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(54) **AEROSOL GENERATING DEVICE AND AEROSOL GENERATING SYSTEM**

(57) The invention relates to an aerosol generating device and an aerosol generating system, wherein the aerosol generating device includes: a heating body used for heating an aerosol forming substrate; a cigarette compartment, comprising a containing part in which the heating body is inserted; and a base located in the containing part, and arranged around the heating body. The aerosol forming substrate arranged in the containing part is capable of preventing the base from moving in an axial direction relative to the heating body. The aerosol generating device of the invention is convenient to use.

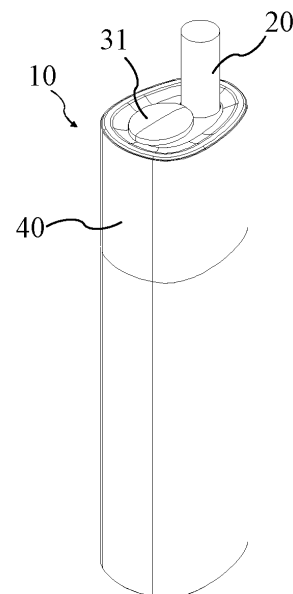


Fig. 1

## Description

### TECHNICAL FIELD

**[0001]** The present invention relates to the technical field of aerosol generation, in particular to an aerosol generating device and an aerosol generating system.

### BACKGROUND

**[0002]** In recent years, countries in the world are gradually paying attention to the problem of influence of traditional cigarettes on health and environment. Tobacco manufacturers devote to providing tobacco products with slighter harm to consumers, and low-temperature heat-not-burn tobacco products are gradually welcomed by the market as a new form of tobacco consumption and are increasingly accepted by cigarette consumers in most countries.

**[0003]** For example, the Chinese patent document with the publication number of CN106376975A provides an aerosol generating device and a using method thereof, the aerosol generating device comprises: a cavity, which is provided with a cavity shell and a cavity accommodating space formed by the cavity shell, the cavity accommodating space used for accommodating a medium to be heated, and filter cotton arranged at a top of the cavity; a sealing cover, which is arranged at a bottom of the cavity to seal the bottom of the cavity, a penetrating part formed at the bottom of the sealing cover; an air deflector, which is arranged below the sealing cover and provided with a flow guide groove and a flow guide hole, the flow guide hole corresponding to the penetrating part; and a heater, which comprises a heater bottom cover and a heating ceramic piece, the heater bottom cover being arranged below the air deflector, and the heating ceramic piece is fixed to the heater bottom cover, passes through the flow guide hole and penetrates through the penetrating part to be arranged inside the cavity accommodating space.

**[0004]** According to an existing aerosol generating device, an aerosol forming substrate is generally placed in an accommodating space of the aerosol generating device, then the aerosol forming substrate is heated through a heater, and generated aerosol is provided for a user to smoke.

### SUMMARY

**[0005]** The present invention aims to provide an aerosol generating device, comprising: a heating body, which is used for heating an aerosol forming substrate; a cigarette compartment, which is provided with a containing part in which the heating body is inserted; a base, which is located in the containing part and arranged around the heating body; wherein the aerosol forming substrate arranged in the containing part is capable of preventing the base from moving in an axial direction relative to the heat-

ing body.

**[0006]** Optionally, after the aerosol forming substrate is taken out from the containing part, the base is capable of moving in the axial direction relative to the heating body, and after the aerosol forming substrate is placed in the containing part, the base remains stationary relative to the heating body.

**[0007]** Optionally, the aerosol generating device comprises a switch unit, when the switch unit is in a switch-on state, the base is capable of moving in the axial direction relative to the heating body, and when the switch unit is in a switch-off state, the base remains stationary relative to the heating body.

**[0008]** Optionally, at least part of the base is attached to an outer peripheral surface of the heating body.

**[0009]** Optionally, the aerosol generating device further comprises: a sliding cover which covers the cigarette compartment, wherein the sliding cover is provided with a through hole corresponding to the containing part, the base is arranged in the sliding cover, and is opposite to the through hole in the axial direction, and the switch unit is arranged on the sliding cover; in the switch-on state, the switch unit covers the through hole, and is capable of being separated from the cigarette compartment in the axial direction, and the sliding cover is capable of being separated from the cigarette compartment in the axial direction; and in the switch-off state, the switch unit and the through hole are arranged in a radial direction, and the sliding cover is connected with the cigarette compartment in a clamped mode.

**[0010]** Optionally, the sliding cover is further provided with a first sliding groove, the first sliding groove and the through hole are arranged in the radial direction, the switch unit is inserted in the first sliding groove, and is capable of sliding along the first sliding groove till covering the through hole, or the switch unit and the through hole are arranged in the radial direction.

**[0011]** Optionally, the switch unit is provided with an operating part and a clamping part in the axial direction, the operating part is located outside the sliding cover, and the clamping part is located in the sliding cover; and a part, facing the sliding cover, of the cigarette compartment is provided with a second sliding groove, and in an extending direction of the second sliding groove, the second sliding groove is provided with a first part and a second part;

in the switch-on state, the operating part covers the through hole, the clamping part is located on the first part, and the clamping part is capable of being separated from the first part in the axial direction; and

in the switch-off state, the operating part and the through hole are arranged in the radial direction, and the clamping part is located on the second part and is connected with the second part in a clamped manner.

**[0012]** Optionally, a deformation part is further arranged on the sliding cover, and is attached to the switch unit, and the deformation part is capable of applying resistance to the switch unit when the switch unit is

switched between the switch-on state and the switch-off state.

**[0013]** Optionally, in the radial direction, the deformation part comprises a first area, a second area and a third area; in the switch-on state, the first area is attached to the switch unit; in the switch-off state, the third area is attached to the switch unit; and a width of the second area is smaller than a width of the first area and a width of the third area respectively.

**[0014]** Optionally, the base is suspended in the sliding cover.

**[0015]** Optionally, the base is connected with the through hole through an axial extension part, and the axial extension part is used for containing the aerosol forming substrate.

**[0016]** Optionally, a part of the base is connected with the axial extension part.

**[0017]** Optionally, the switch unit is connected with the base, and a part of the switch unit is located outside the aerosol generating device and used for driving the base to move in the axial direction relative to the heating body.

**[0018]** Optionally, an elastic part is arranged in the cigarette compartment, one end of the elastic part is connected with the base, the other end of the elastic part is connected with an inner wall of the cigarette compartment, and the elastic part is capable of applying resistance to the base when the switch unit is switched between the switch-on state and the switch-off state.

**[0019]** Optionally, when the switch unit drives the base to move in the axial direction relative to the heating body, the elastic part is capable of moving in the radial direction, and the radial direction is perpendicular to the axial direction.

**[0020]** Optionally, the elastic part comprises a first axial extension part and an elastic piece, one end of the elastic piece is connected with the first axial extension part, the other end of the elastic piece is connected with the inner wall of the cigarette compartment, the base is provided with a second axial extension part, the first axial extension part is provided with an inclined plane, the second axial extension part abuts against the inclined plane, and the elastic piece and the second axial extension part are positioned on different sides of the first axial extension part.

**[0021]** Optionally, the elastic piece extends in the radial direction.

**[0022]** Optionally, a third axial extension part is arranged on a side, facing away from the second axial extension part, of the base, and the third axial extension part is connected with the switch unit.

**[0023]** Optionally, the aerosol generating device further comprises a body part, a third sliding groove is formed in the body part, and extends in the axial direction, and the switch unit is inserted into the third sliding groove, and is capable of sliding along the third sliding groove so as to be switched between the switch-on state and the switch-off state.

**[0024]** Optionally, the aerosol generating device fur-

ther comprises an annular part which is arranged on the elastic part; in the switch-on state, at least part of the annular part is located outside the containing part in the radial direction; and in the switch-off state, the annular part is located in the containing part and used for allowing the aerosol forming substrate to be inserted into and contained in the containing part.

**[0025]** The present invention further provides an aerosol generating system comprising any one of the above aerosol generating devices; and an aerosol generating substrate is placed in the containing part, and is capable of preventing the base from moving in the axial direction relative to the heating body.

**[0026]** Optionally, after the aerosol forming substrate is taken out from the containing part, the base is capable of moving in the axial direction relative to the heating body, and after the aerosol forming substrate is placed in the containing part, the base remains stationary relative to the heating body.

**[0027]** As stated above, the present invention provides the aerosol generating device comprising the heating body and the cigarette compartment, wherein the cigarette compartment is provided with the containing part, and the heating body is inserted into the containing part, and is used for heating the aerosol forming substrate placed in the containing part. In addition, the aerosol generating device further comprises the base, and the base is located in the containing part and is arranged around the heating body. After being placed in the containing part, the aerosol forming substrate is also placed on the base, at the moment, the aerosol forming substrate placed in the containing part is capable of preventing the base from moving in the axial direction relative to the heating body, the base remains stationary relative to the heating body, and heating of the heating body to the aerosol forming substrate is not affected, so that generated aerosol is provided for a user to smoke, and the user uses the aerosol generating device conveniently.

**[0028]** Furthermore, after the user finishes smoking and takes out the aerosol forming substrate from the containing part, the base is capable of moving in the axial direction relative to the heating body. Due to the fact that the base is capable of moving in the axial direction relative to the heating body, the base may be lifted, and external substances, such as dust and aerosol forming substrate residues, remaining on the base are also lifted, not only the base but also the aerosol generating device is convenient to clean.

**[0029]** In order that the foregoing description of the present invention may be more readily understood, detailed description will be made below by specific preferred embodiments in combination with accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0030]**

Fig. 1 is a first stereoscopic diagram of an aerosol generating device of an embodiment of the present invention;

Fig. 2 is a second stereoscopic diagram of an aerosol generating device of an embodiment of the present invention;

Fig. 3 is a first cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 4 is a second cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 5 is a schematic diagram showing separation of a sliding cover and a cigarette compartment in an aerosol generating device of an embodiment of the present invention;

Fig. 6 is a stereoscopic diagram of a sliding cover in an aerosol generating device of an embodiment of the present invention;

Fig. 7 is a stereoscopic diagram of a switch unit in an aerosol generating device of an embodiment of the present invention;

Fig. 8 is a stereoscopic diagram of a cigarette compartment in an aerosol generating device of an embodiment of the present invention;

Fig. 9 is a schematic view showing connection of a switch unit and a deformation part in an aerosol generating device according to an embodiment of the present invention;

Fig. 10 is a third stereoscopic diagram of an aerosol generating device of an embodiment of the present invention;

Fig. 11 is a third cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 12 is a fourth cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 13 is a fifth cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 14 is a fourth stereoscopic diagram of an aerosol generating device of an embodiment of the present invention;

Fig. 15 is a sixth cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 16 is a seventh cross-sectional view of an aerosol generating device of an embodiment of the present invention;

Fig. 17 is an eighth cross-sectional view of an aerosol generating device of an embodiment of the present invention; and

Fig. 18 is an enlarged view of a part D of Fig. 17.

## DETAILED DESCRIPTION

**[0031]** Implementation modes of the present invention

are illustrated below by specific embodiments, and other advantages and effects of the present invention may be readily appreciated by those skilled in the art from what is disclosed in this specification. While the description of the present invention will be described in combination with the preferred embodiments, it is not intended that the features of the present invention are limited to the implementation modes only. On the contrary, the present invention is described in combination with the implementation modes to achieve the purpose of covering alternatives or modifications which may be derived based on the claims of the present invention. In the following description, numerous specific details are included to provide a thorough understanding of the present invention. The present invention may be practiced without these specific details. Moreover, some of the specific details are omitted from the description in order not to confuse or obscure the focus of the present invention. It should be noted that the embodiments and features in the embodiments of the present invention may be combined with each other without conflict.

**[0032]** Referring to Fig. 1 to Fig. 4, the present invention provides an aerosol generating device 10 comprising a heating body 13 and a cigarette compartment 11, wherein the cigarette compartment 11 is provided with a containing part 12 in which the heating body 13 is inserted, the heating body 13 is used for heating an aerosol forming substrate 20 placed in the containing part 12. In addition, the aerosol generating device 10 further comprises a base 14, and the base 14 is located in the containing part 12 and arranged around the heating body 13. Referring to Fig. 1 and Fig. 3, after the aerosol forming substrate 20 is placed in the containing part 12, the aerosol forming substrate 20 is also placed on the base 14, at the moment, the aerosol forming substrate 20 placed in the containing part 12 is capable of preventing the base 14 from moving in an axial direction relative to the heating body 13, and the base 14 remains stationary relative to the heating body 13 without affecting heating of the aerosol forming substrate 20 by the heating body 13, so that the generated aerosol is provided for a user to smoke, and the user uses the aerosol generating device conveniently.

**[0033]** Referring to Fig. 2 and Fig. 4, after the user completes smoking and takes out the aerosol forming substrate 20 from the containing part 12, the base 14 is capable of moving in the axial direction (as shown in a direction X in Fig. 4) relative to the heating body 13. Referring to Fig. 5, the base 14 moves in the axial direction (as shown in a direction X in Fig. 5) relative to the heating body 13, so that the base 14 may be lifted, then external substances, such as dust and aerosol forming substrate residues, remaining on the base 14 are also lifted, making not only the base 14 but also the aerosol generating device 10 convenient to clean.

**[0034]** In the embodiment, the aerosol generating device 10 comprises a switch unit 30, wherein the base 14 is capable of moving in the axial direction relative to the

heating body 13 when the switch unit 30 is in a switch-on state, and the base 14 remains stationary relative to the heating body 13 when the switch unit 30 is in a switch-off state.

**[0035]** Specifically, referring to Fig. 2 and Fig. 4, the aerosol generating device 10 further comprises a sliding cover 40, wherein the sliding cover 40 covers the cigarette compartment 11, a through hole 45 corresponding to the containing part 12 is formed in the sliding cover 40, and the aerosol forming substrate 20 is inserted into the through hole 45 in the sliding cover 40 to be placed in the containing part 12 of the cigarette compartment 11. In conjunction with Fig. 5, the base 14 is arranged in the sliding cover 40 and is opposite to the through hole 45 in the axial direction (as shown in the direction X in Fig. 5), and the aerosol forming substrate 20 is inserted into the through hole 45 in the sliding cover 40 to be placed on the base 14 in the containing part 12 of the cigarette compartment 11.

**[0036]** In the embodiment, referring to Fig. 4, the switch unit 30 is arranged on the sliding cover 40; when the switch unit 30 is in the switch-on state, the switch unit 30 covers the through hole 45 (as shown in Fig. 4) and is capable of being separated from the cigarette compartment 11 in the axial direction, and the sliding cover 40 is capable of being separated from the cigarette compartment 11 in the axial direction (as shown in Fig. 5); and when the switch unit 30 is in the switch-off state, the switch unit 30 and the through hole 45 are arranged in a radial direction (as shown in a direction Y in Fig. 2), the sliding cover 40 is connected with the cigarette compartment 11 in a clamped mode, movement of the sliding cover 40 in the axial direction is limited, wherein the radial direction is perpendicular to the axial direction. In the embodiment, when in the switch-off state, the switch unit 30 is spaced from the through hole 45 in the radial direction (as shown in Fig. 2 and Fig. 3), and in other embodiments, the switch unit and the through hole are adjacently connected in the radial direction, for example, the switch unit and the through hole are in contact with each other in the radial direction, projections of the switch unit and the through hole in the axial direction may be a line, and may also be an area, and for example, the area is elliptical.

**[0037]** Referring to Fig. 6 and Fig. 7 in conjunction with Fig. 2, Fig. 17 and Fig. 18, in the embodiment, the sliding cover 40 is further provided with a first sliding groove 41, wherein the first sliding groove 41 and the through hole 45 are arranged in the radial direction (as shown in a direction Y in Fig. 6). In the embodiment, the first sliding groove 41 and the through hole 45 are spaced from each other in the radial direction, and in other embodiments, the first sliding groove and the through hole are adjacently connected in the radial direction, for example, the first sliding groove and the through hole are in contact with each other in the radial direction, and projections of the first sliding groove and the through hole in the axial direction may be a line. The switch unit 30 is inserted into

the first sliding groove 41, and is capable of sliding along the first sliding groove 41 till covering the through hole 45, as shown in Fig. 4, a direction C in Fig. 4 is a movement direction of the switch unit 30, alternatively, the switch unit 30 is capable of sliding along the first sliding groove 41 till the switch unit 30 and the through hole 45 are arranged in the radial direction (as shown in Fig. 2), for example, the switch unit 30 and the through hole 45 are spaced from each other in the radial direction, or are adjacently connected in the radial direction, or for example, the switch unit 30 and the through hole 45 are in contact with each other in the radial direction, and projections of the switch unit 30 and the through hole 45 in the axial direction may be a line.

**[0038]** Continuing to refer to Fig. 7 in conjunction with Fig. 4, in the axial direction, the switch unit 30 is provided with an operating part 31 located outside the sliding cover 40 and a clamping part 32 located inside the sliding cover 40. By controlling the operating part 31, the switch unit 30 may slide along the first sliding groove 41 till covering the through hole 45, so that the switch unit 30 is in the switch-on state; and alternatively, the operating part 31 is controlled so that the switch unit 30 may slide along the first sliding groove 41 till the switch unit 30 and the through hole 45 are arranged in the radial direction, for example, the switch unit 30 and the through hole 45 are spaced from each other in the radial direction, and thus, the switch unit 30 is in the switch-off state. Referring to Fig. 8 and Fig. 18, a part, facing the sliding cover 40, of the cigarette compartment 11 is provided with a second sliding groove 42, and in an extending direction (as shown in a direction Y in Fig. 8) of the second sliding groove 42, the second sliding groove 42 is provided with a first part 42b and a second part 42a, wherein the extending direction of the second sliding groove 42 is consistent to an extending direction of the first sliding groove 41.

**[0039]** When the switch unit 30 is in the switch-on state, the operating part 31 covers the through hole 45 in the sliding cover 40, the clamping part 32 is located on the first part 42b of the second sliding groove 42, and is capable of being separated from the first part 42b in the axial direction, then movement of the sliding cover 40 in the axial direction is not limited, the sliding cover 40 is capable of being separated from the cigarette compartment 11 in the axial direction, and the user may clean the base 14 in the sliding cover 40.

**[0040]** When the switch unit 30 is in the switch-off state, the operating part 31 and the through hole 45 are arranged in the radial direction, the clamping part 32 is located on the second part 42a and is connected with the second part 42a in the axial direction in a clamped mode, movement of the sliding cover 40 in the axial direction is limited, and the sliding cover 40 may not be separated from the cigarette compartment 11 in the axial direction. In the embodiment, when the switch unit 30 is in the switch-off state, the operating part 31 and the through hole 45 are spaced from each other in the radial

direction; and in other embodiments, the operating part and the through hole are adjacently connected in the radial direction, for example, the operating part and the through hole are in contact with each other in the radial direction, projections of the operating part and the through hole in the axial direction may be a line, and may also be an area, and for example, the area is elliptical.

**[0041]** When the switch unit 30 is in the switch-off state, the aerosol forming substrate 20 may be inserted in the through hole 45 in the sliding cover 40 to be placed in the containing part 12 of the cigarette compartment 11, the heating body 13 heats the aerosol forming substrate 20 to generate aerosol for the user to smoke; in a smoking process, the aerosol forming substrate 20 abuts against the operating part 31 in the radial direction, the aerosol forming substrate 20 prevents the operating part 31 from moving towards the through hole 45 in the sliding cover 40, and the switch unit 30 may not be switched to the switch-on state from the switch-off state, so that the process of atomization of the aerosol forming substrate 20 by the aerosol generating device 10 may not be affected, and normal use of the aerosol generating device 10 is not interfered. In other embodiments, in the smoking process, the aerosol forming substrate and the operating part are arranged in the radial direction, and may not abut against each other, for example, the aerosol forming substrate and the operating part are spaced from each other in the radial direction.

**[0042]** Referring to Fig. 8, in the embodiment, a width of the first part 42b is greater than that of the clamping part 32, a width of the second part 42a is smaller than that of the clamping part 32, and the switch unit 30 slides to the second part 42a from the first part 42b to be switched from the switch-on state to the switch-off state. The clamping part 32 is capable of penetrating through the first part 42b to do up-down motion in the axial direction, and the clamping part 32 is not capable of penetrating through the second part 42a to do up-down motion in the axial direction.

**[0043]** In the embodiment, each of the first part 42b and the second part 42a is provided with two areas which are axisymmetric, the clamping part 32 is located in the two areas of the first part 42b and the two areas of the second part 42a respectively, and by such an arrangement, the stability of the clamping part 32 sliding along the second sliding groove 42 may be improved.

**[0044]** Referring to Fig. 4 and Fig. 9 in conjunction with Fig. 18, in the embodiment, the sliding cover 40 is further provided with a deformation part 60, the deformation part 60 is attached to the switch unit 30, and when the switch unit 30 is switched between the switch-on state and the switch-off state, the deformation part 60 is capable of applying resistance to the switch unit 30. That is, when the switch unit 30 is controlled to slide along the first sliding groove 41, the switch unit 30 is subjected to resistance. Due to existence of the resistance, the switch unit 30 is not capable of being switched between the switch-off state and the switch-on state randomly when

the switch unit 30 is not subjected to an external acting force, so that the stability of connection between the switch unit 30 and the sliding cover 40 is improved. In addition, the switch unit 30 needs to overcome the resistance applied by the deformation part 60 when switched from the switch-on state to the switch-off state, and also needs to overcome the resistance applied by the deformation part 60 when switched from the switch-off state to the switch-on state, so that the control feeling of the user is improved, and the user may be prompted that the switch unit 30 has been switched from the switch-on state to the switch-off state, or the switch unit 30 has been switched from the switch-off state to the switch-on state.

**[0045]** Referring to Fig. 9, in the embodiment, the operating part 31 and the clamping part 32 of the switch unit 30 are connected through a connecting part 33, the connecting part 33 is capable of sliding along the first sliding groove 41, and the deformation part 60 is attached to the connecting part 33 of the switch unit 30. In the radial direction (as shown in a direction Y in Fig. 9), the deformation part 60 comprises a first area 61, a second area 62 and a third area 63; in the switch-on state, the first area 61 is attached to the switch unit 30; in the switch-off state, the third area 63 is attached to the switch unit 30, and a width of the second area 62 is smaller than a width of the first area 61 and a width of the third area 63 respectively.

**[0046]** Then, the switch unit 30 may pass through the second area 62 when moving between the first area 61 and the third area 63, because the width of the second area 62 is smaller than the width of the first area 61 and the width of the third area 63 respectively, the switch unit 30 may be extruded, the deformation part 60 applies resistance to the switch unit 30, and the switch unit 30 moves to the first area 61 or the third area 63 after overcoming the resistance of the second area 62.

**[0047]** It should be noted that the specific structure of the deformation part is not limited thereto, but may also be in other structural forms, and the deformation part is capable of applying the resistance to the switch unit.

**[0048]** In the embodiment, the deformation part 60 is made of an elastic material, wherein the deformation part 60 is arranged in the first sliding groove 41. When sliding along the first sliding groove 41, the switch unit 30 may be subjected to the resistance applied by the deformation part 60.

**[0049]** Referring to Fig. 4 and Fig. 5, in the embodiment, the base 14 is suspended in the sliding cover 40, which is beneficial to cleaning the base 14 after the base 14 is separated from the heating body 13 in the axial direction. A mode of connection between the base 14 and the sliding cover 40 is not defined, in the embodiment, the base 14 is connected with the through hole 45 through an axial extension part 44, and the axial extension part is used for containing the aerosol forming substrate 20. The axial extension part 44 is spaced from an inner wall of the sliding cover 40 in the radial direction,

and thus, when the sliding cover 40 is capable of covering the cigarette compartment 11, the base 14 and the axial extension part 44 are located in the containing part 12 of the cigarette compartment 11. In conjunction with Fig. 6, in the embodiment, a part of the base 14 is connected with the axial extension part 44. It may be understood that the axial extension part 44 partially extends in a circumferential direction, and the base 14 and the axial extension part 44 wholly form an L shape (as shown in Fig. 5). After the base 14 is separated from the heating body 13 in the axial direction, an exposed area is large, so that the user cleans the base 14 conveniently.

**[0050]** Referring to Fig. 10 and Fig. 11, in other embodiments, the switch unit 30 is connected with the base 14, a part of the switch unit 30 is located outside the aerosol generating device 10 and is used for driving the base 14 to move relative to the heating body 13 in the axial direction (as shown in a direction X in Fig. 10 and Fig. 11). In the embodiment, the switch unit 30 is capable of moving, in the axial direction, towards the cigarette compartment 11 (as shown in a direction A in Fig. 10) so as to drive the base 14 to move in the axial direction relative to the heating body 13.

**[0051]** Continuing to refer to Fig. 11, in the embodiment, an elastic part 70 is arranged in the cigarette compartment 11, one end of the elastic part 70 is connected with the base 14, the other end of the elastic part 70 is connected with the inner wall of the cigarette compartment 11, and when the switch unit 30 is switched between the switch-on state and the switch-off state, the elastic part 70 is capable of applying resistance to the base 14. Due to existence of the resistance, when not subjected to the external acting force, the switch unit 30 is not capable of being switched between the switch-off state and the switch-on state randomly, and thus the stability of connection between the switch unit 30 and the base 14 is improved. In addition, the switch unit 30 needs to overcome the resistance applied by the elastic part 70 when switched from the switch-on state to the switch-off state, and also needs to overcome the resistance applied by the elastic part 70 when switched from the switch-off state to the switch-on state, the control feeling of the user is improved, and the user may be prompted that the switch unit 30 has been switched from the switch-on state to the switch-off state, or has been switched from the switch-off state to the switch-on state.

**[0052]** Relative positions of the elastic part 70 and the base 14 are not defined, in the embodiment, when the switch unit 30 drives the base 14 to move in the axial direction relative to the heating body 13, the elastic part 70 is capable of moving in the radial direction (as shown in a direction Y in Fig. 11), and the radial direction is perpendicular to the axial direction. In other embodiments, when the switch unit 30 drives the base 14 to move in the axial direction relative to the heating body 13, the elastic part 70 may move in the axial direction.

**[0053]** Specifically, referring to Fig. 11, the elastic part 70 comprises a first axial extension part 50 and an elastic

piece 51, and an extending direction of the first axial extension part 50 is consistent to an extending direction of the heating body 13. One end of the elastic piece 51 is connected with the first axial extension part 50, and the other end of the elastic piece 51 is connected with the inner wall of the cigarette compartment 11. The base 14 is provided with a second axial extension part 15, the first axial extension part 50 is provided with an inclined plane, the second axial extension part 15 abuts against the inclined plane, and the elastic piece 51 and the second axial extension part 15 are located on different sides of the first axial extension part 50. Due to existence of the inclined plane, movement of the base 14 in the axial direction is converted into movement of the elastic part 70 in the radial direction. In other embodiments, the movement of the base in the axial direction is converted into the movement of the elastic part in the radial direction by other structural forms.

**[0054]** In the embodiment, the elastic piece 51 extends in the radial direction (as shown in the direction Y in Fig. 11). In the other embodiments, the elastic piece 51 may extend in the other directions, is capable of being compressed to facilitate movement of the elastic part 70 in the radial direction, and is capable of resetting the elastic part 70.

**[0055]** Referring to Fig. 12, a third axial extension part 16 is arranged on a side, facing away from the second axial extension part 15, of the base 14, and is connected with the switch unit 30, and an extending direction of the third axial extension part 16 is consistent to the extending direction of the heating body 13. In addition, the aerosol generating device 10 further comprises a body part 101. Referring to Fig. 10, the body part 101 is provided with a third sliding groove 43, the third sliding groove 43 extends in the axial direction, and the switch unit 30 is inserted into the third sliding groove 43, and is capable of sliding along the third sliding groove 43 to be switched between the switch-on state and the switch-off state.

**[0056]** In addition, the aerosol generating device 10 further comprises an annular part 52 which is arranged on the elastic part 70. When the switch unit 30 is in the switch-on state, in the radial direction, at least part of the annular part 52 is located outside the containing part 12; and when the switch unit 30 is in the switch-off state, the annular part 52 is located on the containing part 12, so that the aerosol forming substrate 20 may be inserted into and contained in the containing part 12.

**[0057]** Specifically, referring to Fig. 11, after the aerosol forming substrate 20 is inserted into the containing part 12 along the annular part 52, the annular part 52 sleeves the aerosol forming substrate 20, the aerosol forming substrate 20 prevents the elastic part 70 from moving in the radial direction, so that the switch unit 30 may not be switched between the switch-off state and the switch-on state, further, the process of the atomization of the aerosol forming substrate 20 by the aerosol generating device 10 may not be affected, and the normal use of the aerosol generating device 10 is not interfered.

At the moment, the base 14 remains stationary relative to the heating body 13, heating of the heating body 13 to the aerosol forming substrate 20 is not affected, and thus, generated aerosol is provided for the user to smoke.

[0058] After the user completes smoking, referring to Fig. 13, movement of the annular part 52 in the radial direction is not limited after the aerosol forming substrate 20 is taken out from the containing part 12, thus, the elastic part 70 is capable of moving in the radial direction, and then, the base 14 is capable of moving in the axial direction (as shown in a direction X in Fig. 13) relative to the heating body 13. Referring to Fig. 13 and Fig. 14, the switch unit 30 is controlled to slide, in the axial direction, towards the cigarette compartment 11 (as shown in a direction A in Fig. 13 and Fig. 14) in the third sliding groove, and the switch unit 30 is switched to the switch-on state from the switch-off state. Referring to Fig. 15 and Fig. 16, the third axial extension part 16 moves in the axial direction, then the base 14 moves in the axial direction relative to the heating body 13, the base 14 is lifted, under the action of the inclined plane, the elastic part 70 moves in the radial direction, and the elastic piece 51 is compressed to generate an elastic force.

[0059] The switch unit 30 is released, under the action of the elastic force, the elastic part 70 resets, moves in a direction opposite to a direction C in Fig. 16, and then drives the base 14 to move, in the axial direction, towards the switch unit 30 (as shown in a direction B in Fig. 13), and the switch unit 30 is switched to the switch-off state from the switch-on state.

[0060] In other embodiments, the annular part 52 may not be arranged. Then, after the aerosol forming substrate 20 is inserted into the containing part 12, the user completes smoking, the aerosol forming substrate 20 may be operated to move for a period of time in the circumferential direction relative to the heating body 13, and the aerosol forming substrate 20 is separated from the heating body 13. Then, the switch unit 30 is controlled to slide, in the axial direction, towards the cigarette compartment 11 in the third sliding groove 43, when the base 14 is lifted, the aerosol forming substrate 20 may be lifted simultaneously, and thus, the aerosol forming substrate 20 may be taken out.

[0061] Preferably, at least part of the base 14 in the aerosol generating device 10 of the present invention is attached to an outer peripheral surface of the heating body 13. In the embodiment, the base 14 is completely attached to the outer peripheral surface of the heating body 13. After the aerosol forming substrate 20 is taken out from the containing part 12, because the base 14 is attached to the outer peripheral surface of the heating body 13, a surface of the heating body 13 is cleaned when the base 14 moves in the axial direction relative to the heating body 13. The base 14 moves up and down in a reciprocating manner in the axial direction relative to the heating body 13, so that the surface of the heating body 13 may be cleaned in a reciprocating manner, which is more beneficial to cleaning the aerosol generating de-

vice 10. For example, under the action of the elastic part 70, the switch unit 30 is controlled to move in the third sliding groove 43 in a reciprocating manner, thus realizing the reciprocating cleaning of the surface of the heating body 13.

[0062] Referring to Fig. 10, an embodiment of the present invention further provides an aerosol generating system 1, comprising: the aerosol generating device 10 of any one of the foregoing embodiments; and an aerosol forming substrate 20 being placed in the containing part 12. After the aerosol forming substrate 20 is taken out from the containing part 12, the base 14 is capable of moving in the axial direction relative to the heating body 13; after being placed in the containing part 12, the aerosol forming substrate 20 placed in the containing part 12 is capable of preventing the base 14 from moving in the axial direction relative to the heating body 13, and the base 14 remains stationary relative to the heating body 13.

[0063] In summary, the above embodiments of the present invention are provided only for illustrating the principle and the effects of the present invention, instead of limiting the present invention. Those skilled in the art can modify or change the above embodiments without departing from the spirit and scope of the present invention. Accordingly, all equivalent modifications or changes made by those with general knowledge in the technical art without departing from the spirit and technical idea disclosed herein are to be embraced by the claims of the present invention.

## Claims

1. An aerosol generating device, **characterized by** comprising:
  - a heating body, used for heating an aerosol forming substrate;
  - a cigarette compartment, provided with a containing part in which the heating body is inserted; and
  - a base, located in the containing part, and arranged around the heating body;
  - wherein the aerosol forming substrate arranged in the containing part is capable of preventing the base from moving in an axial direction relative to the heating body.
2. The aerosol generating device according to claim 1, **characterized in that** the base is capable of moving in the axial direction relative to the heating body after the aerosol forming substrate is taken out from the containing part, and the base remains stationary relative to the heating body after the aerosol forming substrate is placed in the containing part.
3. The aerosol generating device according to claim 2,



**characterized by** comprising a switch unit, wherein the base is capable of moving in the axial direction relative to the heating body when the switch unit is in a switch-on state, and the base remains stationary relative to the heating body when the switch unit is in a switch-off state.

4. The aerosol generating device according to any one of claims 1-3, **characterized in that** at least part of the base is attached to an outer peripheral surface of the heating body.

5. The aerosol generating device according to claim 3, **characterized by** further comprising a sliding cover covering the cigarette compartment, wherein the sliding cover is provided with a through hole corresponding to the containing part, the base is arranged in the sliding cover and is opposite to the through hole in the axial direction, and the switch unit is arranged on the sliding cover;

in the switch-on state, the switch unit covers the through hole and is capable of being separated from the cigarette compartment in the axial direction, and the sliding cover is capable of being separated from the cigarette compartment in the axial direction; and

in the switch-off state, the switch unit and the through hole are arranged in a radial direction, and the sliding cover is connected with the cigarette compartment in a clamped mode.

6. The aerosol generating device according to claim 5, **characterized in that** the sliding cover is further provided with a first sliding groove, the first sliding groove and the through hole are arranged in the radial direction, the switch unit is inserted into the first sliding groove, and is capable of sliding along the first sliding groove till covering the through hole, or the switch unit and the through hole are arranged in the radial direction.

7. The aerosol generating device according to claim 6, **characterized in that** the switch unit is provided with an operating part and a clamping part in the axial direction, wherein the operating part is located outside the sliding cover and the clamping part is located inside the sliding cover;

a second sliding groove is formed in a part, facing the sliding cover, of the cigarette compartment, and is provided with a first part and a second part in an extending direction of the second sliding groove;

in the switch-on state, the operating part covers the through hole, the clamping part is located on the first part, and is capable of being separated from the first part in the axial direction; and

in the switch-off state, the operating part and the through hole are arranged in the radial direction, and the clamping part is located on the second part and is connected with the second part in a clamped mode in the axial direction.

8. The aerosol generating device according to any one of claims 5-7, **characterized in that** the sliding cover is further provided with a deformation part, wherein the deformation part is attached to the switch unit, and is capable of applying resistance to the switch unit when the switch unit is switched between the switch-on state and the switch-off state.

9. The aerosol generating device according to claim 8, **characterized in that** the deformation part comprises a first area, a second area and a third area in the radial direction, wherein in the switch-on state, the first area is attached to the switch unit, in the switch-off state, the third area is attached to the switch unit, and a width of the second area is smaller than a width of the first area and a width of the third area respectively.

10. The aerosol generating device according to any one of claims 5-7, **characterized in that** the base is suspended in the sliding cover.

11. The aerosol generating device according to claim 10, **characterized in that** the base is connected with the through hole through an axial extension part, and the axial extension part is used for containing the aerosol forming substrate.

12. The aerosol generating device according to claim 11, **characterized in that** a part of the base is connected with the axial extension part.

13. The aerosol generating device according to claim 3, **characterized in that** the switch unit is connected with the base, and a part of the switch unit is located outside the aerosol generating device for driving the base to move in the axial direction relative to the heating body.

14. The aerosol generating device according to claim 13, **characterized in that** an elastic part is arranged in the cigarette compartment, one end of the elastic part is connected with the base, the other end of the elastic part is connected with an inner wall of the cigarette compartment, and the elastic part is capable of applying resistance to the base when the switch unit is switched between the switch-on state and the switch-off state.

15. The aerosol generating device according to claim 14, **characterized in that** when the switch unit drives the base to move in the axial direction relative to the

heating body, the elastic part is capable of moving in the radial direction, and the radial direction is perpendicular to the axial direction.

16. The aerosol generating device according to claim 15, **characterized in that** the elastic part comprises a first axial extension part and an elastic piece, wherein one end of the elastic piece is connected with the first axial extension part, the other end of the elastic piece is connected with the inner wall of the cigarette compartment, the base is provided with a second axial extension part, the first axial extension part is provided with an inclined plane, the second axial extension part abuts against the inclined plane, and the elastic piece and the second axial extension part are located on different sides of the first axial extension part. 5 10 15
17. The aerosol generating device according to claim 16, **characterized in that** the elastic piece extends in the radial direction. 20
18. The aerosol generating device according to claim 16, **characterized in that** a third axial extension part is arranged on a side, facing away from the second axial extension part, of the base, and the third axial extension part is connected with the switch unit. 25
19. The aerosol generating device according to claim 13, **characterized by** further comprising a body part, wherein the body part is provided with a third sliding groove extending in the axial direction, the switch unit is inserted into the third sliding groove, and is capable of sliding along the third sliding groove so as to be switched between the switch-on state and the switch-off state. 30 35
20. The aerosol generating device according to claim 14, **characterized by** further comprising an annular part arranged on the elastic part, wherein in the switch-on state, at least part of the annular part is located outside the containing part in the radial direction; and in the switch-off state, the annular part is located in the containing part and used for allowing the aerosol forming substrate to be inserted into and contained in the containing part. 40 45
21. An aerosol generating system, **characterized by** comprising: 50
- the aerosol generating device according to any one of claims 1-20; and
- an aerosol forming substrate, being placed in a containing part, and being capable of preventing a base from moving in an axial direction relative to a heating body. 55
22. The aerosol generating system according to claim

21, **characterized in that** the base is capable of moving in the axial direction relative to the heating body after the aerosol forming substrate is taken out from the containing part, and the base remains stationary relative to the heating body after the aerosol forming substrate is placed in the containing part.

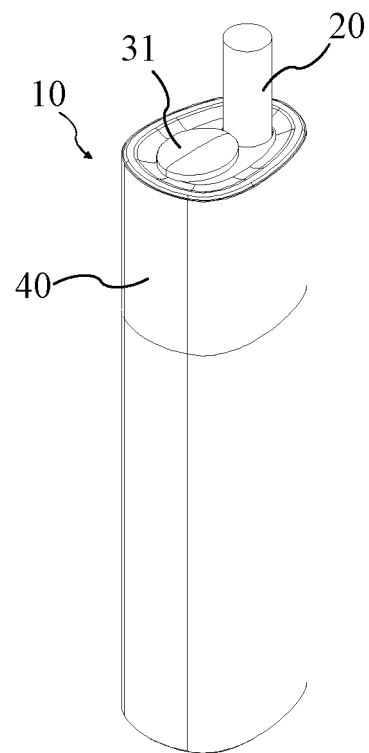


Fig. 1

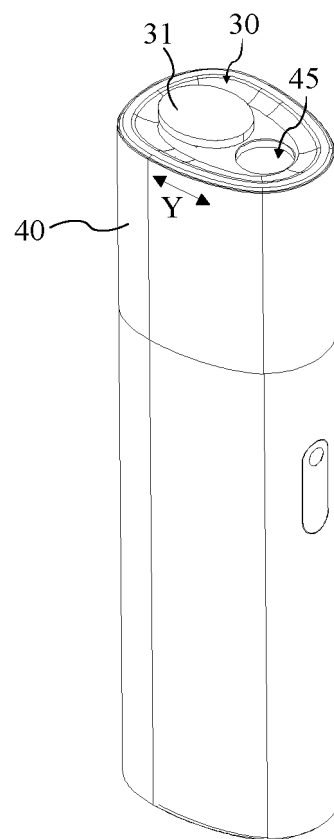


Fig. 2

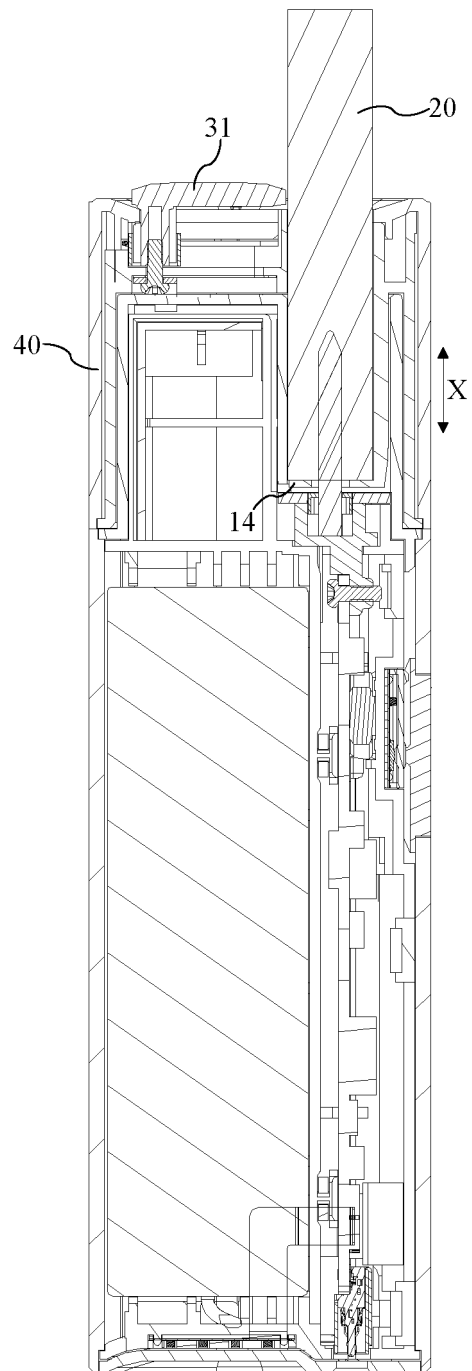


Fig. 3

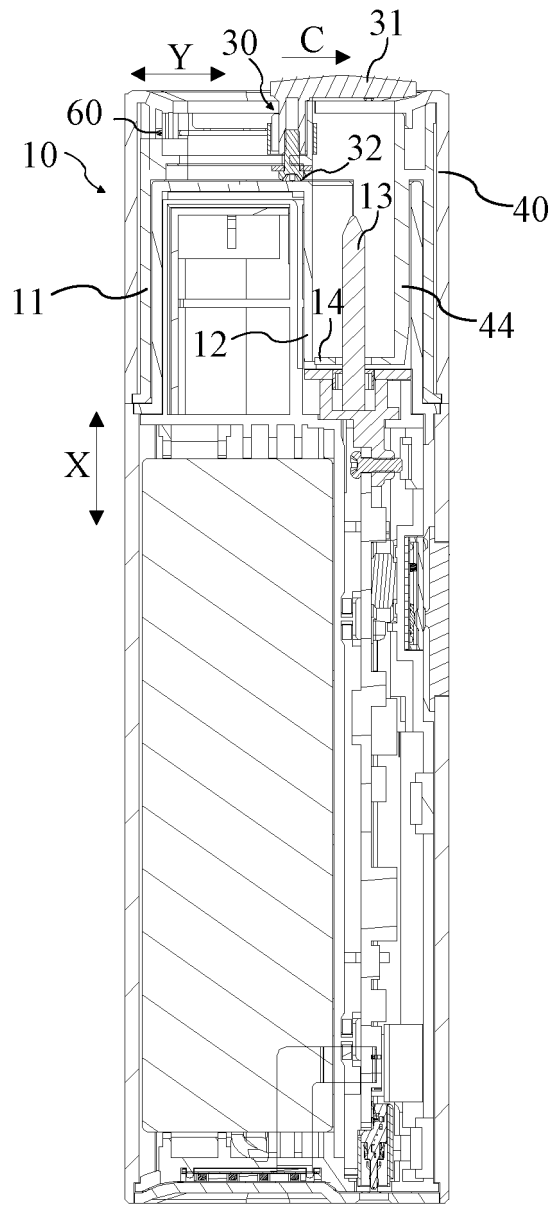


Fig. 4

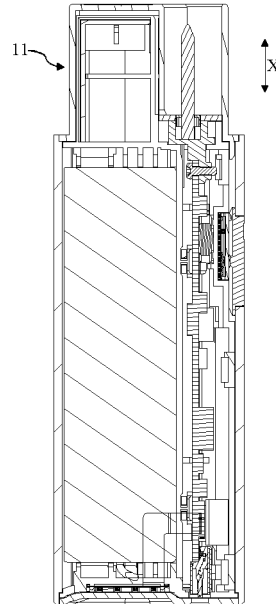
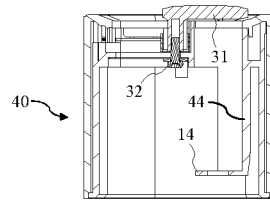


Fig. 5

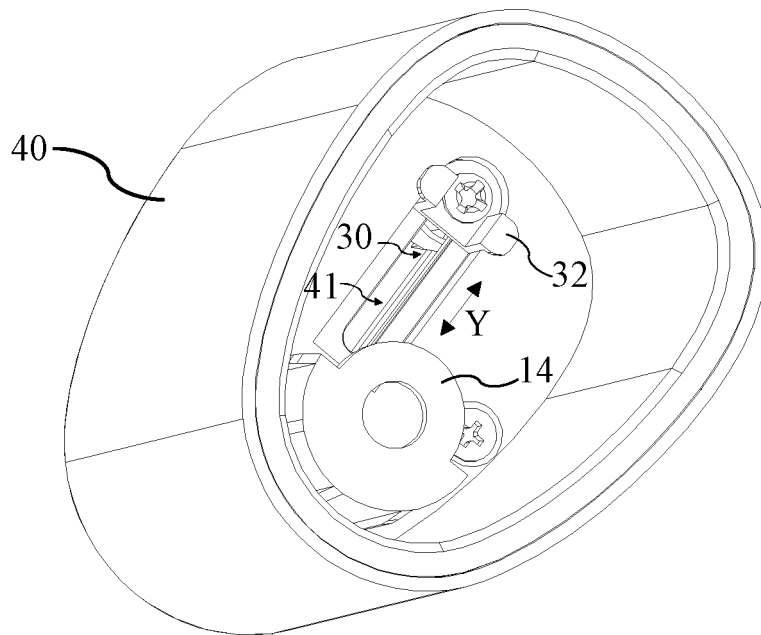


Fig. 6

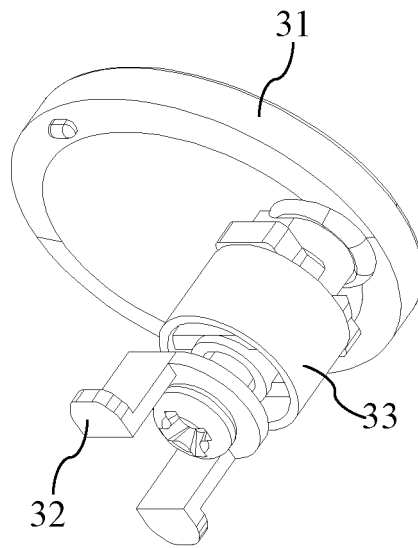


Fig. 7

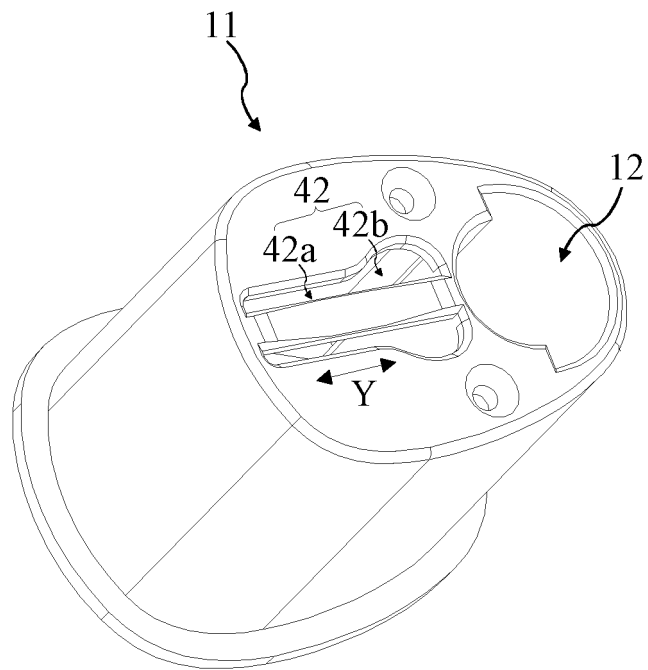


Fig. 8



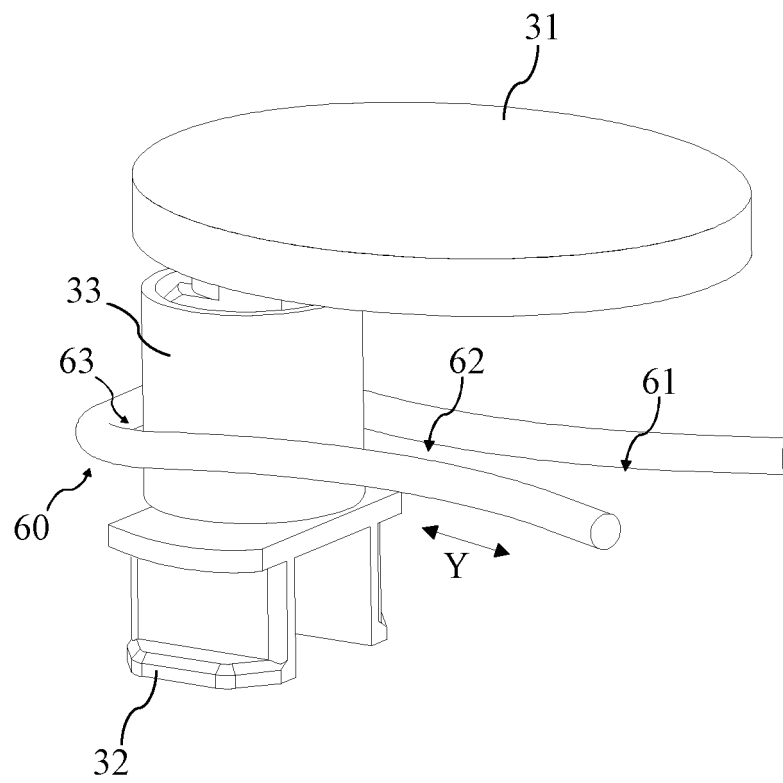


Fig. 9

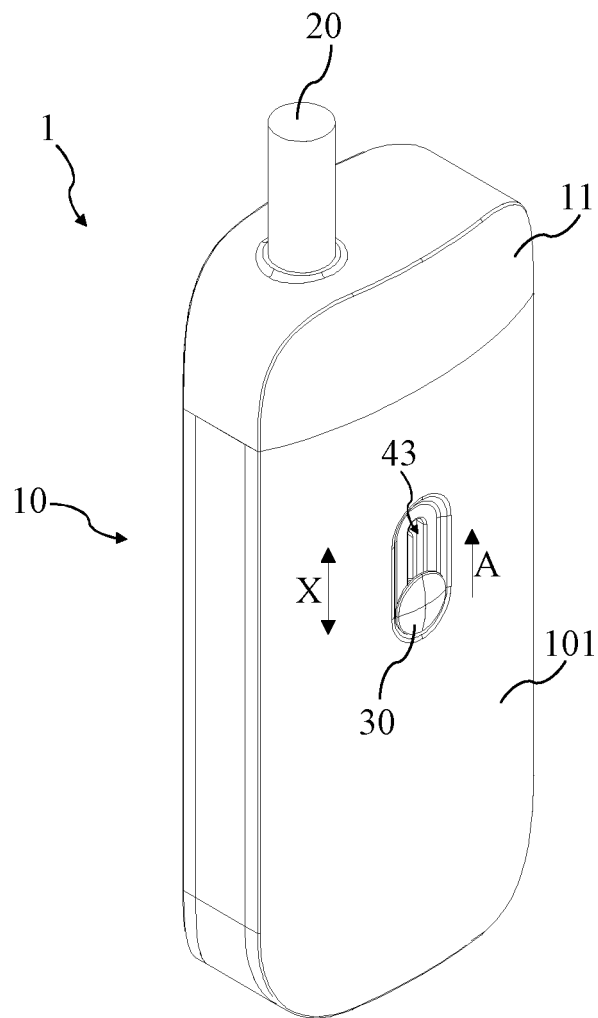


Fig. 10

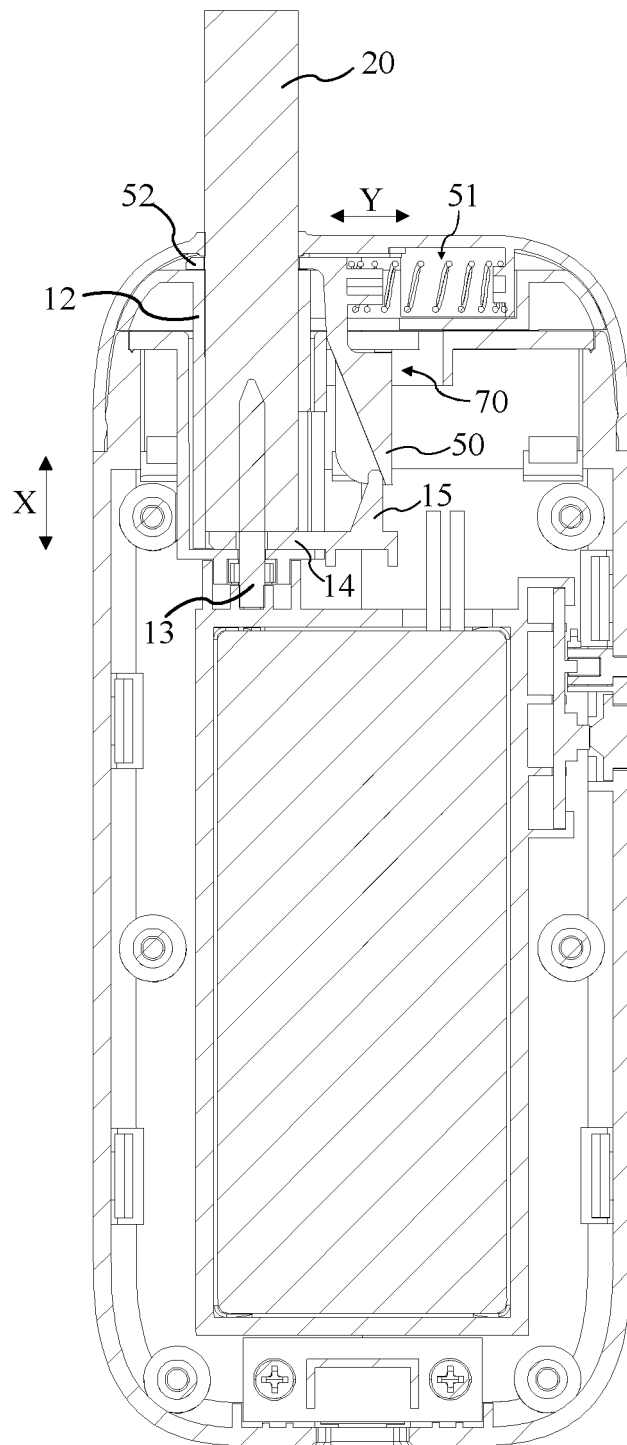


Fig. 11

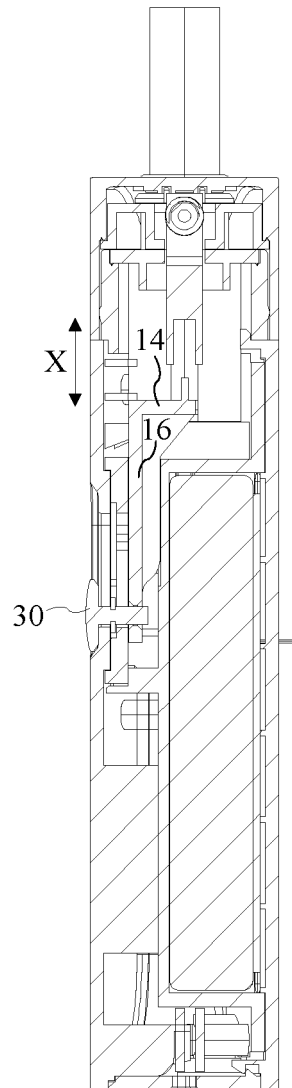


Fig. 12

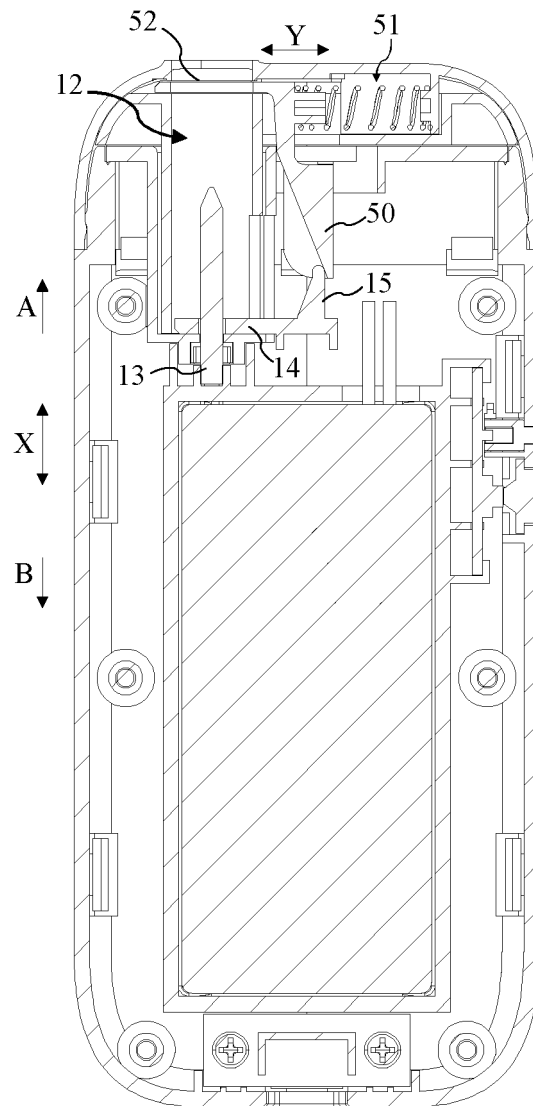


Fig. 13

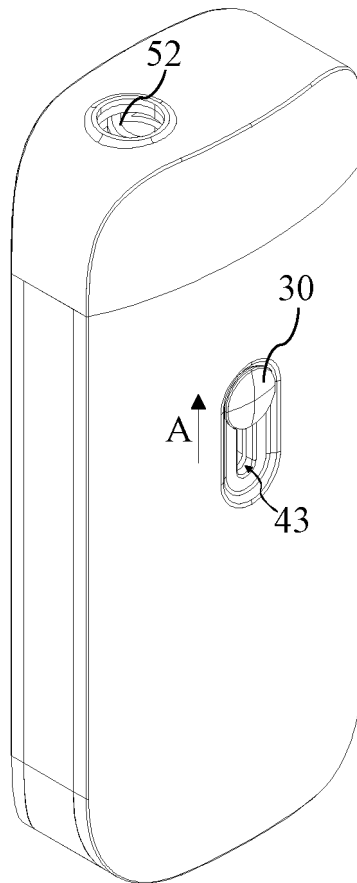


Fig. 14

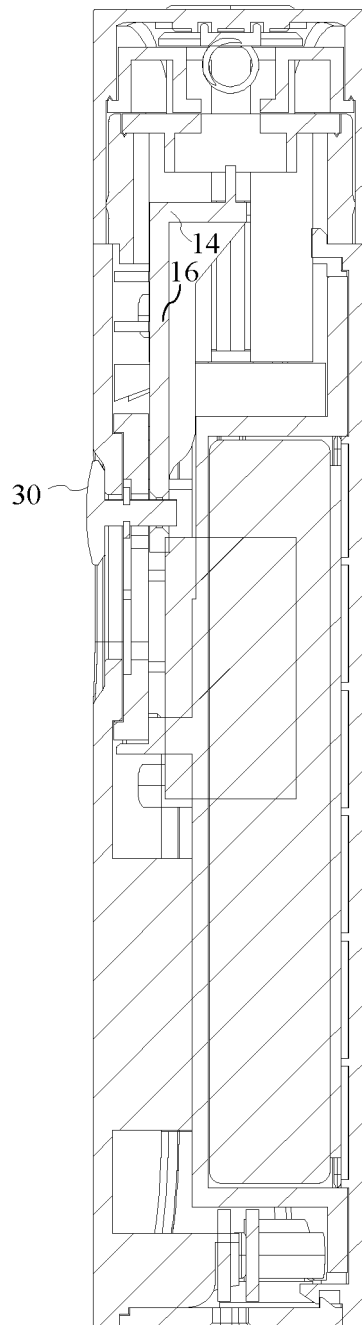


Fig. 15

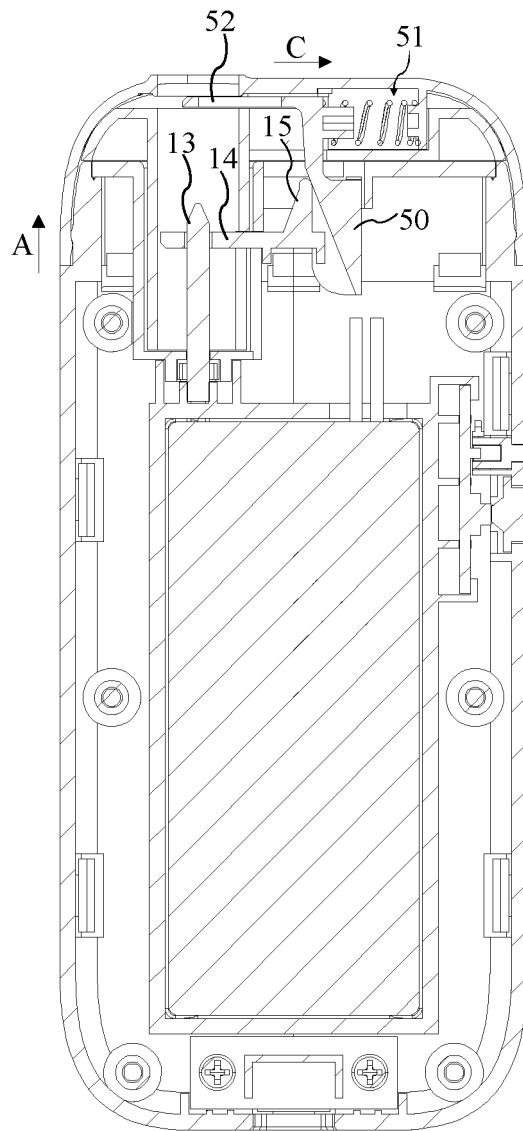


Fig. 16



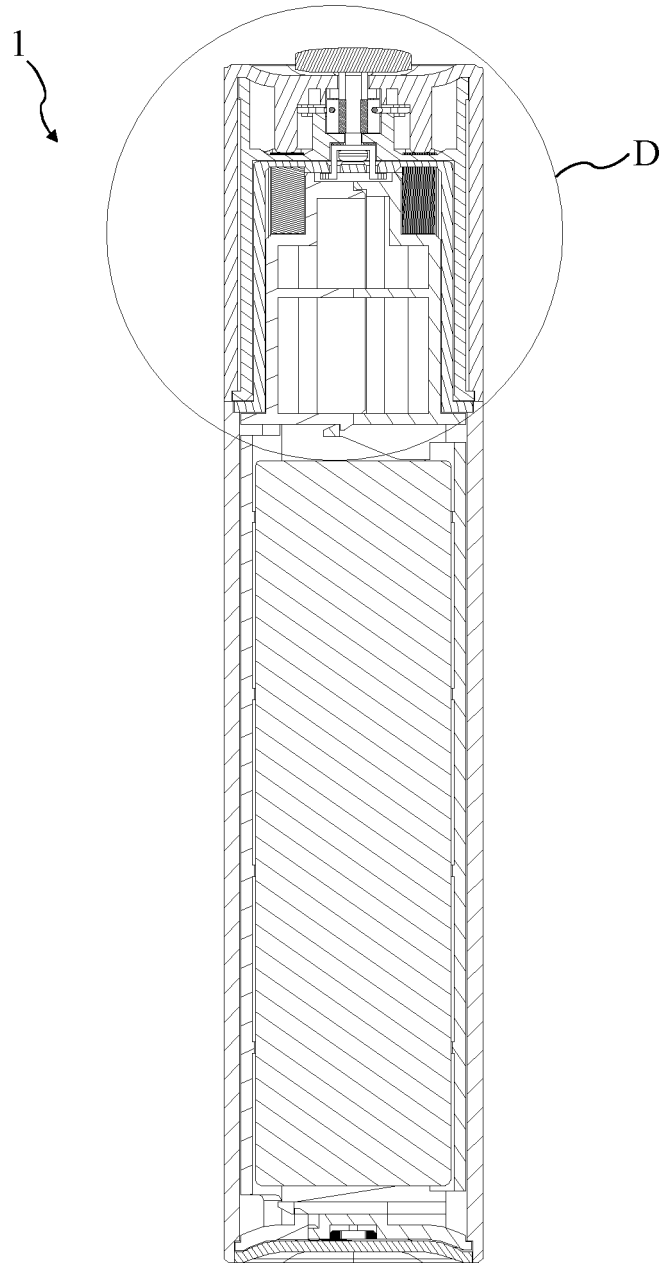


Fig. 17

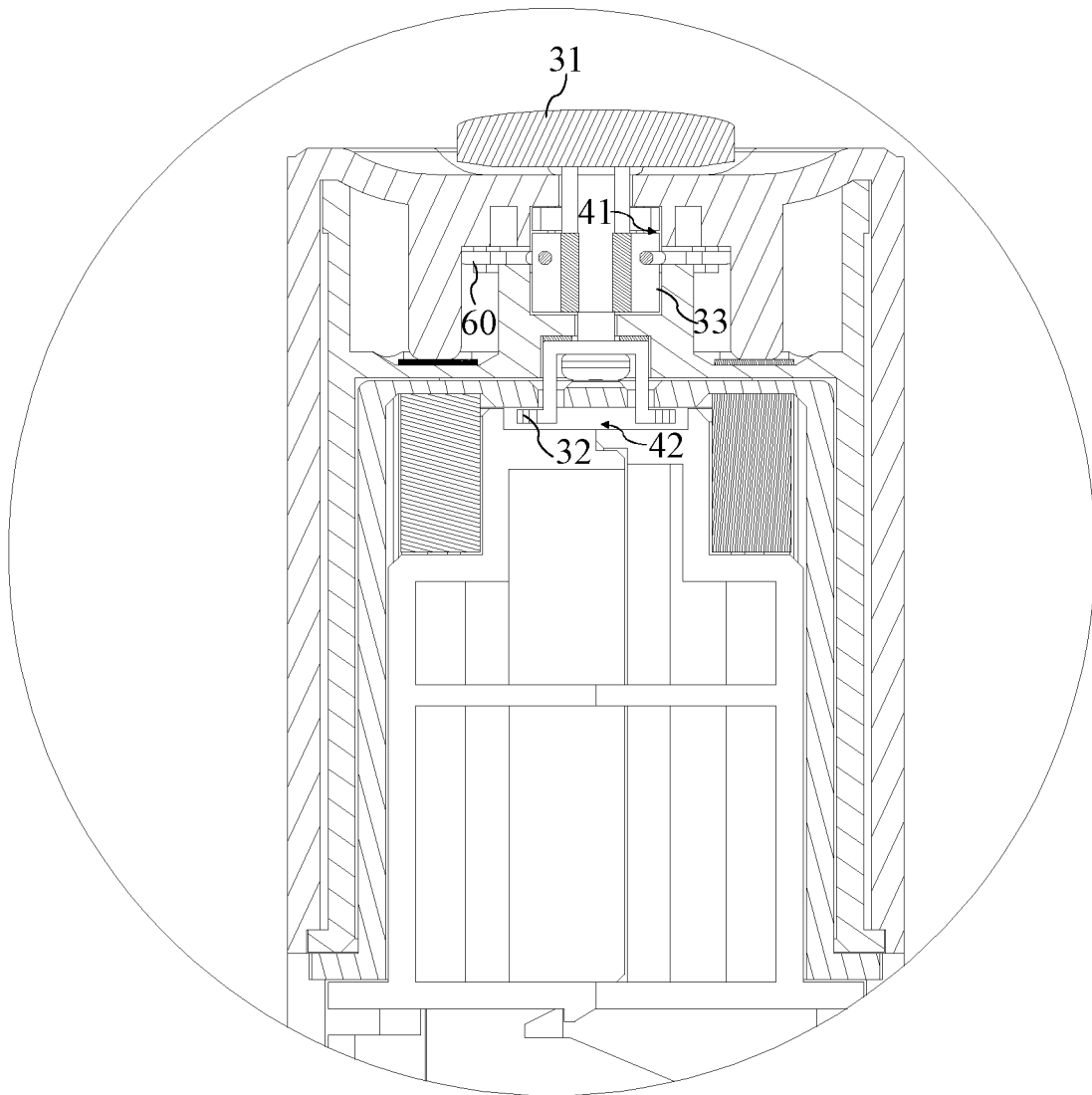


Fig. 18

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/104262

## A. CLASSIFICATION OF SUBJECT MATTER

A24F 47/00(2006.01)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)

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)

CNABS; CNTXT; CNKI; VEN; WOTXT; EPTXT; USTXT: 加热, 发热, 电热, 底, 座, 降, 升, 运动, 移动, 盖, 帽, 孔, 口, 开关, 键, 轨, 槽, 簧片, 弹性, 弹簧, 阻力, heat, bottom, base, support, move+, shift, lift+, up, down, rise, fall, lid, cover, cap, hole, open, button, switch, groove, slot, guide, spring, elastic, resistance

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.  |
|-----------|--|------------------------|
| X         | CN 107095344 A (HUBEI CHINA TOBACCO INDUSTRY CO., LTD.) 29 August 2017 (2017-08-29)<br>claim 3, description, paragraphs [0015] and [0029], and figures 1-7 | 1-4, 13-15, 19, 21, 22 |
| A         | CN 105768226 A (SHENZHEN RUIGU TECHNOLOGY CO., LTD.) 20 July 2016 (2016-07-20)<br>entire document  | 1-22                   |
| A         | CN 108158043 A (CHINA TOBACCO GUANGDONG INDUSTRIAL CO., LTD.) 15 June 2018 (2018-06-15)<br>entire document   | 1-22                   |

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

\* Special categories of cited documents:

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“P” document published prior to the international filing date but later than the priority date claimed

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“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&amp;” document member of the same patent family

Date of the actual completion of the international search

26 September 2019

Date of mailing of the international search report

25 November 2019

Name and mailing address of the ISA/CN

China National Intellectual Property Administration (ISA/  
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Authorized officer

Facsimile No. (86-10)62019451

Telephone No.

**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

**PCT/CN2019/104262**

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| Patent document<br>cited in search report |           |   | Publication date<br>(day/month/year) | Patent family member(s) |            |    | Publication date<br>(day/month/year) |
|---|-----------|---|--------------------------------------|-------------------------|------------|----|--------------------------------------|
| CN  | 107095344 | A | 29 August 2017                       | WO                      | 2018219277 | A1 | 06 December 2018                     |
|   |           |   |                                      | CN                      | 206821989  | U  | 02 January 2018                      |
| CN  | 105768226 | A | 20 July 2016                         | CN                      | 105768226  | B  | 02 November 2018                     |
| CN  | 108158043 | A | 15 June 2018                         | CN                      | 208064484  | U  | 09 November 2018                     |

Form PCT/ISA/210 (patent family annex) (January 2015)

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- CN 106376975 A [0003]