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(54) AEROSOL GENERATING DEVICE

(57) An aerosol generating device (10), comprising: a housing (100), a counterweight piece (200), a button (400), a heater and a power supply assembly (300), wherein the button (400) is used for controlling the power supply assembly (300) to power the heater on or off; the housing (100) is cylindrical, a receiving cavity (110) extending in an axial direction of the housing (100) is formed in the housing, and the counterweight piece (200), the heater and the power supply assembly (300) are stored in the receiving cavity (110); and the housing (100) is divided into a first semicircular shell (120) and a second semicircular shell (130) which are symmetrical to each other, the button (400) is installed on an outer surface of the first semicircular shell (120), and the counterweight piece (200) is located between the second semicircular shell (130) and the power supply assembly (300).

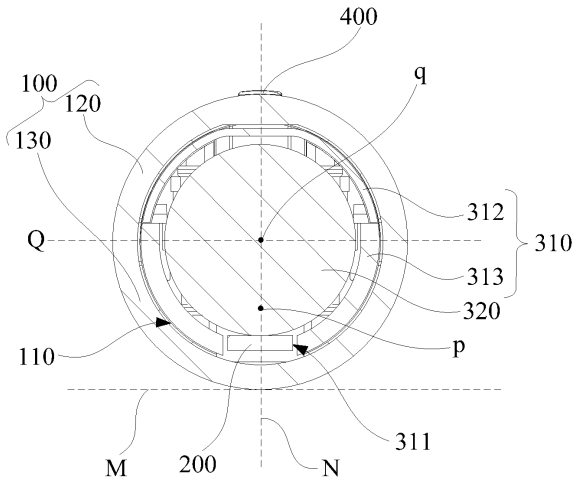

FIG. 3

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Description

TECHNICAL FIELD

[0001] The present application relates to the field of electronic atomization technology, and in particular to an aerosol generating device.

BACKGROUND

[0002] Aerosol-generating device heats aerosol-generating substrates through a heating-non-burning method to generate aerosols that can be inhaled by users. Compared to a method of burning the substrate to generate aerosol, the heating-non-burning method can greatly reduce harmful components in the aerosol, thus creating a broad market demand for aerosol generation devices.

[0003] A button is usually provided on an outer peripheral surface of the aerosol generating device, and an operator controls the aerosol generating device such as to heat or stop heating by pressing the button. Since the shape of the aerosol generating device is usually cylindrical, when the aerosol generating device is placed on a support surface, it will roll randomly on the support surface. When the aerosol generating device is finally stationary, if the button faces the support surface, the operator needs to rotate the aerosol generating device by a certain angle to find the button after picking up the aerosol generating device, which brings inconvenience to the operator.

SUMMARY

[0004] Accordingly, it is necessary to provide an aerosol generating device.

[0005] The present application provides an aerosol generating device, including: a housing, a counterweight member, a button, a heater, and a power supply assembly. The button is configured to control the power supply assembly to supply power or cut off power to the heater, the housing is cylindrical and has a receiving cavity therein extending along an axial direction of the housing, the counterweight member, the heater, and the power supply assembly are accommodated in the receiving cavity, the housing is divided into a first semicircular housing and a second semicircular housing that are symmetrical to each other, the button is mounted on an outer surface of the first semicircular housing, and the counterweight member is located between the second semicircular housing and the power supply assembly.

[0006] In one embodiment, the heater is mounted at one end of the receiving cavity, and the power supply assembly and the counterweight member are mounted at another end of the receiving cavity.

[0007] In one embodiment, the button and the counterweight member are located on both sides of the power supply assembly, respectively.

[0008] In one embodiment, the power supply assembly includes a bracket accommodated in the receiving cavity, the bracket encloses a receiving space configured to accommodate a battery, and the counterweight member is mounted on the second semicircular housing, or mounted on a position of the bracket corresponding to the second semicircular housing.

[0009] In one embodiment, the bracket is provided with a mounting groove, and at least a part of the counterweight member is accommodated in the mounting groove.

[0010] In one embodiment, the mounting groove extends through the bracket, and the counterweight member exactly fits into the mounting groove.

[0011] In one embodiment, the bracket includes a first separating body and a second separating body, the first separating body is detachably connected to the heater, the second separating body is engaged with the first separating body along the axial direction of the housing to cooperatively form the receiving space, and the counterweight member is mounted on the second separating body.

[0012] In one embodiment, an axial centerline of the receiving space coincides with an axial centerline of the housing.

[0013] In one embodiment, the housing includes a first cylindrical housing and a second cylindrical housing, the first cylindrical housing and the second cylindrical housing are arranged along the axial direction of the housing and are circumferentially connected, the power supply assembly is received in the first cylindrical housing, and the heater is received in the second cylindrical housing.

[0014] In one embodiment, along the axial direction of the housing, a length of the first cylindrical housing is greater than a length of the second cylindrical housing.

[0015] Details of one or more embodiments of the present application are set forth in the following drawings and descriptions. These and other objects, purposes and advantages will become apparent upon review of the following specification, drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] To better describe and illustrate embodiments and/or examples of the present application, reference may be made to one or more of the accompanying drawings. The additional details or examples used to describe the drawings should not be construed as limiting the scope of any of the disclosed disclosures, the embodiments and/or examples presently described, and the best modes currently understood of these disclosures.

FIG. 1 shows a front view (a), a top view (b) and a bottom view (c) of an aerosol generating device according to an embodiment of the present application.

FIG. 2 shows a plurality of mounting positions of a counterweight member when a housing of the aerosol generating device shown in FIG. 1 is divided

into a first semicircular housing and a second semicircular housing in a right-side view with reference to the front view (a).

FIG. 3 is a cross-sectional view of the aerosol generating device shown in FIG. 1 taken along the line A-A.

FIG. 4 is an exploded view of the aerosol generation device shown in FIG. 1 viewed from an aspect.

FIG. 5 is an exploded view of the aerosol generating device shown in FIG. 1 viewed from another aspect.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0017] In order to make the above objects, features and advantages of the present application clear and easier to understand, the specific embodiments of the present application are described in detail below in combination with the accompanying drawings. Many specific details are set forth in the following description to facilitate a full understanding of the present application. However, the present application can be implemented in many ways different from those described herein, and those skilled in the art can make similar improvements without departing from the connotation of the present application. Therefore, the present application is not limited by the specific embodiments disclosed below.

[0018] In the description of the present application, it should be understood that the terms "center", "longitudinal", "transverse", "length", "width", "thickness", "upper", "lower", "front", "rear", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", "clockwise", "counterclockwise", "axial", "radial", "circumferential direction" are based on the azimuth or position relationship shown in the attached drawings, which are only for the convenience of describing the present application and simplifying the description, rather than indicating or implying that the device or element must have a specific azimuth, be constructed and operated in a specific azimuth, so such terms cannot be understood as a limitation of the present application.

[0019] In addition, the terms "first" and "second" are only used for descriptive purposes and cannot be understood as indicating or implying relative importance or implicitly indicating the number of indicated technical features. Thus, the features defined with "first" and "second" may explicitly or implicitly include at least one of the features. In the description of the present application, "a plurality of' means at least two, such as two, three, etc., unless otherwise expressly and specifically defined.

[0020] In the present application, unless otherwise expressly specified and limited, the terms "mount", "connect", "contact", "fix" and other terms should be understood in a broad sense, for example, they can be fixed connections, detachable connections, or integrated. They can be mechanical connection or electrical connection. They can be directly connected or indirectly connected through an intermediate medium. They can be the connection within two elements or the interaction relationship between two elements, unless otherwise expressly limited. For those skilled in the art, the specific meaning of the above terms in the present application can be understood according to the specific situation.

[0021] In the present application, unless otherwise expressly specified and limited, the first feature "above" or "below" the second feature may be in direct contact with the first and second features, or the first and second features may be in indirect contact through an intermediate medium. Moreover, the first feature is "above" the second feature, but the first feature is directly above or diagonally above the second feature, or it only means that the horizontal height of the first feature is higher than the second feature. The first feature is "below" of the second feature, which can mean that the first feature is directly below or obliquely below the second feature, or simply that the horizontal height of the first feature is less than that of the second feature.

[0022] It should be noted that when an element is called "fixed to" or "provided on" another element, it can be directly on another element or there can be a centered element. When an element is considered to be "connected" to another element, it can be directly connected to another element or there may be intermediate elements at the same time. The terms "vertical", "horizontal", "up", "down", "left", "right" and similar expressions used herein are for the purpose of illustration only and do not represent the only embodiment.

[0023] As shown in FIGS. 1 to 5, this application claims an aerosol generating device 10. The aerosol generating device 10 includes a housing 100, a counterweight member 200, a power supply assembly 300, a button 400, and a heater (not shown). An interior portion of the housing 100 has a receiving cavity 110 extending along an axial direction of the housing 100. The counterweight member 200, the heater, and the power supply assembly 300 are accommodated in the receiving cavity 110. The heater is connected to a power supply assembly 300. The power supply assembly 300 can supply power to the heater. The heater can convert electrical energy into thermal energy to heat a solid substrate 20 to form aerosol. The power supply assembly 300 may be controlled to power on or power off the heater by pressing the button 400.

[0024] The housing 100 is cylindrical and can be divided into a first semicircular housing 120 and a second semicircular housing 130 that are symmetrical to each other. The button 400 is mounted on an outer surface of the first semicircular housing 120, and the counterweight member 200 is located between the second semicircular housing 130 and the power supply assembly 300.

[0025] As shown in FIG. 2, it should be understood that an outer surface 140 of the housing 100 is cylindrical, so that the outer surface 140 will define an axial centerline q of the housing 100, and two portions obtained by dividing the housing 100 by a plane Q passing through the axial centerline q of the housing 100 are the first semicircular housing 120 and the second semicircular hous-

ing 130. The button 400 is mounted on the outer surface of the first semicircular housing 120. The counterweight member 200 is located between the second semicircular housing 130 and the power supply assembly 300, and may have a plurality of mounting positions as shown in FIG. 2.

[0026] It should be noted that the counterweight member 200 is located between the second semicircular housing 130 and the power supply assembly 300, which can be understood as that the counterweight member 200 is mounted on the second semicircular housing 130, or the counterweight member 200 is integrated into the second semicircular housing 130, or the counterweight member 200 is mounted on the power supply assembly 300 at a position facing the second semicircular housing 130, or the counterweight member 200 is integrated into the power supply assembly 300 at a position facing the second semicircular housing 130, or the counterweight member 200 is firmly sandwiched between the power supply assembly 300 and the second semicircular housing 130.

[0027] As shown in FIG. 3, it should be understood that since the outer surface 140 of the housing 100 is cylindrical, the aerosol generating device 10 will roll when it is placed on the support surface M. Due to the action of gravity, the aerosol generating device 10 will eventually be in a stationary state. In addition, in the stationary state, a center of gravity p of the aerosol generating device 10 will be closest to the support surface M, or it means that when the aerosol generating device 10 rolls to other positions, a distance between the center of gravity p and the support surface M will be greater than the distance between the center of gravity p and the support surface M when in the stationary state.

[0028] Further, since the counterweight member 200 corresponds to the second semicircular housing 130, it can define the center of gravity p of the aerosol generating device 10 on a side of the second semicircular housing 130, or it means that the counterweight member 200 can cause the center of gravity p of the aerosol generating device 10 to deviate from the axial centerline q of the housing 100 toward the side of the second semicircular housing 130. In this way, when the aerosol generating device 10 is switched to the stationary state, the second semicircular housing 130 will remain in contact with the support surface M, while the first semicircular housing 120 will be away from the support surface M.

[0029] In the aerosol generating device 10, the button 400 is mounted on the outer surface 140 of the first semicircular housing 120, and the counterweight member 200 is located between the second semicircular housing 130 and the power supply assembly 300, so that after the aerosol generating device 10 is randomly placed on the support surface M, as the aerosol generating device 10 will gradually be switched to the stationary state, since the counterweight member 200 defines the center of gravity p of the aerosol generating device 10 on the side of the second semicircular housing 130, the second semicircular housing 130 can be kept in contact with the support surface M, and cause the first semicircular housing 120 to be away from the support surface M, thereby achieving the purpose of causing the button 400 mounted on the first semicircular housing 120 to be away from the supporting surface M. In this way, the operator can directly press the button 400 while picking up the aerosol generating device 10, without having to rotate at a certain angle to find the button 400, which provides convenience for the operator.

[0030] As shown in FIGS. 3 to 5, specifically, the counterweight member 200 extends along the axial direction of the housing 100 and is in an elongated shape. By extending the counterweight member 200 along the axial direction of the housing 100, a volume of the counterweight member 200 can be increased while a radial size of the entire device remains unchanged, thereby improving the counterweight capacity of the counterweight member 200. Alternatively, while the radial size of the entire device remains unchanged, the occupation of the radial size is reduced as much as possible, so that sufficient space is left in the receiving cavity 110 for mounting the power supply assembly 300.

[0031] Further, the counterweight member 200 is a metal block. It should be understood that the metal counterweight member 200 has a higher density, so that a counterweight member 200 with a smaller volume can be provided to meet the counterweight requirement and occupy less space.

[0032] Specifically, the heater is mounted at one end of the receiving cavity 110, and the power supply assembly 300 and the counterweight member 200 are mounted at the other end of the receiving cavity 110. It should be understood that the heater and power supply assembly 300 are sequentially accommodated in the receiving cavity 110 along the axial direction of the housing 100, and a length along the axial direction of the housing 100 occupied by the heater is less than a length occupied by the power supply assembly 300. The counterweight member 200 and the power supply assembly 300 are mounted at the same end of the receiving cavity 110. Such an arrangement can help to make the center of gravity p of the entire device approximately correspond to a middle position of the aerosol generating device 10 in the axial direction, and help to improve the stability of the entire device on the support surface M. In addition, compared with the heater, the power supply assembly 300 can provide more mounting space for the mounting of the counterweight member 200.

[0033] Specifically, the button 400 and the counterweight member 200 are located on both sides of the power assembly 300, respectively. It should be understood that the button 400 and the counterweight member 200 correspond to opposite sides of the power assembly 300, respectively. In this way, when the aerosol generating device 10 is randomly placed on the support surface M, as the aerosol generating device 10 is eventually switched to the stationary state, the buttons 400 will remain oriented directly upward, the counterweight mem-

ber 200 is located below the buttons 400, and the button 400 and the counterweight member 200 are located on a same plane perpendicular to the support surface M.

[0034] It should be understood that the counterweight member 200 can cause the center of gravity p of the aerosol generating device 10 to deviate from the axial centerline q of the outer surface 140 toward the side of the second semicircular housing 130, so that the center of gravity p and the axial centerline q cooperatively define a vertical plane N. The button 400 and the counterweight member 200 are both located on the vertical plane N, and the button 400 and the center of gravity p are located on both sides of the axial centerline q, respectively. When the aerosol generating device 10 is stationary on the support surface M, the vertical plane N will be perpendicular to the support surface M, and the counterweight member 200 will be adjacent to the support surface M, while the button 400 will be away from the support surface M and oriented directly upward.

[0035] Further, the housing 100 includes a first cylindrical housing 150 and a second cylindrical housing 160. The first cylindrical housing 150 and the second cylindrical housing 160 are arranged along the axial direction of the housing 100 and are circumferentially connected. The power supply assembly 300 is received in the first cylindrical housing 150, and the heater is received in the second cylindrical housing 160. Furthermore, the first cylindrical housing 150 is detachably connected to the second cylindrical housing 160, which can facilitate assembly and maintenance of the power supply assembly 300. The first cylindrical housing 150 can be detachably connected to the second cylindrical housing 160 by a snap-fit or threaded connection. Furthermore, along the axial direction of the housing 100, a length of the first cylindrical housing 150 is greater than a length of the second cylindrical housing 160, so that the first cylindrical housing 150 can provide a larger mounting space for the power supply assembly 300.

[0036] As shown in FIGS. 1, 3, 4 and 5, specifically, the power supply assembly 300 includes a bracket 310 that can be accommodated in the receiving cavity 110. The bracket 310 encloses a receiving space for accommodating a battery 320. By providing the bracket 310 to define the receiving space for mounting the battery 320, the battery 320 can be mounted in the receiving space to provide power for the heater.

[0037] Specifically, the counterweight member 200 is mounted on the bracket 310 corresponding to the second semicircular housing 130, and the bracket 310 is configured to provide support for the counterweight member 200. Specifically, the bracket 310 is provided with a mounting groove 311, and the counterweight member 200 is mounted in the mounting groove 311. By providing the mounting groove 311, at least a part of the counterweight member 200 can be accommodated in the mounting groove 311, so that the counterweight member 200 can be mounted with a more compact structural layout while the radial size of the entire device remains unchanged.

[0038] Furthermore, the mounting groove 311 extends through the bracket 310, and the counterweight member 200 exactly fits into the mounting groove 311, so as to just compensate for the missing portion of the bracket 310 in the mounting groove 311. In this way, the counterweight member 200 can be mounted without increasing an internal space of the bracket 310. In addition, the bracket 310 is made of plastic, and the counterweight member 200 is made of metal. The density of the counterweight member 200 is greater than that of the bracket 310 to achieve the function of a counterweight. Specifically, the counterweight member 200 is fixedly mounted in the mounting groove 311 through adhesive. In other embodiments, the counterweight member 200 may be mounted in the mounting groove 311 in a detachable manner such as snap-fit.

[0039] It should be noted that in other embodiments, the counterweight member 200 can also be mounted on an inner wall of the second semicircular housing 130 that surrounds the receiving cavity 110, and the housing 100 is configured to provide support for the counterweight member 200. In this embodiment, the counterweight member 200 is an additional component independent from the power supply assembly 300, the heater, and the housing 100. In other embodiments, the counterweight member 200 may integrated on one or both of the power supply assembly 300 and the housing 100 to achieve the purpose of counterweight. For example, the counterweight member 200 is integrated on the second semicircular housing 130, so that the counterweight member 200 becomes a part of the housing 100. Alternatively, the counterweight member 200 is integrated on the bracket 310 and becomes a part of the bracket 310.

[0040] Specifically, the bracket 310 includes a first separating body 312 and a second separating body 313. The first separating body 312 is detachably connected to the heater, and the second separating body 313 can be engaged with the first separating body 312 along the axial direction of the housing 100 to cooperatively form the receiving space, thereby facilitating the mounting and removal of the battery 320 in the receiving space. When the counterweight member 200 is mounted on the bracket 310, the counterweight member 200 is mounted on the second separating body 313. Since the counterweight member 200 is mounted on the second separating body 313, it is also easier to replace the counterweight member 200 after the second separating body 313 is removed. When the mounting groove 311 is provided on the bracket 310, the mounting groove 311 is located on the second separating body 313.

[0041] Specifically, an axial centerline of the receiving space coincides with the axial centerline q of the housing 100. It should be understood that the power assembly 300 includes the battery 320, and the receiving space matches the battery 320. After the battery 320 is placed in the receiving space, an axial centerline of the battery 320 coincides with the axial centerline of the receiving

space. Furthermore, when a size of the battery 320 is constant, the axial centerline of the battery 320, the axial centerline of the receiving space, and the axial centerline q of the housing 100 coincide with each other, which can reduce the overall radial size of the aerosol generating device 10.

[0042] As shown in FIGS. 1 to 5, specifically in this embodiment, the power supply assembly 300 includes a charging connector 330 connected to the battery 320, and the button 400 and the charging connector 330 are located on both sides of the battery 320, respectively. The battery 320 can be charged through the charging connector 330. Specifically, the button 400 and the charging connector 330 respectively correspond to opposite sides of the battery 320. It should be understood that the charging connector 330 corresponds to the second semicircular housing 130. In this way, the charging connector 330, the button 400, and the counterweight member 200 are located on the vertical plane N. The charging connector 330 can cooperate with the counterweight member 200 to serve as a counterweight, so as to cooperate with the counterweight member 200 to make the center of gravity p of the aerosol generating device 10 deviate from the axial centerline q of the outer surface 140 toward the side of the second semicircular housing 130.

[0043] Further, the charging connector 330 includes a base 331 and a contact terminal 332 mounted on the base 331. The base 331 is a metal base 331. It should be understood that the contact terminal 332 can be connected to an external terminal to charge the battery 320. The contact terminal 332 is mounted on the base 331, and the base 331 provides support for the contact terminal 332. Since the base body 331 is the metal base body 331, which has a greater density than that of a base body 331 made of plastic, its weight will be increased under the same volume to provide better counterweight.

[0044] As shown in FIG. 1, FIG. 4 and FIG. 5, specifically, the first semicircular housing 120 is provided with a first mounting hole 121, and the button 400 is mounted in the first mounting hole 121. The second semicircular housing 130 is provided with a second mounting hole 121, and the contact terminal 332 is mounted at the second mounting hole 131. An orientation of the button 400 is parallel with and opposite to an orientation of the contact terminal 332. It should be understood that when the aerosol generating device 10 is in the stationary state, the button 400 is oriented upward in the vertical direction, and the contact terminal 332 is oriented downward in the vertical direction. In this way, not only the button 400 can be maintained at a specific angle upward, but also the contact terminal 332 orientating downward contributes to smooth contact charging.

[0045] Further, the power supply assembly 300 includes a circuit board 350. The button 400 and the contact terminal 332 are located on opposite sides of the circuit board 350, respectively, and both are connected to the circuit board 350. The circuit board 350 is connected to the battery 320, and the contact terminal 332 charges the battery 320 through the circuit board 350. The circuit board 350 is connected to the heater, and a switch on the circuit board 350 is triggered by pressing the button 400 to control the power on and off between the circuit board 350 and the heater.

[0046] The above-mentioned embodiments do not constitute a limitation on the protection scope of the technical solution. Any modifications, equivalent replacements and improvements made within the spirit and principles of the above-mentioned embodiments shall be included within the protection scope of this technical solution.

[0047] The foregoing descriptions are merely specific embodiments of the present disclosure, but are not intended to limit the protection scope of the present disclosure. Any variation or replacement readily figured out by a person skilled in the art within the technical scope disclosed in the present disclosure shall all fall within the protection scope of the present disclosure.

Claims

1. An aerosol generating device, comprising a housing, a counterweight member, a button, a heater, and a power supply assembly;
   wherein the button is configured to control the power supply assembly to supply power or cut off power to the heater, the housing is cylindrical and has a receiving cavity therein extending along an axial direction of the housing, the counterweight member, the heater, and the power supply assembly are accommodated in the receiving cavity, the housing is divided into a first semicircular housing and a second semicircular housing that are symmetrical to each other, the button is mounted on an outer surface of the first semicircular housing, and the counterweight member is located between the second semicircular housing and the power supply assembly.

2. The aerosol generating device according to claim 1, wherein the heater is mounted at one end of the receiving cavity, and the power supply assembly and the counterweight member are mounted at another end of the receiving cavity.

3. The aerosol generating device according to claim 2, wherein the button and the counterweight member are located on both sides of the power supply assembly, respectively.

4. The aerosol generating device according to claim 1, wherein the power supply assembly comprises a bracket accommodated in the receiving cavity, the bracket encloses a receiving space configured to accommodate a battery, and the counterweight member is mounted on the second semicircular housing,

or mounted on a position of the bracket corresponding to the second semicircular housing.

5. The aerosol generating device according to claim 4, wherein the bracket is provided with a mounting groove, and at least a part of the counterweight member is accommodated in the mounting groove.

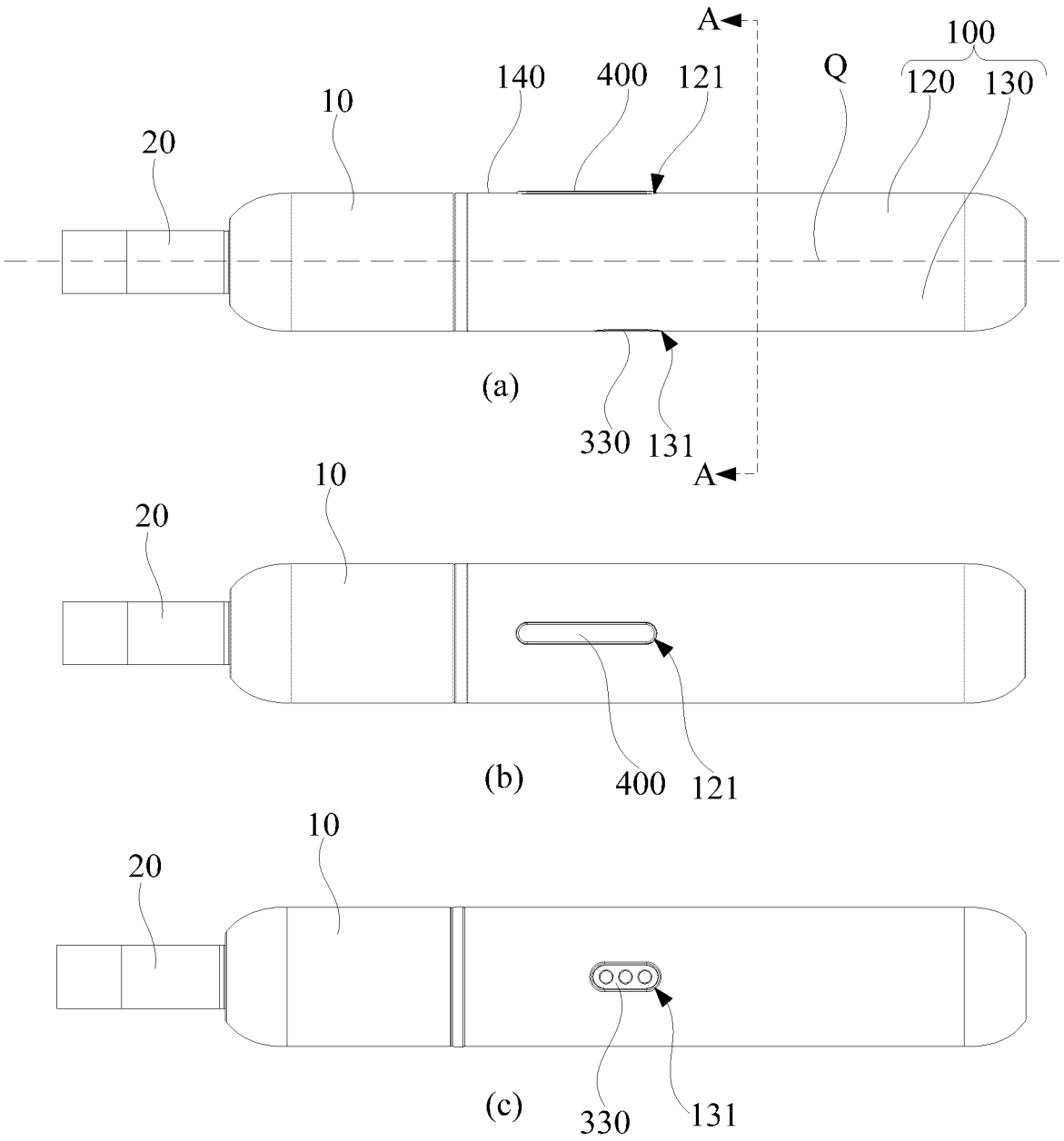
6. The aerosol generating device according to claim 5, wherein the mounting groove extends through the bracket, and the counterweight member exactly fits into the mounting groove.

7. The aerosol generating device according to claim 4, wherein the bracket comprises a first separating body and a second separating body, the first separating body is detachably connected to the heater, the second separating body is engaged with the first separating body along the axial direction of the housing to cooperatively form the receiving space, and the counterweight member is mounted on the second separating body.

8. The aerosol generating device according to claim 4, wherein an axial centerline of the receiving space coincides with an axial centerline of the housing.

9. The aerosol generating device according to claim 1, wherein the housing comprises a first cylindrical housing and a second cylindrical housing, the first cylindrical housing and the second cylindrical housing are arranged along the axial direction of the housing and are circumferentially connected, the power supply assembly is received in the first cylindrical housing, and the heater is received in the second cylindrical housing.

10. The aerosol generating device according to claim 9, wherein along the axial direction of the housing, a length of the first cylindrical housing is greater than a length of the second cylindrical housing.


A
100
140
400
121
Q
120
130
10
20
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330
131
A
10
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(b)
400
121
10
20
(c)
330
131

FIG. 1

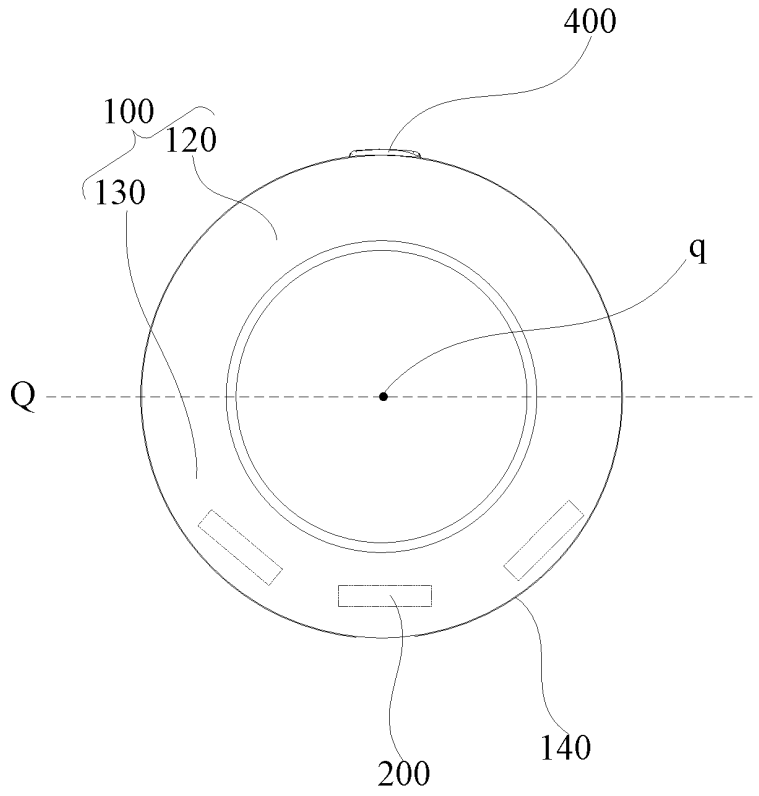
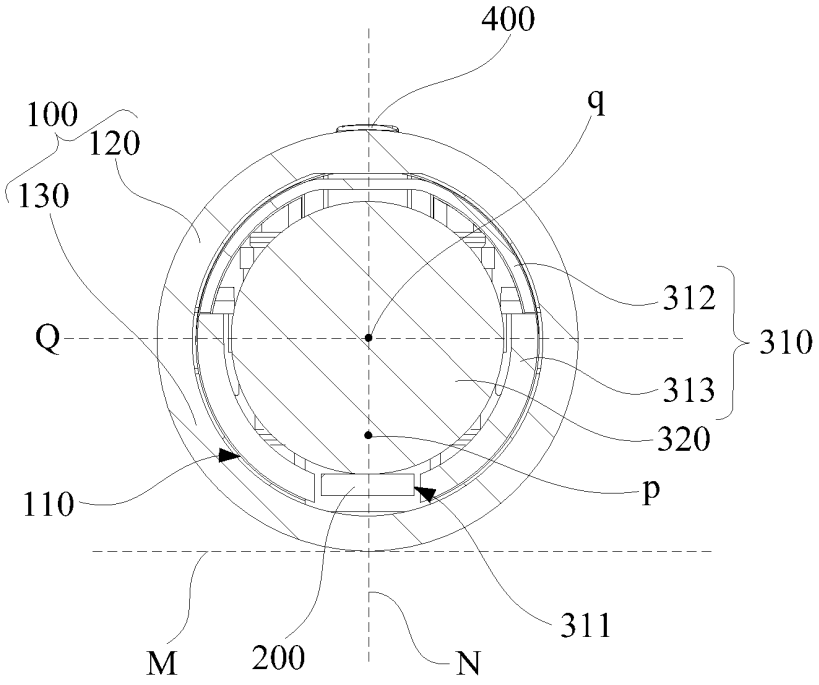

400
100
120
130
q
Q
200
140

FIG. 2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100
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130
q
312
Q
310
313
320
110
p
311
M
200
N

FIG. 3

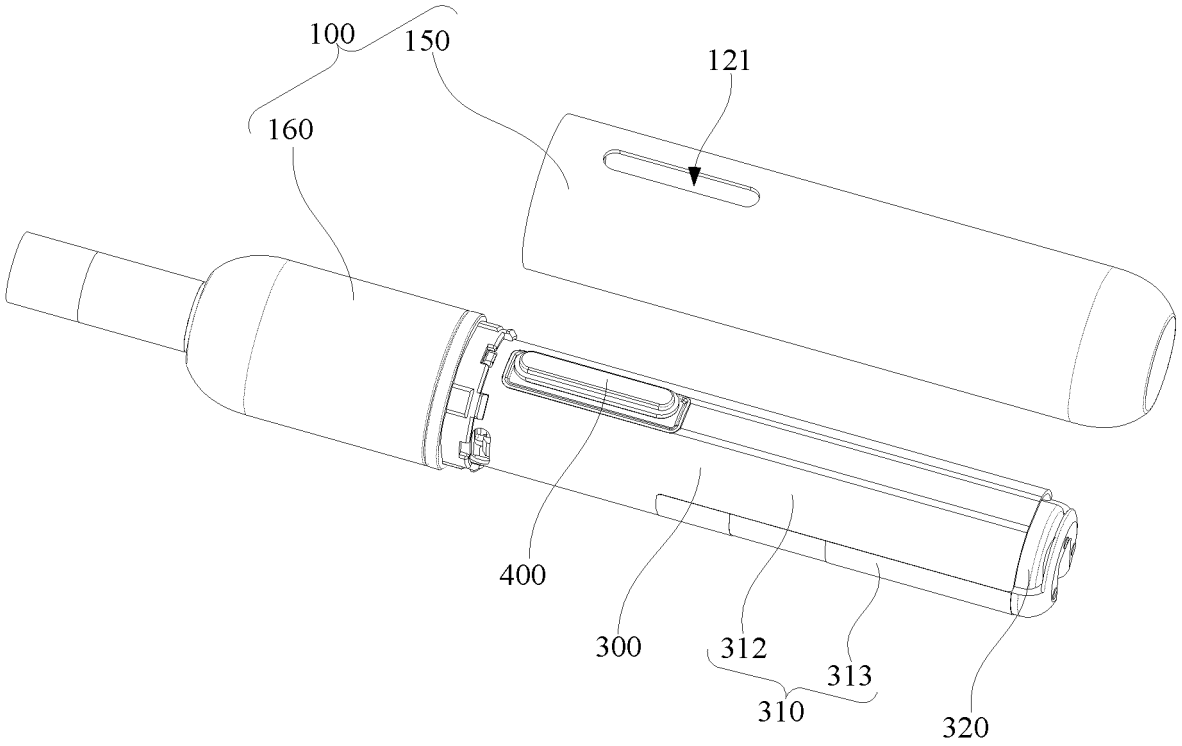

FIG. 4

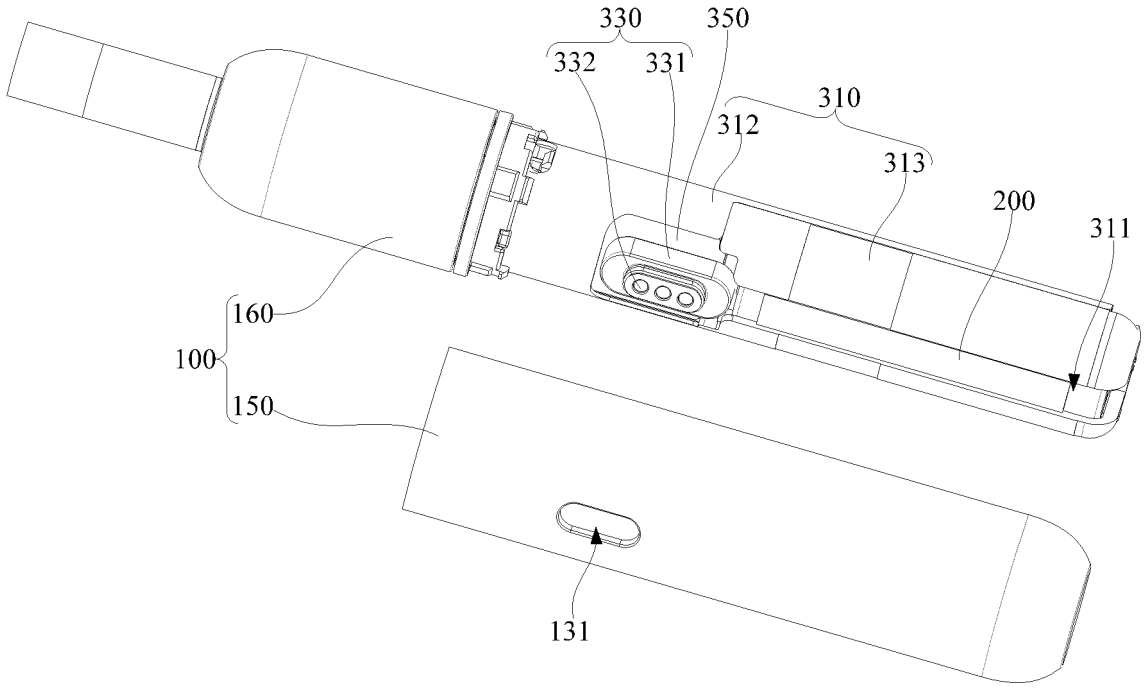

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/108801

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i; A24F 40/46(2020.01)i; A24F 40/50(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)

A24F

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)

CNABS; CNTXT; CNKI; VEN; ENTXTC; ENTXT: 气溶胶, 按键, 加热, 配重, 重量, 重物, 壳体, 圆形, 柱状, aerosol, button, heat+, weight, ciecle, column

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 216416021 U (SHENZHEN MAISHI TECHNOLOGY CO., LTD.) 03 May 2022 (2022-05-03) description, paragraphs [0004]-[0049], and figures 1-5	1-10
Y	CN 111031822 A (PHILIP MORRIS PRODUCTS S.A.) 17 April 2020 (2020-04-17) description, paragraphs [0004]-[0050], and figures 1-8b	1-10
Y	CN 213549674 U (LUO KAI) 29 June 2021 (2021-06-29) description, paragraphs [0019]-[0021], and figures 1-5	1-10
A	CN 209711524 U (SHENZHEN XINYANBAO ELECTRONIC TECHNOLOGY DEVELOPMENT CO., LTD.) 03 December 2019 (2019-12-03) entire document	1-10
A	CN 210782939 U (CHANGZHOU PAITENG ELECTRONIC TECHNOLOGY SERVICE CO., LTD.) 19 June 2020 (2020-06-19) entire document	1-10

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
30 September 2022	**21 October 2022**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/108801

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