	Fig. 3 is a schematic structural view of the third embodiment of an electronic smoking device of the present invention;
图4是本实用新型一种电子吸烟装置的第四实施例的结构示意图；	Fig. 4 is a schematic structural view of the fourth embodiment of an electronic smoking device of the present invention;
图5是本实用新型一种电子吸烟装置的内部电路的优选结构示意图；	Figure 5 is a schematic diagram of the preferred structure of the internal circuit of an electronic smoking device of the present invention;
图6是本实用新型一种电子吸烟装置优选实施例中充电部分的电路示意图；	Fig. 6 is a schematic circuit diagram of the charging part in a preferred embodiment of an electronic smoking device of the present invention;
图7是本实用新型一种电子吸烟装置优选实施例中烤制部分的电路示意图。	Fig. 7 is a schematic circuit diagram of the grilling part in a preferred embodiment of the electronic smoking device of the present invention. the
具体实施方式	Detailed ways

一种电子吸烟装置，包括内含烟丝容器的壳体10、对烟丝容器加热的加热电路26、装在壳体10内的至少一块储能电池24以及对储能电池24充电的充电电路21，还包括设在壳体10上的通用接口11，以及连接在储能电池24与充电电路21之间的调压电路22。烟丝容器是承载烟丝、烟卷或其他可供烤制材料的容器，通用接口11可为USB接口，其具体位置视外部壳体10结构和内部电路的布置而定，可位于壳体10上下两个端面，也可位于壳体10侧面，该通用接口11使得本实用新型的电子吸烟装置充电时无需旋下螺纹电气部件，便可直接与外部充电设备连接。此外，该通用接口11使得本实用新型装置更通用。	An electronic smoking device, comprising a casing 10 containing a shredded tobacco container, a heating circuit 26 for heating the shredded tobacco container, at least one energy storage battery 24 installed in the casing 10, and a charging circuit 21 for charging the energy storage battery 24, It also includes a universal interface 11 provided on the casing 10 and a voltage regulating circuit 22 connected between the energy storage battery 24 and the charging circuit 21 . The shredded tobacco container is a container that carries shredded tobacco, cigarettes or other materials that can be baked. The universal interface 11 can be a USB interface, and its specific location depends on the structure of the outer casing 10 and the layout of the internal circuit. The end face can also be located on the side of the housing 10. The universal interface 11 allows the electronic smoking device of the present invention to be directly connected to an external charging device without unscrewing the threaded electrical components when charging. Furthermore, the universal interface 11 makes the device of the present invention more versatile. the
图1和图2所示为圆筒状结构壳体10，图1中，通用接口位于壳体10的底部，图2中，通用接口11位于壳体10侧壁上。通用接口11的具体位置并不局限于图1和图2所示优选位置，其可位于壳体10上任一方便本实用新型装置充电的位置。	FIG. 1 and FIG. 2 show a cylindrical shell 10 . In FIG. 1 , the universal interface is located at the bottom of the shell 10 . In FIG. 2 , the universal interface 11 is located on the side wall of the shell 10 . The specific position of the universal interface 11 is not limited to the preferred position shown in Fig. 1 and Fig. 2, and it can be located at any position on the housing 10 that is convenient for charging the device of the present invention. the
本实用新型并不完全限定壳体10的形状，图3和图4所示为多边形柱体或其它不规则的柱体状的壳体10，图3中，通用接口位于壳体10的一个端面，通用接口11还可位于另一端面，图4中，通用接口11位于壳体10侧面上。通用接口11的具体位置并不局限于图3和图4所示优选位置，其可位于壳体10上任一方便本实用新型装置充电的位置。	The utility model does not completely limit the shape of the housing 10. Figures 3 and 4 show polygonal cylinders or other irregular cylinder-shaped housings 10. In Figure 3, the universal interface is located on an end surface of the housing 10 , The universal interface 11 can also be located on the other end face. In FIG. 4, the universal interface 11 is located on the side of the housing 10. The specific position of the universal interface 11 is not limited to the preferred position shown in FIG. 3 and FIG. 4 , and it can be located at any position on the casing 10 that is convenient for charging the device of the present invention. the

如图5所示，本实用新型提供的电子吸烟装置，还可包括充电保护电路23、电子开关25、温度采样电路27和加热控制电路28。充电电路21、调压电路22、充电保护电路23和储能电池24顺次级联，储能电池24为加热电路26和加热控制电路28供电，电子开关25可通过两种方式实现加热电路26的通断，一种是加热控制电路28向电子开关25施加信号控制其接通或关断，一种是由用户人为的触发来控制其开机或关机。	As shown in FIG. 5 , the electronic smoking device provided by the present invention may also include a charging protection circuit 23 , an electronic switch 25 , a temperature sampling circuit 27 and a heating control circuit 28 . The charging circuit 21, the voltage regulating circuit 22, the charging protection circuit 23 and the energy storage battery 24 are cascaded in sequence, the energy storage battery 24 supplies power for the heating circuit 26 and the heating control circuit 28, and the electronic switch 25 can realize the heating circuit 26 in two ways. One is that the heating control circuit 28 applies a signal to the electronic switch 25 to control its on or off, and the other is that the user triggers it artificially to control its power on or off. the
本实用新型装置中内部电路包括至少一块储能电池24，一般来说是锂电池，通常越200mAh-2200mAH，但不限于锂电池，也可选择其他类型储能电池；充电电路21通常与输出电压为5V-24V的外部充电设备连接，采用恒定电压给储能电池24充电，保证电池能够充足的同时避免充电过度；调压电路22是根据吸烟装置的功能需要将外部充电设备输入的电压调整至4V-24V，具体调整电压可根据需求设定，可将低电压变换为高电压，根据需要也可将高电压变换为低电压，其支持充电电压与系统电压不同，使得充电更便利，同时提供给加热电路26更高的烤制功率，给使用者提供较佳的烤制口感；充电保护电路23，是指针对电路存在一些不稳定因素，而设计用来防止此类不稳定因素影响电路效果的回路，在给储能电池24充电时，当电池电压超过其最大阈值时，过充电控制电路截止电流，停止充电，当储能电池24处于放电状态下，电池电压降至最小阈值时，过放电控制电路截止，停止向负载供电；加热控制电路28用于根据加热电路26的温度通过电子开关25控制加热电路26的输出功率，一般包括该装置中使用的MCU及其外围电路；电子开关25，包括受加热控制电路28控制开通或关断的电子开关管，该电子开关管直接连接至储能电池24，通常采用金属-氧化层-半导体-场效晶体管；加热电路26用于烟丝容器加热；温度采样电路27，该电路用于将加热部件、相邻部件或使用环境的温度反馈至加热控制电路28，温度采样电路27中包括用于将温度信号转换为电信号的温度传感器，温度传感器包括热电偶、热敏电阻、电阻温度检测器（RTD）和IC温度传感这四类，常用的是热电偶或NTC；加热控制电路28、电子开关25、加热电路26以及温度采样电路27组成一个闭环以控制加热输出功率，简单来说就是温度采样电路27如探测到采样温度低于设定温度，则通过加热控制电路28开通电子开关25，使加热电路26工作，加热单元温度升高，温度采样电路27温度同样也升高，如采样温度超过设定温度，则通过加热控制电路28关闭电子开关25，加热电路26关闭，温度采样电路27的采样温度同样也会随之降低，如此循环的一个系统，开通和断开是两个极端状态，一般该反馈控制系统工作于PWM状态下的间歇情况，以实现更精准的烤制功率控制，给使用者提供更佳的烤制口感	The internal circuit in the device of the present invention includes at least one energy storage battery 24, generally speaking, it is a lithium battery, usually more than 200mAh-2200mAH, but it is not limited to lithium batteries, and other types of energy storage batteries can also be selected; the charging circuit 21 is usually connected to the output voltage It is connected to an external charging device of 5V-24V, and a constant voltage is used to charge the energy storage battery 24 to ensure that the battery is sufficient while avoiding overcharging; the voltage regulating circuit 22 adjusts the input voltage of the external charging device to 4V-24V, the specific adjustment voltage can be set according to the demand, the low voltage can be converted into a high voltage, and the high voltage can also be converted into a low voltage according to the need. It supports charging voltage different from the system voltage, which makes charging more convenient and provides Give the heating circuit 26 a higher baking power to provide users with a better baking taste; the charging protection circuit 23 refers to the fact that there are some unstable factors in the circuit, and is designed to prevent such unstable factors from affecting the circuit effect When charging the energy storage battery 24, when the battery voltage exceeds its maximum threshold, the overcharge control circuit cuts off the current and stops charging. The discharge control circuit cuts off and stops supplying power to the load; the heating control circuit 28 is used to control the output power of the heating circuit 26 through the electronic switch 25 according to the temperature of the heating circuit 26, generally including the MCU and its peripheral circuits used in the device; the electronic switch 25 , including an electronic switch tube controlled by a heating control circuit 28 to turn on or off, the electronic switch tube is directly connected to the energy storage battery 24, usually using a metal-oxide layer-semiconductor-field-effect transistor; the heating circuit 26 is used for the shredded tobacco container Heating;

感。	temperature sampling circuit 27, this circuit is used to feed back the temperature of the heating part, adjacent parts or the use environment to the heating control circuit 28, and the temperature sampling circuit 27 includes a temperature sensor for converting the temperature signal into an electrical signal, and the temperature Sensors include four types: thermocouple, thermistor, resistance temperature detector (RTD) and IC temperature sensor, commonly used is thermocouple or NTC; heating control circuit 28, electronic switch 25, heating circuit 26 and temperature sampling circuit 27 Form a closed loop to control the heating output power. Simply speaking, if the temperature sampling circuit 27 detects that the sampling temperature is lower than the set temperature, the electronic switch 25 is opened through the heating control circuit 28 to make the heating circuit 26 work, and the temperature of the heating unit rises. , the temperature of the temperature sampling circuit 27 also increases, as the sampling temperature exceeds the set temperature, the electronic switch 25 is closed by the heating control circuit 28, the heating circuit 26 is closed, and the sampling temperature of the temperature sampling circuit 27 also decreases thereupon, so In a cycle system, on and off are two extreme states. Generally, the feedback control system works intermittently in the PWM state to achieve more precise control of the baking power and provide users with a better baking taste. the
此外，为消除储能电池24两端的电压与加热控制电路28中MCU所需的电压之间的差异，可在加热控制电路28与储能电池24之间增加DC/DC电路，该电路用于将已经调压的电源电压，重新调整至加热控制电路28中MCU需要的电压。	In addition, in order to eliminate the difference between the voltage at both ends of the energy storage battery 24 and the voltage required by the MCU in the heating control circuit 28, a DC/DC circuit can be added between the heating control circuit 28 and the energy storage battery 24. This circuit is used for The regulated power supply voltage is readjusted to the voltage required by the MCU in the heating control circuit 28 . the
以上，升压或降压、电源能提供的电压范围、充电管理和温度反馈等可根据其他不同的选择而变化，这样的选择只是设计元件选择的问题。	Above, step-up or step-down, the voltage range that the power supply can provide, charging management and temperature feedback can vary according to other different options, and such a choice is only a matter of design component selection. the
本实用新型的电子吸烟装置通过单独启动图5中储能电池24及以上模块，可以实现独立充电；通过单独启动储能电池24及以下模块，可以实现独立烤制；所有模块都启动可以实现同时充电烤制。	The electronic smoking device of the present utility model can realize independent charging by separately starting the energy storage battery 24 and the above modules in FIG. Charging and grilling. the

1) 单独充电过程，本实用新型装置可包括两个外部接口，其中一个为通用接口11，用于连接充电电路21与外部充电设备，另一个是加热接口，这两个接口使得本实用新型装置操作十分方便，充电时无需旋下螺纹电气部件。在吸烟装置未启动状态下，只要用户将外部充电设备通过通用接口11与本实用新型装置连接，通过通用接口11连接至充电电路21，调压电路22将输入电压（充电电压）做升压处理后，再经过充电保护电路23送至储能电池24，实现独立充电。	1) In the separate charging process, the device of the present invention may include two external interfaces, one of which is a universal interface 11 for connecting the charging circuit 21 with an external charging device, and the other is a heating interface. These two interfaces make the device of the present invention It is very easy to operate, and there is no need to unscrew the threaded electrical parts when charging. When the smoking device is not started, as long as the user connects the external charging device to the device of the utility model through the universal interface 11, and connects to the charging circuit 21 through the universal interface 11, the voltage regulating circuit 22 will boost the input voltage (charging voltage) After that, it is sent to the energy storage battery 24 through the charging protection circuit 23 to realize independent charging. the
2) 单独烤制过程，当储能电池24中的电量足以为本实用新型装置中其它电气元件供电时，无需外部充电设备支持，用户即可通过开启电子开关25，使储能电池24为加热电路26提供其所需电压，实现独立烤制，独立烤制过程中，温度采样电路27将加热部件、相邻部件或使用环境的温度反馈至加热控制电路28，加热控制电路28进而通过电子开关25以PWM方式间歇控制加热电路26的输出功率。	2) In the separate baking process, when the power in the energy storage battery 24 is sufficient to supply power to other electrical components in the device of the present invention, the user can turn on the electronic switch 25 to make the energy storage battery 24 heat The circuit 26 provides the required voltage to realize independent baking. During the independent baking process, the temperature sampling circuit 27 feeds back the temperature of the heating component, adjacent components or the use environment to the heating control circuit 28, and the heating control circuit 28 further passes the electronic switch. 25 intermittently controls the output power of the heating circuit 26 in a PWM manner. the
3) 同时充电和烤制过程，当外部充电设备通过充电电路21、调压电路22和充电保护电路23为储能电池24充电时，用户可以同时触碰电子开关25开启加热电路26，实现同时充电和烤制，在该过程中，温度采样反馈过程也正常进行。	3) Simultaneous charging and baking process, when the external charging device is charging the energy storage battery 24 through the charging circuit 21, the voltage regulating circuit 22 and the charging protection circuit 23, the user can touch the electronic switch 25 to turn on the heating circuit 26 at the same time, realizing simultaneous Charging and baking, during this process, the temperature sampling and feedback process is also carried out normally. the

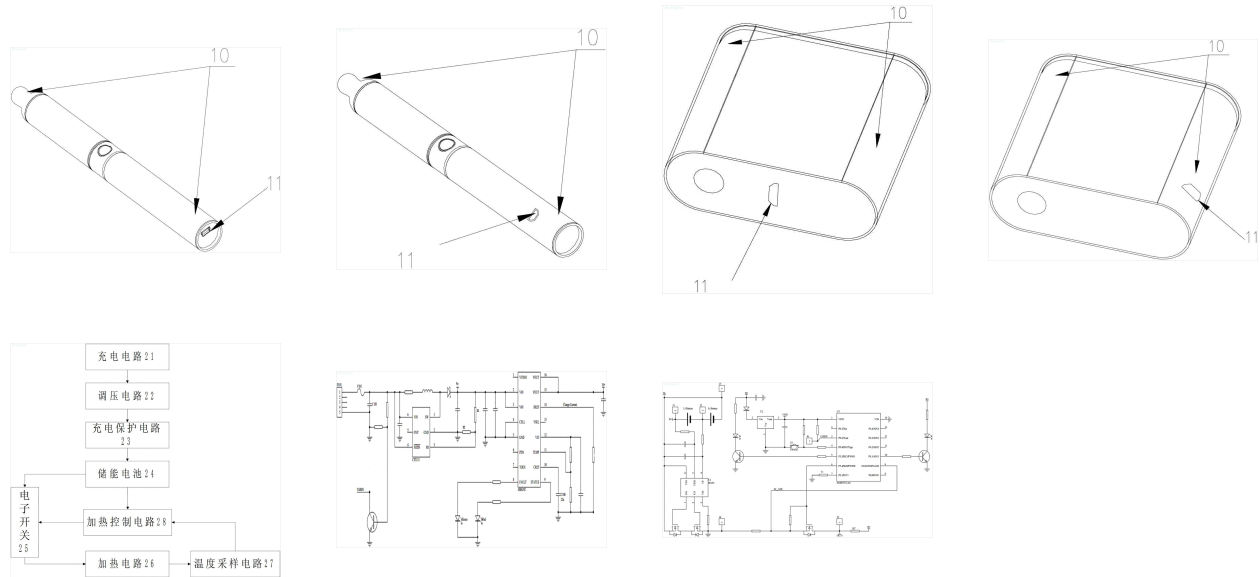
本优选实施例中，加热控制电路28一般采用PWM单环反馈控制方式，PWM开关在输入电压变化、内部参数变化、外接负载变化的情况下，控制电路通过被控制信号与基准信号的差值进行闭环反馈，调节主电路开关器件的导通脉冲宽度，使得开关电源的输出电压或电流等被控制信号稳定。PWM的开关频率一般为恒定，控制取样信号有：输出电压、输入电压、输出电流、输出电感电压、开关器件峰值电流。由这些信号可以构成单环、双环或多环反馈系统，实现稳压、稳流及恒定功率的目的，同时可以实现一些附带的过流保护、均流等功能。	In this preferred embodiment, the heating control circuit 28 generally adopts a PWM single-loop feedback control method. When the PWM switch changes in input voltage, internal parameters, and external load, the control circuit controls the temperature by the difference between the controlled signal and the reference signal. The closed-loop feedback adjusts the conduction pulse width of the switching device of the main circuit, so that the output voltage or current of the switching power supply and other controlled signals are stable. The switching frequency of PWM is generally constant, and the control sampling signals include: output voltage, input voltage, output current, output inductor voltage, and peak current of switching devices. These signals can form a single-loop, double-loop or multi-loop feedback system to achieve the purpose of voltage stabilization, current stabilization and constant power, and at the same time, some additional functions such as over-current protection and current sharing can be realized. the
图6是本实用新型装置中充电电路21、调压电路22和部分充电保护电路23的优选实施例，在本实施例中，HB6292芯片为电池充电芯片，USBIN信号用于充电插入检测；R1和R2是调整输出电压的调整电阻，通过调整R1和R2的合适阻值，可以实现输出电压的升高，调压电路22还包括升压芯片CP2121。在本实施例中，使用5V的充电设备充电，通过调压电路22，可调节设备内部电压至少约5V，通常为8V。	Fig. 6 is a preferred embodiment of the charging circuit 21, voltage regulating circuit 22 and part of the charging protection circuit 23 in the utility model device. In this embodiment, the HB6292 chip is a battery charging chip, and the USBIN signal is used for charging and insertion detection; R1 and R2 is an adjustment resistor for adjusting the output voltage. By adjusting the appropriate resistance values of R1 and R2, the output voltage can be increased. The voltage regulation circuit 22 also includes a boost chip CP2121. In this embodiment, a 5V charging device is used for charging, and the internal voltage of the device can be adjusted to at least about 5V, usually about 8V through the voltage regulating circuit 22 . the
图7是本实用新型装置中部分充电保护电路23、储能电池24、电子开关25、加热电路26、温度采样电路27和加热控制电路28的优选实施例，在本实施例中，储能电池24包括两块锂电池，图中所示RT为设备加热单元，是设备的烤制热源，图中所示的Tr为温度传感器，将温度信号转换为电信号反馈至控制器，温度传感器是NTC，图中U3_PIN6是加热单元开启或关闭的控制信号，图中U1为电池保护芯片，U3为设备内部控制器。	Fig. 7 is the preferred embodiment of part charging protection circuit 23, energy storage battery 24, electronic switch 25, heating circuit 26, temperature sampling circuit 27 and heating control circuit 28 in the utility model device, in this embodiment, energy storage battery 24 includes two lithium batteries. The RT shown in the figure is the heating unit of the equipment, which is the heat source for baking the equipment. The Tr shown in the picture is the temperature sensor, which converts the temperature signal into an electrical signal and feeds it back to the controller. The temperature sensor is NTC , U3_PIN6 in the figure is the control signal for turning on or off the heating unit, U1 in the figure is the battery protection chip, and U3 is the internal controller of the device. the

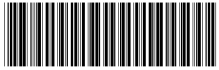
以上所述仅为本实用新型的优选实施例而已，并不用于限制本实用新型，对于本领域的技术人员来说，本实用新型可以有各种更改和变化。凡在本实用新型的精神和原则之内，所作的任何修改、等同替换、改进等，均应包含在本实用新型的权利要求范围之内。	The above descriptions are only preferred embodiments of the utility model, and are not intended to limit the utility model. For those skilled in the art, the utility model can have various modifications and changes. Any modifications, equivalent replacements, improvements, etc. made within the spirit and principles of the present utility model shall be included within the scope of the claims of the present utility model. the
--	---

Legal events

Code	Title	Date	Country	Impact	Details
C14	GRANT OF PATENT OR UTILITY MODEL	2013-03-27	CN	+	
GR01	PATENT GRANT	2013-03-27	CN	+	
EXPY	TERMINATION OF PATENT RIGHT OR UTILITY MODEL	2016-11-16	CN	-	
CF01	TERMINATION OF PATENT RIGHT DUE TO NON-PAYMENT OF ANNUAL FEE	2016-11-16	CN	-	Granted Publication Date 20130327 Termination Date 20150929

Images





(12) 实用新型专利

(10) 授权公告号 CN 202819631 U

(45) 授权公告日 2013. 03. 27

(21) 申请号 201220510827. 3

(22) 申请日 2012. 09. 29

(73) 专利权人 吴昌明

地址 234200 安徽省宿州市灵璧县高楼镇高
楼村九组

(72) 发明人 吴昌明

(74) 专利代理机构 深圳市顺天达专利商标代理
有限公司 44217

代理人 蔡晓红

(51) Int. Cl.

A24F 47/00 (2006. 01)

H02J 7/00 (2006. 01)

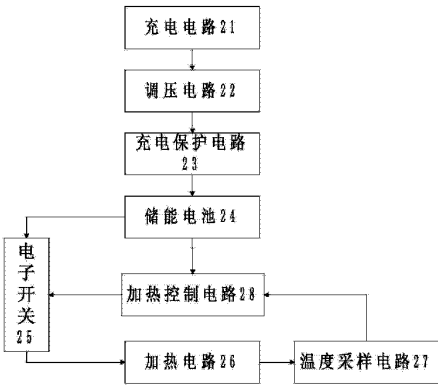
权利要求书 1 页 说明书 4 页 附图 3 页

(54) 实用新型名称

一种电子吸烟装置

(57) 摘要

本实用新型公开了一种电子吸烟装置, 该装置包括内含烟丝容器的壳体(10)、对烟丝容器加热的加热电路(26)、装在壳体(10)内的至少一块储能电池(24)以及对储能电池(24)充电的充电电路(21), 其特征在于, 还包括设在所述壳体(10)上的通用接口(11), 以及连接在所述充电电路(21)与所述储能电池(24)之间的调压电路(22), 所述充电电路(21)与所述通用接口(11)连接。实施本实用新型, 实现常规电压充电同时可输出较高烤制电压, 可同时充电和烤制, 可调节烤制输出功率。



1. 一种电子吸烟装置,包括内含烟丝容器的壳体(10)、对烟丝容器加热的加热电路(26)、装在壳体(10)内的至少一块储能电池(24)以及对储能电池(24)充电的充电电路(21),其特征在于,还包括设在所述壳体(10)上的通用接口(11),以及连接在所述充电电路(21)与所述储能电池(24)之间的调压电路(22),所述充电电路(21)与所述通用接口(11)连接。
2. 根据权利要求1所述电子吸烟装置,其特征在于,所述通用接口(11)位于壳体(10)底部或顶部。
3. 根据权利要求1所述电子吸烟装置,其特征在于,所述通用接口(11)位于壳体(10)侧面。
4. 根据权利要求1-3任一所述电子吸烟装置,其特征在于,所述通用接口(11)包括USB接口。
5. 根据权利要求1所述电子吸烟装置,其特征在于,所述装置还包括加热控制电路(28)、电子开关(25)和用于进行温度反馈的温度采样电路(27),所述温度采样电路(27)将采集到的加热电路(26)的温度信号转换为电信号,并传送到加热控制电路(28),进而通过电子开关(25)控制加热电路(26)的输出功率。
6. 根据权利要求4所述电子吸烟装置,其特征在于,所述调压电路(22)的调压范围为4V至24V。
7. 根据权利要求5所述的电子吸烟装置,其特征在于,所述温度采样电路(27)包括温度传感器,所述温度传感器用于反馈加热部件、加热部件的相邻部件或吸烟装置使用环境的温度。
8. 根据权利要求1所述电子吸烟装置,其特征在于,所述调压电路(22)包括型号为CP2121的升压芯片。
9. 根据权利要求1所述电子吸烟装置,其特征在于,所述调压电路(22)与储能电池(24)之间包括充电保护电路(23)。

一种电子吸烟装置

技术领域

[0001] 本实用新型涉及电子吸烟装置,尤其涉及一种可同时充电和加热吸烟的电子吸烟装置。

背景技术

[0002] 目前电子吸烟领域,市场销售的产品主要有两种:一种是一次性产品;一种是通过螺纹电气连接的可充电产品,这种电子吸烟装置,一般包括充电电路、充电控制电路、一块电池和烤制电路,这些内部电路由只含一个接口的外壳承载。但是一次性产品不可充电,螺纹连接的虽然可充电,但是不能在充电的同时吸烟,且充电电压和内部系统电压相同,无法有效提供更优的烤制功率,影响烤制口感效果。

实用新型内容

[0003] 本实用新型要解决的技术问题在于,针对现有技术的上述缺陷,提供一种可同时充电和加热烤烟的电子吸烟装置。

[0004] 本实用新型解决其技术问题所采用的技术方案是:一种电子吸烟装置,包括内含烟丝容器的壳体、对烟丝容器加热的加热电路、装在壳体内部的至少一块储能电池以及对储能电池充电的充电电路,其特征在于,还包括设在所述壳体上的通用接口,以及连接在所述充电电路与所述储能电池之间的调压电路,所述充电电路与所述通用接口连接。

[0005] 优选地,所述通用接口位于壳体底部或顶部。

[0006] 优选地,所述通用接口位于壳体侧面。

[0007] 优选地,所述通用接口包括 USB 接口。

[0008] 优选地,所述装置还包括加热控制电路、电子开关和用于进行温度反馈的温度采样电路,所述温度采样电路将采集到的加热电路的温度信号转换为电信号,并传送到加热控制电路,进而通过电子开关控制加热电路的输出功率。

[0009] 优选地,所述调压电路的调压范围为 4V 至 24V。

[0010] 优选地,所述温度采样电路包括温度传感器,所述温度传感器用于反馈加热部件、加热部件的相邻部件或吸烟装置使用环境的温度。

[0011] 优选地,所述调压电路包括型号为 CP2121 的升压芯片。

[0012] 优选地,所述调压电路与储能电池之间包括充电保护电路。

[0013] 实施本实用新型电子吸烟装置,操作方便,充电时无需旋下螺纹电气部件;支持充电电压与系统(MCU)电压不同,充电更便利;实现常规电压充电可同时输出较高或低的烤制电压,使得烤制效果较佳;可将加热部件或加热部件相邻部件或该吸烟装置使用的环境温度反馈至加热控制器,进而调节烤制功率,使得烤制效果更佳。

附图说明

[0014] 下面将结合附图及实施例对本实用新型作进一步说明,附图中:

- [0015] 图 1 是本实用新型一种电子吸烟装置的第一实施例的结构示意图；
[0016] 图 2 是本实用新型一种电子吸烟装置的第二实施例的结构示意图；
[0017] 图 3 是本实用新型一种电子吸烟装置的第三实施例的结构示意图；
[0018] 图 4 是本实用新型一种电子吸烟装置的第四实施例的结构示意图；
[0019] 图 5 是本实用新型一种电子吸烟装置的内部电路的优选结构示意图；
[0020] 图 6 是本实用新型一种电子吸烟装置优选实施例中充电部分的电路示意图；
[0021] 图 7 是本实用新型一种电子吸烟装置优选实施例中烤制部分的电路示意图。

具体实施方式

[0022] 一种电子吸烟装置,包括内含烟丝容器的壳体 10、对烟丝容器加热的加热电路 26、装在壳体 10 内的至少一块储能电池 24 以及对储能电池 24 充电的充电电路 21,还包括设在壳体 10 上的通用接口 11,以及连接在储能电池 24 与充电电路 21 之间的调压电路 22。烟丝容器是承载烟丝、烟卷或其他可供烤制材料的容器,通用接口 11 可为 USB 接口,其具体位置视外部壳体 10 结构和内部电路的布置而定,可位于壳体 10 上下两个端面,也可位于壳体 10 侧面,该通用接口 11 使得本实用新型的电子吸烟装置充电时无需旋下螺纹电气部件,便可直接与外部充电设备连接。此外,该通用接口 11 使得本实用新型装置更通用。

[0023] 图 1 和图 2 所示为圆筒状结构壳体 10,图 1 中,通用接口位于壳体 10 的底部,图 2 中,通用接口 11 位于壳体 10 侧壁上。通用接口 11 的具体位置并不局限于图 1 和图 2 所示优选位置,其可位于壳体 10 上任一方便本实用新型装置充电的位置。

[0024] 本实用新型并不完全限定壳体 10 的形状,图 3 和图 4 所示为多边形柱体或其它不规则的柱体状的壳体 10,图 3 中,通用接口位于壳体 10 的一个端面,通用接口 11 还可位于另一端面,图 4 中,通用接口 11 位于壳体 10 侧面上。通用接口 11 的具体位置并不局限于图 3 和图 4 所示优选位置,其可位于壳体 10 上任一方便本实用新型装置充电的位置。

[0025] 如图 5 所示,本实用新型提供的电子吸烟装置,还可包括充电保护电路 23、电子开关 25、温度采样电路 27 和加热控制电路 28。充电电路 21、调压电路 22、充电保护电路 23 和储能电池 24 顺次级联,储能电池 24 为加热电路 26 和加热控制电路 28 供电,电子开关 25 可通过两种方式实现加热电路 26 的通断,一种是加热控制电路 28 向电子开关 25 施加信号控制其接通或关断,一种是由用户人为的触发来控制其开机或关机。

[0026] 本实用新型装置中内部电路包括至少一块储能电池 24,一般来说是锂电池,通常越 200mAh-2200mAh,但是不限于锂电池,也可选择其他类型储能电池;充电电路 21 通常与输出电压为 5V-24V 的外部充电设备连接,采用恒定电压给储能电池 24 充电,保证电池能够充足的同时避免充电过度;调压电路 22 是根据吸烟装置的功能需要将外部充电设备输入的电压调整至 4V-24V,具体调整电压可根据需求设定,可将低电压变换为高电压,根据需要也可将高电压变换为低电压,其支持充电电压与系统电压不同,使得充电更便利,同时提供给加热电路 26 更高的烤制功率,给使用者提供较佳的烤制口感;充电保护电路 23,是指针对电路存在一些不稳定因素,而设计用来防止此类不稳定因素影响电路效果的回路,在给储能电池 24 充电时,当电池电压超过其最大阈值时,过充电控制电路截止电流,停止充电,当储能电池 24 处于放电状态下,电池电压降至最小阈值时,过放电控制电路截止,停止向负载供电;加热控制电路 28 用于根据加热电路 26 的温度通过电子开关 25 控制加热电路 26

的输出功率,一般包括该装置中使用的 MCU 及其外围电路;电子开关 25,包括受加热控制电路 28 控制开通或关断的电子开关管,该电子开关管直接连接至储能电池 24,通常采用金属-氧化层-半导体-场效晶体管;加热电路 26 用于烟丝容器加热;温度采样电路 27,该电路用于将加热部件、相邻部件或使用环境的温度反馈至加热控制电路 28,温度采样电路 27 中包括用于将温度信号转换为电信号的温度传感器,温度传感器包括热电偶、热敏电阻、电阻温度检测器(RTD)和 IC 温度传感这四类,常用的是热电偶或 NTC;加热控制电路 28、电子开关 25、加热电路 26 以及温度采样电路 27 组成一个闭环以控制加热输出功率,简单来说就是温度采样电路 27 如探测到采样温度低于设定温度,则通过加热控制电路 28 开通电子开关 25,使加热电路 26 工作,加热单元温度升高,温度采样电路 27 温度同样也升高,如采样温度超过设定温度,则通过加热控制电路 28 关闭电子开关 25,加热电路 26 关闭,温度采样电路 27 的采样温度同样也会随之降低,如此循环的一个系统,开通和断开是两个极端状态,一般该反馈控制系统工作于 PWM 状态下的间歇情况,以实现更精准的烤制功率控制,给使用者提供最佳的烤制口感。

[0027] 此外,为消除储能电池 24 两端的电压与加热控制电路 28 中 MCU 所需的电压之间的差异,可在加热控制电路 28 与储能电池 24 之间增加 DC/DC 电路,该电路用于将已经调压的电源电压,重新调整至加热控制电路 28 中 MCU 需要的电压。

[0028] 以上,升压或降压、电源能提供的电压范围、充电管理和温度反馈等可根据其他不同的选择而变化,这样的选择只是设计元件选择的问题。

[0029] 本实用新型的电子吸烟装置通过单独启动图 5 中储能电池 24 及以上模块,可以实现独立充电;通过单独启动储能电池 24 及以下模块,可以实现独立烤制;所有模块都启动可以实现同时充电烤制。

[0030] 1)单独充电过程,本实用新型装置可包括两个外部接口,其中一个为通用接口 11,用于连接充电电路 21 与外部充电设备,另一个为加热接口,这两个接口使得本实用新型装置操作十分方便,充电时无需旋下螺纹电气部件。在吸烟装置未启动状态下,只要用户将外部充电设备通过通用接口 11 与本实用新型装置连接,通过通用接口 11 连接至充电电路 21,调压电路 22 将输入电压(充电电压)做升压处理后,再经过充电保护电路 23 送至储能电池 24,实现独立充电。

[0031] 2)单独烤制过程,当储能电池 24 中的电量足以为本实用新型装置中其它电气元件供电时,无需外部充电设备支持,用户即可通过开启电子开关 25,使储能电池 24 为加热电路 26 提供其所需电压,实现独立烤制,独立烤制过程中,温度采样电路 27 将加热部件、相邻部件或使用环境的温度反馈至加热控制电路 28,加热控制电路 28 进而通过电子开关 25 以 PWM 方式间歇控制加热电路 26 的输出功率。

[0032] 3)同时充电和烤制过程,当外部充电设备通过充电电路 21、调压电路 22 和充电保护电路 23 为储能电池 24 充电时,用户可以同时触碰电子开关 25 开启加热电路 26,实现同时充电和烤制,在该过程中,温度采样反馈过程也正常进行。

[0033] 本优选实施例中,加热控制电路 28 一般采用 PWM 单环反馈控制方式, PWM 开关在输入电压变化、内部参数变化、外接负载变化的情况下,控制电路通过被控制信号与基准信号的差值进行闭环反馈,调节主电路开关器件的导通脉冲宽度,使得开关电源的输出电压或电流等被控制信号稳定。 PWM 的开关频率一般为恒定,控制取样信号有:输出电压、输入

电压、输出电流、输出电感电压、开关器件峰值电流。由这些信号可以构成单环、双环或多环反馈系统,实现稳压、稳流及恒定功率的目的,同时可以实现一些附带的过流保护、均流等功能。

[0034] 图6是本实用新型装置中充电电路21、调压电路22和部分充电保护电路23的优选实施例,在本实施例中,HB6292芯片为电池充电芯片,USBIN信号用于充电插入检测;R1和R2是调整输出电压的调整电阻,通过调整R1和R2的合适阻值,可以实现输出电压的升高,调压电路22还包括升压芯片CP2121。在本实施例中,使用5V的充电设备充电,通过调压电路22,可调节设备内部电压至少约5V,通常约为8V。

[0035] 图7是本实用新型装置中部分充电保护电路23、储能电池24、电子开关25、加热电路26、温度采样电路27和加热控制电路28的优选实施例,在本实施例中,储能电池24包括两块锂电池,图中所示RT为设备加热单元,是设备的烤制热源,图中所示的Tr为温度传感器,将温度信号转换为电信号反馈至控制器,温度传感器是NTC,图中U3_PIN6是加热单元开启或关闭的控制信号,图中U1为电池保护芯片,U3为设备内部控制器。

[0036] 以上所述仅为本实用新型的优选实施例而已,并不用于限制本实用新型,对于本领域的技术人员来说,本实用新型可以有各种更改和变化。凡在本实用新型的精神和原则之内,所作的任何修改、等同替换、改进等,均应包含在本实用新型的权利要求范围之内。

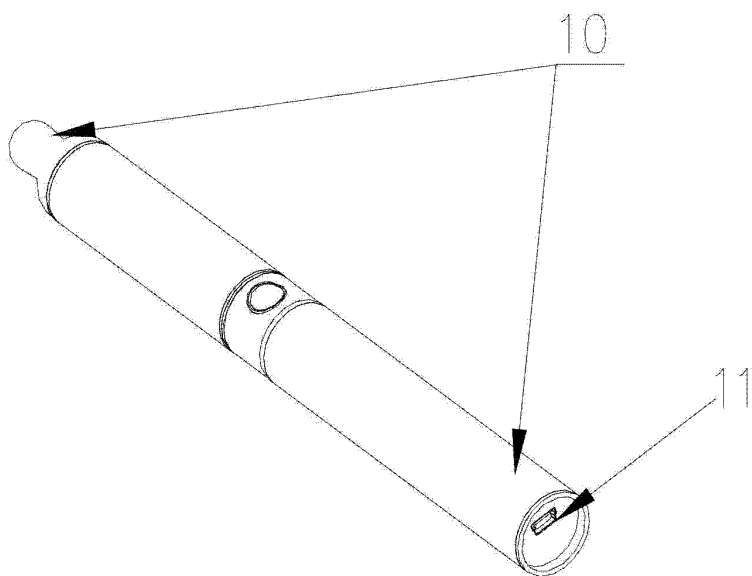


图 1

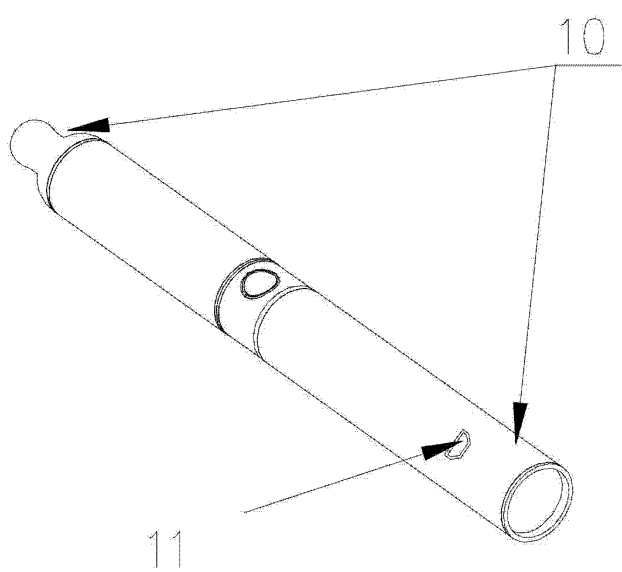


图 2

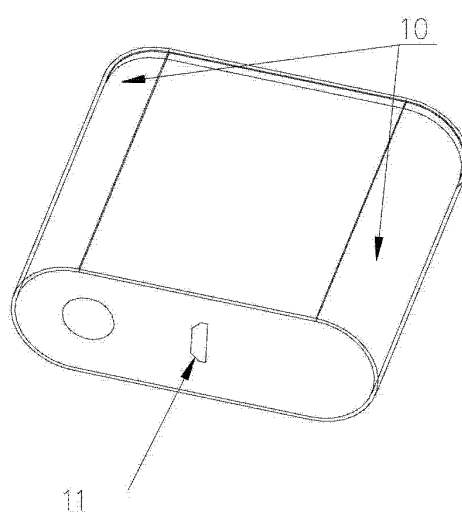


图 3

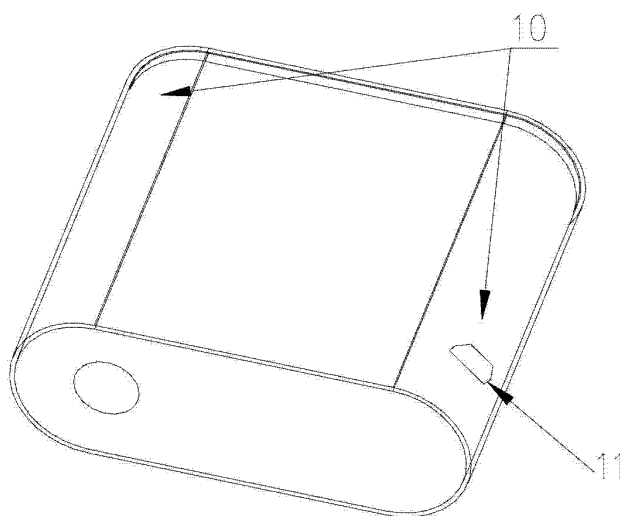


图 4

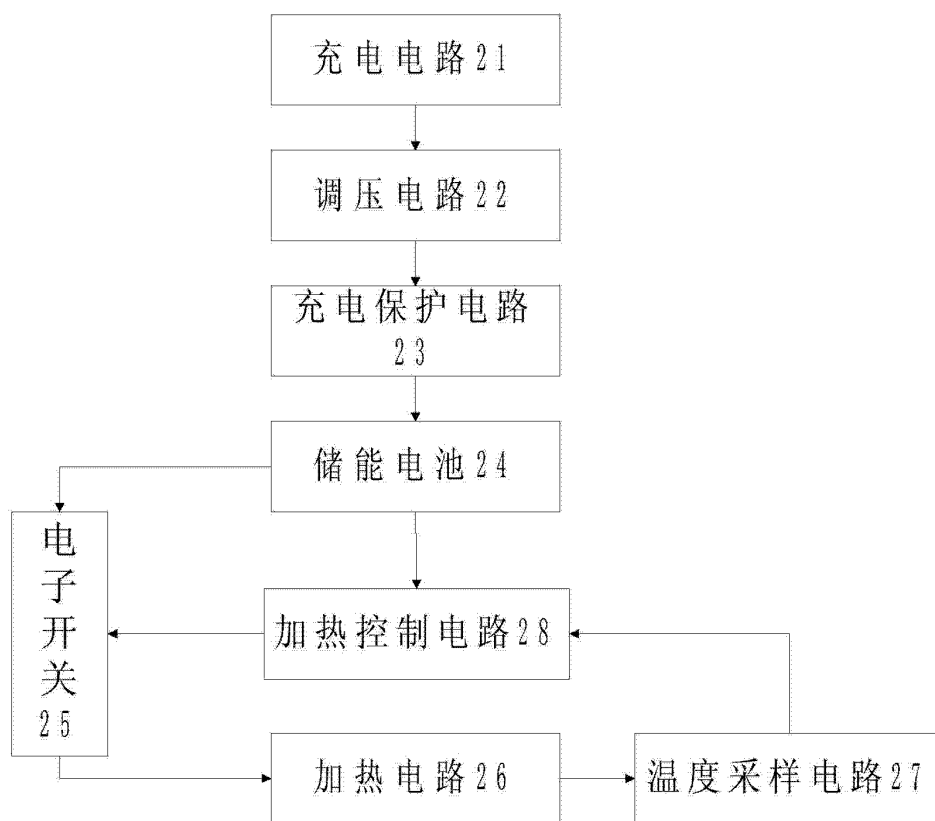


图 5

