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(54) ATOMIZER AND AEROSOL GENERATING DEVICE

(57) The present disclosure provides an atomizer and an aerosol generating device. The atomizer includes an atomization seat provided with an accommodating cavity, a heating member disposed in the accommodating cavity, a liquid guide member located in the accommodating cavity and an aggregation area located in the accommodating cavity. The liquid guide member is connected to the heating member and extends into the aggregation area. The aggregation area is configured to aggregate an aerosol generating substrate. When the aerosol generating substrate enters the accommodating cavity, the liquid guide member can guide the aerosol generating substrate aggregated in the aggregation area to flow back to the heating member. The heating member can heat and atomize the aerosol generating substrate that is back flowed, thereby avoiding the waste caused by accumulation of the aerosol generating substrate in the accommodating cavity, thereby improving the utilization rate of the aerosol generating substrate.

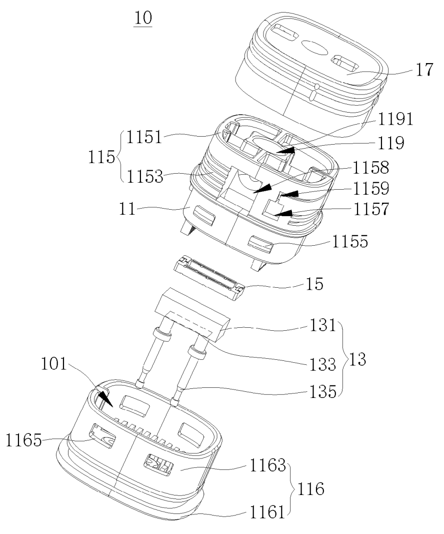

FIG. 3

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Description

FIELD

[0001] The present disclosure relates to the field of atomization technology, and more specifically, relates to an atomizer and an aerosol generating device.

BACKGROUND

[0002] At present, an atomizer of an aerosol generating device can heat and atomize an aerosol generating substrate, such as e-liquid, stored in a liquid storage cavity to generate aerosols for a user to suck. Generally, the atomizer includes an atomization seat provided with an accommodating cavity and a heating member accommodated in the accommodating cavity. The aerosol generating substrate stored in the liquid storage cavity can enter the accommodating cavity to be heated and atomized by the heating member to generate the aerosols. However, the aerosols in the accommodating cavity will be accumulated in the accommodating cavity due to condensation, and the aerosol generating substrate accumulated in the accommodating cavity cannot be heated and atomized, resulting in a waste of the aerosol generating substrate and a low utilization rate.

SUMMARY

[0003] An embodiment of the present disclosure provides an atomizer and an aerosol generating device.

[0004] The atomizer in the embodiment of the present disclosure includes an atomization seat and a heating member. The atomization seat is provided with an accommodating cavity, and the heating member is disposed in the accommodating cavity. The atomizer further includes a liquid guide member located in the accommodating cavity and an aggregation area located in the accommodating cavity. The liquid guide member is connected to the heating member and extends into the aggregation area. The aggregation area is configured to aggregate an aerosol generating substrate. When the aerosol generating substrate enters the accommodating cavity, the liquid guide member is configured to guide the aerosol generating substrate that is aggregated in the aggregation area to flow back to the heating member.

[0005] In some embodiments, the liquid guide member is provided with at least one capillary groove in communication with the aggregation area, and a side wall of the capillary groove is configured to allow the aerosol generating substrate to flow along it to the heating member.

[0006] In some embodiments, the depth of the capillary groove is 0.3 mm to 1.0 mm.

[0007] In some embodiments, the width of the capillary groove is 0.3 mm to 0.8 mm.

[0008] In some embodiments, the distance between the side of the liquid guide member towards the aggregation area and the bottom of the aggregation area is 0 mm to 2.0 mm.

[0009] In some embodiments, the aggregation area is configured to block the aerosol generating substrate from flowing in a first direction, a second direction, and a third direction, the first direction, the second direction, and the third direction are all perpendicular to the central axis of the atomizer, the first direction is parallel to and opposite the second direction, and the first direction and the second direction are both perpendicular to the third direction.

[0010] In some embodiments, the aggregation area is configured to block the aerosol generating substrate from flowing in the first direction, the second direction, and a fourth direction, the fourth direction is perpendicular to the central axis of the atomizer, and the fourth direction is parallel to and opposite the third direction.

[0011] In some embodiments, the atomization seat includes at least one blocking member located in the accommodating cavity and configured to form the aggregation area.

[0012] In some embodiments, the aggregation area is further configured to block the aerosol generating substrate from flowing in a fourth direction, the fourth direction is perpendicular to the central axis of the atomizer, and the fourth direction is parallel to and opposite the third direction.

[0013] In some embodiments, the atomization seat further includes a liquid storage groove located in the accommodating cavity, the liquid storage groove is in communication with the aggregation area and configured to store the aerosol generating substrate in the accommodating cavity.

[0014] An aerosol generating device in the embodiment of the present disclosure includes a battery assembly and the atomizer of any one of the above embodiments, wherein the atomizer is electrically connected to the battery assembly.

[0015] In the atomizer and the aerosol generating device in the embodiments of the present disclosure, the atomizer includes the liquid guide member located in the accommodating cavity and an aggregation area located in the accommodating cavity, the liquid guide member is connected to the heating member and extends into the aggregation area, and the liquid guide member can guide the aerosol generating substrate aggregated in the aggregation area to flow back to the heating member, and the heating member can heat and atomize the aerosol generating substrate that is back flowed, thereby avoiding the waste caused by accumulation of the aerosol generating substrate in the accommodating cavity, thereby improving the utilization rate of the aerosol generating substrate.

[0016] The additional aspects and advantages of the present disclosure will be partially provided in the following description, partially will become apparent from the following description, or will be learned through the practice of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The above and/or additional aspects and advantages of the present disclosure will become apparent and easily understood from the description of the embodiments in conjunction with the accompanying drawings, wherein:

FIG. 1 is a schematic structural diagram of an aerosol generating device in some embodiments of the present disclosure;

FIG. 2 is a schematic structural diagram of an implementation of an atomizer in the aerosol generating device shown in FIG. 1;

FIG. 3 is an exploded schematic diagram of the atomizer shown in FIG. 2;

FIG. 4 is a schematic structural diagram of a partial structure of an atomization seat in the atomizer shown in FIG. 3;

FIG. 5 is a schematic structural diagram of a partial structure of the atomization seat in the atomizer shown in FIG. 3;

FIG. 6 is a schematic structural diagram of another implementation of the atomizer in the aerosol generating device shown in FIG. 1;

FIG. 7 is an exploded schematic diagram of the atomizer shown in FIG. 6;

FIG. 8 is a sectional schematic diagram of the atomizer shown in FIG. 6; and

FIG. 9 is a sectional schematic diagram of the aerosol generating device in some embodiments of the present disclosure.

[0018] Description of numerals of main components:

aerosol generating device 100; aerosol generating substrate 200;

atomizer 10; accommodating cavity 101, first side 1011 of bottom of accommodating cavity, second side 1013 of bottom of accommodating cavity; battery assembly 20; suction member 30, suction channel 31, liquid storage cavity 33; detecting member 40;

atomization seat 11, liquid guide member 111, capillary groove 1111, aggregation area 112, blocking member 113, first sub-portion 1131, second sub-portion 1133, liquid storage groove 114, top cover 115, top wall 1151, peripheral wall 1153, connecting member 1155, first opening 1157, second opening 1158, communicating groove 1159, base 116, bottom wall 1161, side wall 1163, fitting member 1165, air inlet hole 1167, first aggregation member 117, first liquid aggregating groove 1171, second aggregation member 118, second liquid aggregating groove 1181, air outlet channel 119, first end 1191, second end 1193;

heating member 13, porous ceramic 131, heating layer 133, conductive member 135; first seal 15; second seal 17.

DETAILED DESCRIPTION

[0019] In order to make the above objectives, features, and advantages of the present disclosure clearer and more comprehensible, specific embodiments of the present disclosure are described in detail below with reference to the accompanying drawings. Many specific details are elaborated in the following description to facilitate a thorough understanding of the present disclosure. However, the present disclosure can be implemented in many ways different from those described herein, and a person skilled in the art can make similar improvements without departing from the connotation of the present disclosure, and therefore, the present disclosure is not limited by the specific embodiments disclosed below.

[0020] In the description of the present disclosure, it should be understood that that, orientation or position relationships indicated by terms such as "center", "longitudinal", "transverse", "length", "width", "thickness", "upper", "lower", "front", "rear", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", "clockwise", "counterclockwise", "axial", "radial", "circumferential" are orientation or position relationship shown based on the accompanying drawings, and are merely used to facilitate describing the present disclosure and simplifying the description, rather than indicating or implying that the mentioned device or element should have a particular orientation or be constructed and operated in a particular orientation, and therefore, should not be construed as a limitation to the present disclosure.

[0021] In addition, terms "first" and "second" are used merely for the purpose of description and shall not be construed as indicating or implying relative importance or implying a quantity of indicated technical features. Therefore, a feature restricted by "first" or "second" may explicitly indicate or implicitly include at least one of such features. In the description of the present disclosure, "a plurality of" means at least two, such as two, three, etc., unless otherwise specified.

[0022] In the present disclosure, unless otherwise explicitly specified and defined, terms such as "mounted", "connected", "connection", " fixed" should be understood in a broad sense. For example, the connection may be a fixed connection, a detachable connection, or an integral connection; or the connection may be a mechanical connection or may be an electrical connection; or the connection may be a direct connection, an indirect connection through an intermediate, or internal communication between two elements or an interaction relationship between two elements, unless otherwise specified. For a person skilled in the art, the specific meanings of the above terms in the present disclosure can be understood based on specific circumstances.

[0023] In the present disclosure, unless otherwise explicitly specified and defined, when a first feature is referred to as being "above" or "below" a second feature, the first feature and the second feature may be in direct contact, or in indirect contact through an intermediate media. Moreover, when the first feature is "above" the second feature, it may be that the first feature is directly above or obliquely above the second feature, or merely indicates that the horizontal height of the first feature is higher than that of the second feature. When the first feature is "below" the second feature, it may be that the first feature is directly below or obliquely below the second feature, or merely indicates that the horizontal height of the first feature is less than that of the second feature.

[0024] It should be noted that, when an element is referred to as being "fixed to" or "disposed on" another element, it may be directly on another element or there may be an intervening element. When an element is considered to be "connected" to another element, it may be directly connected to another element or there may be an intervening element present simultaneously. The terms "vertical", "horizontal", "upper", "lower", "left", "right" and the like used in the disclosure are for illustrative purposes only and are not intended to be the only embodiments.

[0025] At present, an atomizer in an aerosol generating device can heat and atomize an aerosol generating substrate stored, such as e-liquid, in a liquid storage cavity to generate aerosols for a user to suck. Generally, the atomizer includes an atomization seat provided with an accommodating cavity and a heating member accommodated in the accommodating cavity. The aerosol generating substrate stored in the liquid storage cavity can enter the accommodating cavity to be heated and atomized by the heating member to generate the aerosols. However, the aerosols in the accommodating cavity will be accumulated in the accommodating cavity due to condensation, and the aerosol generating substrate accumulated in the accommodating cavity cannot be heated and atomized, resulting in a waste of the aerosol generating substrate and a low utilization rate. In order to solve this problem, please refer to FIG. 1 and FIG. 2, the embodiment of the present disclosure provides an atomizer 10 and an aerosol generating device 100.

[0026] Please refer to FIG. 1 and FIG. 2 or FIG. 8, the atomizer 10 in the embodiment of the present disclosure includes an atomization seat 11 and a heating member 13. The atomization seat 11 is provided with an accommodating cavity 101, and the heating member 13 is disposed in the accommodating cavity 101. The atomizer 10 further includes a liquid guide member 111 located in the accommodating cavity 101 and an aggregation area 112 located inside the accommodating cavity 101. The liquid guide member 111 is connected to the heating member 13, and the liquid guide member 111 extends into the aggregation area 112. The aggregation area 112 is configured to aggregate the aerosol generating substrate 200 (as shown in FIG. 9). When the aerosol generating substrate 200 enters the accommodating cavity 101, the liquid guide member 111 is configured to guide the aerosol generating substrate 200 gathered in the aggregation area 112 to flow back to the heating member 13.

[0027] The aerosol generating substrate 200 is an item capable of generating aerosols. Specifically, the aerosol generating substrate 200 can form fine particles by heating or ultrasonic oscillation, and the fine particles are mixed with air to form aerosols. The form of the aerosol generating substrate 200 may be solid or liquid. In the present disclosure, the aerosol generating substrate 200 may be e-liquid, wherein the e-liquid is a mixed liquid dissolved in substances such as nicotine, and its solute is a common organic and/or a common inorganic solutes such as propylene glycol, plant glycerol, and pure water. The aerosol may be visible or invisible and may include a vapor (such as a fine particulate matter in a gaseous state, which is typically liquid or solid at room temperature) and a liquid droplet of gas and condensed vapor. The term "aerosol" used in the disclosure encompasses the aerosol generated during the heating of the aerosol generating substrate 200 in the aerosol generating device 100 of a heating type.

[0028] The heating member 13 is a device or a material that can generate heat energy and transfer the heat energy to the surrounding environment. Please refer to FIG. 3, in some embodiments, the heating member 13 may include a porous ceramic 131, a heating layer 133, and conductive members 135. Wherein, the porous ceramic 131 is accommodated in the accommodating cavity 101, and the heating layer 133 is disposed on one side of the porous ceramic 131 and electrically connected to the conductive members 135, such that the heating layer 133 can heat and atomize the aerosol generating substrate 200 that enters the accommodating cavity 101 and is adsorbed by the porous ceramic 131. It should be noted that in some embodiments, the porous ceramic 131 is usually prepared by mixing a ceramic slurry with a pore-forming agent and then sintering, and the sintered ceramic body has a large number of micropores (not shown in the figure). The heating layer 133 may be a heating circuit, a heating film, a heating sheet, a heating wire, or a heating net, etc., which is not limited herein. The conductive member 135 may be an electrode, wherein the electrode may be in a sheet shape, a columnar shape, or a powder porous shape, etc., which is not limited herein.

[0029] In the present disclosure, the liquid guide member 111 is connected to the porous ceramic 131 and located in the accommodating cavity 101, and the liquid guide member 111 extends into the aggregation area 112 to guide the aerosol generating substrate 200 in the aggregation area 112 to flow back to the porous ceramic 131, thereby avoiding the waste caused by the accumulation of the aerosol generating substrate 200 in the aggregation area 112.

[0030] In some embodiments, the number of the liquid guide member 111 may be one, and the one liquid guide member 111 is connected to any position of the heating member 13. In the case that the aerosols are accumulated in the accommodating cavity 101 due to condensation, the user can control the aerosol generating substrate 200 in the accommodating cavity 101 to be accumulated as much as possible at the position where the liquid guide member 111 is located. For example, the user can control the angle at which the aerosol generating device 100 is tilted when being sucked, so that the aerosol generating substrate 200 can be accumulated in the aggregation area 112 as much as possible, so that the liquid guide member 111 can guide the aerosol generating substrate 200 in the aggregation area 112 to flow back to the heating member 13, and the heating member 13 can re-heat the reflowed aerosol generating substrate 200, so that the waste of the aerosol generating substrate 200 can be reduced and on the other hand, compared with the aerosol generating substrate 200 in the accommodating cavity 101 being only partially located or completely not located at the position where the liquid guide member 111 is located, the backflow efficiency of the aerosol generating substrate 200 can also improved. It can be understood that in some embodiments, the one liquid guide member 111 may be arranged around the heating member 13, so that the aerosol generating substrate 200 in the accommodating cavity 101 can be in contact with the liquid guide member 111 regardless of the inclination of the aerosol generating device 100 (as shown in FIG. 1) in any direction, to ensure that the aerosol generating substrate 200 can quickly flow back to the heating member 13, thereby improving the backflow efficiency of the aerosol generating substrate 200.

[0031] In some other embodiments, a plurality of liquid guide members 111 may be provided, and the plurality of liquid guide members 111 are evenly spaced around the heating member 13. For example, in the case that the cross-sectional shape of the heating member 13 is quadrilateral, the number of the liquid guide members 111 may be four, and the four liquid guide members 111 are uniformly connected to the four side walls 1163 of the heating member 13. The arrangement of the plurality of liquid guide members 111 can enable the aerosol generating substrate 200 in the accommodating cavity 101 to be in contact with at least part of the liquid guide members 111 regardless of the inclination of the aerosol generating device 100 (as shown in FIG. 1) in any direction, thereby ensuring that the aerosol generating substrate 200 can quickly flow back to the heating member 13, and improving the backflow efficiency of the aerosol generating substrate 200.

[0032] In the atomizer 10 in the embodiments of the present disclosure, the atomizer 10 includes the liquid guide member 111 located in the accommodating cavity 101 and the aggregation area 112 located in the accommodating cavity 101, the liquid guide member 111 is connected to the heating member 13, and the liquid guide member 111 extends into the aggregation area 112. The liquid guide member 111 can guide the aerosol generating substrate 200 gathered in the aggregation area 112 to flow back to the heating member 13. The heating member 13 can heat and atomize the aerosol generating substrate 200 that is reflowed, thereby avoiding the waste caused by the accumulation of the aerosol generating substrate 200 in the accommodating cavity 101, and improving the utilization rate of the aerosol generating substrate 200.

[0033] The atomizer 10 is further described below in conjunction with the accompanying drawings.

[0034] Please refer to FIG. 2 or FIG. 7, in some embodiments, the atomization seat 11 includes a top cover 115 and a base 116, and the top cover 115 includes a top wall 1151 and a peripheral wall 1153 extending from the periphery of the top wall 1151 towards the direction of the base 116. The base 116 includes a bottom wall 1161 and a side wall 1163 extending from the periphery of the bottom wall 1161 towards the direction of the top cover 115. The side wall 1163 of the base 116 is connected to the peripheral wall 1153 of the top cover 115.

[0035] Specifically, in some embodiments, a connecting member 1155 is provided on the peripheral wall 1153 of the top cover 115, a fitting member 1165 is provided on the side wall 1163 of the base 116, and the connecting member 1155 cooperates with the fitting member 1165 to achieve the connection between the base 116 and the top cover 115. Wherein, the connecting member 1155 may be a protrusion that extends from the peripheral wall 1153 of the top cover 115 in the direction away from the top cover 115, and the fitting member 1165 may be a groove that is recessed in the direction away from the center of the accommodating cavity 101 from the inner side of the side wall 1163 of the base 116 (i.e., the side of the side wall 1163 facing the accommodating cavity 101), and the protrusion can extend into the groove to achieve the connection between the base 116 and the top cover 115. Of course, it may also be that the connecting member 1155 is a groove that is recessed towards the center of the accommodating cavity 101 from the outer side of the peripheral wall 1153 of the top cover 115, and the fitting member 1165 is a protrusion that extends from the side wall 1163 of the base 116 towards the center of the accommodating cavity 101, and the protrusion can extend into the groove to achieve the connection between the base 116 and the top cover 115. It can be understood that in other embodiments, the side wall 1163 of the base 116 and the peripheral wall 1153 of the top cover 115 may also be connected in a connection manner such as bonding, threaded connection, or welding, which is not limited herein. In the present disclosure, the top cover 115 and the base 116 can be integrally formed, and in this case, the peripheral wall 1153 of the top cover 115 and the side wall 1163 of the base 116 jointly form a peripheral wall 110 of the atomization seat 11.

[0036] Please refer to FIG. 4, generally, the aerosol generating substrate 200 can be accumulated at the bottom of the accommodating cavity 101 (i.e. the bottom wall 1161 of the base 116). If the bottom of the accommodating cavity 101 is not provided with a blocking member 113, the aerosol generating substrate 200 can flow freely in the accommodating cavity 101, and the aerosol generating substrate 200 will all flow to one side of the base 116 when the aerosol generating device 100 is inclined, resulting in a smaller contact area between part of the liquid guide members 111 and the aerosol generating substrate 200, thereby affecting the backflow efficiency of the aerosol generating substrate 200. In some embodiments, the base 116 may include at least one blocking member 113 located in the accommodating cavity 101 and configured to form the aggregation area 112, and the liquid guide member 111 extends into the aggregation area 112. Due to the arrangement of the blocking member 113, when the aerosol generating device 100 is inclined, the aerosol generating substrate 200 can be accumulated in the aggregation area 112 instead of being accumulated on one side of the base 116, thereby ensuring the contact area between the aerosol generating substrate 200 and the liquid guide member 111, and improving the backflow efficiency of the aerosol generating substrate 200. Specifically, in some embodiments, the blocking member 113 may extend from the bottom wall 1161 of the base 116 towards the top cover 115. Wherein, the blocking member 113 may be disposed at any position on the bottom wall 1161 of the base 116. It should be noted that the cross-sectional shape of the blocking member 113 may be a regular shape such as an L shape or a linear shape, or may be an irregular shape.

[0037] Please refer to FIG. 2 to FIG. 4, in some embodiments, the aggregation area 112 can block the flow of the aerosol generating substrate 200 (as shown in FIG. 9) from a first direction X, a second direction Y, and a third direction M. The first direction X, the second direction Y, and the third direction M are all perpendicular to the central axis of the atomizer 10, the first direction X is parallel to and opposite the second direction Y, and the first direction X and the second direction Y are both perpendicular to the third direction M.

[0038] Specifically, in some embodiments, when the blocking member 113 forms the aggregation area 112, the blocking member 113 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the third direction M. Therefore, the aerosol generating substrate 200 in the accommodating cavity 101 can be aggregated in the aggregation area 112 as much as possible, which not only facilitates the guiding of the aerosol generating substrate 200 in the aggregation area 112 back to the heating member 13 by the liquid guide member 111, reduces the waste of the aerosol generating substrate 200, but also improves the backflow efficiency of the aerosol generating substrate 200. It should be noted that in this embodiment, the number of the aggregation area 112 may only be one, and in this case, the blocking member 113 may include a first sub-portion 1131 and second sub-portions 1133 extending from two opposite ends of the first sub-portion 1131, wherein the second sub-portions 1133 extend from the two opposite ends of the first sub-portion 1131 towards the peripheral wall 110 of the atomization seat 11. In some embodiments, the extension direction of the first sub-portion 1131 may be substantially the same as the first direction X, and the extension direction of the second sub-portion 1133 may be substantially the same as a fourth direction N (wherein the fourth direction N is parallel to and opposite the third direction M), so that the first sub-portion 1131 and the two second sub-portions 1133 jointly form the aggregation area 112 to block the aerosol generating substrate 200 from flowing in the first direction X, the second direction Y, and the third direction M.

[0039] It can be understood that in other embodiments, one end of the first sub-portion 1131 may be connected to the peripheral wall 220 of the atomization seat 11, that is, a first end of the first sub-portion 1131 may be connected to the peripheral wall 110 of the atomization seat 11. In this case, a partial structure of the peripheral wall 110 of the atomization seat 11 can be the second sub-portion 1133. In other words, the first sub-portion 1131, the second sub-portion 1133, and the peripheral wall 110 of the atomization seat 11 jointly form the aggregation area 112 to block the aerosol generating substrate 200 from flowing in the first direction X, the second direction Y, and the third direction M.

[0040] Further, in some embodiments, the aggregation area 112 can block the aerosol generating substrate 200 from flowing in the first direction X, the second direction Y, and the fourth direction N. The fourth direction N is perpendicular to the central axis of the atomizer 10, and the fourth direction N is parallel to and opposite the third direction M.

[0041] Specifically, in some embodiments, when the blocking member 113 forms the aggregation area 112, the blocking member 113 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the fourth direction N. Therefore, the aerosol generating substrate 200 in the accommodating cavity 101 can be aggregated in the aggregation area 112 as much as possible, which not only facilitates the guiding of the aerosol generating substrate 200 in the aggregation area 112 back to the heating member 13 by the liquid guide member 111, reduces the waste of the aerosol generating substrate 200, but also improves the backflow efficiency of the aerosol generating substrate 200. It should be noted that in this embodiment, the number of the aggregation area 112 may only be one, and in this case, the blocking member 113 may include a first sub-portion 1131 and second sub-portions 1133 extending from two opposite ends of the first sub-portion 1131, wherein the second sub-portions 1133 extend from the two opposite ends of the first sub-portion 1131 towards the peripheral wall 110 of the atomization seat 11. In some embodiments, the extension direction of the first sub-portion 1131 may be substantially the same as the first direction X, and the extension direction of the second sub-portion 1133 may be substantially the same as the third direction M. Therefore, the first sub-portion 1131 and the two second sub-portions 1133 jointly form the aggregation area 112 to block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the fourth direction N.

[0042] It can be understood that in other embodiments, one end of the first sub-portion 1131 may be connected to the peripheral wall 110 of the atomization seat 11, that is, the first end of the first sub-portion 1131 may be connected to the peripheral wall 110 of the atomization seat 11. In this case, a partial structure of the peripheral wall 110 of the atomization seat 11 can be the second sub-portion 1133. In other words, the first sub-portion 1131, the second sub-portion 1133, and the peripheral wall 110 of the atomization seat 11 jointly form the aggregation area 112 to block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the fourth direction N.

[0043] In summary, if the atomizer 10 includes two aggregation areas 112 located in the accommodating cavity 101, one of the aggregation areas 112 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the third direction M, and the other one of the aggregation areas 112 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, and the fourth direction N. Therefore, the arrangement of the two aggregation areas 112 can block the aerosol generating substrate 200 from flowing in the first direction X, the second direction Y, the third direction M, and the fourth direction N. In other words, regardless of the inclination direction of the aerosol generating device 100, the aerosol generating substrate 200 can always be accumulated in the aggregation area 112 instead of being accumulated on one side of the base 116, thereby ensuring the contact area between the aerosol generating substrate 200 and the liquid guide member 111, and improving the backflow efficiency of the aerosol generating substrate 200.

[0044] Please refer to FIG. 1, FIG. 2, and FIG. 4, in some embodiments, the height of the blocking member 113 is 1.0 mm to 5.0 mm. Specifically, in some embodiments, the height of the blocking member 113 may be any one of the values of 1.0 mm, 1.5 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm, 4.0 mm, 4.5 mm, and 5.0 mm, or any value between any two of the values. If the height of the blocking member 113 is less than 1.0 mm, the height of the blocking member 113 is too low, and when the aerosol generating device 100 is inclined, the blocking member 113 cannot block the aerosol generating substrate 200 (as shown in FIG. 9) from flowing towards one side of the base 116, resulting in some aggregation sub- chambers being unable to aggregate or only able to aggregate less aerosol generating substrate 200, thereby affecting the backflow efficiency of the aerosol generating substrate 200. If the height of the blocking member 113 is greater than 5.0 mm, the aerosol generating substrate 200 that can be accumulated in the aggregation sub-chamber is too much, and when the user performs suction, the aerosol generating substrate 200 is easily sucked into the user's mouth, thereby affecting the user's suction experience. In the embodiments of the present disclosure, the height of the blocking member 113 is 1.0 mm to 5.0 mm, so that on one hand, it is ensured that the blocking member 113 can block the aerosol generating substrate 200 from flowing towards one side of the base 116 when the aerosol generating device 100 is inclined, thereby improving the backflow efficiency of the aerosol generating substrate 200, on the other hand, it can avoid excessive accumulation of the aerosol generating substrate 200 in the aggregation sub-chamber, which may lead to the aerosol generating substrate 200 being easily sucked into the user's mouth during suction, thereby improving the user's suction experience.

[0045] Please refer to FIG. 1, FIG. 6, and FIG. 7, in some other embodiments, the aggregation area 112 can further block the flow of the aerosol generating substrate 200 (as shown in FIG. 9) in the fourth direction N. The fourth direction N is perpendicular to the central axis of the atomizer 10, and the fourth direction N is parallel to and opposite the third direction M.

[0046] Specifically, please refer to FIG. 8, in some embodiments, the bottom of the accommodating cavity 101 includes a first side 1011 and a second side 1013 that are opposite to each other. Wherein, the aggregation area 112 is recessed from the first side 1011 of the bottom of the accommodating cavity 101 to the second side 1013 of the bottom of the accommodating cavity 101, and therefore, the aggregation area 112 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, the third direction M, and the fourth direction N. In other words, regardless of which direction the aerosol generating device 100 is inclined, the aerosol generating substrate 200 can be aggregated in the aggregation area 112 instead of being aggregated on one side of the base 116, thereby ensuring the contact area between the aerosol generating substrate 200 and the liquid guide member 111, and improving the backflow efficiency of the aerosol generating substrate 200. It should be noted that in the embodiments, the cross-sectional shape of the aggregation area 112 includes but is not limited to a regular shape such as a circle, a square, or a triangle, or may be an irregular shape.

[0047] In some embodiments, the size of the opening 1121 of the aggregation area 112 is the same as the size of the first side 1011 of the bottom of the accommodating cavity 101. Specifically, the aggregation area 112 can be formed by recessing the first side 1011 of the bottom of the accommodating cavity 101 towards the second side

1013 of the bottom of the accommodating cavity 101. In this case, the aggregation area 112 may be tapered, with the opening 1121 of the aggregation area 112 gradually decreasing in size from the first side 1011 of the bottom of the accommodating cavity 101 to the second side 1013 of the bottom of the accommodating cavity 101. Thus, if the aerosol generating device 100 is inclined, the aerosol generating substrate 200 in the accommodating cavity 101 can be aggregated to the bottom of the aggregation area 112 (the position of the aggregation area 112 closed to the second side of the base 116), so that the aggregation area 112 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, the third direction M, and the fourth direction N. The liquid guide member 111 extends into the aggregation area 112, so that the aggregated aerosol generating substrate 200 can flow back to the heating member 13.

[0048] In some other embodiments, the size of the opening 1121 of the aggregation area 112 is smaller than the size of the first side 1011 of the bottom of the accommodating cavity 101. Specifically, the aggregation area 112 can be formed by recessing a part of the first side 1011 of the bottom of the accommodating cavity 101 towards the second side 1013 of the bottom of the accommodating cavity 101. In this case, if the aerosol generating device 100 is inclined, the aerosol generating substrate 200 in the accommodating cavity 101 can all enter the aggregation area 112. Thus, the aggregation area 112 can block the flow of the aerosol generating substrate 200 in the first direction X, the second direction Y, the third direction M, and the fourth direction N. The liquid guide member 111 extends into the aggregation area 112, so that the aggregated aerosol generating substrate 200 can flow back to the heating member 13.

[0049] Please refer to FIG. 2, FIG. 4, and FIG. 5, in some embodiments, the liquid guide member 111 is provided with at least one capillary groove 1111, which is in communication with the aggregation area 112. A side wall of the capillary groove 1111 is configured to allow the aerosol generating substrate 200 (as shown in FIG. 9) to flow along it to the heating member 13.

[0050] Specifically, please refer to FIG. 3, in some embodiments, two ends of the capillary groove 1111 can be respectively connected to the aggregation area 112 and the heating member 13. Wherein, in the case that the heating member 13 includes a porous ceramic 131, the capillary groove 1111 is connected to the porous ceramic 131. Since the porous ceramic 131 has a plurality of micropores, when the porous ceramic 131 is connected to the liquid guide member 111, the porous ceramic 131 can form a plurality of tiny vacuum gaps and generate a negative pressure, so that the porous ceramic 131 can generate a suction force on the aerosol generating substrate 200 in the aggregation area 112. When the liquid guide member 111 extends into the aggregation area 112, the aerosol generating substrate 200 in the aggregation area 112 can flow along the side wall 1163 of the capillary groove 1111 to the heating member 13 under the capillary action and the suction force of the porous ceramic 131. It should be noted that in some embodiments, the extension direction of the capillary groove 1111 may be the same as the extension direction L of the liquid guide member 111. In some other embodiments, the extension direction of the capillary groove 1111 may intersect with the extension direction L of the liquid guide member 111. In another embodiments, the capillary groove 1111 may be spirally arranged on the liquid guide member 111 along the extension direction L of the liquid guide member 111.

[0051] In some embodiments, the depth of the capillary groove 1111 is 0.3 mm to 1.0 mm. Specifically, in some embodiments, the depth of the capillary groove 1111 may be any one of the values of 0.3 mm, 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 0.9 mm, and 1.0 mm, or any value between any two of the values. If the depth of the capillary groove 1111 is less than 0.3 mm, the volume of the capillary groove 1111 is too small, resulting in a decrease in the flow of the aerosol generating substrate 200 flowing back, which affects the backflow efficiency of the aerosol generating substrate 200. If the depth of the capillary groove 1111 is greater than 1.0 mm, the capillary force of the capillary groove 1111 will decrease or even disappear, which also affects the backflow efficiency of the aerosol generating substrate 200. In the embodiments of the present disclosure, the depth of the capillary groove 1111 is 0.3 mm to 1.0 mm, which can ensure the flow of the aerosol generating substrate 200 reflowing in the capillary groove 1111 and prevent the capillary force of the capillary groove 1111 from decreasing, thereby ensuring the backflow efficiency of the aerosol generating substrate 200.

[0052] In some embodiments, the width of the capillary groove 1111 is 0.3 mm to 0.8 mm. Specifically, in some embodiments, the width of the capillary groove 1111 may be any one of the values of 0.3 mm, 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, and 0.8 mm, or any value between any two of the values. If the width of the capillary groove 1111 is less than 0.3 mm, the volume of the capillary groove 1111 is too small, resulting in a decrease in the flow of the aerosol generating substrate 200 flowing back, which affects the backflow efficiency of the aerosol generating substrate 200. If the width of the capillary groove 1111 is greater than 0.8 mm, the capillary force of the capillary groove 1111 will decrease or even disappear, which also affects the backflow efficiency of the aerosol generating substrate 200. In the embodiments of the present disclosure, the width of the capillary groove 1111 is 0.3 mm to 0.8 mm, which can ensure the flow of the aerosol generating substrate 200 reflowing in the capillary groove 1111 and prevent the capillary force of the capillary groove 1111 from decreasing, thereby ensuring the backflow efficiency of the aerosol generating substrate 200.

[0053] Please continue to refer to FIG. 2, FIG. 4, and FIG. 5, in some embodiments, the distance between the side of the liquid guide member 111 facing the aggregation area 112 and the bottom of the aggregation area 112 is 0 mm to 2.0 mm. Specifically, in some embodiments, the distance between the side of the liquid guide member 111 facing the aggregation area 112 and the bottom of the aggregation area 112 may be any one of the values of 0.1 mm, 0.2 mm, 0.3 mm, 0.4 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.8 mm, 0.9 mm, 1.0 mm, 1.1 mm, 1.2 mm, 1.3 mm, 1.4 mm, 1.5 mm, 1.6 mm, 1.7 mm, 1.8 mm, 1.9 mm, and 2.0 mm, or any value between any two of the values. If the distance between the side of the liquid guide member 111 facing the aggregation area 112 and the bottom of the aggregation area 112 is greater than 2.0 mm, then the distance between the side of the liquid guide member 111 facing the aggregation area 112 and the bottom of the aggregation area 112 is too far. Thus when the amount of the aerosol generating substrate 200 (as shown in FIG. 9) in the accommodating cavity 101 is small, the aerosol generating substrate 200 cannot come into contact with the liquid guide member 111, causing the aerosol generating substrate 200 to be unable to flow back to the heating member 13, thereby resulting in the waste of the aerosol generating substrate 200. In the embodiments of the present disclosure, the distance between the side of the liquid guide member 111 facing the aggregation area 112 and the bottom of the aggregation area 112 is 0 mm to 2.0 mm, which can ensure that the aerosol generating substrate 200 in the accommodating cavity 101 can be in contact with the liquid guide member 111, so that the aerosol generating substrate 200 can flow back to the heating member 13, thereby avoiding the waste caused by accumulation of the aerosol generating substrate 200 in the accommodating cavity 101, and improving the utilization rate of the aerosol generating substrate 200.

[0054] Please refer to FIG. 2, FIG. 3, FIG. 4, and FIG. 9, in some embodiments, the atomization seat 11 further includes a liquid storage groove 114 located in the accommodating cavity 101 and in communication with the aggregation area 112. The liquid storage groove 114 is configured to store the aerosol generating substrate 200 in the accommodating cavity 101.

[0055] Specifically, in some embodiments, the atomization seat 11 may include a plurality of first aggregation members 117 and a plurality of second aggregation members 118, both of which are located in the accommodating cavity 101. The first aggregation member 117 is closer to the peripheral wall 110 of the atomization seat 11 than the second aggregation member 118. Wherein, the plurality of first aggregation members 117 are spaced apart to form a plurality of first liquid aggregating grooves 1171, the plurality of second aggregation members 118 are spaced apart to form a plurality of second liquid aggregating grooves 1181, the plurality of first liquid aggregating grooves 1171 and the plurality of second liquid aggregating grooves 1181 are arranged in a one-to-one correspondence and are in communication with the aggregation area 112, and the plurality of first liquid aggregating grooves 1171 and the plurality of second liquid aggregating grooves 1181 jointly form the liquid storage groove 114. Therefore, the arrangement of the liquid storage groove 114 can prevent the aerosol generating substrate 200 from flowing freely in the accommodating cavity 101, and ensure that the aerosol generating substrate 200 can be well aggregated in the aggregation area 112, thereby improving the backflow efficiency of the aerosol generating substrate 200. Since a certain time is needed for the liquid guide member 111 to guide the aerosol generating substrate that accumulates in the aggregation area 112 back to the heating member 13, by providing the liquid storage groove 114, the flow rate of the aerosol generating substrate 200 in the accommodating cavity 101 can be slowed down, and the aerosol generating substrate 200 is prevented from being rapidly converged in the aggregation area 112 to cause the liquid level to exceed the height of the aggregation area 112 to flow out of the aggregation area 112.

[0056] In some embodiments, the cross-sectional area of the aggregation area 112 is 20 mm^2 to 80 mm^2. Specifically, in some embodiments, the cross-sectional area of the aggregation area 112 may be any one of the values of 20 mm^2, 30 mm^2, 40 mm^2, 50 mm^2, 60 mm^2, 70 mm^2, and 80 mm^2, or any value between any two of the values. If the cross-sectional area of the aggregation area 112 is less than 20 mm^2, in order to ensure that the liquid guide member 111 can extend into the aggregation area 112, the cross-sectional area of the liquid guide member 111 also needs to be relatively small, which leads to a decrease in the flow of the aerosol generating substrate 200 flowing back per unit time, thereby affecting the backflow efficiency of the aerosol generating substrate 200. If the cross-sectional area of aggregation area 112 is greater than 80 mm^2, the aerosol generating substrate 200 that can be aggregated in aggregation area 112 is too much, and in the case that the user performs suction, the aerosol generating substrate 200 is easily sucked into the user's mouth, thereby affecting the user's suction experience. In the embodiments of the present disclosure, the cross-sectional area of the aggregation area 112 is 20 mm^2 to 80 mm^2, so that on one hand, the cross-sectional area of the liquid guide member 111 is prevented from being too small, which leads to a decrease in the flow of the aerosol generating substrate 200 flowing back, thereby ensuring the backflow efficiency of the aerosol generating substrate 200, and on the other hand, it can avoid excessive accumulation of the aerosol generating substrate 200 in the aggregation area 112, which may lead to the aerosol generating substrate 200 being easily sucked into the user's mouth during suction, thereby improving the user's suction experience.

[0057] Please refer to FIG. 2 and FIG. 3, in some embodiments, the atomization seat 11 is provided with an air outlet channel 119 in communication with the accommodating cavity 101. The atomizer 10 may further include a first seal 15 located between the heating member 13 and the top cover 115 and configured to seal a gap between the heating member 13 and the top cover 115.

[0058] Specifically, in some embodiments, the air outlet channel 119 penetrates through the top wall 1151 of the top cover 115 and is in communication with the accommodating cavity 101. The air outlet channel 119 includes a first end 1191 and a second end 1193. The first end 1191 of the air outlet channel 119 is located on the outer side of the top wall 1151 of the top cover 115, and the second end 1193 of the air outlet channel 119 is located on the inner side of the top wall 1151 of the top cover 115 and is in communication with the accommodating cavity 101. When the user sucks the aerosol generating device 100 (as shown in FIG. 1), the aerosol generating substrate 200 (as shown in FIG. 9) can be in contact with the heating member 13, the heating member 13 heats the aerosol generating substrate 200 to generate the aerosol, and the aerosol sequentially flows through the second end 1193 of the air outlet channel 119 and the first end 1191 of the air outlet channel 119 and then is sucked by the user.

[0059] In some embodiments, the first seal 15 is located on the side of the heating member 13 facing the liquid storage cavity 33 and located between the heating member 13 and the top cover 115, thereby achieving the sealing of the gap between the heating member 13 and the top cover 115, preventing the aerosol generating substrate 200 from entering the accommodating cavity 101 through the gap between the heating member 13 and the top cover 115, thereby reducing or even avoiding the waste of the aerosol generating substrate 200. It should be noted that in some embodiments, the first seal 15 may be made of a material such as rubber, silicone, plastic, or synthetic fiber. Wherein, the rubber material includes, but is not limited to, natural rubber, nitrile rubber, fluororubber, polyurethane rubber, ethylene propylene diene monomer rubber, silicone rubber, or the like. When the first seal 15 is made of a rubber material, the abutting between the first sealing member 15 and the heating member 13 and the top cover 115 is tighter, thereby improving the sealing effect of the first seal 15 on the gap between the heating member 13 and the top cover 115.

[0060] Please continue to refer to FIG. 2 and FIG. 3, in some embodiments, the peripheral wall 1153 of the top cover 115 is provided with a first opening 1157 and a second opening 1158 in a penetrating manner. The first opening 1157 and the second opening 1158 are both in communication with the accommodating cavity 101. The peripheral wall 1153 is further provided with a communicating groove 1159, one end of the communicating groove 1159 is in communication with the first opening 1157, and another end of the communicating groove 1159 is in communication with the liquid storage cavity 33.

[0061] Specifically, please refer to FIG. 4, in some embodiments, the bottom wall 1161 of the base 116 is provided with an air inlet hole 1167 in communication with the accommodating cavity 101. When the user sucks the aerosol generating device 100 (as shown in FIG. 1), the aerosol generating substrate 200 (as shown in FIG. 9) that enters the accommodating cavity 101 and is in contact with the heating member 13 can be heated and atomized by the heating member 13 to generate the aerosol for the user to suck. At this time, the air pressure in the accommodating cavity 101 gradually decreases with respect to the external air pressure, thereby forming a negative pressure state. If the external air cannot enter the accommodating cavity 101, the accommodating cavity 101 is always in the negative pressure state, causing the aerosol generating substrate 200 in the liquid storage cavity 33 to be unable to continue entering the accommodating cavity 101, thereby affecting the amount of the aerosol generated and affecting the mouthfeel. While in the present disclosure, the communicating groove 1159 is recessed from the outer side of the peripheral wall 1153 towards the center of the top cover 115, and the two ends of the communicating groove 1159 are respectively in communication with the accommodating cavity 101 and the first opening 1157, so that when the air pressure in the accommodating cavity 101 gradually decreases with respect to the external air pressure to form a negative pressure state, the external air can enter the accommodating cavity 101 through the air inlet hole 1167 or the first opening 1157, so that the air pressure in the accommodating cavity 101 is the same as the external air pressure, ensuring that the aerosol generating substrate 200 in the liquid storage cavity 33 can enter the accommodating cavity 101 and be in contact with the heating member 13, thereby ensuring the amount of the aerosol generated.

[0062] In addition, the generated aerosols may be partially condensed to form a condensate when coming into contact with the peripheral wall 1153 of the top cover 115, and the condensate may enter the accommodating cavity 101 along the peripheral wall 1153 of the top cover 115, resulting in that the condense cannot be reused. Therefore, in the embodiments of the present disclosure, the atomizer 10 may further include a second seal 17, which is sleeved on the outer side of the peripheral wall 1153 of the top cover 115 and is configured to seal the first opening 1157, the second opening 1158, and the communicating groove 1159. On the one hand, the generated aerosols can be prevented from leaking to the outside of the accommodating cavity 101 through the first opening 1157 and the second opening 1158, so that the structure inside the aerosol generating device 100 (as shown in the figure) is prevented from being polluted, the amount of the generated aerosols can be ensured, and the smoking experience of the user is improved. On the other hand, when the user sucks the aerosol generating device 100, the condensate formed by the aerosols can flow back into the liquid storage cavity 33 through the communicating groove 1159, so that the condensate can be heated and atomized again by the heating member 13 to generate the aerosols, thereby reducing or even avoiding the waste of the aerosol generating substrate 200.

[0063] In some embodiments, the second seal 17 may be made of a material such as rubber, silicone, plastic, or a synthetic fiber. Wherein, the rubber material includes, but is not limited to, natural rubber, nitrile rubber, fluororubber, polyurethane rubber, ethylene propylene diene monomer rubber, silicone rubber, or the like. When the second seal 17 is made of a rubber material, the contact between the second seal 17 and the peripheral wall 1153 of the top cover 115 is tighter, thereby improving the sealing effect of the second seal 17 on the first opening 1157, the second opening 1158, and the communicating groove 1159.

[0064] Please refer to FIG. 1 and FIG. 9, the aerosol generating device 100 in the embodiments of the present disclosure includes a battery assembly 20 and the atomizer 10 of any of the above embodiments. The atomizer 10 is electrically connected to the battery assembly 20.

[0065] In the aerosol generating device 100 in the embodiments of the present disclosure, the atomizer 10 includes the liquid guide member 111 located in the accommodating cavity 101 and the aggregation area 112 located in the accommodating cavity 101. The liquid guide member 111 is connected to the heating member 13 and extends into the aggregation area 112. The liquid guide member 111 can guide the aerosol generating substrate 200 aggregated in the aggregation area 112 to flow back to the heating member 13. The heating member 13 can heat and atomize the aerosol generating substrate 200 that is back flowed, thereby avoiding the waste caused by accumulation of the aerosol generating substrate 200 in the accommodating cavity 101, and improving the utilization rate of the aerosol generating substrate 200.

[0066] Please refer to FIG. 3, in some embodiments, the aerosol generating device 100 may further include a suction member 30, the suction member 30 is provided with a suction channel 31 in a penetrating manner, and the suction channel 31 is in communication with the air outlet channel 119. When the user sucks the aerosol generating device 100, the generated aerosol can be sucked by the user after sequentially passing through the air outlet channel 119 and the suction channel 31. Further, the suction member 30 may include the liquid storage cavity 33, which can store the aerosol generating substrate 200. The aerosol generating substrate 200 in the liquid storage cavity 33 can enter the accommodating cavity 101 to allow the heating member 13 to heat and atomize it to generate the aerosol for suction by the user.

[0067] Please refer to FIG. 1, FIG. 3, FIG. 4, and FIG. 9, in some embodiments, the aerosol generating device 100 may further include a detecting member 40, the detecting member 40 can analyze whether the aerosol generating device 100 has been sucked based on the air pressure change. Specifically, in some embodiments, when the user sucks the aerosol generating device 100, the air pressure in the accommodating cavity 101 gradually decreases to a negative pressure with respect to the external atmosphere, and the air pressure in the space where the detecting member 40 is located also decreases to the negative pressure, when the detecting member 40 detects the negative pressure, the detecting member 40 can control the heating member 13 to generate heat, so that the aerosol generating substrate 200 is heated to generate the aerosol for the user to suck. When the aerosol generating device 100 is not sucked, the external air can enter the accommodating cavity 101 through the air inlet hole 1167, so that the air pressure in the accommodating cavity 101 can return to the same air pressure as the external atmosphere, and after the detecting member 40 detects the air pressure change, the detecting member 40 controls the heating member to stop generating heat. It should be noted that in some embodiments, the detecting member 40 may be a microphone.

[0068] In some embodiments, both the heating member 13 and the detecting member 40 may be connected to the battery assembly 20. Specifically, when a negative pressure is detected by the detecting member 40, the detecting member 40 can send a signal to the battery assembly 20, so that the battery assembly 20 controls the heating member 13 to generate heat. In some other embodiments, the heating member 13 can be directly connected to the detecting member 40, and in this case, the detecting member 40 may be an integrated microphone. Specifically, the integrated microphone is integrated with a control chip, and when a negative pressure is detected by the detecting member 40, the control chip can directly send a signal to the battery assembly 20 to control the heating member 13 to generate heat.

[0069] The various technical features in the above embodiments may be combined arbitrarily, and to make the description concise, all possible combinations of the various technical features in the above embodiments are not described. However, as long as the combination of these technical features does not conflict, it should be considered that the scope is recited in the present specification. Meanwhile, other embodiments can be derived from the above embodiments, so that structural and logical substitutions and changes can be made without departing from the scope of the present disclosure.

[0070] The above embodiments only express several embodiments of the present disclosure, and the description thereof is relatively specific and detailed, but cannot be understood as a limitation on the scope of the patent. It should be noted that, for a person of ordinary skill in the art, several modifications and improvements can be made without departing from the concept of the present disclosure, which all fall within the protection scope of the present disclosure. Therefore, the protection scope of the present disclosure shall be subject to the appended claims.

[0071] The terms used in the claims should be construed to have the broadest reasonable interpretation consistent with the foregoing description. For example, the use of the article "a" or "the" in introducing an element should not be interpreted as being exclusive of a plurality of elements. Likewise, the recitation of "or" should be interpreted as being inclusive, such that the recitation of "A or B" is not exclusive of "A and B," unless it is clear from the context or the foregoing description that only one of A and B is intended. Further, the recitation of "at least one of A, B and C" should be interpreted as one or more of a group of elements consisting of A, B and C, and should not be interpreted as requiring at least one of each of the listed elements A, B and C, regardless of whether A, B and C are related as categories or otherwise. Moreover, the recitation of "A, B and/or C" or "at least one of A, B or C" should be interpreted as including any singular entity from the listed elements, e.g., A, any subset from the listed elements, e.g., A and B, or the entire list of elements A, B and C.

Claims

1. An atomizer, comprising:

an atomization seat; and
a heating member,
wherein the atomization seat is provided with an accommodating cavity, and the heating member is disposed in the accommodating cavity,
wherein the atomizer further comprises a liquid guide member located in the accommodating cavity and an aggregation area located in the accommodating cavity,
wherein the liquid guide member is connected to the heating member and extends into the aggregation area,
wherein the aggregation area is configured to aggregate an aerosol generating substrate, and when the aerosol generating substrate enters the accommodating cavity, the liquid guide member is configured to guide the aerosol generating substrate that is aggregated in the aggregation area to flow back to the heating member.

2. The atomizer of claim 1, wherein the liquid guide member is provided with at least one capillary groove in communication with the aggregation area, and wherein a side wall of the at least one capillary groove is configured to allow the aerosol generating substrate to flow along it to the heating member.

3. The atomizer of claim 2, wherein the heating member comprises a porous ceramic, and the at least one capillary groove is connected to the porous ceramic.

4. The atomizer of claim 2, wherein,
the depth of each of the at least one capillary groove is 0.3 mm to 1.0 mm.

5. The atomizer of claim 2, wherein the width of each of the at least one capillary groove is 0.3 mm to 0.8 mm.

6. The atomizer of claim 1, wherein the distance between the side of the liquid guide member towards the aggregation area and the bottom of the aggregation area is 0 mm to 2.0 mm.

7. The atomizer of claim 1, wherein the aggregation area is configured to block the aerosol generating substrate from flowing in a first direction, a second direction, and a third direction,

wherein the first direction, the second direction, and the third direction are all perpendicular to the central axis of the atomizer,
wherein the first direction is parallel to and opposite the second direction, and wherein the first direction and the second direction are perpendicular to the third direction.

8. The atomizer of claim 7, wherein the aggregation area is configured to block the aerosol generating substrate from flowing in the first direction, the second direction, and a fourth direction,

wherein the fourth direction is perpendicular to the central axis of the atomizer, and
wherein the fourth direction is parallel to and opposite the third direction.

9. The atomizer of claim 7, wherein the aggregation area is further configured to block the aerosol generating substrate from flowing in a fourth direction,

wherein the fourth direction is perpendicular to the central axis of the atomizer, and
wherein the fourth direction is parallel to and opposite the third direction.

10. The atomizer of any one of claims 1 to 6, wherein the atomization seat comprises at least one blocking member located in the accommodating cavity and configured to form the aggregation area.

11. The atomizer of claim 10, wherein the at least one blocking member comprises a first sub-portion and two second sub-portions extending from two opposite ends of the first sub-portion towards a peripheral wall of the atomization seat,

wherein the first sub-portion extends in a first direction, the two second sub-portions extend in a fourth direction, so that the first sub-portion and the two second sub-portions jointly form the aggregation area to block the aerosol generating substrate from flowing in the first direction, a second direction, and a third direction,
wherein the first direction is parallel to and opposite the second direction, and the third direction is parallel to and opposite the fourth direction.

12. The atomizer of claim 10, wherein the at least one blocking member comprises a first sub-portion and two second sub-portions extending from two opposite ends of the first sub-portion towards a peripheral wall of the atomization seat,

wherein the first sub-portion extends in a first direction, the two second sub-portions extend in a third direction, so that the first sub-portion and the two second sub-portions jointly form the aggregation area to block the aerosol generating substrate from flowing in the first direction, a second direction, and a fourth direction,
wherein the first direction is parallel to and opposite the second direction, and
wherein the third direction is parallel to and opposite the fourth direction.

13. The atomizer of claim 10, wherein the atomization seat comprises a liquid storage groove located in the accommodating cavity, in communication with the aggregation area, and configured to store the aerosol generating substrate in the accommodating cavity.

14. The atomizer of claim 13, wherein the atomization seat comprises a plurality of first aggregation members and a plurality of second aggregation members located in the accommodating cavity,

wherein the plurality of first aggregation members are closer to a peripheral wall of the atomization seat than the plurality of second aggregation members,
wherein the plurality of first aggregation members are spaced apart to form a plurality of first liquid aggregating grooves,
wherein the plurality of second aggregation members are spaced apart to form a plurality of second liquid aggregating grooves,
wherein the plurality of first liquid aggregating grooves and the plurality of second liquid aggregating grooves are arranged in a one-to-one correspondence and are in communication with the aggregation area, and
wherein the plurality of first liquid aggregating grooves and the plurality of second liquid aggregating grooves jointly form the liquid storage groove.

15. An aerosol generating device, comprising:

a battery assembly; and
the atomizer of any one of claims 1 to 14,
wherein the atomizer is electrically connected to the battery assembly.

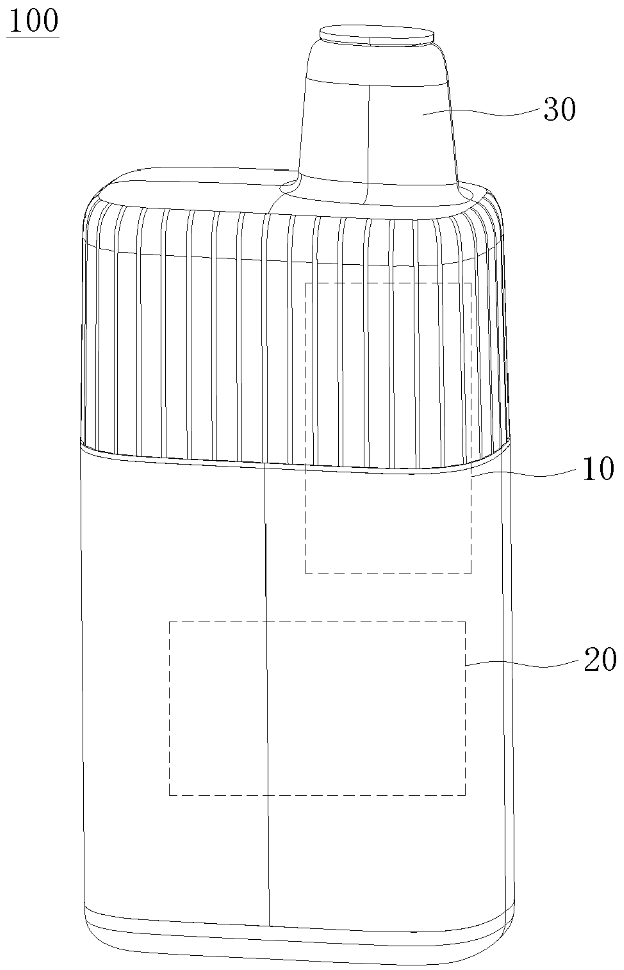
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FIG. 1

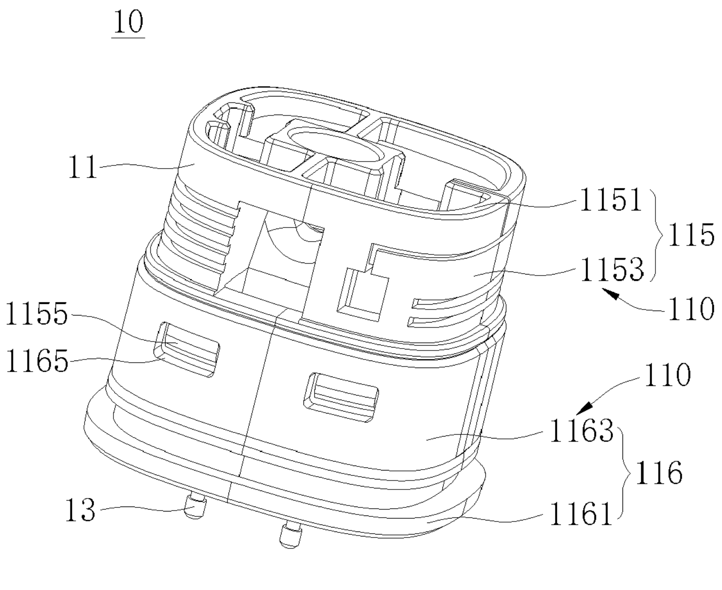
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FIG. 2

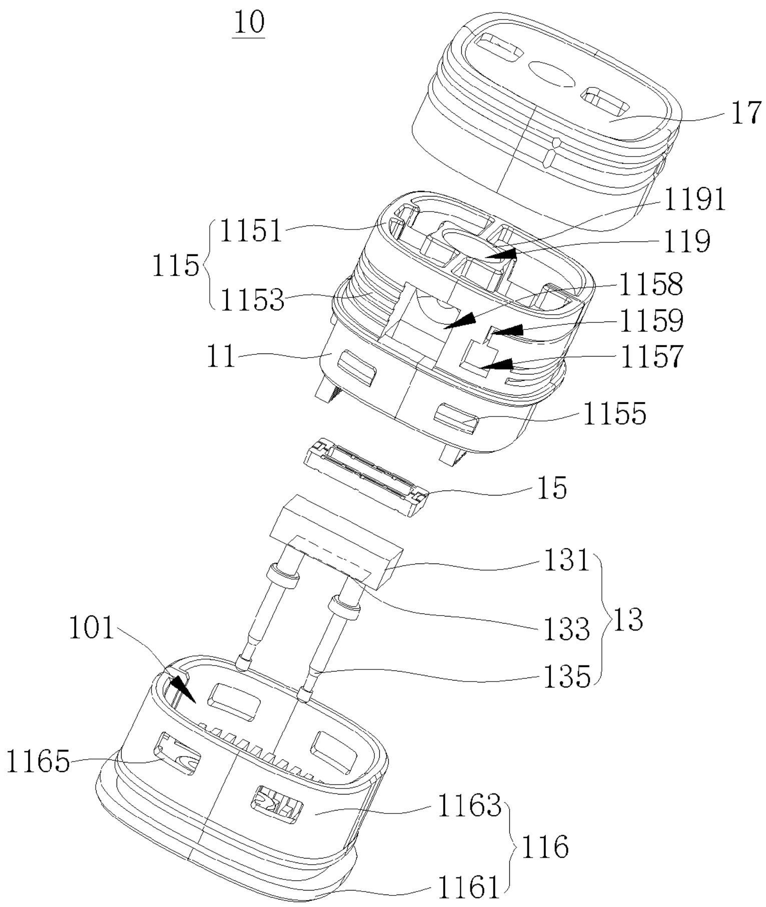
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FIG. 3

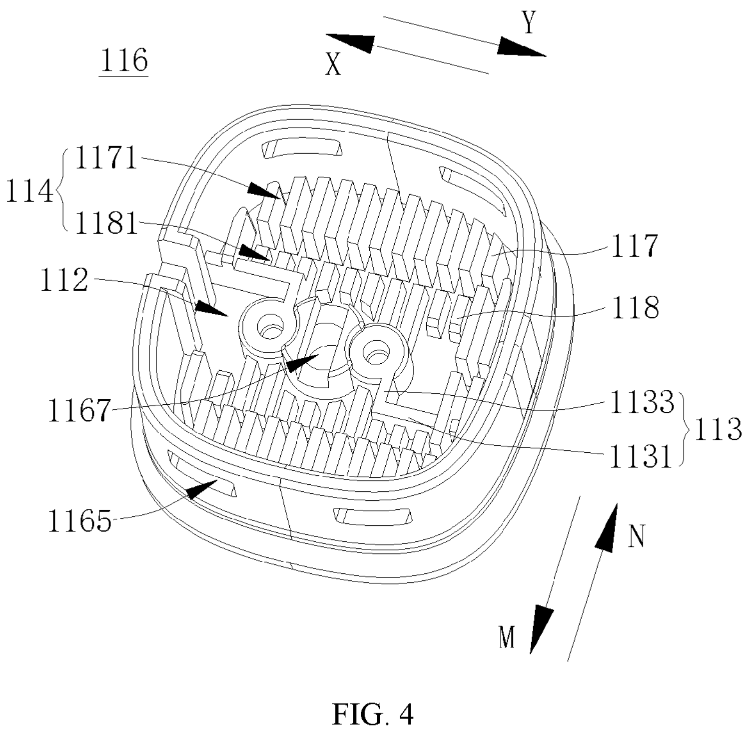
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FIG. 4

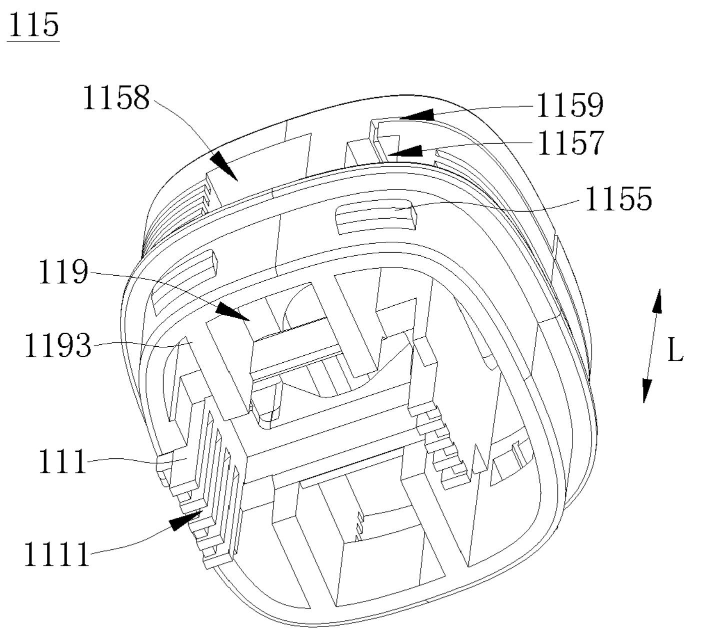

FIG. 5

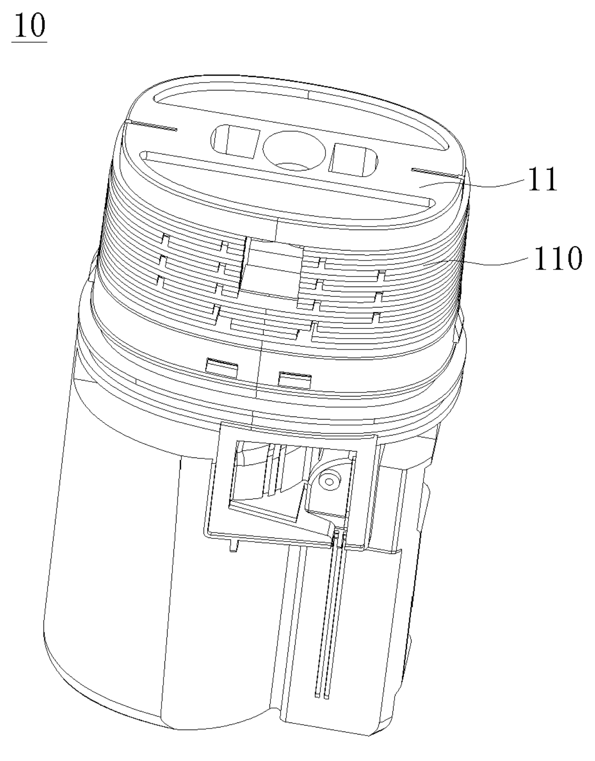

FIG. 6

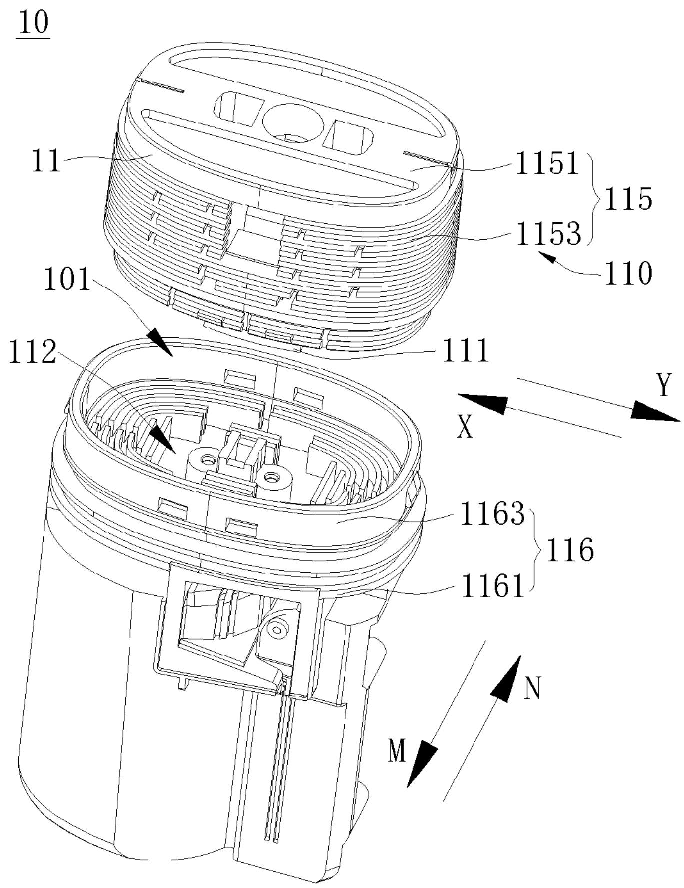
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FIG. 7

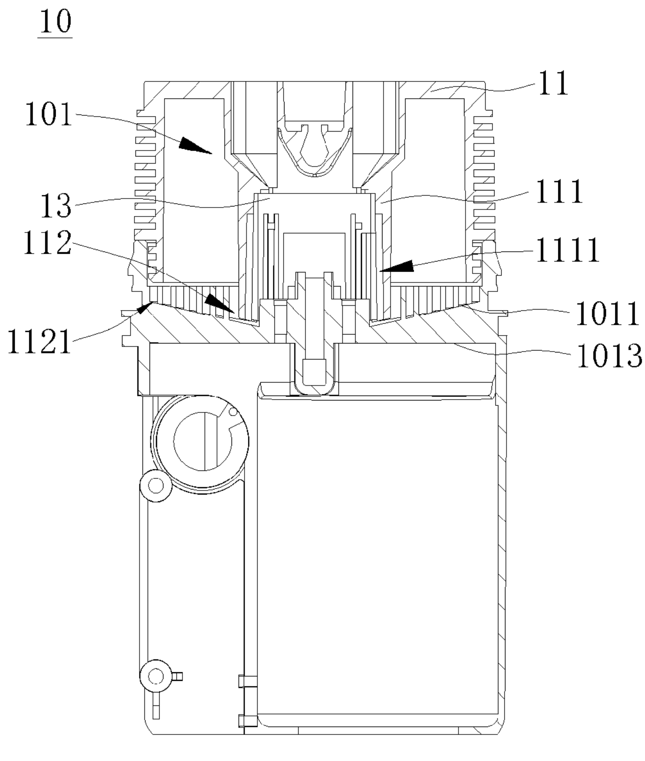
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FIG. 8

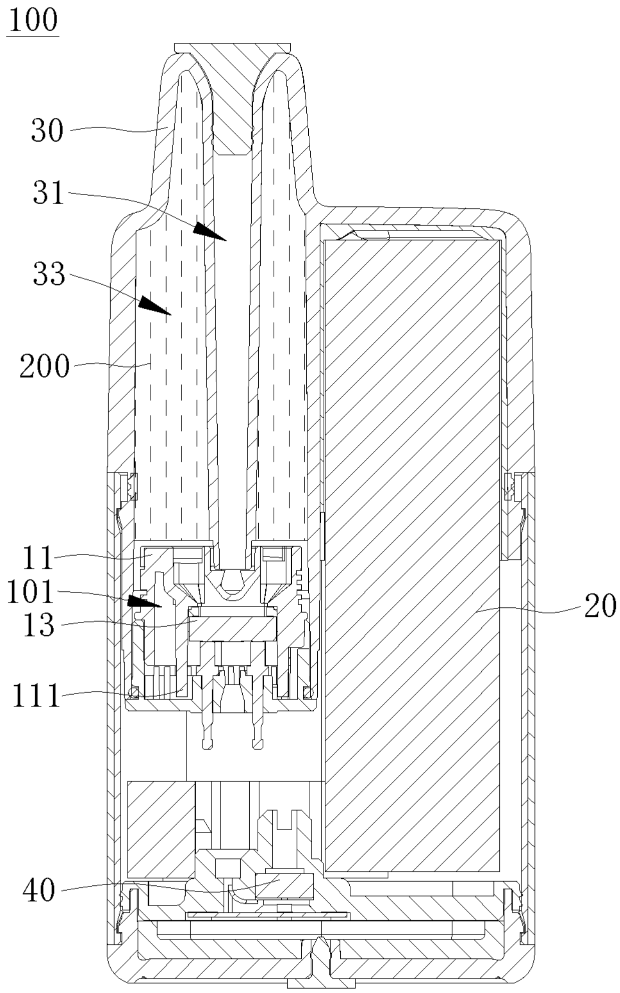

FIG. 9

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European Patent Office
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EUROPEAN SEARCH REPORT

Application Number
EP 24 19 1628

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2023/210175 A1 (LEI GUILIN [CN] ET AL) 6 July 2023 (2023-07-06) * paragraph [0042] - paragraph [0069]; figures 1-12 *	1-15	INV. A24F40/10 A24F40/40 A24F40/485
X A	WO 2023/134638 A1 (SHENZHEN FIRST UNION TECH CO [CN]) 20 July 2023 (2023-07-20) * page 5, line 10 - page 10, line 28; figures 1-11 *	1,6,10,15 2-5,7-9,11-14	
X	WO 2021/227413 A1 (SHENZHEN SMOORE TECHNOLOGY LTD [CN]) 18 November 2021 (2021-11-18) * page 3, line 21 - page 13, line 12; figures 1-35 *	1-15	
A	WO 2023/138169 A1 (SHENZHEN SMOORE TECHNOLOGY LTD [CN]) 27 July 2023 (2023-07-27) * page 4 - page 13; figures 1-11 *	1-15	TECHNICAL FIELDS SEARCHED (IPC) A24F

The present search report has been drawn up for all claims

2

Place of search	Date of completion of the search	Examiner
Munich	13 January 2025	Dartis, Daniel

CATEGORY OF CITED DOCUMENTS

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EP 24 19 1628

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13-01-2025

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2023210175 A1	06-07-2023	CN 114158772 A	11-03-2022
		CN 214629849 U	09-11-2021
		EP 4212027 A1	19-07-2023
		EP 4212030 A1	19-07-2023
		US 2023200443 A1	29-06-2023
		US 2023210175 A1	06-07-2023
		WO 2022052063 A1	17-03-2022
		WO 2022052302 A1	17-03-2022
WO 2023134638 A1	20-07-2023	CN 116473283 A	25-07-2023
		EP 4437879 A1	02-10-2024
		WO 2023134638 A1	20-07-2023
WO 2021227413 A1	18-11-2021	CN 113647680 A	16-11-2021
		CN 214710337 U	16-11-2021
		EP 4151100 A1	22-03-2023
		US 2023063069 A1	02-03-2023
		WO 2021227413 A1	18-11-2021
WO 2023138169 A1	27-07-2023	CN 114568749 A	03-06-2022
		WO 2023138169 A1	27-07-2023

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