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(54) **AEROSOL GENERATING APPARATUS**

(57) An aerosol generating device, including a power supply assembly (3), including a power supply (31); a control assembly (32), including a controller and one gated switch tube (6); an electrical element (1), including a first part (11) and a second part (12), both the first part (11) and the second part (12) being connected to the gated switch tube (6), and the first part (11) and the second part (12) being configured to provide energy for enabling an aerosol generating article (2) to generate an aerosol; and a delay circuit (4), the delay circuit (4) being disposed between the first part (11) and the gated switch tube (6), or the delay circuit being disposed between the second part (12) and the gated switch tube (6); where the controller is configured to drive the gated switch tube (6) based on a drive signal, to enable a line between the electrical element (1) and the power supply (31) to be conducted, and enable one of the first part (11) and the second part (12) to generate energy prior to the other.

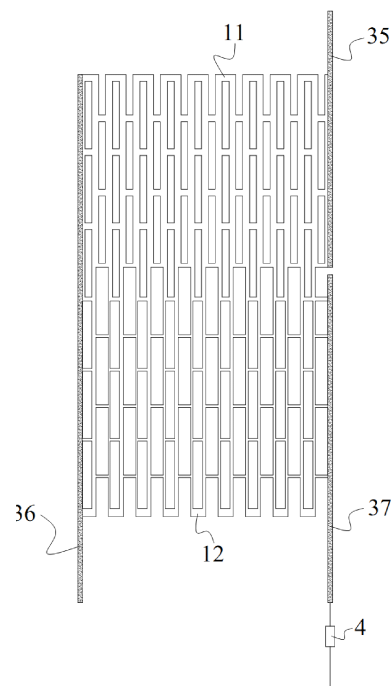


FIG. 2

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 202311138699.3, filed with the China National Intellectual Property Administration on September 4, 2023 and entitled "AEROSOL GENERATING DEVICE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] Embodiments of this application relate to the field of aerosol generation technologies through heating but not burning, and in particular, to an aerosol generating device.

BACKGROUND

[0003] Tobacco is burnt to produce tobacco smoke in a use process of tobacco products (such as cigarettes and cigars). Attempts are made to replace these tobacco-burning products by manufacturing products that release compounds without being burnt.

[0004] An example of the products is a heating device that releases a compound by heating rather than burning a material. For example, the material may be an aerosol generating article including tobacco or other non-tobacco products. These non-tobacco products may or may not include nicotine.

[0005] To sufficiently heat the aerosol generating article, it is usually needed to heat the tobacco product in sections. However, known heating devices have many hardware elements and complex layouts when heating the tobacco product in sections, resulting in high costs and large losses.

SUMMARY

[0006] An objective of this application is to provide an aerosol generating device, to reduce hardware layout complexity, thereby helping reduce costs and energy consumption of the aerosol generating device.

[0007] An embodiment of this application provides an aerosol generating device, including:

a power supply assembly, including a power supply;
a control assembly, including a controller and one gated switch tube;
an electrical element, including a first part and a second part, both the first part and the second part being connected to the gated switch tube, and the first part and the second part being configured to provide energy for enabling an aerosol generating article to generate an aerosol; and
a delay circuit, the delay circuit being disposed between the first part and the gated switch tube, or the

delay circuit being disposed between the second part and the gated switch tube;
where the controller is configured to drive the gated switch tube based on a switch drive signal, to enable a line between the electrical element and the power supply to be conducted, and enable one of the first part and the second part to generate energy prior to the other.

[0008] An embodiment of this application provides an aerosol generating device, including:

a delay circuit;
a power supply assembly, including a first line, a second line, and a third line, and further including a first output terminal and a second output terminal, both the first line and the third line being connected to the second line, and the first line being connected to the first output terminal; and
an electrical element, including a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol, and the first part and the second part being respectively disposed on the first line and the third line;
where the second line is connected to the second output terminal, the third line is connected to the first output terminal, and only one of the first part and the second part is connected in series to at least a portion of the delay circuit; and
when the power supply assembly is configured to output electricity to the electrical element through the first output terminal and the second output terminal, one of the first part and the second part generates energy prior to the other.

[0009] An embodiment of this application provides an aerosol generating device, including:

a delay circuit;
a power supply assembly, including a first line, a second line, and a third line, and further including a first output terminal and a second output terminal, both the first line and the third line being connected to the second line, and the first line being connected to the first output terminal; and
an electrical element, including a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol, and the first part and the second part being respectively disposed on the first line and the third line;
where the third line is connected to the second output terminal, the second line is connected to the second output terminal, and only one of the first part and the second part is connected in parallel to at least a

portion of the delay circuit; and
 when the power supply assembly is configured to
 output electricity to the electrical element through the
 first output terminal and the second output terminal,
 one of the first part and the second part generates
 energy prior to the other.

[0010] An embodiment of this application provides an
 aerosol generating device, including:

a unidirectional conducting switch;
 a power supply assembly, including a first output
 terminal and a second output terminal; and
 an electrical element, including a first part and a
 second part, the first part and the second part being
 configured to provide, in a working state, energy for
 enabling an aerosol generating article to generate an
 aerosol;
 the power supply assembly being configured to out-
 put electricity to the electrical element through the
 first output terminal and the second output terminal,
 and the power supply assembly being configured to
 turn on or turn off the unidirectional conducting
 switch by switching a direction in which the first out-
 put terminal and the second output terminal output
 the electricity;
 where when the unidirectional conducting switch is
 turned on or turned off, one of the first part and the
 second part is short-circuited or open-circuited, and
 the other generates energy.

[0011] An embodiment of this application provides an
 aerosol generating device, including:

a drive switch;
 a power supply assembly, including a power supply,
 a first output terminal, and a second output terminal;
 a control assembly, including a controller; and
 an electrical element, including a first part and a
 second part, the first part and the second part being
 configured to provide, in a working state, energy for
 enabling an aerosol generating article to generate an
 aerosol;
 the power supply being configured to output electri-
 city to the electrical element through the first output
 terminal and the second output terminal, the con-
 troller being directly electrically connected to the
 drive switch, and the controller being configured to
 drive the drive switch to be turned on or turned off;
 where when the drive switch is turned on or turned
 off, one of the first part and the second part is short-
 circuited or open-circuited, and the other generates
 energy.

[0012] An embodiment of this application provides an
 aerosol generating device, including:

a power supply assembly;

an electrical element, an electrical element, partially
 forming a first part of a mesh structure, and partially
 forming a second part of the mesh structure, the first
 part and the second part being connected to each
 other, and the first part and the second part being
 configured to provide heat for enabling an aerosol
 generating article to generate an aerosol; and
 a delay circuit, only one of the first part and the
 second part being connected in series or in parallel
 to the delay circuit, so that the first part and the
 second part not simultaneously generate heat in a
 preset time period when the power supply assembly
 simultaneously provides electricity for the first part
 and the second part.

[0013] In the foregoing aerosol generating device,
 when the gated switch tube enables the line between
 the electrical element and the power supply to be con-
 ducted, one of the first part and the second part can
 generate energy prior to the other. Compared with the
 existing method in which after the controller generates a
 control signal to enable the line between the electrical
 element and the power supply to be conducted, the
 controller further generates a control signal to control
 one of the first part and the second part to generate
 energy prior to the other, not only a control manner
 and a hardware composition are simpler, but also energy
 consumption is lower, which can effectively reduce pro-
 duction and use costs.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] One or more embodiments are exemplarily de-
 scribed with reference to the corresponding figures in the
 accompanying drawings, and the descriptions are not to
 be construed as limiting the embodiments. Elements in
 the accompanying drawings that have same reference
 numerals are represented as similar elements, and un-
 less otherwise particularly stated, the figures in the ac-
 companying drawings are not drawn to scale.

FIG. 1 is a schematic diagram of an aerosol gener-
 ating device according to an embodiment;
 FIG. 2 is a schematic diagram of an electrical ele-
 ment according to an embodiment;
 FIG. 3 is a schematic diagram of an electrical ele-
 ment equivalent circuit according to an embodiment;
 FIG. 4 is a schematic diagram of an electrical ele-
 ment according to another embodiment;
 FIG. 5 is a schematic diagram of an electrical ele-
 ment equivalent circuit according to another embo-
 diment;
 FIG. 6 is a schematic diagram of an electrical ele-
 ment equivalent circuit according to still another
 embodiment;
 FIG. 7 is a schematic diagram of an electrical ele-
 ment equivalent circuit according to yet another em-
 bodiment;

FIG. 8 is a schematic diagram of an electrical element equivalent circuit according to yet another embodiment;

FIG. 9 is a schematic diagram of an electrical element equivalent circuit according to yet another embodiment;

FIG. 10 is a schematic diagram of an electrical element equivalent circuit according to yet another embodiment; and

FIG. 11 is a schematic diagram of an electrical element equivalent circuit according to yet another embodiment.

[0015] In the drawings:

1. Electrical element; 11. First part; 12. Second part;
2. Aerosol generating article;
3. Power supply assembly; 31. Power supply; 32. Circuit board; 33. First output terminal; 34. Second output terminal; 35. First line; 36. Second line; 37. Third line;
4. Delay circuit; Q. Drive switch; C. Capacitor; R. Resistance; 5. Temperature sensor; 6. Gated switch tube.

DETAILED DESCRIPTION

[0016] The technical solutions in embodiments of this application are clearly and completely described in the following with reference to the accompanying drawings in the embodiments of this application. Apparently, the described embodiments are merely some rather than all of the embodiments of this application. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of this application without creative efforts shall fall within the protection scope of this application.

[0017] The terms "first", "second", and "third" in this application are merely intended for a purpose of description, and shall not be understood as indicating or implying relative significance or implicitly indicating the number or order of indicated technical features. All directional indications (such as upper, lower, left, right, front, back...) in the embodiments of this application are merely used for explaining a relative position relationship, a motion situation, and the like between components in a particular posture (as shown in the accompanying drawings). If the particular posture changes, the directional indications change accordingly. In addition, the terms "include", "have", and any variant thereof are intended to cover a non-exclusive inclusion. For example, a process, method, system, product, or apparatus including a series of steps or units is not limited to steps or units listed, but further optionally includes steps or units not listed, or further optionally includes other steps or units inherent to the process, method, product, or apparatus.

[0018] An "embodiment" mentioned in this specification means that features, structures, or characteristics

described with reference to the embodiment may be included in at least one embodiment of this application. The phrase appearing at various positions in this specification unnecessarily indicates a same embodiment or an independent or alternative embodiment exclusive to other embodiments. A person skilled in the art explicitly or implicitly understands that the embodiments described in this specification may be combined with other embodiments.

[0019] It should be noted that, when an element is referred to as "being fixed to" another element, the element may be directly on the another element, or there may be an intermediate element. When deemed as being "connected to" another element, an element can be directly connected to another element, or one or more intervening elements may be present between the element and another element simultaneously. The terms "vertical", "horizontal", "left", "right", and the like used herein are merely for the purpose of description, and do not indicate a unique implementation.

[0020] An embodiment of this application proposes an aerosol generating device, and the aerosol generating device is a device connected to or interacting with an aerosol generating article 2, to generate an inhalable aerosol.

[0021] As used herein, the term "aerosol generating article" indicates an article including an aerosol generating substrate. When heated, the aerosol generating substrate releases volatile compounds for generating the aerosol. In an embodiment, the aerosol generating article is removably connected to the aerosol generating device. The article may be disposable or reusable.

[0022] The aerosol generating substrate may be a solid aerosol generating substrate. The solid aerosol generating substrate may include a tobacco-containing material, and the tobacco-containing material includes volatile tobacco scent compounds released from the aerosol generating substrate when heated. The solid aerosol generating substrate may include a non-tobacco material. The solid aerosol generating substrate may include the tobacco-containing material and the non-tobacco material.

[0023] The aerosol generating substrate may be a liquid aerosol generating substrate. The liquid aerosol generating substrate may include a tobacco substance-containing liquid including a volatile tobacco scent component, or a liquid including a non-tobacco substance. The liquid aerosol generating substrate may include, but is not limited to, water, a solvent, anhydrous alcohol, a plant extract, a spice, a scenting agent, a vitamin mixture, and the like. The spice may include, but is not limited to, an areca nut extraction liquid, menthol, peppermint, spearmint oil, various fruity components, and the like. The scenting agent may include components that can provide various scents or flavors for a user. The vitamin mixture may include, but is not limited to, a mixture mixed with at least one of vitamin A, vitamin B, vitamin C, and vitamin E.

[0024] The aerosol generating device has an accommodation cavity therein, and at least a portion of the aerosol generating article 2 may be combined in the accommodation cavity. The aerosol generating device may be an electrically operated device, and an electrical element 1 adapted to the aerosol generating device may convert electric energy into other energy that is beneficial for the aerosol generating article 2 to generate an aerosol.

[0025] In an embodiment, the energy is heat energy. When being energized, the electrical element 1 can generate heat and release heat. At least a part of the heat may heat the aerosol generating article 2, so that the aerosol generating article 2 generates an aerosol. In an embodiment, the energy is infrared light energy. When being energized, the electrical element 1 can generate infrared light. At least some of the infrared light is directed to the aerosol generating article 2 and is absorbed by the aerosol generating article 2, so that the aerosol generating article 2 heats up, and generates an aerosol. In an embodiment, the energy is microwave energy. When being energized, the electrical element 1 can generate microwaves. The microwaves can enable a solution or a compound molecule in the aerosol generating article 2 to vibrate at a high frequency, so that the aerosol generating article 2 heats up, and generates an aerosol. In an embodiment, the energy is magnetic energy. The aerosol generating device or the aerosol generating article 2 may have a susceptor. The susceptor can generate an eddy current and/or magnetic hysteresis or the like under an effect of the magnetic energy. Further, the susceptor can generate heat to heat the aerosol generating article 2, so that the aerosol generating article 2 generates an aerosol. It should be noted that the energy may alternatively be other energy such as ultrasonic waves.

[0026] The electrical element 1 includes a first part 11 and a second part 12, and the first part 11 and the second part 12 can generate the foregoing energy when being energized. The first part 11 and the second part 12 may be connected to each other. Alternatively, the first part 11 may be integrally formed with the second part 12. That is, the electrical element 1 may be a continuous whole. When the electrical element 1 is a continuous whole, the first part 11 and the second part 12 may be two different parts on the electrical element 1. That is, there may be no obvious spliced or combined trace between the first part 11 and the second part 12. The first part 11 and the second part 12 may be made of a same material.

[0027] Because the first part 11 and the second part 12 are connected to each other or are integrally formed, when either of the first part 11 and the second part 12 is energized, energy can be transferred between the two. Compared with that energy is transferred elsewhere and is lost, the transfer of energy between the first part 11 and the second part 12 can improve energy utilization efficiency and help reduce energy consumption.

[0028] In the embodiments shown in FIG. 3 and FIG. 5, the electrical element 1 is constructed into a mesh struc-

ture. The first part 11 and the second part 12 may be integrally formed of a same material, and there is a fast energy transfer speed, a low energy transfer loss, and a low energy transfer obstacle between the two. It should be noted that, the entire electrical element 1 may be formed into a spiral coil, the first part 11 and the second part 12 are components of the spiral coil, and the first part 11 and the second part 12 may be two coils formed by winding a same wire.

[0029] The aerosol generating device further includes a power supply assembly 3 and a delay circuit 4. The delay circuit 4 may be connected to the electrical element 1. The power supply assembly 3 is configured to provide electricity/electric energy for the first part 11 and the second part 12 to generate energy. Only one of the first part 11 and the second part 12 may be associated with the delay circuit 4, and no delay circuit 4 is associated with the other. Therefore, whether one of the first part 11 and the second part 12 is in a working state or not, it will not affect that the other is in a working state and provides energy for the aerosol generating article to generate an aerosol. Specifically, the delay circuit 4 may enable both the first part 11 and the second part 12 to be in the working state to provide energy, or only one of the two to be in the working state and the other to be in a non-working state, or one of the first part 11 and the second part 12 to provide energy prior to being in the working state.

[0030] The power supply assembly includes a power supply 31, and the power supply 31 may include any suitable power supply, for example, a DC source, such as a battery. In an embodiment, the power supply 31 is a lithium-ion battery. Alternatively, the power supply 31 may be a nickel metal hydride battery, a nickel-cadmium battery, or a lithium-based battery, such as a lithium cobalt, lithium iron phosphate, lithium titanate, or lithium polymer battery. The power supply 31 may further include a first output terminal 33 and a second output terminal 34. The first part 11 and the second part 12 are connected between the first output terminal 33 and the second output terminal 34. The power supply 31 provides electricity to the electrical element 1 through the first output terminal 33 and the second output terminal 34.

[0031] The aerosol generating device further includes a control assembly 32. One or more control circuits having one or more controllers/processors may be disposed on the control assembly 32, and the one or more control circuits may control an output of the power supply 31. For example, the control circuit may control a direct current power supply to output an alternating current/alternating voltage; or the control circuit may control energy, electric power, a frequency, or the like output by the power supply 31 to the electrical element 1; or the control circuit may control a direction of electricity output by the power supply 31 to the electrical element 1; or the control circuit may directly control the delay circuit 4, to affect working states of the first part 11 and the second part 12; or the control circuit has no direct electric connection to the delay circuit 4, or the control circuit cannot directly

send a control signal to the delay circuit 4. The control assembly 32 may not only control operations of the power supply 31 and the electrical element 1, but also control operations of other elements in the aerosol generating device. For example, the control circuit may determine whether the aerosol generating device is operable by checking a state of the element of the aerosol generating device.

[0032] One gated switch tube 6 may be provided on the control circuit. In an example, the gated switch tube 6 is associated with a mechanical switch such as a key switch, a touch switch, a touchscreen switch, or a slide switch, or the gated switch tube includes a mechanical switch. When the mechanical switch is triggered, or when the gated switch tube 6 is triggered, the control circuit conducts a line between the electrical element 1 and the power supply 31, or a line between the electrical element 1 and the power supply 31 is conducted. In this case, at least one of the first part 11 and the second part 12 may be in a working state to provide energy, or one of the first part 11 and the second part 12 may generate energy prior to the other. In an example, the gated switch tube 6 is a controlled switch that is controlled by a switch drive signal output by the control circuit. The control circuit can drive the gated switch tube 6 based on the switch drive signal, to enable a line between the electrical element 1 and the power supply 31 to be conducted, so that at least one of the first part 11 and the second part 12 may be in the working state to provide energy, or enable one of the first part 11 and the second part 12 to generate energy prior to the other. For example, after the aerosol generating device is turned on, and after the control circuit checks states of elements of the aerosol generating device and determines that the aerosol generating device is operable, the control circuit may generate one or more switch drive signals, or the controller in the control circuit can obtain one or more switch drive signals in another manner, and then the control circuit may drive the gated switch tube 6 based on the switch drive signal.

[0033] In the embodiments shown in FIG. 8 to FIG. 11, the gated switch tube 6 is disposed between the first output terminal 33 and the power supply 31, or the gated switch tube 6 is disposed between the second output terminal 34 and an electric eye 31. When the gated switch tube 6 is triggered or driven, the line between the electrical element 1 and the power supply 31 is conducted, that is, a line between the power supply 31 and the first output terminal 33 and the second output terminal 34 is conducted, so that the electrical element 1 can obtain, from the first output terminal 33 and the second output terminal 34, electricity for generating energy.

[0034] In another embodiment, the gated switch tube 6 is disposed between the first output terminal 33 and the electrical element 1, or the gated switch tube 6 is disposed between the second output terminal 34 and the electrical element 1. When the gated switch tube 6 is triggered or driven, the line between the electrical element 1 and the power supply 31 is conducted, so that the

electrical element 1 can obtain, from the first output terminal 33 and the second output terminal 34, electricity for generating energy.

[0035] The delay circuit 4 may be disposed between the first part 11 and the gated switch tube 6, or the delay circuit is disposed between the second part 12 and the gated switch tube.

[0036] In an embodiment, the delay circuit includes a unidirectional conducting switch, the power supply 31 is configured to output electricity to the electrical element 1 and the unidirectional conducting switch through the first output terminal 33 and the second output terminal 34, and the controller is configured to switch a direction in which the first output terminal 33 and the second output terminal 34 output the electricity. A switch state of the unidirectional conducting switch varies with the direction in which the first output terminal 33 and the second output terminal 34 output the electricity. In an example, when the direction in which the first output terminal 33 and the second output terminal 34 output the electricity is a first direction, for example, when an electric potential of the first output terminal 33 is higher than an electric potential of the second output terminal 34, the unidirectional conducting switch is turned on. However, when the direction in which the first output terminal 33 and the second output terminal 34 output the electricity is a second direction, for example, when the electric potential of the first output terminal 33 is lower than the electric potential of the second output terminal 34, the unidirectional conducting switch is turned off.

[0037] When the unidirectional conducting switch is turned on, one of the first part 11 and the second part 12 may be short-circuited or open-circuited, and the other may generate energy; or when the unidirectional conducting switch is turned off, one of the first part 11 and the second part 12 may be short-circuited or open-circuited, and the other may generate energy.

[0038] As an example of this embodiment, the first part 11 and the second part 12 are connected in parallel between the first output terminal 33 and the second output terminal 34, and the unidirectional conducting switch is connected in series to only one of the first part 11 and the second part 12, so that the unidirectional conducting switch is associated with only one of the first part 11 and the second part 12. Therefore, when the unidirectional conducting switch is turned off, a part associated with the unidirectional conducting switch is open-circuited and therefore is in the non-working state, and when the unidirectional conducting switch is turned on, the part associated with the unidirectional conducting switch is in the working state. However, the other part unassociated with the unidirectional conducting switch may not be affected by turn-on or turn-off of the unidirectional conducting switch.

[0039] As an example of this embodiment, the first part 11 and the second part 12 are connected in series between the first output terminal 33 and the second output terminal 34, and the unidirectional conducting switch is

connected in parallel to only one of the first part 11 and the second part 12, so that the unidirectional conducting switch is associated with only one of the first part 11 and the second part 12. Therefore, when the unidirectional conducting switch is turned off, the part associated with the unidirectional conducting switch is in the working state, and when the unidirectional conducting switch is turned on, the part associated with the unidirectional conducting switch is in the non-working state because of being short-circuited. However, the other part unassociated with the unidirectional conducting switch may not be affected by turn-on or turn-off of the unidirectional conducting switch.

[0040] It should be noted that, when the delay circuit includes the unidirectional conducting switch, and the controller switches the unidirectional conducting switch between being turned on and turned off by controlling to switch a direction in which the first output terminal 33 and the second output terminal 34 output electricity, the controller may have no direct electric connection to the unidirectional conducting switch, and the controller cannot directly send, to the unidirectional conducting switch, a control signal for driving the unidirectional conducting switch to be turned on and turned off.

[0041] In a case that a state of the delay circuit is not affected by controlling to switch the direction in which the first output terminal 33 and the second output terminal 34 output electricity, another manner may be used, so that there is no direct electric connection between the delay circuit and the controller, and the controller cannot directly send a control signal to the delay circuit.

[0042] For example, the delay circuit includes a capacitor C and a drive switch Q. The capacitor C is connected to the drive switch D, the capacitor C provides a drive voltage for the drive switch D, and the drive switch D is turned on or turned off when the drive voltage reaches a drive threshold, so that one of the first part 11 and the second part 12 is short-circuited or open-circuited, and the other generates energy.

[0043] As an example, referring to FIG. 8, the drive switch is a high-level drive switch Q, and when a gate of the drive switch Q is at a high level, the drive switch Q is turned on. An anode terminal of the capacitor C may be connected, through a resistor R, to one of the first output terminal 33 and the second output terminal 34 that serves as an output anode, and the anode terminal of the capacitor C is simultaneously connected to the gate of the drive switch Q. A cathode terminal of the capacitor C is connected to one of the first output terminal 33 and the second output terminal 34 that serves as an output cathode, so that when the line between the electrical element 1 and the power supply 31 is conducted, the output anode charges the capacitor C, and an electric potential of the anode terminal of the capacitor C gradually increases until reaches a level of the drive threshold, thereby turning on the drive switch Q. That is, in a process in which the electric potential of the anode terminal of the capacitor C gradually increases to the drive threshold,

the drive switch is switched from being turned off to being turned on.

[0044] Alternatively, referring to FIG. 9, the drive switch Q is a low-level drive switch, and when a gate of the drive switch Q is at a low level, the drive switch Q is turned on. An anode terminal of the capacitor C may be connected, through a resistor R, to one of the first output terminal 33 and the second output terminal 34 that serves as an output anode, and the anode terminal of the capacitor C is simultaneously connected to the gate of the drive switch Q. A cathode terminal of the capacitor C is connected to one of the first output terminal 33 and the second output terminal 34 that serves as an output cathode, so that when the line between the electrical element 1 and the power supply 31 is conducted, the output anode charges the capacitor C, and an electric potential of the anode terminal of the capacitor C gradually increases until reaches a level of the drive threshold, thereby turning off the drive switch Q. That is, in a process in which the electric potential of the anode terminal of the capacitor C gradually increases to the drive threshold, the drive switch Q is switched from being turned on to being turned off.

[0045] As an example, the first part 11 and the second part 12 are connected in parallel between the first output terminal 33 and the second output terminal 34, and the drive switch is connected in series to only one of the first part 11 and the second part 12, so that the drive switch is associated with only one of the first part 11 and the second part 12. Therefore, when the drive switch is turned off, a part associated with the drive switch is open-circuited and therefore is in the non-working state, and when the drive switch is turned on, the part associated with the drive switch is in the working state. However, the other part unassociated with the drive switch may not be affected by turn-on or turn-off of the drive switch.

[0046] As an example, the first part 11 and the second part 12 are connected in series between the first output terminal 33 and the second output terminal 34, and the drive switch is connected in parallel to only one of the first part 11 and the second part 12, so that the drive switch is associated with only one of the first part 11 and the second part 12. Therefore, when the drive switch is turned off, a part associated with the drive switch is in the working state, and when the drive switch is turned on, the part associated with the drive switch is short-circuited and therefore is in the non-working state. However, the other part unassociated with the drive switch may not be affected by turn-on or turn-off of the drive switch.

[0047] In an embodiment, referring to FIG. 10 and FIG. 11, the delay circuit includes a drive switch Q, the controller is directly electrically connected to the drive switch Q, and the controller is configured to drive the drive switch Q to be turned on or turned off. The controller may directly send a control signal to the drive switch Q, and the drive switch Q is turned on or turned off corresponding to the control signal. When the drive switch is turned on, one of

the first part 11 and the second part 12 is short-circuited or open-circuited, and the other generates energy; or when the drive switch Q is turned off, one of the first part 11 and the second part 12 is short-circuited or open-circuited, and the other generates energy.

[0048] As an example of this embodiment, the controller can control the drive switch Q to be turned on or turned off for a preset time. At least one of the first part 11 and the second part 12 includes an induction coil configured to generate a varying magnetic field, so that at least one of the first part 11 and the second part 12 can generate magnetic energy.

[0049] Based on this, the aerosol generating device may further include a susceptor that is able to generate heat energy in the varying magnetic field, and the susceptor is in a range of the varying magnetic field generated by the first part 11 and/or the second part 12. Alternatively, the aerosol generating article includes a susceptor that can generate heat energy in the varying magnetic field. When the aerosol generating article is combined with the aerosol generating device, the susceptor in the aerosol generating article is in a range of the varying magnetic field generated by the first part 11 and/or the second part 12.

[0050] In an embodiment, the first part 11 and the second part 12 are integrally formed.

[0051] In an embodiment, at least one of the first part 11 and the second part 12 includes a resistance heating element, or at least one of the two includes an infrared heating element.

[0052] In an embodiment, the aerosol generating device further includes an accommodation cavity for accommodating at least a portion of the aerosol generating article, the first part 11 and the second part 12 are respectively disposed corresponding to different positions of the accommodation cavity, and the first part 11 is disposed downstream of the second part 12 along a direction of air flow in the aerosol generating article.

[0053] As an example of this embodiment, the first part 11 generates energy prior to the second part 12.

[0054] As an example of this embodiment, in an axial direction of the accommodation cavity, an extension length of the first part 11 is less than or equal to an extension length of the second part 12.

[0055] In an embodiment, in a first time period, the first part 11 generates energy, and in a second time period, both the first part 11 and the second part 12 generate energy. The first time period may be before the second time period, or may be after the second time period.

[0056] As an example of this embodiment, an electric power of the first part 11 in the first time period is configured to be greater than or equal to an electric power of the first part 11 in the second time period. Alternatively, a heating temperature of the first part 11 in the first time period is configured to be greater than or equal to a heating temperature of the first part 11 in the second time period.

[0057] As an example of this embodiment, an electric

power of the first part 11 in the second time period is configured to be less than or equal to an electric power of the second part 12 in the second time period. Alternatively, a heating temperature of the first part 11 in the second time period is configured to be less than or equal to a heating temperature of the second part 12 in the second time period.

[0058] As an example of this embodiment, duration of the first time period is less than or equal to duration of the second time period.

[0059] This application is described in more detail below with reference to a specific current schematic diagram.

[0060] The control assembly 32 may further include a circuit board, and the first output terminal 33 and the second output terminal 34 may be disposed on the circuit board.

[0061] The power supply assembly 3 is configured to output electricity to the electrical element 1 through the first output terminal 33 and the second output terminal 34, and the control assembly 32 controls, by controlling the electricity output by the power supply 31 for the first output terminal 33 and the second output terminal 34, energy, an electric power, a frequency, or the like output by the power supply 31 to the electrical element 1.

[0062] Referring to FIG. 2 to FIG. 7, the aerosol generating device includes a first line 35, a second line 36, and a third line 37. Both the first line 35 and the third line 37 are connected to the second line 36, the first part 11 is arranged on the first line 35, and the second part 12 is arranged on the third line 37. As shown in FIG. 3, the first line 35 and the third line 37 are connected in parallel between the first output terminal 33 and the second output terminal 34 of the power supply assembly 3; or as shown in FIG. 5, the first line 35 and the third line 37 are connected in series between the first output terminal 33 and the second output terminal 34 of the power supply assembly 3.

[0063] The delay circuit 4 may be associated with only the third line 37. A control state of the delay circuit 4 includes a first state and a second state. One of the first state and the second state is conducting an associated line, and the other is blocking an associated line. The control state of the delay circuit 4 may be controlled to control the third line 37 on which the second part 12 is located to be open-circuited or short-circuited, thereby controlling the working state of the second part 12.

[0064] When the delay circuit 4 is associated with only the third line 37, and the power supply 31 is outputting electricity through the first output terminal 33 and the second output terminal 34, if the delay circuit 4 enables the third line 37 to be electrically conducted, the second part 12 can draw electricity from the first output terminal 33 and the second output terminal 34 and enter the working state. In addition, when the third line 37 is electrically conducted, the first part 11 unassociated with the delay circuit 4 may also draw electricity from the first output terminal 33 and the second output terminal 34

and be in the working state; and if the delay circuit 4 enables the third line 37 to be short-circuited or open-circuited, the first part 11 can be prevented from being affected by the delay circuit 4, and may still draw electricity from the first output terminal 33 and the second output terminal 34 and be in the working state. However, because the third line 37 is short-circuited or open-circuited, the second part 12 is in the non-working state. Therefore, there is a small quantity of hardware elements in the aerosol generating device, and connections and deployment between the hardware elements are simple, which helps reduce costs and reduce energy consumption in the circuit.

[0065] In an embodiment, referring to FIG. 2, FIG. 3, and FIG. 6, the first line 35 is connected to the first output terminal 33, the second line 36 is connected to the second output terminal 34, and the third line 37 is connected to the first output terminal 33 through at least a portion of the delay circuit 4, so that at least the portion of the delay circuit 4 is connected in series to the third line 37/the second part 12. Therefore, when the delay circuit 4 is in the state of conducting an associated line, the third line 37 is conducted, and in this case, the second part 12 is in the working state. When the delay circuit 4 is in the state of blocking an associated line, the third line 37 is open-circuited, and in this case, the second part 12 is in the non-working state.

[0066] It should be noted that, other line setting and connection manners may also be used to conduct, when the delay circuit is in the state of conducting an associated line, the line on which the second part is located, and to open-circuit, when the delay circuit is in the state of blocking an associated line, the line on which the second part is located.

[0067] In an embodiment, referring to FIG. 4, FIG. 5, and FIG. 7, the first line 35 is connected to the first output terminal 33, the third line 37 is connected to the second output terminal 34, and the second line 36 is connected to the second output terminal 34 through at least a portion of the delay circuit 4, so that at least the portion of the delay circuit 4 is connected in parallel to the third line 37/the second part 12. Therefore, when the delay circuit 4 is in the state of conducting an associated line, the third line 37 is short-circuited, and in this case, the second part 12 is in the non-working state. When the delay circuit 4 is in the state of blocking an associated line, the third line 37 is conducted, and in this case, the second part 12 is in the working state.

[0068] It should be noted that, other line setting and connection manners may also be used to short-circuit, when the delay circuit is in the state of conducting an associated line, the line on which the second part is located, and to conduct, when the delay circuit is in the state of blocking an associated line, the line on which the second part is located.

[0069] According to a first aspect of this application, at least a portion of the delay circuit 4 is in a series relationship with the second part 12. When the delay circuit 4 is in

the state of conducting an associated line, the second part 12 is conducted and is in the working state. When the delay circuit 4 is in the state of blocking an associated line, the line on which the second part 12 is located is open-circuited, so that the second part 12 is in the non-working state. For example, the delay circuit 4 includes a unidirectional conducting switch, and the power supply assembly 3 is configured to switch a direction in which the first output terminal 33 and the second output terminal 34 output electricity. Therefore, the unidirectional conducting switch may be controlled to be turned on or turned off by switching the direction in which the first output terminal 33 and the second output terminal 34 output electricity, so that the second part 12 is in the working state or the non-working state.

[0070] According to a second aspect of this application, at least a portion of the delay circuit 4 is in a parallel relationship with the second part 12. When the delay circuit 4 is in the state of conducting an associated line, the line on which the second part 12 is located is short-circuited, so that the second part 12 is in the non-working state. When the delay circuit 4 is in the state of blocking an associated line, the line on which the second part 12 is located is conducted, and the second part 12 is in the working state. For example, the delay circuit 4 includes a unidirectional conducting switch, and the power supply assembly 3 is configured to switch a direction in which the first output terminal 33 and the second output terminal 34 output electricity. Therefore, the unidirectional conducting switch may be controlled to be turned on or turned off by switching the direction in which the first output terminal 33 and the second output terminal 34 output electricity, so that the second part 12 is in the working state or the non-working state.

[0071] The unidirectional conducting switch is a switch that allows a line on which the unidirectional conducting switch is located to perform only unidirectional conduction. For example, when an electric potential of the first output terminal 33 is higher than an electric potential of the second output terminal 34, the direction in which the first output terminal 33 and the second output terminal 34 output electricity is referred to as a first direction, and in this case, a unidirectional conducting element is conducted; and when the electric potential of the first output terminal 33 is lower than the electric potential of the second output terminal 34, the direction in which the first output terminal 33 and the second output terminal 34 output electricity is referred to as a second direction different from the first direction, and in this case, the unidirectional conducting element is blocked.

[0072] The unidirectional conducting element includes, but is not limited to, a diode.

[0073] According to a third aspect of this application, at least a portion of the delay circuit 4 is in a series relationship with the second part 12, the power supply 31 in the power supply assembly 3 outputs electricity to the electrical element 1 through the first output terminal 33 and the second output terminal 34, the control assembly 32 is

connected to the delay circuit 4, and the control assembly 32 is configured to drive the delay circuit 4 to be in the state of conducting an associated line or the state of blocking an associated line. In this case, the delay circuit 4 or the drive switch in the delay circuit 4 may include a transistor. A suitable transistor includes but is not limited to: at least one of a triode, a field effect transistor (the field effect transistor is divided into a PMOS tube and an NMOS tube), a thyristor (silicon controlled), and an IGBT [IGBT (Insulated Gate Bipolar Transistor), and an insulated gate bipolar transistor is a composite fully controlled voltage-driven power semiconductor device including a (Bipolar Junction Transistor, BJT) bipolar triode and an insulated gate field effect transistor (Metal Oxide Semiconductor, MOS)].

[0074] Therefore, when the delay circuit 4 is in the state of conducting an associated line, the second part 12 is conducted and in the working state. When the delay circuit 4 is blocked, the line on which the second part 12 is located is open-circuited, so that the second part is in the non-working state. In addition, the control assembly 32 may be used to drive the delay circuit 4 to be in the state of conducting an associated line or the state of blocking an associated line, so that the second part 12 is in the working state or the non-working state. Based on the third aspect, that the delay circuit 4 is in the state of conducting an associated line or the state of blocking an associated line is not caused by a change of the direction in which the first output terminal 33 and the second output terminal 34 output electricity.

[0075] According to a fourth aspect of this application, at least a portion of the delay circuit 4 is in a parallel relationship with the second part 12, the power supply 31 in the power supply assembly 3 outputs electricity to the electrical element 1 through the first output terminal 33 and the second output terminal 34, the control assembly 32 is connected to the delay circuit 4, and the control assembly 32 is configured to drive the delay circuit 4 to be in the state of conducting an associated line or the state of blocking an associated line. In this case, the delay circuit 4 or the drive switch may include a transistor.

[0076] Therefore, when the delay circuit 4 is in the state of conducting an associated line, the line on which the second part 12 is located is short-circuited, so that the second part is in the non-working state. When the delay circuit 4 is in the state of blocking an associated line, the line on which the second part 12 is located is conducted, and the second part 12 is in the working state. In addition, the control assembly 32 may be used to drive the delay circuit 4 to be in the state of conducting an associated line or the state of blocking an associated line, so that the second part 12 is in the working state or the non-working state. Based on the fourth aspect, that the delay circuit 4 is in the state of conducting an associated line or the state of blocking an associated line is not caused by a change of the direction in which the first output terminal 33 and the second output terminal 34 output electricity.

[0077] According to a fifth aspect of this application, at

least a portion of the delay circuit 4 is in a series or parallel relationship with the second part 12. The drive switch in the delay circuit 4 has a turn-on voltage. When a voltage across the drive switch is greater than the turn-on voltage, the delay circuit 4 is in the state of conducting an associated line, and when the voltage across the drive switch is less than the turn-on voltage, the delay circuit 4 is in the state of blocking an associated line. The control circuit on the control assembly 32 can control the voltage across the drive switch, to control the delay circuit 4 to be conducted or blocked. Alternatively, the delay circuit 4 can control the voltage across the drive switch.

[0078] According to a sixth aspect of this application, at least a portion of the delay circuit 4 is in a serial or parallel relationship with the second part 12. The drive switch in the delay circuit 4 has a gate, and the delay circuit 4 may automatically enable a voltage or a current on the gate to reach a threshold for enabling the gate to drive, so that the delay circuit 4 is in the state of conducting an associated line or the state of blocking an associated line.

[0079] According to any one of the first aspect to the sixth aspect of this application, at least one of the first part 11 and the second part 12 is configured to generate heat energy.

[0080] As an example, at least one of the first part 11 and the second part 12 includes a resistance heating element.

[0081] The resistance heating element includes a resistance material, and the resistance material can generate Joule heat when energized. A suitable resistance material includes but is not limited to: a semiconductor, such as a doped ceramic, a conductive ceramic (for example, molybdenum disilicide), carbon, graphite, metal, a metal alloy, and a composite material made of a ceramic material and a metal material. The type of composite material may include a doped ceramic or a non-doped ceramic. A suitable example of the doped ceramic includes doped silicon carbide. A suitable example of the metal includes titanium, zirconium, tantalum, and platinum group metals. A suitable example of the metal alloy includes stainless steel, constantan (Constantan), a nickel-containing alloy, a cobalt-containing alloy, a chromium-containing alloy, an aluminum-containing alloy, a titanium-containing alloy, a zirconium-containing alloy, a hafnium-containing alloy, a niobium-containing alloy, a molybdenum-containing alloy, a tantalum-containing alloy, a tungsten-containing alloy, a tin-containing alloy, a gallium-containing alloy, a manganese-containing alloy, an iron-containing alloy, a nickel-iron-cobalt based superalloy or stainless steel, an iron-aluminum based alloy, and an iron-manganese-aluminum based alloy.

[0082] The resistance heating element includes a MESH network, a resistive coil, a resistive heating track, a resistive coating, or the like.

[0083] The resistance heating element includes an infrared electric heating coating, and the infrared electric heating coating can generate heat energy when energized, to further generate an infrared ray having a parti-

cular wavelength. When the wavelength of the infrared ray matches an absorption wavelength of the aerosol generating substrate, energy of the infrared ray is likely to be absorbed by the aerosol generating substrate. In an implementation of this application, the wavelength of the infrared ray is not limited. The infrared ray may be an infrared ray of 0.75 μm -1000 μm , and optionally, a far infrared ray of 1.5 μm -400 μm . Optionally, the infrared electric heating coating is made by thoroughly stirring far infrared electric heating ink, ceramic powder, and inorganic adhesive, and then coating them on an outer surface of the substrate. After a certain period of drying and curing, a thickness of the infrared electric heating coating is 30 μm -50 μm ; certainly, the infrared electric heating coating may also be coated on the outer surface of the substrate by mixing and stirring tin tetrachloride, tin oxide, antimony trichloride, titanium tetrachloride, and anhydrous copper sulfate in a certain proportion; or the infrared electric heating coating may be one of a silicon carbide ceramic layer, a carbon fiber composite layer, a zirconium-titanium series oxide ceramic layer, a zirconium-titanium series nitride ceramic layer, a zirconium-titanium series boride ceramic layer, a zirconium-titanium series carbide ceramic layer, an iron series oxide ceramic layer, an iron series nitride ceramic layer, an iron series boride ceramic layer, an iron series carbide ceramic layer, a rare-earth series oxide ceramic layer, a rare-earth series nitride ceramic layer, a rare-earth series boride ceramic layer, a rare-earth series carbide ceramic layer, a nickel-cobalt series oxide ceramic layer, a nickel-cobalt series nitride ceramic layer, a nickel-cobalt series boride ceramic layer, a nickel-cobalt series carbide ceramic layer, or a high-silicon molecular sieve ceramic layer; and the infrared electric heating coating may also be a coating of other existing materials.

[0084] As an example, the first line 35 on which the first part 11 is located is configured to remain conducting when the power supply assembly 3 outputs electricity through the first output terminal 33 and the second output terminal 34, so that the first part 11 can continuously generate heat energy when the power supply assembly 3 outputs electricity through the first output terminal 33 and the second output terminal 34. The delay circuit 4 may enable, based on that the delay circuit 4 is in the state of conducting an associated line or the state of blocking an associated line, the second part 12 to generate heat energy only during some time periods, always generate heat energy, or always not generate heat energy when the power supply assembly 3 outputs electricity through the first output terminal 33 and the second output terminal 34.

[0085] For example, when the power supply assembly 3 outputs electricity through the first output terminal 33 and the second output terminal 34 in the first time period and the second time period, the first part 11 is configured to be energized in both the first time period and the second time period, so that in both the first time period and the second time period, the first part 11 is in the

working state, that is, in both the first time period and the second time period, the first part 11 can generate heat.

[0086] The second part 12 may be configured to be energized and in the working state in the second time period, so that the second part 12 can be in the non-working state in the first time period, and can be in the working state in the second time period, thereby generating heat. The second time period may be after the first time period. Therefore, the first part 11 may generate heat energy prior to the second part.

[0087] In an embodiment, an upper end of the aerosol generating device is provided with an insertion port for inserting the aerosol generating article into the accommodation cavity. Taking the insertion port located at the upper end of the aerosol generating device as a reference, the first part 11 is disposed above the second part 12, and relative to the second part 12, a spacing between the first part 11 and the insertion port is less than a spacing between the second part 12 and the insertion port. Heat energy generated by the first part 11 and the second part 12 is respectively used to heat different parts of the aerosol generating article 2. To shorten a time for a user to wait to inhale a first puff of aerosol that is generated by the aerosol generating article, the first part 11 disposed above the second part 12 may first enter the working state and generate heat energy, and then both the first part 11 and the second part may be in the working state and simultaneously generate heat energy.

[0088] As an example, an electric power of the first part 11 in the first time period is configured to be greater than or equal to an electric power of the first part 11 in the second time period. Therefore, the temperature of the first part 11 in the first time period or the amount of heat released by the first part 11 in a unit time of the first time period may be greater than the temperature of the first part 11 in the second time period or the amount of heat released by the first part 11 in a unit time of the second time period; or in the first time period and the second time period, the first part 11 may have approximately the same heating temperature or may release approximately the same amount of heat within a unit of time.

[0089] Specifically, in the embodiment shown in FIG. 3, the first part 11 and the second part 12 are connected in parallel between the first output terminal 33 and the second output terminal 34. Therefore, a voltage applied across the first part 11 by the first output terminal 33 and the second output terminal 34 in the first time period may be greater than or equal to a voltage applied across the first part 11 by the first output terminal 33 and the second output terminal 34 in the second time period; or a frequency, an amplitude, and a duty cycle of voltage pulses provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the first time period may be greater than or equal to a frequency, an amplitude, and a duty cycle of voltage pulses provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the second time period.

[0090] In the embodiment shown in FIG. 5, the first part

11 and the second part 12 are connected in series between the first output terminal 33 and the second output terminal 34. Therefore, a current provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the first time period may be greater than or equal to a current provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the second time period; or a frequency, an amplitude, and a duty cycle of current pulses provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the first time period may be greater than or equal to a frequency, an amplitude, and a duty cycle of current pulses provided to the first part 11 by the first output terminal 33 and the second output terminal 34 in the second time period.

[0091] When the temperature of the first part 11 in the first time period or the amount of heat released by the first part 11 in the unit time of the first time period is greater than the temperature of the first part 11 in the second time period or the amount of heat released by the first part 11 in the unit time of the second time period, it is more conducive to accelerating a speed of generating the first puff of aerosol from the aerosol generating article, and it is beneficial for the user to inhale the first puff of aerosol in a shorter time. In addition, the aerosol generating article corresponding to the first part 11 can further be prevented from being scorched in the second time period.

[0092] As an example, an electric power of the first part 11 in the second time period is configured to be less than or equal to an electric power of the second part 12 in the second time period. Therefore, in the second time period, the temperature of the first part 11 or the amount of heat released by the first part 11 in a unit time is less than or equal to the temperature of the second part 12 or the amount of heat released by the second part 12 in a unit time.

[0093] For example, as shown in FIG. 3, the first part 11 and the second part 12 are connected in parallel between the first output terminal 33 and the second output terminal 34, and the power supply 31 may use a constant current source, that is, a total value of a current output by the first output terminal 33 and the second output terminal 34 in the first time period may be equal to a total value of a current output in the second time period. Therefore, because the first part 11 has its current divided by the second part 12 in the second time period, a current flowing through the first part 11 is reduced, and electric power is reduced.

[0094] For example, as shown in FIG. 3, the first part 11 and the second part 12 are connected in parallel between the first output terminal 33 and the second output terminal 34, and the power supply 31 may use a constant voltage source, that is, a total value of a voltage output by the first output terminal 33 and the second output terminal 34 in the first time period may be equal to a total value of a voltage output in the second time period. Therefore, values of the voltage across the first part 11 may be kept unchanged in the first time period and the second time

period, so that the first part 11 may have approximately the same electric power in the first time period and the second time period.

[0095] For example, as shown in FIG. 5, the first part 11 and the second part 12 are connected in series between the first output terminal 33 and the second output terminal 34, and the power supply 31 may use a constant voltage source, that is, a total value of a voltage output by the first output terminal 33 and the second output terminal 34 in the first time period may be equal to a total value of a voltage output in the second time period. Therefore, because the first part 11 has its voltage divided by the second part 12 in the second time period, a voltage across the first part 11 is reduced, and electric power is reduced.

[0096] For example, as shown in FIG. 5, the first part 11 and the second part 12 are connected in series between the first output terminal 33 and the second output terminal 34, and the power supply 31 may use a constant current source, that is, a total value of a current output by the first output terminal 33 and the second output terminal 34 in the first time period may be equal to a total value of a current output in the second time period. Therefore, values of current flowing through the first part 11 may be kept unchanged in the first time period and the second time period, so that the first part 11 may have approximately the same electric power in the first time period and the second time period.

[0097] As an example, duration of the first time period is less than or equal to duration of the second time period. The first time period may be ended after the aerosol generating article rapidly generates the first puff of aerosol for the user to inhale. A remaining time for heating the aerosol generating article may be the second time period, but this is not limited thereto.

[0098] When the first part 11 and the second part 12 may be arranged along an axial direction of the accommodation cavity, or the first part 11 and the second part 12 may have no overlap in a radial direction of the accommodation cavity, a length of the first part 11 may be less than or equal to a length of the second part 12 along the axial direction of the accommodation cavity.

[0099] It should be noted that in another embodiment, the first part and the second part may overlap in the radial direction of the accommodation cavity.

[0100] As an example, the first part 11 and the second part 12 are disposed surrounding the accommodation cavity, so that the first part 11 and the second part 12 surround at least a portion of the aerosol generating article 2 when the at least a portion of the aerosol generating article 2 is combined in the accommodation cavity, so that the first part 11 and the second part 12 can heat the aerosol generating article 2 outside the aerosol generating article 2.

[0101] As an example, the first part 11 and the second part 12 are arranged in the accommodation cavity. When at least a portion of the aerosol generating article 2 is combined in the accommodation cavity, the first part 11

and the second part 12 can enter the aerosol generating article 2, so that the first part 11 and the second part 12 can heat the aerosol generating article 2 inside the aerosol generating article 2.

[0102] As an example, the aerosol generating device further includes a temperature sensor 5. The temperature sensor 5 is combined with the first part 11 or the second part 12, and is configured to sense a temperature of the first part 11 or the second part 12. The control assembly 32 is configured to control, based on a sensing result of the temperature sensor 5, the electric power provided by the power supply assembly 3 to the electrical element 1.

[0103] That is, based on the sensing result of the temperature sensor 5, in the first time period, the control assembly 32 may enable the current/voltage/electric power that is provided by the power supply 31 to the electrical element 1 through the first output terminal 33 and the second output terminal 34 to be constant or to vary, to ensure that the aerosol generating article 2 has a suitable heat temperature and can rapidly generate the first puff of aerosol without being scorched or burned, and prevent the aerosol from being overheated and scalding the mouth.

[0104] Alternatively, based on the sensing result of the temperature sensor 5, in the first time period and the second time period, the control assembly 32 may enable the current/voltage/electric power that is provided by the power supply 31 to the electrical element 1 through the first output terminal 33 and the second output terminal 34 to be approximately equal, to ensure consistency of puffs of aerosol generated by the aerosol generating article 2.

[0105] Alternatively, based on the sensing result of the temperature sensor 5, in the first time period, the control assembly 32 may enable the current/voltage/electric power that is provided by the power supply 31 to the electrical element 1 through the first output terminal 33 and the second output terminal 34 to be greater than or less than the current/voltage/electric power that is provided by the power supply 31 to the electrical element 1 through the first output terminal 33 and the second output terminal 34 in the second time period.

[0106] Alternatively, based on the sensing result of the temperature sensor 5, the control assembly 32 may enable the current/voltage/electric power that is provided by the power supply 31 to the electrical element 1 through the first output terminal 33 and the second output terminal 34 to vary in the first time period and/or the second time period, to ensure stability, continuity, and consistency of puffs of aerosol generated by the aerosol generating article 2, and prevent the aerosol generating article 2 from being scorched or burned.

[0107] When the first part 11 is disposed above the second part 12, the first part 11 generates heat energy in both the first time period and the second time period, the second part 12 generates heat energy in the second time period, and the second time period is after the first time period, the temperature sensor 5 may be combined with

the first part 11. The control assembly 32 may adjust, based on a temperature of the first part 11, a magnitude and a direction of electricity that is output by the power supply 31 through the first output terminal 33 and the second output terminal 34.

[0108] When the temperature sensor 5 is combined with the first part 11, the control assembly 32 may control to end the first time period and control to enter the second time period based on whether the first part 12 reaches a preset temperature or based on a time for which the first part 12 reaches and maintains the preset temperature.

[0109] It should be noted that the control assembly 32 may further control an electricity output direction of the first output terminal 33 and the second output terminal 34, or control a control state of the delay circuit 4 based on another reference for judging, for example, based on whether duration of the first time period reaches preset duration, to end the first time period and enter the second time period. The second time period may be entered immediately after the first time period ends.

[0110] According to the third aspect or the fourth aspect of this application, at least one of the first part 11 and the second part 12 may be configured to generate magnetic energy. The power supply assembly 3 is configured to provide an alternating current for the first part 11 and the second part 12. The alternating current refers to an alternating current or an alternating voltage, so that the first part 11 and the second part 12 may generate a varying magnetic field.

[0111] In an example, the first part 11 and/or the second part 12 can generate a varying magnetic field of 1 MHz-30 MHz, for example, 2 MHz-10 MHz such as 5 MHz-7 MHz. In an example, the first part 11 and/or the second part 12 can generate a varying magnetic field having a field strength (H field) of 1 kA/m-5 kA/m, for example, 2 kA/m-3 kA/m such as approximately 2.5 kA/m. Referring to FIG. 6, both the first part 11 and/or the second part 12 may be constructed as a spiral coil.

[0112] In an example, the aerosol generating device may further include a susceptor that can generate heat in a varying magnetic field. The susceptor may be disposed surrounding the accommodation cavity, so that the susceptor can heat the aerosol generating article 2 outside the aerosol generating article 2, or at least a portion of the susceptor may be disposed in the accommodation cavity, so that the susceptor can heat the aerosol generating article 2 inside the aerosol generating article 2. The susceptor may include metal or carbon. The carbon includes graphite, graphalloy, graphene, and the like. In an example, the susceptor may include a ferromagnetic material, for example, ferrite, ferromagnetic steel, or stainless steel. In an example, the susceptor includes a nickel-iron alloy. In an embodiment, the susceptor includes 400-series stainless steel, and the 400-series stainless steel includes 410-grade stainless steel, 420-grade stainless steel, and 430-grade stainless steel.

[0113] In an example, the aerosol generating article 2 is provided with a susceptor inside.

[0114] Regardless of whether the susceptor is combined in the aerosol generating device or combined in the aerosol generating article 2, the susceptor corresponding to the first part 11 and the susceptor corresponding to the second part 12 may be of an integral structure, so that a portion of the susceptor may be disposed in the range of the varying magnetic field generated by the first part 11, and a portion may be disposed in the range of the varying magnetic field generated by the second part 12; or the susceptor corresponding to the first part 11 and the susceptor corresponding to the second part 12 may be of two independent structures, and the susceptor corresponding to the first part 11 and the susceptor corresponding to the second part 12 are respectively located in ranges of magnetic fields generated by the first part 11 and the second part 12.

[0115] Therefore, heat energy generated by the susceptor corresponding to the first part 11 and the susceptor corresponding to the second part 12 is respectively used to heat different parts of the aerosol generating article 2.

[0116] As an example, referring to FIG. 6 and FIG. 7, the first part 11 may be configured to be energized in both the first time period and the second time period, so that the first part 11 is in the working state in both the first time period and the second time period, that is, the susceptor corresponding to the first part 11 can generate heat in both the first time period and the second time period.

[0117] However, the second part 12 may be configured to be energized and in the working state in the second time period, the susceptor corresponding to the second part 12 can generate heat in the second time period, and the second time period may be after the first time period.

[0118] As an example, the first part 11 is disposed above the second part 12, and at least a portion of the susceptor corresponding to the first part is disposed above the susceptor corresponding to the second part 12.

[0119] As an example, the aerosol generating device further includes a temperature sensor 5. The temperature sensor 5 is combined with the susceptor, and is configured to sense a temperature of the susceptor. The control assembly is configured to control, based on a sensing result of the temperature sensor 5, the electric power provided by the power supply assembly 3 to the electrical element 1.

[0120] More specifically, the temperature sensor 5 may be combined on the susceptor corresponding to the first part 11, to regulate, based on the temperature of the susceptor, a power output by the power supply 31 through the first output terminal 33 and the second output terminal 34, or to end the first time period and enter the second time period based on the temperature of the susceptor.

[0121] For example, when the temperature sensor 5 detects that the temperature on the susceptor corresponding to the first part 11 reaches the preset temperature, or the control assembly learns of, based on a detection result of the temperature sensor 5, that the

temperature on the susceptor corresponding to the first part 11 maintains the preset temperature for the preset duration, the control assembly may control the drive switch Q to be turned on or turned off, to control to end the first time period and enter the second time period.

[0122] In an embodiment, the delay circuit 4 is a component of the electrical element 1. In an embodiment, the delay circuit 4 is a component of the aerosol generating device, and can be separated from the electrical element 1, or can independently exist relative to the electrical element 1.

[0123] In an embodiment, the aerosol generating device includes a flexible circuit board, at least one of the first line, the second line, and the third line is arranged on the flexible circuit board, and the delay circuit is disposed on the flexible circuit board. Specifically, the flexible circuit board is connected to the control assembly, so that the delay circuit may exist independent of the control assembly. More specifically, the first output terminal and the second output terminal may be arranged on the control assembly, that is, the first output terminal and the second output terminal may exist independent of the flexible circuit board. In another embodiment, the control assembly is a part of the flexible circuit board, and the control assembly may be flexible.

[0124] In an embodiment, the first output terminal, the second output terminal, and the delay circuit are all arranged on the control assembly.

[0125] According to a seventh aspect of this application, the electrical element 1 includes a first part 11 and a second part 12 that are of a mesh structure. For example, the first part 11 is of a mesh sheet structure or a tubular structure with meshes, and the second part 12 is of a mesh sheet structure. For example, the second part 11 is of a mesh sheet structure or a tubular structure with meshes.

[0126] The first part 11 and the second part 12 may be connected to each other. A connecting section connecting the first part 11 and the second part 12 may be made of a same material as the first part 11 and/or the second part 12. The connecting section may be a strip-like structure extending along a peripheral direction of the accommodation cavity.

[0127] After the first part 11 and the second part 12 are connected to each other, there may be no obvious boundary between the first part 11 and the second part 12. Certainly, the possibility of having a clear boundary is not excluded either.

[0128] Both the first part 11 and the second part 12 may be components of the electrical element 1, and the first part 11 and the second part 12 may respectively form portions of the electrical element 1. In the embodiments shown in FIG. 2 and FIG. 4, the electrical element 1 is approximately a mesh when being tiled, and the first part 11 of a mesh structure and the second part 22 of a mesh structure each occupy a part of the mesh.

[0129] The first part 11 and the second part 12 may be integrally formed.

[0130] When obtaining electricity, the first part 11 and the second part 12 can provide heat that enables the aerosol generating article 2 to generate an aerosol. In the seventh aspect of this application, only one of the first part 11 and the second part 12 is connected to the delay circuit 4 in series or in parallel. Therefore, when the power supply assembly 3 simultaneously provides electricity for the first part 11 and the second part 12, the first part 11 and the second part 12 do not simultaneously generate heat in a preset time period. It should be noted that when the power supply assembly 3 simultaneously provides electricity for the first part 11 and the second part 12, because of existence of the delay circuit 4, the first part 11 and the second part 12 cannot simultaneously obtain electricity in the preset time period, so that the first part 11 and the second part 12 do not simultaneously generate heat in the preset time period.

[0131] A controller and one gated switch tube 6 may be disposed in the aerosol generating device. The controller may drive, based on a switch drive signal, the gated switch tube 6 to be turned on or turned off. When the gated switch tube 6 is turned on or turned off, a line between the electrical element 1 and the power supply 31 in the power supply assembly 3 is conducted, so that the power supply assembly 3 can simultaneously provide electricity for the first part 11 and the second part 12. In addition, when the line between the electrical element 1 and the power supply 31 in the power supply assembly 3 is conducted, at least one of the first part 11 and the second part 12 can generate heat.

[0132] According to an embodiment of the seventh aspect of this application, in the first time period, the first part 11 and the second part 12 simultaneously generate heat, and in the second time period, only the first part 11 of the first part 11 and the second part 12 generates heat. The first time period is before the second time period.

[0133] Because the first time period is before the second time period, after the first part 11 and the second part 12 simultaneously generate heat for a period of time, the first part 11 of the first part 11 and the second part 12 generates heat alone, and the second part 12 suspends or stops generating heat.

[0134] For example, in the first time period, after the first part 11 and the second part 12 simultaneously generate heat for a period of time, a large amount of heat is accumulated in the aerosol generating article 2. If the first part 11 and the second part 12 continue to simultaneously generate a large amount of heat, it may cause at least local overheating or problems such as charring and burning of the aerosol generating article 2. In this case, the first time period may be ended, and the second time period may be entered, so that only the first part 11 of the first part 11 and the second part 12 generates heat, and the second part suspends or stops generating heat. In this way, some of the heat accumulated in the aerosol generating article 2 may be released. Compared with directly stopping heat generation of the first part 11 and the second part 12 simultaneously, enabling only the first

part 11 to generate heat can ensure that the aerosol generating article 2 generates aerosols with uniform inhaling experience in the first time period and the second time period, does not significantly reduce a generation amount of the aerosol, and is conducive to ensuring consistency of puffs of inhaling.

[0135] If the aerosol generating article 2 has not been completed by the end of the second time period, the first part 11 and the second part 12 may simultaneously generate heat again in a third time period after the second time period, and then only the first part 11 of the first part 11 and the second part 12 may generate heat in a fourth time period after the third time period. And so on, until heating of the aerosol generating article 2 is completed.

[0136] It may be set that a total resistance of a unit area of the first part 11 is less than a total resistance of a unit area of the second part 12, or heat generated in a unit area of the first part 11 is less than heat generated in a unit area of the second part 12. For example, a mesh of the first part 11 may be larger than a mesh of the second part 12. That is, a mesh area of the mesh in the first part 11 may be greater than a mesh area of the mesh in the second part 12, or a width of a wall that defines the mesh in the first part 11 may be greater than a width of a wall that defines the mesh in the second part 12, or a cross-sectional area through which a power supply flow of the wall that defines the mesh in the first part 11 passes may be greater than a cross-sectional area through which a power supply flow of the wall that defines the mesh in the second part 12 passes.

[0137] Based on this, as an example, the first part 11 and the second part 12 are respectively disposed corresponding to different positions of the accommodation cavity, and the first part 11 may be disposed downstream of the second part 12 along a direction of air flow in the aerosol generating article 2. In other words, in the first time period, the first part 11 and the second part 12 simultaneously generate heat, and in the first time period, heat generated in a unit time or a unit area of the first part 11 may be less than heat generated in a unit time or a unit area of the second part 12; and in the second time period, the first part 11 located downstream continues to generate heat, and the second part 12 does not generate heat in the second time period.

[0138] According to another embodiment of the seventh aspect of this application, in the first time period, only the first part 11 of the first part 11 and the second part 12 generates heat, and in the second time period, both the first part 11 and the second part 12 generate heat. The first time period is before the second time period.

[0139] Because the first time period is before the second time period, after only the first part 11 of the first part 11 and the second part 12 generates heat for a period of time, the first part 11 and the second part 12 simultaneously generate heat.

[0140] For example, in the first time period, after only the first part 11 of the first part 11 and the second part 12 generates heat for a period of time, a corresponding

region of the aerosol generating article 2 is sufficiently preheated, or after the aerosol generating article 2 rapidly generates the first puff of aerosol for the user to inhale, if only the first part 11 of the first part 11 and the second part 12 continues to generate heat, and the second part 12 continues to generate no heat, further toasting of the aerosol generating article 2 may be affected, resulting in that the aerosol generating article 2 cannot generate a sufficient amount of aerosol for the user to inhale, or causing locally overheating, charring, or burning of the aerosol generating article 2. In this case, the first time period may be ended, and the second time period may be entered, so that the first part 11 and the second part 12 simultaneously generate heat, the aerosol generating article 2 is heated more evenly and comprehensively, and the aerosol generating article 2 can generate an aerosol in a larger range. Compared with that only the second part 12 of the first part 11 and the second part 12 generates heat in the second time period, the first part 11 continues to generate heat in the second time period, which can assist or support the second part 12 in heating the aerosol generating article 2, or can keep a corresponding region of the aerosol generating article 2 warm, to prevent an excessively low temperature of air flow in the corresponding region, and help fully heat the corresponding region.

[0141] If heating of the aerosol generating article 2 has not been completed by the end of the second time period, only the first part 11 of the first part 11 and the second part 12 may generate heat in the third time period after the second time period, and then the first part 11 and the second part 12 may simultaneously generate heat again in the fourth time period after the third time period. And so on, until heating of the aerosol generating article 2 is completed.

[0142] It may be set that a total resistance of a unit area of the first part 11 is greater than or equal to a total resistance of a unit area of the second part 12, or heat generated in a unit area of the first part 11 is greater than or equal to heat generated in a unit area of the second part 12.

[0143] For example, mesh sizes of the first part 11 and the second part 12 may be equal, or the mesh wall of the first part 11 may be smaller than that of the second part 12. That is, a mesh area of the mesh in the first part 11 may be less than or equal to a mesh area of the mesh in the second part 12, or a width of a wall that defines the mesh in the first part 11 may be less than or equal to a width of a wall that defines the mesh in the second part 12, or a cross-sectional area through which a power supply flow of the wall that defines the mesh in the first part 11 passes may be less than or equal to a cross-sectional area through which a power supply flow of the wall that defines the mesh in the second part 12 passes.

[0144] Based on this, as an example, the first part 11 and the second part 12 are respectively disposed corresponding to different positions of the accommodation cavity, and the first part 11 may be disposed downstream

of the second part 12 along a direction of air flow in the aerosol generating article 2. In other words, in the first time period, only the first part 11 of the first part 11 and the second part 12 generates heat, and under the heat generated by the first part 11, a corresponding region of the aerosol generating article 2 is preheated, or the corresponding region can rapidly generate the first puff of aerosol; and in the second time period, the second part located upstream generates heat, and the first part 11 located downstream continues to generate heat. In addition, in the second time period, heat generated in a unit time or a unit area of the first part 11 may be greater than or equal to heat generated in a unit time or a unit area of the second part 12. Certainly, the electricity provided by the power supply assembly 3 may be regulated, so that in the second time period, the heat generated in a unit time or a unit area of the first part 11 is less than or equal to the heat generated in a unit time or a unit area of the second part 12.

[0145] In the foregoing aerosol generating device, when the gated switch tube enables the line between the electrical element and the power supply to be conducted, one of the first part and the second part can generate energy prior to the other. Compared with the existing method in which after the controller generates a control signal to enable the line between the electrical element and the power supply to be conducted, the controller further generates a control signal to control one of the first part and the second part to generate energy prior to the other, not only a control manner and a hardware composition are simpler, but also energy consumption is lower, which can effectively reduce production and use costs.

[0146] It should be noted that the preferred embodiments of this application are provided in this specification and the accompanying drawings of this application, but are not limited to the embodiments described in this specification. Further, a person of ordinary skill in the art may make improvements or modifications according to the foregoing descriptions, and all of the improvements and modifications shall fall within the protection scope of the appended claims of this application.

Claims

1. An aerosol generating device, comprising:

- a power supply assembly, comprising a power supply;
- a control assembly, comprising a controller and one gated switch tube;
- an electrical element, comprising a first part and a second part, both the first part and the second part being connected to the gated switch tube, and the first part and the second part being configured to provide energy for enabling an aerosol generating article to generate an aero-

- sol; and
 a delay circuit, the delay circuit being disposed between the first part and the gated switch tube, or the delay circuit being disposed between the second part and the gated switch tube;
 wherein the controller is configured to drive the gated switch tube based on a switch drive signal, to enable a line between the electrical element and the power supply to be conducted, and enable one of the first part and the second part to generate energy prior to the other.
2. The aerosol generating device according to claim 1, wherein the delay circuit comprises a unidirectional conducting switch; and
 the power supply assembly further comprises a first output terminal and a second output terminal, the power supply is configured to output electricity to the electrical element and the unidirectional conducting switch through the first output terminal and the second output terminal, and the controller is configured to switch a direction in which the first output terminal and the second output terminal output the electricity.
 3. The aerosol generating device according to claim 2, wherein when the unidirectional conducting switch is turned on or turned off, one of the first part and the second part is short-circuited or open-circuited, and the other generates energy.
 4. The aerosol generating device according to claim 2, wherein the first part and the second part are connected in parallel between the first output terminal and the second output terminal, and the unidirectional conducting switch is connected in series to only one of the first part and the second part.
 5. The aerosol generating device according to claim 2, wherein the first part and the second part are connected in series between the first output terminal and the second output terminal, and the unidirectional conducting switch is connected in parallel to only one of the first part and the second part.
 6. The aerosol generating device according to claim 2, wherein the unidirectional conducting switch comprises a diode.
 7. The aerosol generating device according to claim 1, wherein there is no direct electric connection between the delay circuit and the controller.
 8. The aerosol generating device according to claim 7, wherein the delay circuit comprises a capacitor and a drive switch, the capacitor is connected to the drive switch, the capacitor provides a drive voltage for the drive switch, and the drive switch is turned on or turned off when the drive voltage reaches a drive threshold, so that one of the first part and the second part to be short-circuited or open-circuited, and the other to generate energy.
 9. The aerosol generating device according to claim 8, wherein the power supply assembly further comprises a first output terminal and a second output terminal, and the controller is configured to control the power supply to output electricity through the first output terminal and the second output terminal; and the first part and the second part are connected in parallel between the first output terminal and the second output terminal, and the drive switch is connected in series to only one of the first part and the second part.
 10. The aerosol generating device according to claim 8, wherein the power supply assembly further comprises a first output terminal and a second output terminal, and the controller is configured to control the power supply to output electricity through the first output terminal and the second output terminal; and the first part and the second part are connected in series between the first output terminal and the second output terminal, and the drive switch is connected in parallel to only one of the first part and the second part.
 11. The aerosol generating device according to claim 8, wherein the drive switch comprises a transistor.
 12. The aerosol generating device according to claim 1, wherein the delay circuit comprises a drive switch, the controller is directly electrically connected to the drive switch, and the controller is configured to drive the drive switch to be turned on or turned off; wherein when the drive switch is turned on or turned off, one of the first part and the second part is short-circuited or open-circuited, and the other generates energy.
 13. The aerosol generating device according to claim 12, wherein at least one of the first part and the second part comprises an induction coil for generating a varying magnetic field.
 14. The aerosol generating device according to claim 13, wherein the aerosol generating device further comprises a susceptor that is able to generate heat energy in the varying magnetic field, and the susceptor is in a range of the varying magnetic field generated by the first part and/or the second part.
 15. The aerosol generating device according to claim 1, wherein the first part and the second part are integrally formed.
 16. The aerosol generating device according to claim 1,

wherein at least one of the first part and the second part comprises a resistance heating element.

17. The aerosol generating device according to claim 1, wherein the aerosol generating device further comprises an accommodation cavity for accommodating at least a portion of the aerosol generating article, the first part and the second part are respectively disposed corresponding to different positions of the accommodation cavity, and the first part is disposed downstream of the second part along a direction of air flow in the aerosol generating article. 5 10
18. The aerosol generating device according to claim 17, wherein the first part generates energy prior to the second part. 15
19. The aerosol generating device according to claim 17, wherein in an axial direction of the accommodation cavity, an extension length of the first part is less than or equal to an extension length of the second part. 20
20. The aerosol generating device according to claim 1, wherein in a first time period, the first part generates energy, and in a second time period, both the first part and the second part generate energy. 25
21. The aerosol generating device according to claim 20, wherein an electric power of the first part in the first time period is configured to be greater than or equal to an electric power of the first part in the second time period. 30
22. The aerosol generating device according to claim 20, wherein an electric power of the first part in the second time period is configured to be less than or equal to an electric power of the second part in the second time period. 35
23. The aerosol generating device according to claim 20, wherein duration of the first time period is less than or equal to duration of the second time period. 40
24. The aerosol generating device according to claim 20, wherein energy generated by the first part and the second part is heat energy; and the aerosol generating device further comprises a temperature sensor combined with the first part or the second part, and the control assembly is configured to end the first time period based on a sensing result of the temperature sensor. 45 50
25. An aerosol generating device, comprising:
a delay circuit; 55
a power supply assembly, comprising a first line, a second line, and a third line, and further comprising a first output terminal and a second out-

put terminal, both the first line and the third line being connected to the second line, and the first line being connected to the first output terminal; and

an electrical element, comprising a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol, and the first part and the second part being respectively disposed on the first line and the third line;

wherein the second line is connected to the second output terminal, the third line is connected to the first output terminal, and only one of the first part and the second part is connected in series to at least a portion of the delay circuit; and

when the power supply assembly is configured to output electricity to the electrical element through the first output terminal and the second output terminal, one of the first part and the second part generates energy prior to the other.

26. An aerosol generating device, comprising:

a delay circuit;

a power supply assembly, comprising a first line, a second line, and a third line, and further comprising a first output terminal and a second output terminal, both the first line and the third line being connected to the second line, and the first line being connected to the first output terminal; and

an electrical element, comprising a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol, and the first part and the second part being respectively disposed on the first line and the third line;

wherein the third line is connected to the second output terminal, the second line is connected to the second output terminal, and only one of the first part and the second part is connected in parallel to at least a portion of the delay circuit; and

when the power supply assembly is configured to output electricity to the electrical element through the first output terminal and the second output terminal, one of the first part and the second part generates energy prior to the other.

27. An aerosol generating device, comprising:

a unidirectional conducting switch;

a power supply assembly, comprising a first output terminal and a second output terminal; and

an electrical element, comprising a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol;

the power supply assembly being configured to output electricity to the electrical element through the first output terminal and the second output terminal, and the power supply assembly being configured to turn on or turn off the unidirectional conducting switch by switching a direction in which the first output terminal and the second output terminal output the electricity; wherein when the unidirectional conducting switch is turned on or turned off, one of the first part and the second part is short-circuited or open-circuited, and the other generates energy.

28. An aerosol generating device, comprising:

a drive switch;

a power supply assembly, comprising a power supply, a first output terminal, and a second output terminal;

a control assembly, comprising a controller; and an electrical element, comprising a first part and a second part, the first part and the second part being configured to provide, in a working state, energy for enabling an aerosol generating article to generate an aerosol;

the power supply being configured to output electricity to the electrical element through the first output terminal and the second output terminal, the controller being directly electrically connected to the drive switch, and the controller being configured to drive the drive switch to be turned on or turned off;

wherein when the drive switch is turned on or turned off, one of the first part and the second part is short-circuited or open-circuited, and the other generates energy.

29. An aerosol generating device, comprising:

a power supply assembly;

an electrical element, partially forming a first part of a mesh structure, and partially forming a second part of the mesh structure, the first part and the second part being connected to each other, and the first part and the second part being configured to provide heat for enabling an aerosol generating article to generate an aerosol; and

a delay circuit, only one of the first part and the second part being connected in series or in parallel to the delay circuit, so that the first part and the second part not simultaneously generate heat in a preset time period when the power

supply assembly simultaneously provides electricity for the first part and the second part.

30. The aerosol generating device according to claim 29, wherein in a first time period, the first part and the second part simultaneously generate heat, and in a second time period, only the first part of the first part and the second part generates heat.

31. The aerosol generating device according to claim 30, wherein a mesh of the first part is larger than a mesh of the second part.

32. The aerosol generating device according to claim 29, wherein in a first time period, only the first part of the first part and the second part generates heat, and in a second time period, both the first part and the second part generate heat.

33. The aerosol generating device according to claim 32, wherein mesh sizes of the first part and the second part are equal.

34. The aerosol generating device according to any one of claim 31 or 33, wherein the aerosol generating device further comprises an accommodation cavity for accommodating at least a portion of the aerosol generating article, the first part and the second part are respectively disposed corresponding to different positions of the accommodation cavity, and the first part is disposed downstream of the second part along a direction of air flow in the aerosol generating article.

35. The aerosol generating device according to claim 29, wherein the aerosol generating device further comprises a control assembly having a controller and one gated switch tube, and the controller is configured to drive the gated switch tube based on a switch drive signal, to enable a line between the electrical element and the power supply assembly to be conducted, so that the power supply assembly simultaneously provides electricity for the first part and the second part.

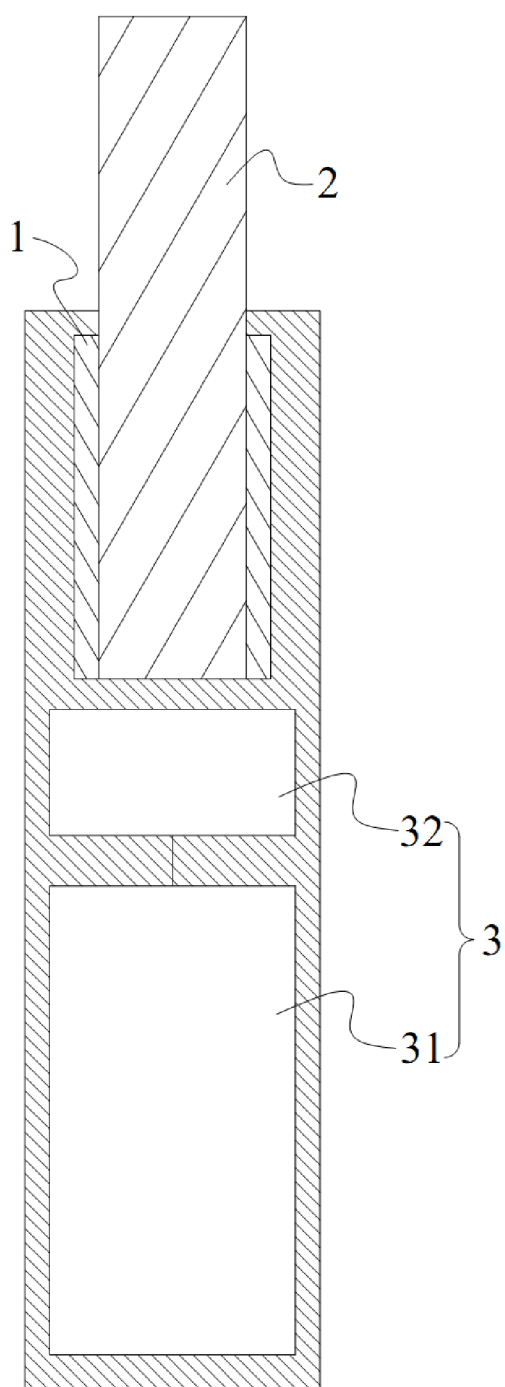


FIG. 1

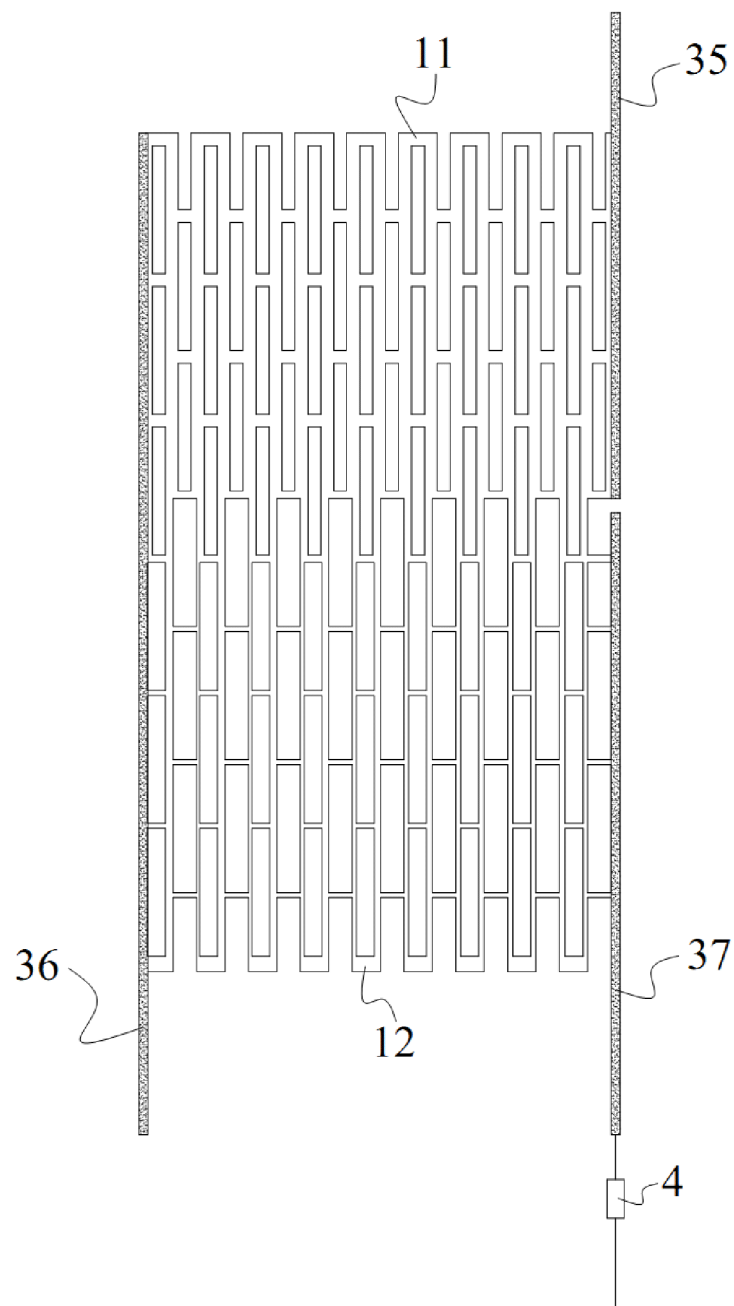


FIG. 2

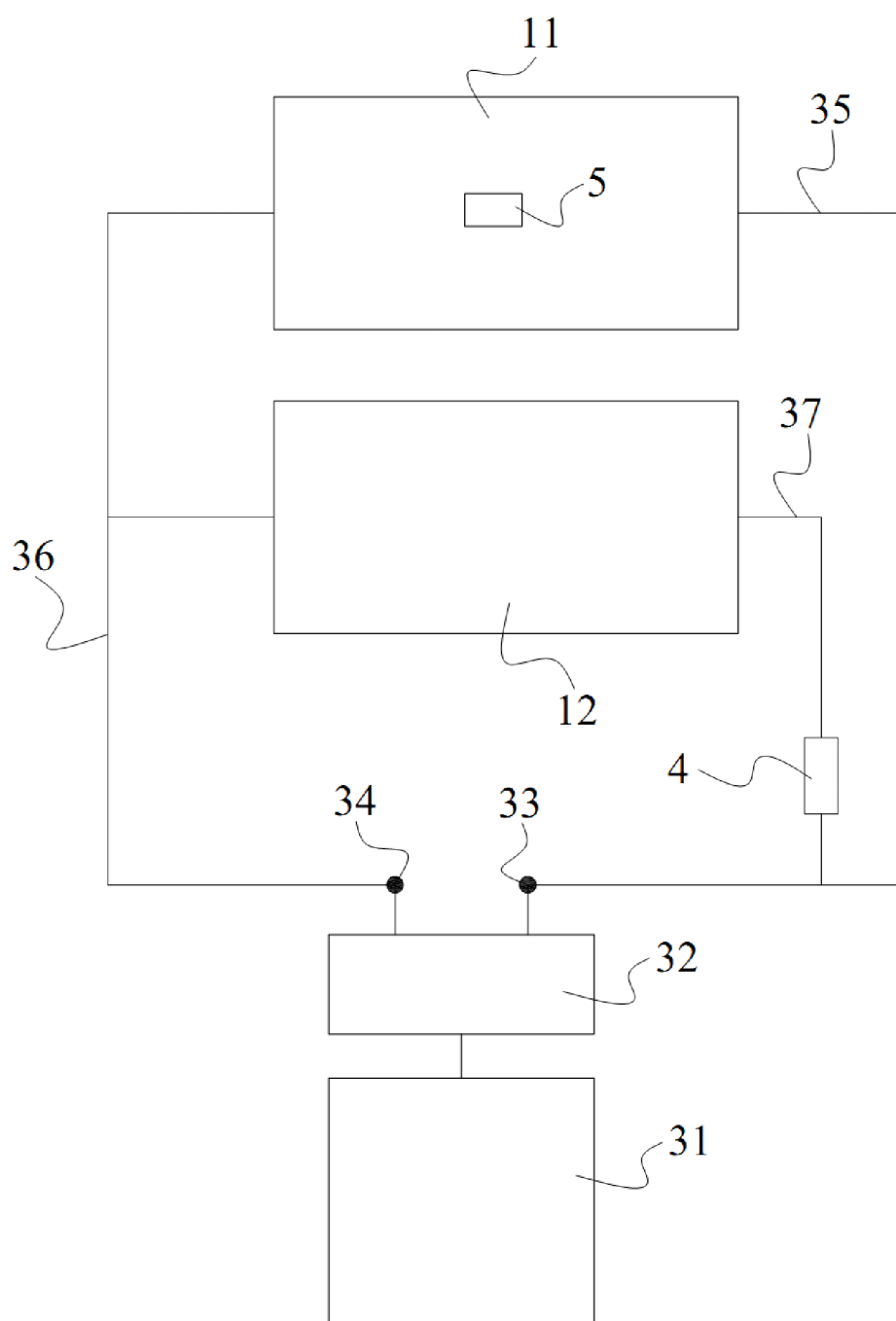


FIG. 3

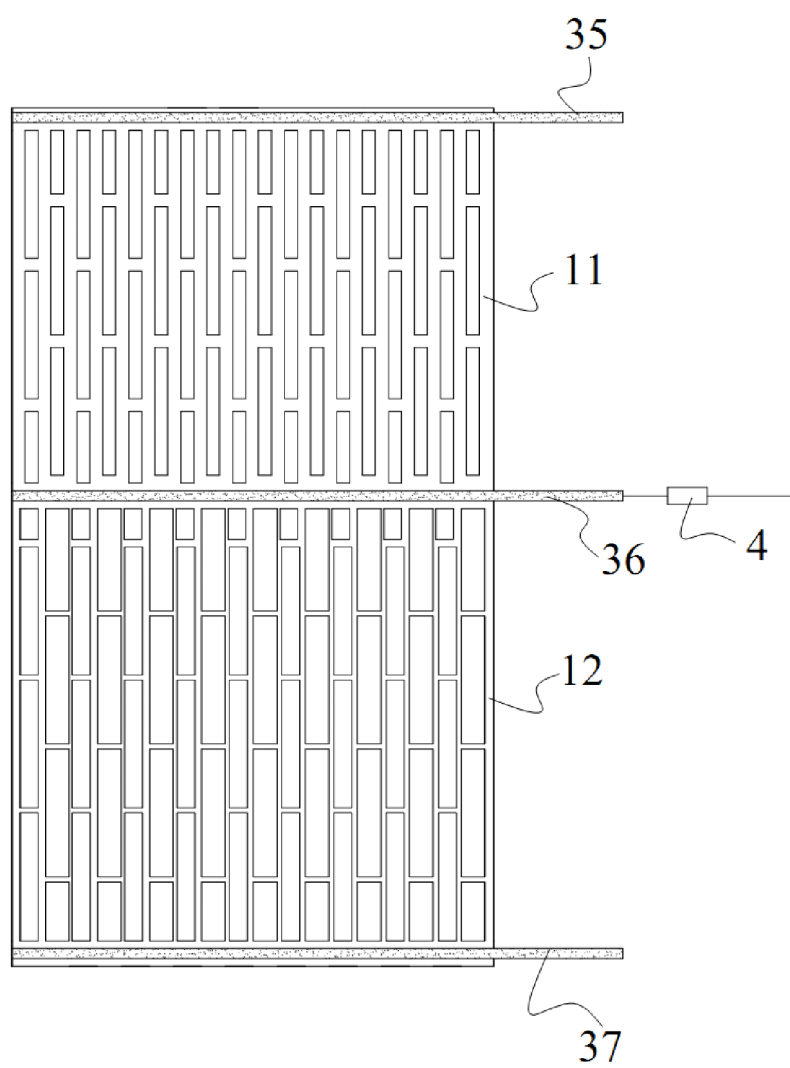


FIG. 4

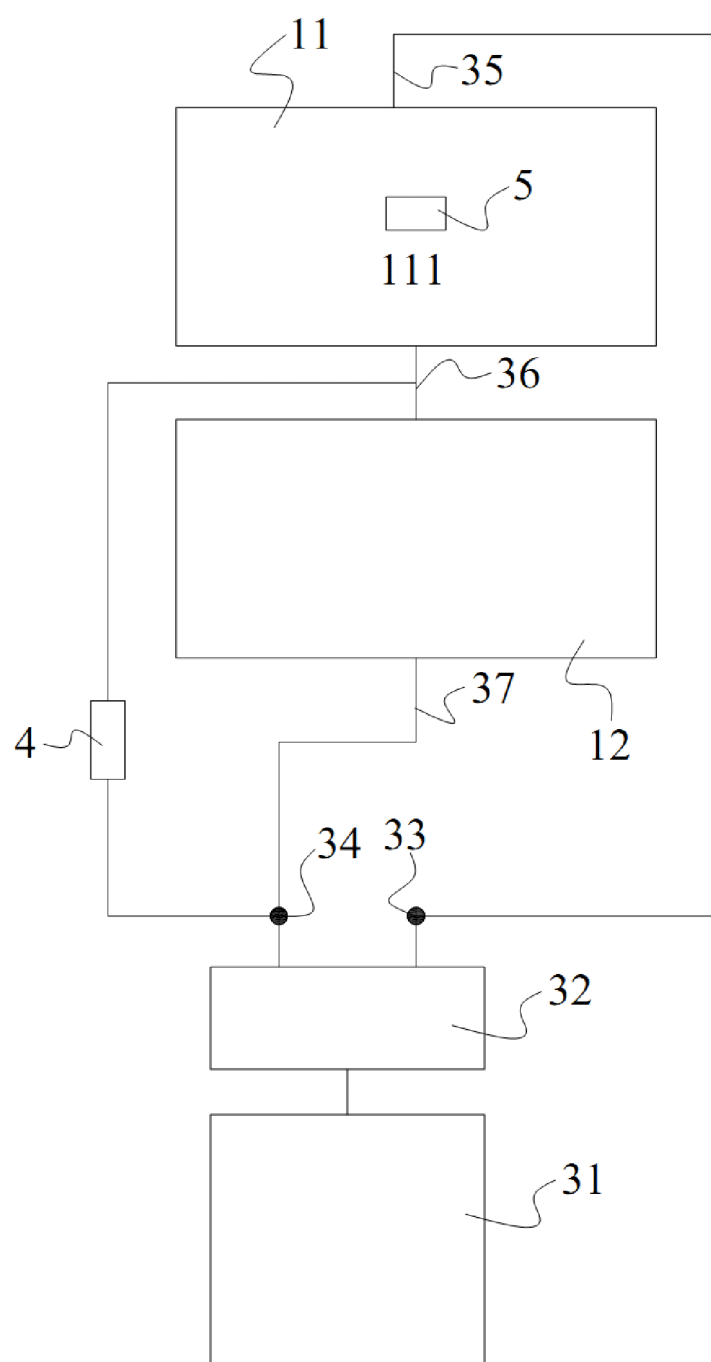


FIG. 5

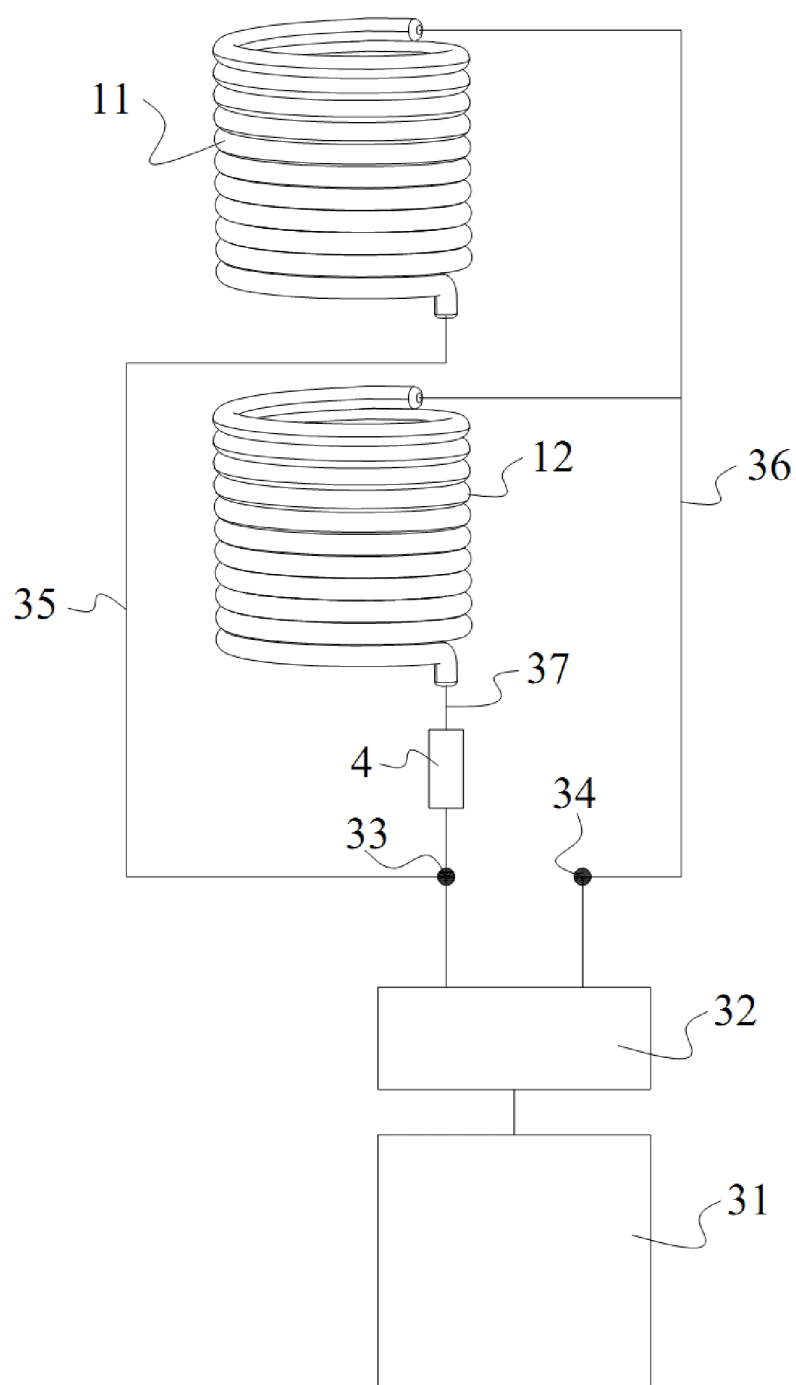


FIG. 6

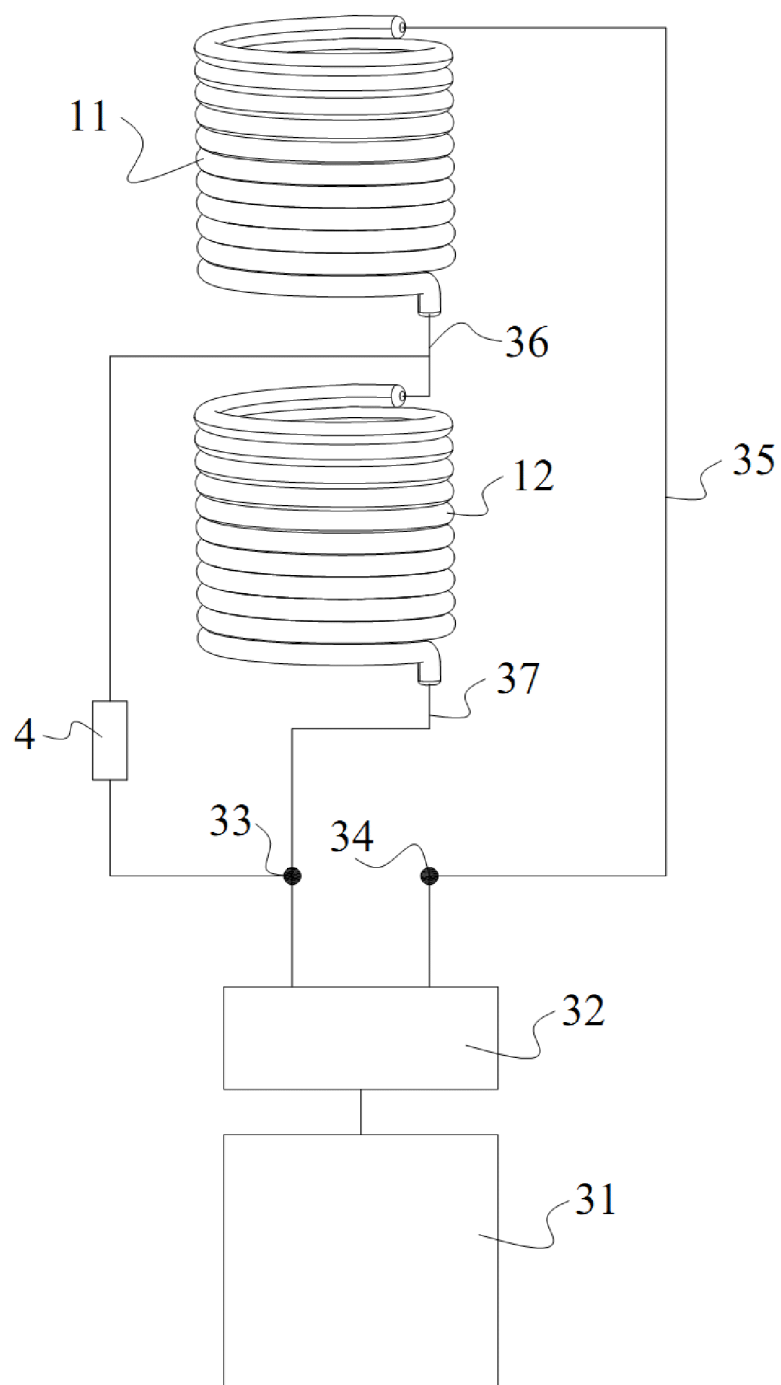


FIG. 7

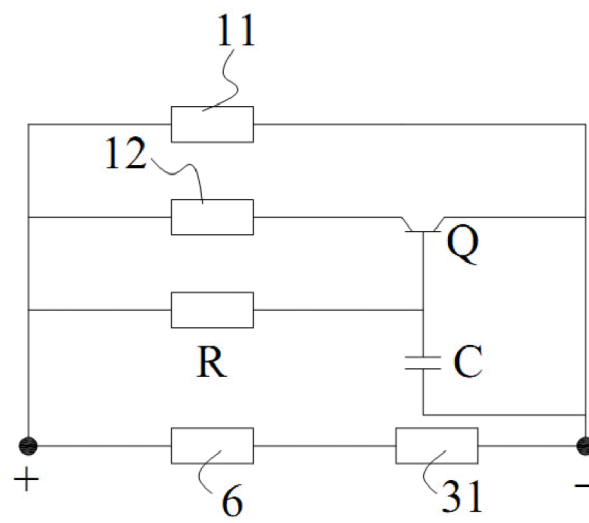


FIG. 8

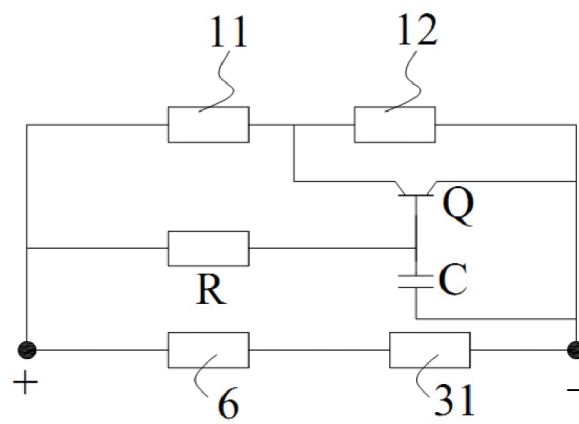


FIG. 9

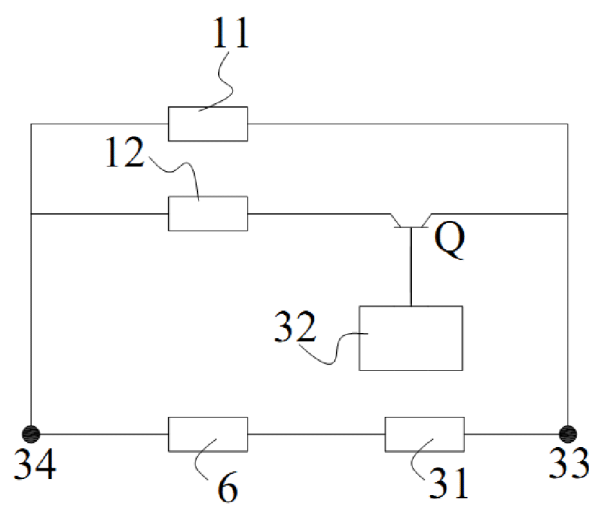


FIG. 10

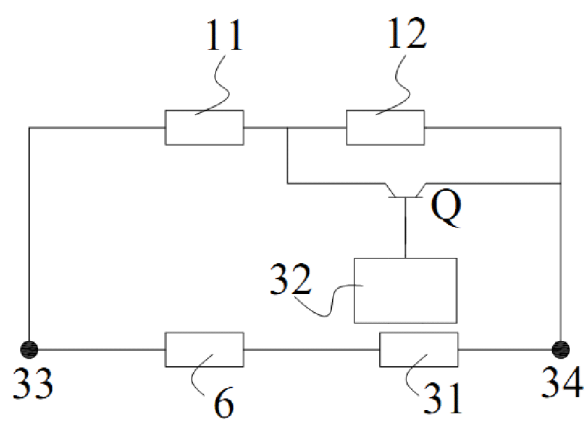


FIG. 11

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2024/116531

A. CLASSIFICATION OF SUBJECT MATTER

A24F40/50(2020.01)i; A24F40/46(2020.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:A24F40, A24F47

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

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

CNXTX, DWPL, VEN, ENTXT, ENTXTC, CNKI, ISI Web of Knowledge: 气溶胶, 电子, 仿真, 烟, 电源, 控制, 开关, 用电, 加热, 雾化, 第一, 第二, 延时, 延迟, 导通, 通电, 并联, 串联, 电容, 二级管, aerosol, electronic, emulate, cigarette, tobacco, power supply, electrical source, control+, switch, electrical, heat+, atomiz+, first, second, delay+, conduct+, power+, electrify, parallel, series, capacitance, diode

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 220875956 U (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 03 May 2024 (2024-05-03) claims 1-35	1-35
X	US 2017224016 A1 (REEVELL, T.) 10 August 2017 (2017-08-10) description, paragraphs 40-64, and figures 1-6	1-7, 12-35
Y	US 2017224016 A1 (REEVELL, T.) 10 August 2017 (2017-08-10) description, paragraphs 40-64, and figures 1-6	8-11
Y	CN 116636659 A (SHENZHEN FIRST UNION TECHNOLOGY CO., LTD.) 25 August 2023 (2023-08-25) description, paragraphs 33-47, and figures 1-2	8-11,
A	WO 2021001552 A1 (PHILIP MORRIS PRODUCTS SA) 07 January 2021 (2021-01-07) entire document	1-35
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INTERNATIONAL SEARCH REPORT

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