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(54) **ELECTRONIC ATOMIZATION ASSEMBLY AND DEVICE**

(57) An electronic atomizing assembly includes: a cartridge, a heating cover, and a heating base. The heating cover defines a first groove, and the first groove forms an upper part of an atomizing chamber, and a side wall of the first groove defines a receiving groove. The heating base defines a second groove, and the second groove forms the lower part of the atomizing chamber and configure to the upper part of the atomizing chamber to cooperatively form the atomizing chamber. A side wall of the second groove is provided with a protrusion member and the protrusion member is disposed to the receiving groove, and by configuring the protrusion member to the receiving groove, the sealing between the cartridge and the atomizing chamber can be realized, and by avoiding the leak of e-liquid from the cartridge permeating into the atomizing chamber, the performance of the electronic atomizing device can be improved and at the same time, the user is prevented from sucking the e-liquid to be atomized when inhaling.

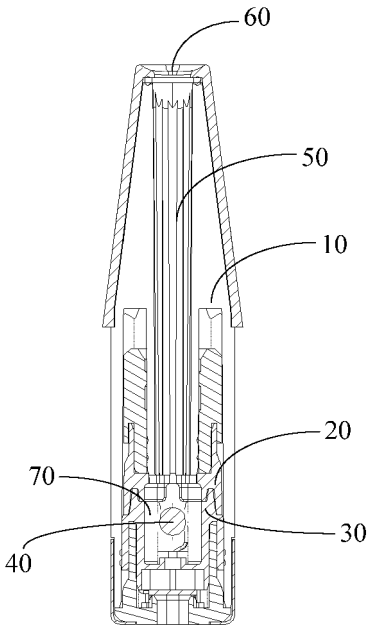

FIG. 2

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Description

[0001] The present disclosure claims priority and rights of Chinese Patent Application No.2020109813116, filed on September 17, 2020, the entire contents of which are hereby incorporated by reference in its entirety.

TECHNICAL FIELD

[0002] The present disclosure relates to the field of an atomizer, and in particular to an electronic atomizing assembly and an electronic atomizing device.

BACKGROUND

[0003] In the existing electronic atomizing device, a leak of e-liquid when the user inhales an aerosol is a common pain point in the industry. One of the main reasons for the leak is insufficient sealing of the atomizing chamber. This causes the e-liquid in the cartridge to permeate into the atomizing chamber during suction, and the e-liquid is drawn into the central tube, resulting in a phenomenon of the leak. Another reason for the leak is that the condensate of the cigarette gas forms an oil film in the central tube. The oil film is difficult to break and is easily sucked into the mouth of users during suction.

SUMMARY OF THE DISCLOSURE

[0004] The present application provides an electronic atomizing assembly and an electronic atomizing device to solve the problem of a leak of e-liquid when the user inhales an aerosol in the existing technology.

[0005] According to an aspect of the present disclosure, an electronic atomizing assembly is provided. The assembly includes: a cartridge, a heating cover, and a heating base. The heating cover defines a first groove, and the first serves as an upper part of the atomizing chamber. A side wall of the first groove defines a receiving groove. The heating base defines a second groove. The second groove serves as a lower part of the atomizing chamber and is combined with an upper part of the atomizing chamber to compose the atomizing chamber. A side wall of the second groove is provided with a protrusion member, and the protrusion member is received in the receiving groove. The protrusion member and the receiving groove are cooperatively used to realize the sealing between the cartridge and the atomizing chamber.

[0006] In some embodiments, the grooving direction of the receiving groove is the same as the grooving direction of the first groove, and the height direction of the protrusion member is the same as the grooving direction of the second groove.

[0007] In some embodiments, the side walls of the first groove include a first side wall, a second side wall, a third side wall, and a fourth side wall. The first side wall is opposite to the third side wall, and the second side wall is opposite to the fourth side wall. The second side wall defines a first receiving groove, and the fourth side wall defines a second receiving groove. The side walls of the second groove include a fifth side wall, a sixth side wall, a seventh side wall, and an eighth side wall. The fifth side wall is opposite to the seventh side wall, and the sixth side wall is opposite to the eighth side wall. The sixth side wall is provided with a first protrusion member, and the eighth side wall is provided with a second protrusion member.

[0008] In some embodiments, the first side wall defines a first notch, and the third side wall defines a second notch. One end of the first receiving groove extends to the first side wall and is close to the first notch, and the other end of the first receiving groove extends to the third side wall and is close to the second notch. One end of the second receiving groove extends to the first side wall and close to the first notch, and the other end extends of the second receiving groove to the third side wall and close to the second notch. The fifth side wall defines a third notch, and the seventh side wall defines a fourth notch. One end of the first protrusion member extends to the fifth side wall and is close to the third notch, and the other end of the first protrusion member extends to the seventh side wall and is close to the fourth notch. One end of the second protrusion member extends to the fifth side wall and is close to the third notch, and the other end of the second protrusion member extends to the seventh side wall is close to the fourth notch.

[0009] In some embodiments, an inner side wall of the receiving grooves defines notches, and a side wall of the protrusion members is provided with projections, and the projections are arranged in cooperation with the recesses.

[0010] In some embodiments, the material of the heating cover is plastic, and the material of the heating base is silica gel.

[0011] In some embodiments, the bottom wall of the first groove defines a through-hole, and a side wall of the through-hole is provided with a bump or defines a third groove.

[0012] In some embodiments, a plurality of bumps or a plurality of third grooves arranged at intervals is arranged on the side wall of the through-hole along the circumferential direction.

[0013] In some embodiments, the cross-section of the bump or the third groove is square, triangular, or arc-shaped.

[0014] In some embodiments, the electronic atomizing assembly further includes a suction tube, and the through-hole is communicated with the suction tube so that the atomizing chamber is communicated with the suction tube.

[0015] According to another aspect of the present disclosure, an electronic atomizing device is provided and includes an electronic atomizing assembly and a power assembly. The electronic atomizing assembly is the electronic atomizing assembly described in any one of the

above embodiments.

[0016] The present disclosure realizes the sealing between the cartridge and the atomizing chamber by setting the receiving groove on the heating cover and the protrusion member on the heating base. By preventing e-liquid of the cartridge from permeating into the atomizing chamber, the performance of the atomizer is improved, and at the same time, the user is prevented from sucking the e-liquid to be atomized, which affects the experience of use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] In order to more clearly illustrate technical solutions in the embodiments of the present application or in the prior art, a brief description of the accompanying drawings used in the embodiments or in the prior art is provided. Obviously, the drawings in the following description are only some embodiments of the present disclosure, and for a person of ordinary skill in the art, other drawings may be obtained from these drawings without any creative effort.

FIG. 1 is a cross-sectional view along the direction A-A of an electronic atomizing assembly.

FIG. 2 is a cross-sectional view along the direction B-B of the electronic atomizing assembly.

FIG. 3 is a structural schematic view of a heating cover of the electronic atomizing assembly of a first embodiment of the present disclosure.

FIG. 4 is a structural schematic view of a heating base of the electronic atomizing assembly of a first embodiment of the present disclosure.

FIG. 5 is a structural schematic view of the configuration of the heating cover and the heating base of the electronic atomizing assembly.

FIG. 6 is a structural schematic view of a through-hole of the heating cover of the electronic atomizing assembly.

FIG. 7 is a structural schematic view of a through-hole of the heating cover of the electronic atomizing assembly of another embodiment of the present disclosure.

FIG. 8 is a cross-sectional view of the configuration of a receiving groove on the heating cover and protrusion members on the heating base of the electronic atomizing assembly.

FIG. 9 is a structural schematic view of an electronic atomizing device.

DETAILED DESCRIPTION

[0018] The technical solutions in the embodiments of the present disclosure will be clearly and completely described by referring to the accompanying drawings in the embodiments of the present disclosure. Obviously, the described embodiments are only a part of, but not all of, the embodiments of the present disclosure. Based on the embodiments in the present disclosure, all other embodiments obtained by a person of ordinary skill in the art without making creative work shall fall within the scope of the present disclosure.

[0019] The terms "first", "second" and "third" in the embodiments of the present disclosure are used for descriptive purposes only and should not be interpreted as indicating or implying relative importance of the indicated technical features or implicitly specifying the number of the technical features. Therefore, a feature defined by the "first," "second," or "third" may explicitly or implicitly include at least one such feature. In the description of the present disclosure, "plurality" means at least two, such as two, three, etc., unless otherwise expressively and specifically limited. In addition, the terms "includes" and "has", and any variations thereof, are intended to cover non-exclusive inclusion. For example, a process, a method, a system, a product or an apparatus including a series of operations or units is not limited to the listed operations or units, but optionally also includes operations or units that are not listed, or optionally also includes other operations or units that are inherent to the process, the method, the product or the apparatus.

[0020] References to "embodiments" mean that a particular feature, structure, or characteristic described by referring to an embodiment may be included in at least one embodiment of the present disclosure. The presence of the term at various sections in the specification does not necessarily mean a same embodiment, nor is it a separate or alternative embodiment that is mutually exclusive with other embodiments. It is understood, both explicitly and implicitly, by the skilled person in the art that the embodiments described herein may be combined with other embodiments.

[0021] The present disclosure provides an electronic atomizing assembly, shown in FIG. 1 and FIG. 2. FIG. 1 is a cross-sectional view along the direction A-A of the electronic atomizing assembly, and FIG. 2 is a cross-sectional view along the direction B-B. The direction A-A is perpendicular to the direction B-B.

[0022] The electronic atomizing assembly may include a cartridge 10, a heating cover 20, a heating base 30, a heating coil 40, a suction tube 50, and a mouthpiece 60.

[0023] The cartridge 10 may be sleeved on the heating cover 20, and is configured to store e-liquid. The cartridge 10 may be plastic, and can also be metal, such as aluminum and stainless steel. The cartridge 10 only needs to be able to store e-liquid without making it deteriorated. The shape and size of the cartridge 10 are not limited and can be designed as required.

[0024] The heating cover 20 and the heating base 30 define an atomizing chamber 70. The heating coil 40 may be disposed between the heating cover 20 and the heating base 30. The heating coil 40 is at least partially disposed in the atomizing chamber 70. The heating cover 20 may cooperate with the heating base 30 to realize the seal between the cartridge 10 and the atomizing chamber 70. The material of the heating cover 20 is plastic, such

as plastic PCTG (polyethylene terephthalate-1, 4-cyclohexanedimethanol). The material of the heating base 30 may be silica gel, such as 70-degree silica gel. The shape and size of the heating cover 20 and the heating base 30 are not limited and can be designed as required.

[0025] The suction tube 50 penetrates the cartridge 10, and one end of the suction tube 50 may be connected with the mouthpiece 60, and the other end of the suction tube may be connected with the heating cover 20. The suction tube 50 may communicate with the atomizing chamber 70 through the heating cover 20. In this way, the atomized gas in the atomizing chamber 70 can be inhaled by the user through the suction tube 50.

[0026] The sealing between the cartridge 10 and the atomizing chamber 70 can prevent the e-liquid to be atomized from leaking from the cartridge 10 into the atomizing chamber 70. Since the atomizing chamber 70 is in communication with the suction tube 50, by preventing the e-liquid to be atomized from leaking from the cartridge 10 into the atomizing chamber 70, the leak of e-liquid into the suction tube 50 can be avoided. Hence, the phenomenon of a leak of e-liquid when the user inhales an aerosol is avoided.

[0027] FIG. 3 is a structural schematic view of a heating cover of the electronic atomizing assembly of a first embodiment of the present disclosure, and FIG. 4 is a structural schematic view of a heating base of the electronic atomizing assembly of a first embodiment of the present disclosure.

[0028] As shown in FIG. 3, in a first embodiment, the heating cover 20 may define a first groove 21, and the first groove 21 may form an upper part of the atomizing chamber 70. A side wall of the first groove 21 may define a receiving groove 211, and a grooving direction of the receiving groove 211 may be the same as the grooving direction of the first groove 21. In other words, a depth direction of the receiving groove 211 is the same as a depth direction of the first groove 21.

[0029] Side walls of the first groove 21 may include a first side wall 212, a second side wall 213, a third side wall 214, and a fourth side wall 215. The first side wall 212 and the third side wall 214 are opposite to each other, and the second side wall 213 and the fourth side wall 215 are opposite to each other. The first side wall 212 defines a first notch 2121, and the third side wall 214 defines a second notch 2141. The shape and size of the first notch 2121 and the second notch 2141 are the same. The first notch 2121 and the second notch 2141 are the lower liquid ventilation ports of the electronic atomizing assembly 1. The second side wall 213 may define a first receiving groove 2111, and the fourth side wall 215 may define a second receiving groove 2112. One end of the first receiving groove 2111 disposed on the second side wall 213 extends to a part of the first side wall 212 and is close to the first notch 2121. The other end of the first receiving groove 2111 extends to a part of the third side wall 214 and is close to the second notch 2141.

[0030] In a specific embodiment, only the receiving groove 211 is disposed on the second side wall 213, or only the receiving groove 211 is disposed on the fourth side wall 215. In some embodiments, the first receiving groove 2111 is disposed on the second side wall 213, and the second receiving groove 2112 is disposed on the fourth side wall 215. The first receiving groove 2111 and the second receiving groove 2112 may be continuous or discontinuous. In some embodiments, the first receiving groove 2111 and the second receiving groove 2112 are both continuous.

[0031] Ends of the first receiving groove 2111 and the second receiving groove 2112 close to the first notch 2121 or the second notch 2141 may be closed-ends, and may not be communicated with the first notch 2121 or the second notch 2141. In other words, the ends of the first receiving groove 2111 and the second receiving groove 2112 close to the first notch 2121 or the second notch 2141 are blocked by side walls of the first notch 2121 or the second notch 2141. Heights of two opposite side walls of the first receiving groove 2111 may be the same or different, and heights of two opposite side walls of the second receiving groove 2112 may be the same or different. In one embodiment, the side walls of the first receiving groove 2111 and the second receiving groove 2112 close to the atomizing chamber 70 are lower than the side walls of the first receiving groove 2111 and the second receiving groove 2112 far from the atomizing chamber 70. In other words, inner side walls of the first receiving groove 2111 and the second receiving groove 2112 are lower than outer side walls, which could facilitate the installation on a protrusion member 311 of the heating base 30 and allow the atomizing chamber 70 to have a larger space. Cross-sections of the first receiving groove 2111 and the second receiving groove 2112 are trapezoidal, and the upper part is wide, and the lower part is narrow, and edges and corners are set to arc surfaces, which could facilitate the assembly of the receiving groove 211 and the protrusion member 311 and a good seal. The depths of the first receiving groove 2111 and the second receiving groove 2112, the heights of the two opposite side walls, and the cross-sectional shape can be designed according to requirements, as long as the design could cooperate with the protrusion member 311, realizing the sealing between the atomizing chamber 70 and the cartridge 10.

[0032] In the first embodiment, as shown in FIG. 4, the heating base 30 may define a second groove 31. The second groove 31 may form the lower part of the atomizing chamber 70 and configure to the first groove 21 to form the atomizing chamber 70. The protrusion member 311 is disposed on side walls of the second groove 31, and the height direction of the strip-shaped protrusion 311 is the same as an extension direction of the side wall of the second groove 31.

[0033] The side walls of the second groove 31 may include a fifth side wall 312, a sixth side wall 313, a seventh side wall 314, and an eighth side wall 315. The fifth side wall 312 and the seventh side wall 314 are opposite

to each other, and the sixth side wall 313 and the eighth side wall 315 are opposite to each other. The fifth side wall 312 defines a third notch 3121, and the seventh side wall 314 defines a fourth notch 3141. The shape and size of the third notch 3121 and the fourth notch 3141 are the same. One end of the heating coil 40 is lapped on the third notch 3121 of the heating base 30, and the other end of the heating coil is lapped on the fourth notch 3141 so that the middle part of the heating coil 40 is suspended in the atomizing chamber 70. A first protrusion member 3111 is disposed on the sixth side wall 313, and a second protrusion member 3112 is disposed on the eighth side wall 315. One end of the protrusion member 3111 disposed on the sixth side wall 313 extends to a part of the fifth side wall 312 and is close to the third notch 3121; the other end of the protrusion member extends to a part of the seventh side wall 314 and is close to the fourth notch 3141. One end of the second protrusion member 3112 disposed on the eighth side wall 315 extends to a part of the fifth side wall 312 and is close to the third notch 3121; the other end of the second protrusion member extends to a part of the seventh side wall 314 and is close to the fourth notch 3141.

[0034] In a specific embodiment, the protrusion member 311 may be disposed only on the sixth side wall 313, or only the protrusion member 311 may be disposed on the eighth side wall 315. In some embodiments, the first protrusion member 3111 is disposed on the sixth side wall 313, and the second protrusion member 3112 is disposed on the eighth side wall 315. The first protrusion member 3111 and the second protrusion member 3112 can be continuous or discontinuous. In some embodiments, both the first protrusion member 3111 and the second protrusion member 3112 are continuous.

[0035] End faces of the first protrusion member 3111 and the second protrusion member 3112 close to the third notch 3121 or the fourth notch 3141 are coplanar with side surfaces of the third notch 3121 or the fourth notch 3141, and are inclined to the first protrusion member 3111 or the second protrusion member. Cross-sections of the first protrusion member 3111 and the second protrusion member 3112 are trapezoidal, and the upper part is narrow and the lower part is wide, and the edges and corners are set to arc surfaces, which could facilitate the assembly of the receiving groove 211 and the protrusion member 311 and a good seal. The height and cross-sectional shape of the first protrusion member 3111 and the second protrusion member 3112 can be designed as requirements, as long as the sealing between the atomizing chamber 70 and the cartridge 10 can be achieved by cooperation between the protrusion member 311 and the receiving groove 211.

[0036] FIG. 5 is a structural schematic view of the configuration of the heating cover and the heating base of the electronic atomizing assembly of the present disclosure.

[0037] After the heating cover 20 and the heating base 30 are assembled together, the first notch 2121 on the heating cover 20 corresponds to the third notch 3121 on the heating base 30, the second notch 2141 on the heating cover 20 corresponds to the fourth notch 3141 on the heating base 30. The structural size of the protrusion member 311 defined on the side wall of the second groove 31 is matched with the structural size of the receiving groove 211 defined on the side wall of the first groove 21 to achieve a good seal.

[0038] In a specific embodiment, the first receiving groove 2111 is continuous. The second receiving groove 2112 is discontinuous. In other words, the second receiving groove 2112 includes multiple sub-receiving grooves 211. The size among the sub-receiving grooves 211 may be the same or different, and in some embodiments, the size among the sub-receiving grooves 211 is the same. The depth of the second receiving groove 2112 is greater than the depth of the first receiving groove 2111. In this situation, the first protrusion member 3111 is continuous, and the second protrusion member 3112 is discontinuous. That is, the second protrusion member 3112 includes a plurality of sub-protrusion member 311. The structural dimensions of the plurality of sub-protrusive protrusions 311 may be the same or different. In some embodiment, the structural dimensions of the sub- protrusion member 311 are the same. The height of the second protrusion member 3112 is greater than the height of the first protrusion member 3111. The structure and size of the receiving groove 211 and the protrusion member 311 are matched, and the number of the sub-receiving groove 211 and the number of the sub-protrusion member 311 are the same. When the receiving groove 211 and the protrusion member 311 are arranged in multiple sections, the depth of the receiving groove 211 can be increased appropriately, and the height of the protrusion member 311 can be increased accordingly to achieve a better sealing effect. In some embodiments, the receiving groove 211 and the protrusion member 311 are arranged to be continuous. Compared with the multiple sub-receiving grooves 211 and the multiple sub- protrusion member 311, a better sealing effect can be achieved, and cartridge 10 can be prevented to the greatest extent from leaking to the atomizing chamber 70.

[0039] In other embodiments, the side wall of the first groove 21 of the heating cover 20 is provided with the protrusion member 311, and the height direction of the protrusion member 311 is opposite to the depth direction of the first groove 21. The side wall of the second groove 31 of the heating base 30 defines the receiving groove 211, and the depth direction of the receiving groove 211 is the same as the depth direction of the second groove 31. The structural dimensions of the receiving groove 211 and the protrusion member 311 are matched.

[0040] FIG. 6 is a structural schematic view of a through-hole of the heating cover of the electronic atomizing assembly.

[0041] The bottom wall of the first groove 21 defines a through-hole 216, and the suction tube 50 communicates with the atomizing chamber 70 through the through-hole

216 so that the atomized gas in the atomizing chamber 70 can be inhaled by the user through the suction tube 50. A plurality of bumps 2161 are disposed on a side wall of the through-hole 216, and the thickness of the bumps 2161 and the depth of the through-hole 216 can be the same or different, in some embodiments being the same. When the thickness of the bumps 2161 is smaller than the depth of the through-hole 216, one surface of the bumps 2161 and one end surface of the through-hole 216 are in a same plane, or the bump 2161 is disposed at the middle position of a side wall of the through-hole 216.

[0042] The plurality of bumps 2161 are arranged at intervals along the circumferential direction of the side wall of the through-hole 216, and the interval between the plurality of bumps 2161 may be equal or unequal, in some embodiments being equal. The bumps 2161 may be disposed on the entire circumference of the side wall of the through-hole 216 or may be disposed on a certain section of the side wall of the through-hole 216. The cross-section of the bump 2161 may be square, triangle, arc, or other shapes, and only needs to make the side wall of the through-hole 216 uneven. The cross-sectional shape and size of the plurality of bumps 2161 can be the same or different, and only the side wall of the through-hole 216 needs to be uneven. A certain section of the side wall of the through-hole 216 is provided with the plurality of bumps 2161, or the cross-sectional shape and size of the plurality of bumps 2161 are different so that the through-hole 216 defines an asymmetric structure, which makes the liquid film easier to break, in some embodiments being the asymmetric structure.

[0043] By arranging a plurality of bumps 2161 on the side wall of the through-hole 216, the side wall of the through-hole 216 is uneven, which avoids the formation of a liquid film at the through-hole 216 after the accumulation of condensate during the use of the atomizer, and prevents the phenomenon of the leak, and the performance of the atomizer is improved.

[0044] FIG. 7 is a structural schematic view of a through-hole of the heating cover of the electronic atomizing assembly of another embodiment of the present disclosure.

[0045] In another embodiment, the side wall of the through-hole 216 defines a plurality of grooves 2162. At the opposite ends of the groove 2162 in the depth direction of the through-hole 216, one of the grooves 2162 may be an open-end and the other may be a closed-end, or both open-end or closed-end, in some embodiments being both open-ends of the groove 2162.

[0046] The plurality of grooves 2162 are arranged at intervals along the circumferential direction of the side wall of the through-hole 216, and the interval between the plurality of grooves 2162 may be equal or unequal, in some embodiments being equal. The groove 2162 may be defined on the entire circumference of the side wall of the through-hole 216 or may be defined on a certain section of the side wall of the through-hole 216. The cross-section of the groove 2162 may be square, triangle, arc, or other shapes, and only needs to make the side wall of the through-hole 216 uneven. The cross-sectional shape and size of the plurality of grooves 2162 may be the same or different, as long as the side wall of the through-hole 216 is uneven. A certain section of the side wall of the through-hole 216 defines multiple grooves 2162, or the cross-sectional shape and size of the multiple grooves 2162 are different so that the through-hole 216 defines an asymmetric structure, making the liquid film easier to rupture. In some embodiments, the plurality of grooves 2162 defines an asymmetric structure in the circumferential direction of the side wall of the through-hole 216.

[0047] By providing a plurality of grooves 2162 on the side wall of the through-hole 216, the side wall of the through-hole 216 is uneven, which avoids the formation of a liquid film at the through-hole 216 after the accumulation of condensate during the use of the atomizer, and prevents the phenomenon of the leak, and the performance of the atomizer is improved.

[0048] FIG. 8 is a cross-sectional view of the configuration of a receiving groove on the heating cover and protrusion members on the heating base of the electronic atomizing assembly.

[0049] Compared with the first embodiment of the second embodiment of the electronic atomizing assembly 1, the structure of the electronic atomizing assembly 1 is basically the same, and the difference lies in the structure of the receiving groove 211 on the heating cover 20 and the structure the protrusion member 311 on the heating base 30.

[0050] In the second embodiment, the heating cover 20 defines a first groove 21, and the first groove 21 serves as the upper part of the atomizing chamber 70. The side wall of the first groove 21 defines the receiving groove 211, and the grooving direction of the receiving groove 211 is the same as that of the first groove 21. That is, the depth direction of the receiving groove 211 is the same as that of the first groove 211. The depth directions of the grooves 21 are the same. An inner side wall of the receiving groove 211 defines a recess 2113. The receiving groove 211 has two opposite inner side walls in a direction perpendicular to the extending direction. Both the two opposite inner side walls may define a recess 2113, or only one of the inner side walls may define the recess 2113. In some embodiments, both the two opposite inner side walls of the receiving groove 211 define the recess 2113. The depth direction of the recess 2113 is perpendicular to the depth direction of the receiving groove 211.

[0051] Side walls of the first groove 21 may include a first side wall 212, a second side wall 213, a third side wall 214, and a fourth side wall 215. The first side wall 212 and the third side wall 214 are oppositely arranged, and the second side wall 213 and the fourth side wall 215 are oppositely arranged. The first side wall 212 defines a first notch 2121, the third side wall 214 defines a second

notch 2141, and the shape and size of the first notch 2121 and the second notch 2141 are the same. The first notch 2121 and the second notch 2141 are the lower liquid ventilation ports of the electronic atomizing assembly 1. The second side wall 213 defines a first receiving groove 2111, and the fourth side wall 215 defines a second receiving groove 2112. One end of the first receiving groove 2111 defined on the second side wall 213 extends to a part of the first side wall 212 and is close to the first notch 2121. The other end of the first receiving groove 2111 extends to a part of the third side wall 214 and is close to the second notch 2141. One end of the second receiving groove 2112 defined on the fourth side wall 215 extends to a part of the first side wall 212 and is close to the first notch 2121. The other end of the second receiving groove 2112 extends to a part of the third side wall 214 and is close to the second notch 2141.

[0052] The first receiving groove 2111 and the second receiving groove 2112 close to the first notch 2121 or the second notch 2141 are close to ends and are not communicated with the first notch 2121 or the second notch 2141. The heights of the two opposite side walls of the first receiving groove 2111 and the second receiving groove 2112 may be the same or different.

[0053] Specifically, the recesses 2113 may be defined only on the first receiving groove 2111, or the recesses 2113 may be defined only on the second receiving groove 2112, or the recess 2113 may be defined both on the first receiving groove 2111 and the second receiving groove 2112. In some embodiments, the first receiving groove 2111 and the second receiving groove 2112 define the recesses 2113. The extending direction of the recesses 2113 is the same as the extending direction of the first receiving groove 2111 or the second receiving groove 2112.The recesses 2113 can be continuous or discontinuous, in some embodiments the recesses 2113 being continuous. Wherein, the first receiving groove 2111 or the second receiving groove 2112 is continuous, the recesses 2113 defined on the first receiving groove 2111 and the second receiving groove 2112 may be continuous or discontinuous. The first receiving groove 2111 or the second receiving groove 2112 is discontinuous, and the recesses 2113 defined on each section of the receiving groove 211 is continuous.

[0054] In some embodiments, the second side wall 213 of the first groove 21 defines a first receiving groove 2111, and the fourth side wall 215 defines a second receiving groove 2112, and the first receiving groove 2111 and the second receiving groove 2112 are continuous. Both the two opposite inner side walls of each of the first receiving groove 2111 and the second receiving groove 2112 define the recesses 2113, and the recesses 2113 are continuous.

[0055] The depth of the first receiving groove 2111 and the second receiving groove 2112, the height of the two opposite side walls, and the cross-sectional shape are designed as requirements, which is only necessary to cooperate with the protrusion member 311 to realize the sealing between the atomizing chamber 70 and the cartridge 10.

[0056] In the second embodiment, the heating base 30 defines a second groove 31. The second groove 31 serves as the lower part of the atomizing chamber 70 and cooperates with the first groove 21 to define the atomizing chamber 70. The side wall of the second groove 31 is provided with a protrusion member 311, and the height direction of the rib 311 is the same as the extension direction of the side wall of the second groove 31. A side wall of the protrusion member 311 is provided with a projection 3113, and the height direction of the projection 3113 is perpendicular to the height direction of the protrusion member 311. The protrusion member 311 has two opposite side wall surfaces in a direction perpendicular to its extending direction. The two opposite side wall surfaces may be defined with projection 3113, or only one of the side wall surfaces may be defined with projection 3113.

[0057] Side walls of the second groove 31 may include a fifth side wall 312, a sixth side wall 313, a seventh side wall 314, and an eighth side wall 315. The fifth side wall 312 and the seventh side wall 314 are opposite to each other, and the sixth side wall 313 and the eighth side wall 315 are opposite to each other. The fifth side wall 312 defines a third notch 3121, and the seventh side wall 314 defines a fourth notch 3141. The shape and size of the third notch 3121 and the fourth notch 3141 are the same. One end of the heating coil 40 is lapped on the third notch 3121 of the heating base 30, and the other end of the heating coil is lapped on the fourth notch 3141 so that the middle part of the heating coil 40 is suspended in the atomizing chamber 70. The sixth side wall 313 is provided with a first protrusion member 3111, and the eighth side wall 315 is provided with a second protrusion member 3112. One end of the first protrusion member 3111 defined on the sixth side wall 313 extends to a part of the fifth side wall 312 and is close to the third notch 3121. The other end of the first protrusion member 3111 extends to a part of the seventh side wall 314 and is close to the fourth notch 3141. One end of the second protrusion member 3112 defined on the eighth side wall 315 extends to a part of the fifth side wall 312 and is close to the third notch 3121. The other end extends to a part of the seventh side wall 314 and is close to the fourth notch 3141. The first protrusion member 3111 and the second protrusion member 3112 close to the third notch 3121 or the fourth notch 3141 are closed ends and are not connected with the third notch 3121 or the fourth notch 3141.

[0058] Specifically, the projection 3113 may be defined only on the first protrusion member 3111, or the projection 3113 may be only defined on the second protrusion member 3112, or in some embodiments, both the first protrusion member 3111 and the second protrusion member 3112 define the projection 3113. The extending direction of the projection 3113 is the same as the extending direction of the first protrusion member 3111 or the second protrusion member 3112. The projection 3113 may be

continuous or discontinuous, and in some embodiments the projection 3113 is continuous. The first protrusion member 3111 or the second protrusion member 3112 is continuous, and the first protrusion member 3111 is provided with the projections 3113, and the protrusion member 3112 can be continuous or discontinuous. The first protrusion member 3111 or the second protrusion member 3112 is discontinuous, and the protrusion 3113 defined on each section of the receiving groove 211 is continuous.

[0059] In a specific embodiment, the sixth side wall 313 of the second groove 31 is provided with the first protrusion member 3111, the eighth side wall 315 is provided with a second protrusion member 3112, and the first protrusion member 3111 and the second protrusion member 3112 are continuous. The two opposite sidewall surfaces of the first protrusion member 3111 define the projection 3113 and the second protrusion member 3112, and the projections 3113 are continuous.

[0060] The height and cross-sectional shape of the first protrusion member 3111 and the second protrusion member 3112 can be designed according to requirements, and the sealing between the atomizing chamber 70 and the cartridge 10 can be achieved by cooperating with the receiving groove 211.

[0061] As shown in FIG. 5, after configuring the heating cover 20 and the heating base, a first notch 2121 on the heating cover corresponds to a third notch 3121 on the heating base 30, and the second notch 2141 on the heating cover 20 corresponds to the fourth notch 3141 on the heating base 30. The projection 3113 defined on the side wall of the protrusion member 311 and the recess 2113 defined on the inner side wall of the receiving groove 211 are set to match the structural dimensions, and the structural dimensions of the protrusion member 311 are matched with the structural dimensions of the receiving groove 211 to achieve a good seal.

[0062] In other embodiments, the side wall of the first groove 21 of the heating cover 20 is provided with a protrusion member 311, and the height direction of the protrusion member 311 is opposite to the depth direction of the first groove 21. The side wall of the second groove 31 of the heating base 30 defines the receiving groove 211, and the depth direction of the receiving groove 211 is the same as the depth direction of the second groove 31, and the inner side wall of the receiving groove 211 is provided with the projection 3113. The structural dimensions of the recess 2113 and the projection 3113 are matched, and the structural dimensions of the receiving groove 211 and the protrusion member 311 are matched.

[0063] FIG. 9 is a structural schematic view of an electronic atomizing device.

[0064] The electronic atomizing device includes the electronic atomizing assembly 1 and a power supply assembly 2. The power supply assembly 2 supplies power to the electronic atomizing assembly 1 to make the electronic atomizing assembly 1 work. The electronic atomizing assembly 1 is any electronic atomizing assembly 1 in the above-mentioned embodiments.

[0065] The present disclosure realizes the sealing between the cartridge and the atomizing chamber by defining the receiving groove on the heating cover and the protrusion member on the heating base, and configuring the receiving groove and the protrusion member. At the same time, the side wall of the through-hole connecting the atomizing chamber and the cartridge defines a plurality of bumps or recesses, avoiding the situation that the condensate accumulates on the through-hole to form a liquid film during the use of the electronic atomizing device, in order to improve the performance of the electronic atomizing device, and at the same time prevent the user from inhaling e-liquid when inhaling, which affects the experience of use.

[0066] The above shows only examples of the present disclosure and is not intended to limit the scope of the present disclosure. Any equivalent structure or equivalent process transformation based on the description and the accompanying drawings of the present disclosure, applied in other related arts directly or indirectly, shall be included in the scope of the present disclosure.

Claims

1. An electronic atomizing assembly, comprising:

   a cartridge;
   a heating cover, defining a first groove, wherein the first groove serves as an upper part of an atomizing chamber, and a side wall of the first groove defines a receiving groove; and
   a heating base, defining a second groove, wherein the second groove serves as a lower part of the atomizing chamber and merges with the upper part of the atomizing chamber to form the atomizing chamber, and a protrusion member is disposed on a side wall of the second groove; the protrusion member is received in the receiving groove and cooperates with the receiving groove to realize the sealing between the cartridge and the atomizing chamber.

2. The electronic atomizing assembly according to claim 1, wherein a grooving direction of the receiving groove is the same as a grooving direction of the first groove, and a height direction of the protrusion member is the same as a grooving direction of the second groove.

3. The electronic atomizing assembly according to claim 2, wherein the side wall of the first groove comprises a first side wall, a second side wall, a third side wall, and a fourth side wall; the first side wall is opposite to the third side wall, and the second side wall is opposite to the fourth side wall; the second side wall defines a first receiving groove, and the

fourth side wall defines a second receiving groove; the side wall of the second groove comprises a fifth side wall, a sixth side wall, a seventh side wall, and an eighth side wall; the fifth side wall is opposite to the seventh side wall, and the sixth side wall is opposite to the eighth side wall; the sixth side wall is provided with a first protrusion member, and the eighth side wall is provided with a second protrusion member.

4. The electronic atomizing assembly according to claim 3, wherein, the first side wall defines a first notch, and the third side wall defines a second notch; one end of the first receiving groove extends to the first side wall and close to the first notch, and the other end of the first receiving groove extends to the third side wall and close to the second notch; one end of the second receiving groove extends to the first side wall and close to the first notch, and the other end of the second receiving groove extends to the third side wall and close to the second notch; and the fifth side wall defines a third notch, and the seventh side wall defines a fourth notch; one end of the first protrusion member extends to the fifth side wall and is close to the third notch, and the other end of the first protrusion member extends to the seventh side wall and is close to the fourth notch; one end of the second protrusion member extends to the fifth side wall and close to the third notch, and the other end of the second protrusion member extends to the seventh side wall and close to the fourth notch.

5. The electronic atomizing assembly according to claim 2, wherein an inner side wall of the receiving groove defines a recess, and a side wall of the protrusion member is provided with a projection, and the projection is arranged in cooperation with the recess.

6. The electronic atomizing assembly according to claim 1, wherein the material of the heating cover is plastic, and the material of the heating base is silica gel.

7. The electronic atomizing assembly according to claim 1, wherein a bottom wall of the first groove defines a through-hole, and a side wall of the through-hole defines a bump or a third groove.

8. The electronic atomizing assembly according to claim 7, wherein a plurality of bumps or a plurality of third grooves arranged at intervals are arranged on the side wall of the through-hole along a circumferential direction.

9. The electronic atomizing assembly according to claim 8, wherein a cross-section of each of the plurality of the bump or each of the plurality of the third grooves is square, triangular, or arc-shaped.

10. The electronic atomizing assembly according to claim 7, further comprising a suction tube, wherein the through-hole is in communication with the suction tube and the atomizing chamber is in communication with the suction tube.

11. An electronic atomizing device, comprising an electronic atomizing assembly and a power supply assembly, wherein the electronic atomizing assembly is the electronic atomizing assembly according to any one of claims 1-10.

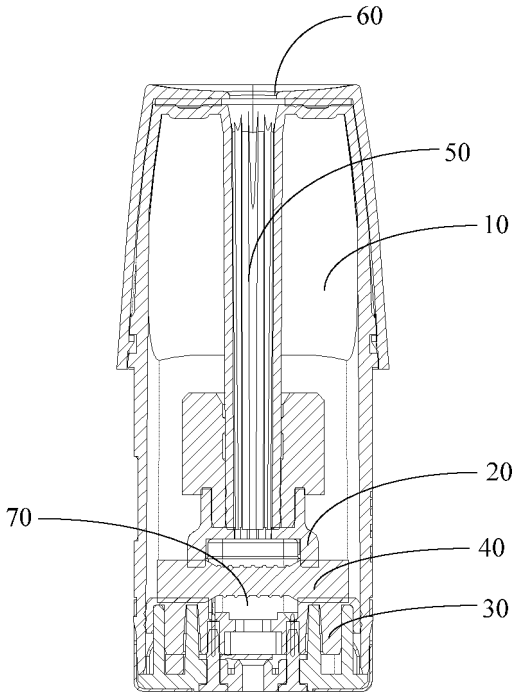


FIG. 1

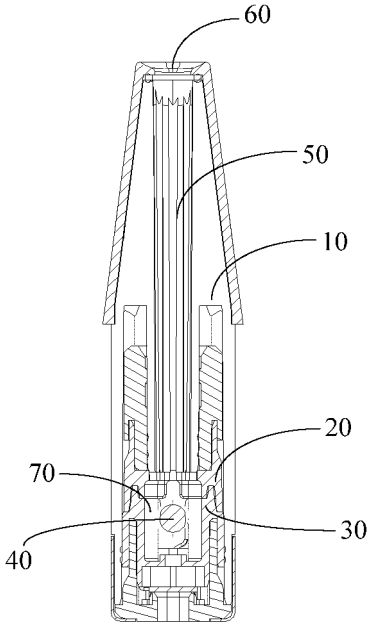
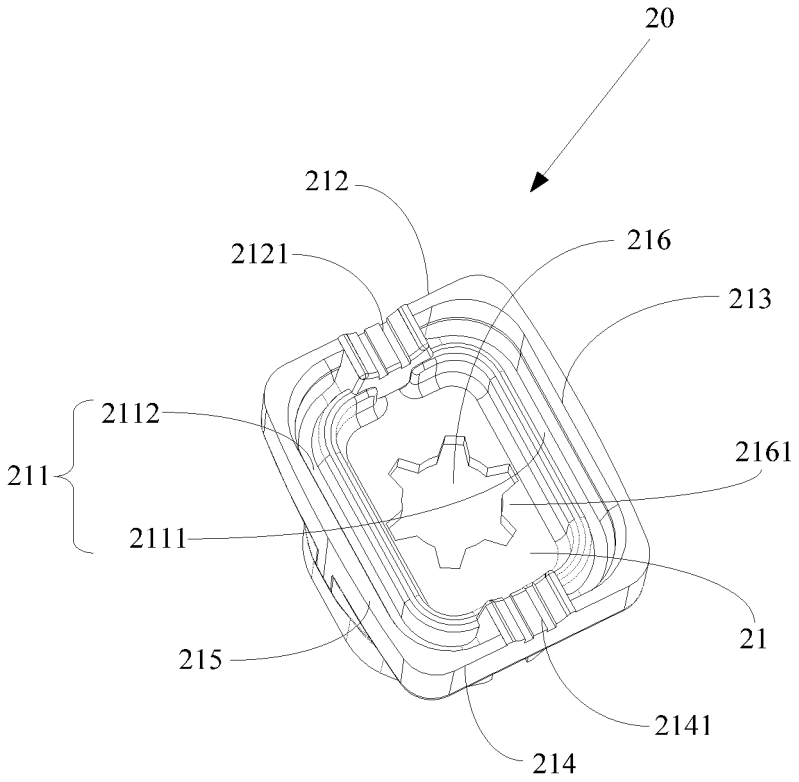


FIG. 2


20
212
2121
216
213
2112
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2161
2111
21
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2141
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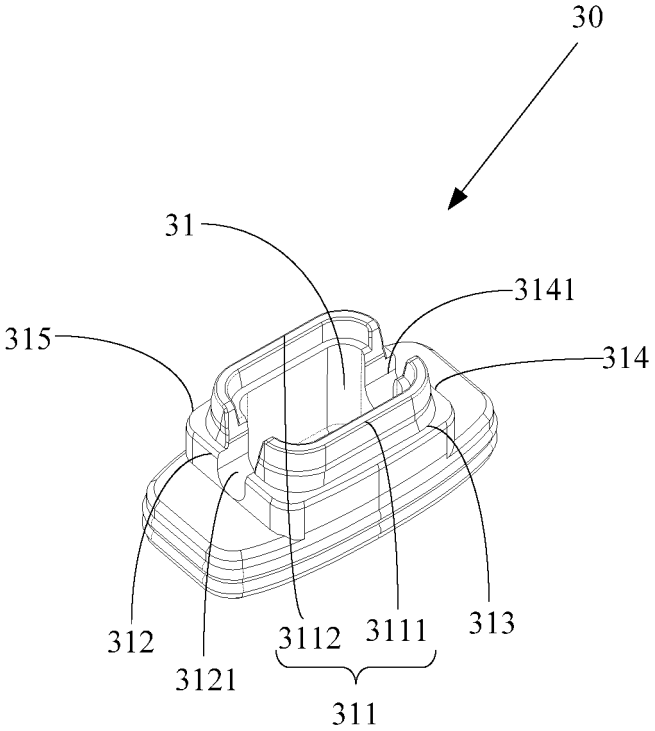
FIG. 3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31
3141
315
314
312
3121
3112
3111
313
311

FIG. 4

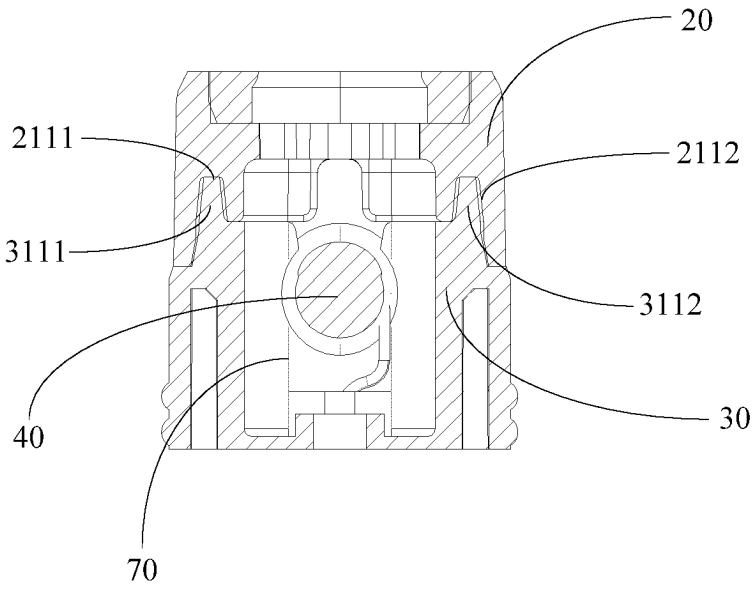

FIG. 5

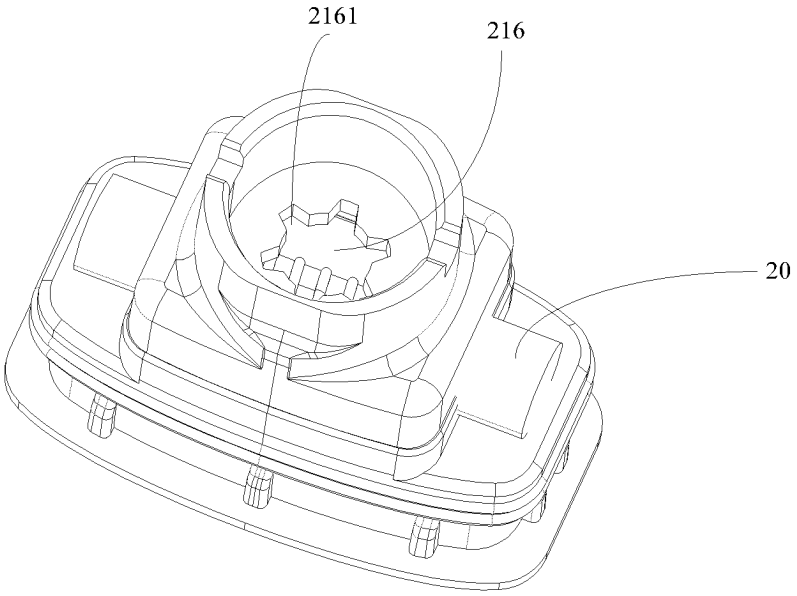

FIG. 6

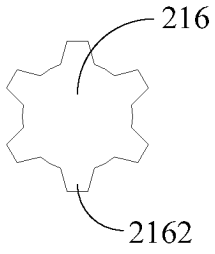

FIG. 7

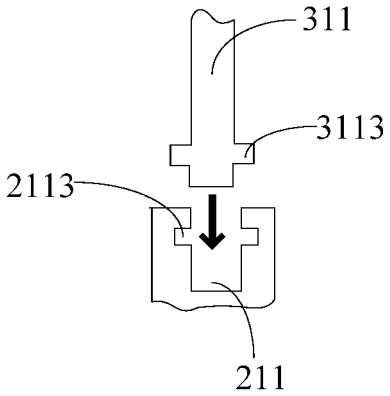

FIG. 8

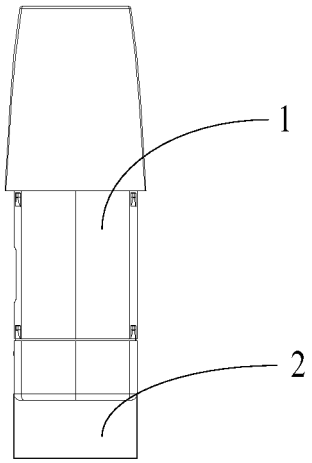

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/118029

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i; A24F 40/42(2020.01)i; A24F 40/46(2020.01)i; A24F 40/10(2020.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A24F40/-

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)

WPI, EPODOC, CNKI, CNPAT: 深圳麦克韦尔, 电子烟, 雾化, 发热, 加热, 盖, 座, 槽, 孔, 凸, 突, 肋, 插接, 卡接, 密封, electronic cigarette, atomiz+, heat+, cover, seat, groove, hole, protrude, convex, rib, seal+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 112385891 A (SHENZHEN SMOORE TECHNOLOGY LIMITED) 23 February 2021 (2021-02-23) claims 1-11, description paragraphs [0030]-[0074], figures 1-9	1-11
PX	CN 213663671 U (SHENZHEN SMOORE TECHNOLOGY LIMITED) 13 July 2021 (2021-07-13) claims 1-11, description paragraphs [0030]-[0074], figures 1-9	1-11
X	CN 206062138 U (O-NET AUTOMATION TECHNOLOGY (SHENZHEN) LTD.) 05 April 2017 (2017-04-05) description paragraphs [0044]-[0065], [0092]-[0095], figures 1-4, 9	1-11
X	CN 110292211 A (SHENZHEN RELX TECH. CO., LTD.) 01 October 2019 (2019-10-01) description paragraphs [0033]-[0067], figures 1-6b	1-11
X	CN 110612033 A (KTANDG CORPORATION) 24 December 2019 (2019-12-24) description, paragraphs [0042]-[0139], and figures 1-8	1-11
A	CN 211153811 U (SHENZHEN POOLAN TECHNOLOGY CO., LTD.) 04 August 2020 (2020-08-04) entire document	1-11

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

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 November 2021	**25 November 2021**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/118029

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20190138458 A (EM TECH. CO., LTD.) 13 December 2019 (2019-12-13) entire document	1-11

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2021/118029

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	112385891	A	23 February 2021	None			
CN	213663671	U	13 July 2021	None			
CN	206062138	U	05 April 2017	None			
CN	110292211	A	01 October 2019	CN	210695946	U	09 June 2020
				WO	2021000399	A1	07 January 2021
				WO	2021000425	A1	07 January 2021
CN	110612033	A	24 December 2019	KR	102074933	B1	02 March 2020
				EP	3622838	A2	18 March 2020
				KR	20180124736	A	21 November 2018
				JP	6813697	B2	13 January 2021
				US	2021127742	A1	06 May 2021
				JP	2020520232	A	09 July 2020
				WO	2018208078	A2	15 November 2018
				KR	20190049630	A	09 May 2019
				KR	102065073	B1	10 January 2020
				JP	6793870	B2	02 December 2020
				JP	2020185005	A	19 November 2020
CN	211153811	U	04 August 2020	CN	112716053	A	30 April 2021
KR	20190138458	A	13 December 2019	KR	102135804	B1	20 July 2020

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 2020109813116 **[0001]**