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(54) ELECTRONIC CIGARETTE, AND METHOD FOR ASSEMBLING ELECTRONIC CIGARETTE

(57) An electronic cigarette comprises an atomization core comprising a connector, a heating wire assembly, an internal electrode , an elastic sleeve, an atomization cap, and a first electronic wire and second electronic wire; a receiving recess is arranged on the internal electrode; the first electronic wire is accommodated in the receiving recess and is electrically connected to the internal electrode; the elastic sleeve is retained on the inside wall of the atomization cap to hold the second electronic wire between the inside wall of the atomization cap and the outside wall of the flexible sleeve; the atomization cap is electrically connected to the other end of the battery assembly through the connector; one end of a vent pipe elastically abuts against one end of the elastic sleeve. The electronic cigarette has the advantages of easy replacement of the heating wire assembly, easy addition of smoke oil, and stable electrical connections.

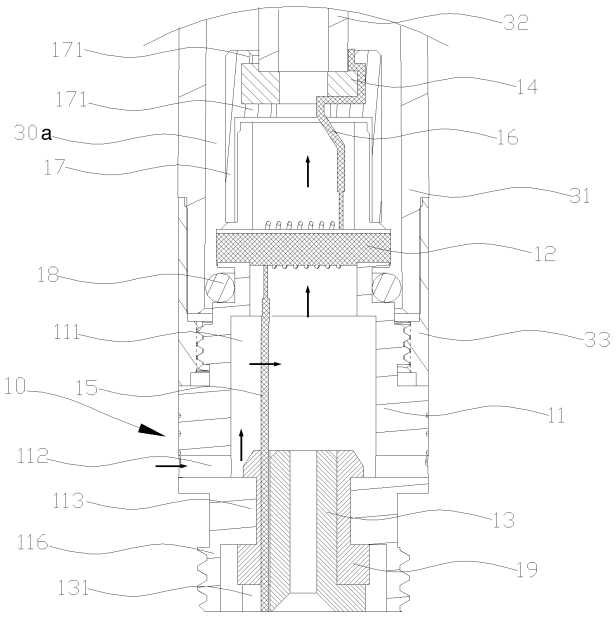


Figure 2

EP 3 170 412 A1

Description

FIELD OF THE INVENTION

[0001] The present application relates to a field of electronic cigarettes, and more particularly relates to an electronic cigarette, and method for assembling the electronic cigarette.

BACKGROUND OF THE INVENTION

[0002] In the prior art, the electronic cigarette comprises an atomization assembly and an battery assembly, one end of the atomization assembly is provided with an internal electrode and a connector which are respectively electrically connected with two ends of an electric heating wire in the atomization assembly, and the internal electrode and the connector work as an electrode for electrically connecting to the atomization assembly; an end of the battery assembly which is connected to the atomization assembly is provided with a lower electrode and a connecting sleeve, and the lower electrode and the connecting sleeve serve as an electrode for electrically connecting with the atomization assembly. An electrical connection between the atomization assembly and the battery assembly is achieved by a cooperation between the connector and the connecting sleeve and a cooperation between the internal electrode and the lower electrode during assembly.

[0003] However, in the prior art, when the two ends of the electric heating wire of the atomization assembly are respectively electrically connected to the connector and the internal electrode by an electric wire, a length of the electric wire is not easily controlled, resulting in an unstable electric connection. If a soldering connection is directly applied, then the connection also makes an installation and a removal very inconvenient.

[0004] Therefore, the prior art has a drawback that it is in an urgent need of an improvement

SUMMARY OF THE INVENTION

[0005] Technical problems to be solved in the present invention is to provide an improved electronic cigarette, aiming at defects in the prior art.

[0006] Technical solutions of the present application for solving the technical problems are as follows: to provide an electronic cigarette comprising an electronic cigarette body, the electronic cigarette body is provided with an atomization assembly for atomizing smoke oil, and a battery assembly for supplying electrical power to the atomization assembly, the atomization assembly comprises an oil cup assembly and an atomization core detachably connected to an end of the oil cup assembly; the atomization core comprises a connector, a heating wire assembly, an internal electrode, an elastic sleeve, an atomization cap, and a first electronic wire and a second electronic wire; the first electronic wire and the second electronic wire are electrically connected to two ends of the heating wire assembly;

[0007] The oil cup assembly comprises an oil reservoir sleeve defined at an end of the connector, and an vent pipe defined along an axial direction of the oil reservoir sleeve and arranged to be sleeved inside the oil reservoir sleeve to allow smoke to flow, an oil reservoir chamber is formed in the oil reservoir sleeve; the connector is provided with an atomization channel which passes through two ends of the connector and communicates with the vent pipe, and two fixing grooves which are defined at the end of the connector and extended to an end surface of the end, the two fixing grooves are defined on opposite sides of the atomization channel and are in communication with the oil reservoir chamber, the heating wire assembly is mounted on the two fixing grooves, the internal electrode is provided in an end of the atomization channel which is opposite to the two fixing grooves and is abutted against and electrically connected to one electrode of the battery assembly, an external surface of the internal electrode is provided with a receiving recess which is defined along an axial direction of the internal electrode, the first electronic wire is accommodated in the receiving recess and is electrically connected to the internal electrode;

[0008] The atomization cap is sleeved at the end of the connector and abutted against the heating wire assembly, the end is opposite to the internal electrode, and the elastic sleeve is clamped in an inner side wall of the atomization cap to clamp the second electric wire between the inner side wall of the atomization cap and an outer side wall of the elastic sleeve and to enable the atomization cap to be electrically connected to the second electric wire, the atomization cap is electrically connected to the other one electrode of the battery assembly through the connector, and an end of the vent pipe is abutted against an end of the elastic sleeve.

[0009] In the electronic cigarette provided in the present invention, a side wall of the connector is also provided with an air inlet for intake of air and discharge of the smoke oil accumulated in the connector.

[0010] In the electronic cigarette provided in the present invention, an inner side wall of an end of the atomization cap which is opposite to the battery assembly protrudes inwardly along a radial direction of the atomization cap to form two retaining rings defined with an interval, the two retaining rings are formed with a clamping space, the elastic sleeve is accommodated in the clamping space, and an end of the vent pipe is inserted in one retaining ring opposite to the connector and is abutted against the elastic sleeve.

[0011] In the electronic cigarette provided in the present invention, the heating wire assembly comprises an oil guide member and a heating wire wound around the oil guide member, two ends of the oil guide member are respectively passed through the two fixing grooves and extended into the oil reservoir chamber, and an end of the atomization cap abuts on an end of the oil guide member projecting from the two fixing grooves.

[0012] In the electronic cigarette provided in the present invention, an outer wall of an end of connector which is opposite to the battery assembly protrudes outwardly in a radial direction of the connector to form a stopper protrusion, and an end surface of which the atomization cap abutting against the heating wire assembly is abutted against the stopper protrusion.

[0013] In the electronic cigarette provided in the present invention, bottom walls of the two fixing grooves are formed with convex portions in a radially outward direction of the connector, and the convex portions are configured for abutting against the oil guiding member.

[0014] In the electronic cigarette provided in the present invention, the oil cup assembly is provided with a metal connecting ring, the oil reservoir sleeve is made of a non-metallic material, one end of the metal connecting ring is sleeved at and connected to the oil storage sleeve by a tight fitting mating connection, and the other end of the metal connecting ring is detachably connected to the connector.

[0015] In the electronic cigarette provided in the present invention, the vent pipe is connected to an end of the oil reservoir sleeve, the end connected to the vent pipe is provided with a through hole for communicating the vent pipe with the outside.

[0016] In the electronic cigarette provided in the present invention, an outer side wall of the connector is provided with an annular mounting groove in a circumferential direction, and the atomization assembly further comprises a resilient sealing ring for preventing a leakage of the smoke oil, the resilient sealing ring is sleeved in the mounting groove and elastically abuts against an inner wall of the oil reservoir sleeve.

[0017] In the electronic cigarette provided in the present invention, the internal electrode comprises an electrode column in a round tube shape, and an annular flange provided at an end of the electrode column, the receiving recess is defined on the flange.

[0018] In the electronic cigarette provided in the present invention, the atomization assembly further comprises an insulating ring, the insulating ring is defined between the connector and the internal electrode.

[0019] In the electronic cigarette provided in the present invention, the connector protrudes inwardly in a radial direction of the inner wall of the connector to form an annular first clamping table, a groove is defined along a circumferential direction of an outer side wall of the insulating ring, the first clamping table is clamped in the groove.

[0020] In the electronic cigarette provided in the present invention, the air inlet extends in a radial direction of the connector, a side wall corresponding to the air inlet and a side wall of the first clamping table which is opposite to the battery assembly are tangent.

[0021] In the electronic cigarette provided in the present invention, the oil guide member is a columnar glass fiber rope.

[0022] In the electronic cigarette provided in the present invention, an axial direction of the oil guide member is perpendicular to an axial direction of the connector.

[0023] The present invention further provides a method of assembling an electronic cigarette, comprising following steps:

[0024] S1. providing an electronic cigarette body, the electronic cigarette body is provided with an atomization assembly for atomizing smoke oil and a battery assembly for supplying power to the atomization assembly, the atomization assembly comprises an oil cup assembly and an atomization core detachably connected to an end of the oil cup assembly; the atomization core comprises a connector, a heating wire assembly, an internal electrode, an elastic sleeve, an atomization cap, and a first electronic wire and a second electronic wire; the first electronic wire and the second electronic wire are electrically connected to two ends of the heating wire assembly;

[0025] The oil cup assembly comprises an oil reservoir sleeve and an vent pipe, the vent pipe is defined along an axial direction of the oil reservoir sleeve and arranged to be sleeved inside the oil reservoir sleeve, an oil reservoir chamber is formed in the oil reservoir sleeve; the connector is provided with an atomization channel which passes through two ends of the connector and communicates with the vent pipe, and two fixing grooves which are defined at an end of the connector, the two fixing grooves are respectively defined on opposite sides of the atomization channel, the heating wire assembly is mounted on the two fixing grooves, the internal electrode is provided in an end of the atomization channel which is opposite to the two fixing grooves and is abutted against the battery assembly, an external surface of the internal electrode is provided with a receiving recess which is defined along an axial direction of the internal electrode;

[0026] S2. the first electronic wire passes through the receiving recess along an axial direction of the receiving recess, the first electronic wire is straightened, then a portion of the first electronic wire protruding from the receiving recess is cut off;

[0027] S3. the atomization cap is sleeved at an end of the connector which is opposite to the internal electrode and abutted against the heating wire assembly, and the elastic sleeve is clamped in an inner side wall of the atomization cap to clamp the second electric wire between the inner side wall of the atomization cap and an outer side wall of the elastic sleeve and to enable the atomization cap to be electrically connected to the second electric wire, the atomization cap is electrically connected to the other one electrode of the battery assembly through the connector, and an end of the vent pipe is abutted against an end of the elastic sleeve.

[0028] Applications of the electronic cigarette and electronic cigarette light emission control method of the present invention has following advantages:

1. Since the atomization core is detachably connected to an end of the oil cup assembly adjacent to the battery assembly, it is not only convenient to disas-

semble the oil cup assembly to add the smoke oil, but also to avoid contamination of the smoking end of the other end of the oil cup assembly when the smoke oil is added;

2. Since the heating wire assembly of the atomization core is installed in the fixing grooves of the connector, the heating wire assembly can be dismounted from the connector to facilitate assemble when the manufacture is made and also replace of the heating wire assembly by the user, so as to prevent the heating wire assembly from odor generated by the smoke oil as a result of a long-term use of the smoke oil; In addition, the heating wire assembly directly defined on the connector, without a need for additional devices for fixing the heating wire assembly, thus the structure of the atomization core is relatively simple and compact, easy to produce and facilitate a replacement of the atomization core when the atomization core is taken in and out;

3. Since the first electronic wire is accommodated in the receiving recess of the internal electrode, a length of the first electronic wire is facilitated to be controlled and an electrical connection between the first electronic wire and the internal electrode is enabled to be more stable, as that the second electronic wire is tightly clamped by the elastic sleeve makes the electrical connection between the second electron wire and the atomization cap more stable and avoids a problem of the soldering connection being false soldering. Moreover, the connection method is easier to assemble and the first electronic wire and the second electronic wire are convenient to be pulled out to replace the heating wire assembly, and a short circuit caused by an excess length of the first electronic wire or the second electronic wire can be prevented, since the first electronic wire and the second electronic wire extend in two different directions, it can avoid the short circuit and other issues caused by the two electronic wires winding;

4. Since an end of the vent pipe is in elastically abuts on an end of the elastic sleeve, a problem that the smoke oil in the oil reservoir leaks into the atomization passage which causes the user to smoke the oil is avoided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] The present invention will be further described with reference to the accompanying drawings and embodiments in the following.

Figure 1 is a structural schematic diagram of an electronic cigarette in one preferred embodiment of the present invention;

Figure 2 is a partial sectional view of the electronic cigarette in one preferred embodiment of the present invention;

Figure 3 is a structural schematic diagram of a heating wire assembly of the electronic cigarette in one preferred embodiment of the present invention;

Figure 4 is a structural schematic diagram of a connector of the electronic cigarette in one preferred embodiment of the present invention;;

Figure 5 is a structural schematic diagram of an internal electrode of the electronic cigarette in one preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0030] To make the technical feature, objective and effect of the present application be understood more clearly, now the specific implementation of the present application is described in detail with reference to the accompanying drawings and embodiments.

[0031] Figure 1 illustrates the electronic cigarette provided by one preferred embodiment of the present invention, the electronic cigarette comprises the electronic cigarette body which is provided with an atomization assembly 1 for atomizing smoke oil and a battery assembly for supplying power to the atomization assembly 1. The battery assembly 2 is detachably and electrically connected to the atomization assembly 1, for instance, by means of a plug, a snap connection or a threaded connection.

[0032] The atomization assembly 1 comprises an oil cup assembly 30 and an atomization core 10 detachably connected to an end of the oil cup assembly 30. The atomization core 10 can be connected to the end of the oil cup assembly 30 by means of a plug or a threaded connection. An end of the oil cup assembly 30 which is opposite to the battery assembly 2 is a smoking end, namely, the smoking end is an end of the oil cup assembly 30, certainly, the smoking end can be a suction nozzle or other structures detachably connected to the oil cup assembly 30, for instance, by means of a threaded connection or a snap connection, as it is an prior art, thus it is not specifically limited here.

[0033] As shown in Figure 2, the atomization core 10 comprises a connector 11, a heating wire assembly 12, an internal electrode 13, an elastic sleeve 14, a first electronic wire 15, a second electronic wire 16, an atomization cap 17, a resilient sealing ring 18 and an insulating ring 19.

[0034] Specifically, as illustrated in Figure 3, the heating wire assembly 12 comprises an oil guide member 121 and a heating wire 122 wound around the oil guide member 121, preferably, the oil guide member 121 is a columnar glass fiber rope, certainly, it should be understood that the present invention is not limited thereto and is not particularly limited as long as it can enable the smoke oil to pass through.

[0035] The heating wire assembly 12 is defined in the connector 11, the internal electrode 13 is defined at an end of the heating wire assembly 12 which is close to the battery assembly 2, and the internal electrode 13 is configured for being connected to one electrode of the battery

assembly 2. The first electronic wire 15 is configured for connecting the internal electrode 13 to one end of the heating wire assembly 12, the second electronic wire 16 is configured for electrically connecting the other end of the heating wire assembly 12 to the atomization cap 17. The atomization cap 17 sleeves on an end of the connector 11 which is opposite to the internal electrode 13 and is electrically connected to the connector 11.

[0036] With reference to Figures 2 and 4, the connector 11 is made of conductive metal and is roughly in a tube shape, the connector 11 is provided with an atomization channel 111 which passes through two ends of the connector 11 and communicates with the vent pipe 32, the heating wire assembly 12 is defined in the atomization channel 111. The connector 11 further comprises two fixing grooves 114 which are defined at the end of the connector 11 and extended to an end surface of the end of the connector 11, the two fixing grooves 114 are respectively defined on opposite sides of the atomization channel 111, the oil guide member 121 of the heating wire assembly 12 is mounted in the two fixing grooves 114, and is inserted into the oil cup assembly 30 through the fixing grooves 114 to withdraw the smoke oil, an axial direction of the oil guide member 121 is perpendicular to an axial direction of the connector 11. When the atomization cap 17 is sleeved on the connector 11, the atomization cap 17 abuts against the oil guide member 121 of the heating wire assembly 12. The atomization cap 17 can press the oil guide member 121 tightly, avoid excessive penetration of the smoke oil into the connector 11 and prevent the oil guide member 121 from slipping down into the atomization channel 111.

[0037] An outer wall of an end of connector 11 which is opposite to the battery assembly 2 protrudes outwardly in a radial direction of the connector 11 to form a stopper protrusion 115, and an end surface of which the atomization cap 17 abutting against the oil guide member 121 of the heating wire assembly 12 is abutted against the stopper protrusion 115. Preferably, the stopper protrusion 115 is an annular step circumferentially provided around the outer wall of the connector 11. The stopper protrusion 115 can prevent the atomization cap 17 from excessively squeezing the oil guide member 121 to cause self-burning of the heating wire because of insufficient supply of the smoke oil, so as to increase the product yield.

[0038] Bottom walls of the fixing grooves 114 are formed with convex portions 119 in a radially outward direction of the connector 11, and the convex portions 119 are configured for abutting against the oil guiding member 121, the convex portions 119 can prevent the heating wire assembly 12 from slipping into the connector 11. In the present embodiment, the convex portions 119 and the stopper projection 115 are an integral forming structure.

[0039] An outer side wall of the connector 11 is provided with an annular mounting groove 117 in a circumferential direction, the resilient sealing ring 18 is sleeved in the mounting groove 117 and elastically abuts against an inner wall of the oil cup assembly 30 to prevent the smoke oil in the oil cup assembly 30 from flowing into the connector 11 of the atomization assembly 1.

[0040] The connector 11 protrudes inwardly in a radial direction of the inner wall of the connector 11 to form an annular first clamping table 113, a groove (not labeled) is defined along a circumferential direction of an outer side wall of the insulating ring 19, the first clamping table 113 is clamped in the groove. A side wall of the connector 11 is also provided with an air inlet 112 for intake of air and discharge of the smoke oil accumulated in the connector 11. In order to exhaust the smoke oil in the connector 11 as much as possible, the air inlet 112 extends in a radial direction of the connector 11, a side wall corresponding to the air inlet 112 and a side wall of the first clamping table 113 which is opposite to the battery assembly 2 are tangent.

[0041] Referring to Figure 5 simultaneously, the internal electrode 13 is defined in the atomization channel 111 at an end of the internal electrode 13 which is opposite to the fixing grooves 114. The insulating ring 19 is defined between the connector 11 and the internal electrode 13 to insulate them. An external surface of the internal electrode 13 is provided with a receiving recess 131 which is defined along an axial direction of the internal electrode 13, the first electronic wire 15 is accommodated in the receiving recess 131 and is electrically connected to the internal electrode 13. In the present embodiment, the internal electrode 13 comprises an electrode column 132 in a round tube shape, and an annular flange 133 provided at an end of the electrode column 132, the receiving recess 131 is defined on the flange 133. A portion of the first electronic wire 15 is clamped between the insulating ring 19 and the electrode column 132, and a portion of the first electronic wire 15 passing through a gap between the insulating ring 19 and the electrode column 132 is accommodated in the receiving recess 131.

[0042] Referring to Figure 2 again, the atomization cap 17 is made of metal, and is roughly in a round tube shape. An inner side wall of an end of the atomization cap 17 which is opposite to the heating wire assembly 12 protrudes inwardly along a radial direction of the atomization cap 17 to form two retaining rings 171 which are defined with an interval, the two retaining rings 171 are formed with a clamping space. The elastic sleeve 14 is accommodated in the clamping space, and an end of the vent pipe 32 is inserted in one retaining ring 171 opposite to the connector 11 and is abutted against the elastic sleeve 14. The two retaining rings 171 make the connection more reliable, the sealability is good, and the elastic sleeve 14 can be prevented from coming off. The elastic sleeve 14 clamps tightly the second electronic wire 16 so that an electrical connection between the second electronic wire 16 and the atomization cap 17 is more stable and facilitates a control of a length of the second electronic wire 16.

[0043] The oil cup assembly 30 comprises an oil reservoir sleeve 31 defined at an end of the connector 11, and an vent pipe 32 defined along an axial direction of the oil reservoir sleeve 31 and arranged to be sleeved inside the oil reservoir sleeve 31 to allow smoke to flow. Specifically, the oil reservoir sleeve 31 has a substantially cylindrical shape with its open end facing the battery assembly 2. The vent pipe 32 is vertically connected to an end of the oil reservoir sleeve 31 which is opposite to the battery assembly 2. In the present embodiment, the oil reservoir sleeve 31 and the vent pipe 32 are integrally formed structures made of transparent plastic materials, thereby facilitating production and facilitating observation of the smoke oil in use. The end of the oil reservoir sleeve 31 which is opposite to the battery assembly 2 is provided with a through hole for communicating the vent pipe 32 with the outside, and the end serves as a smoking end of the electronic cigarette. An end of the oil reservoir sleeve 31 which is close to the battery assembly 2 is provided with a metal connecting ring 33, the oil reservoir sleeve 31 is made of a non-metallic material, one end of the metal connecting ring 33 is sleeved at and connected to the oil storage sleeve 31 by a tight fitting mating connection, and the other end of the metal connecting ring 33 is detachably connected to the connector 11. Preferably, the metal connecting ring 33 is provided with a first internally threaded structure, and a first externally threaded structure 110 is provided on a corresponding outer wall surface of the connector 11 to achieve a threaded connection of the metal connecting ring 33 with the connector 11.

[0044] When the oil cup assembly 30 is connected to the connector 11 through the metal connecting ring 33, an inner side wall of the oil reservoir sleeve 31, an outer side wall of the vent pipe 32, and an outer side wall of the atomization cap 17 are surrounded to form an oil reservoir chamber 30a for storing the smoke oil, the fixing grooves 114 are in communication with the oil reservoir chamber 30a. The resilient sealing ring 18 defined in a mounting groove 117 of the connector 11 abuts against the inner wall of the oil reservoir sleeve 31, so as to prevent leakage of the smoke oil in the oil reservoir chamber 30a. The oil reservoir sleeve 31 made of a non-metallic material is detachably connected to the connector 11 made of metal through the metal connecting ring 33, thereby improving reliability of the connection and improving service life.

[0045] The battery assembly 2 includes a battery, a battery casing, a control board provided with a control circuit, a lower electrode and a connection sleeve. The lower electrode and the connection sleeve are arranged at an end of the battery assembly 2 connected with the atomization assembly, the battery and the control board are arranged in the battery casing, an end of the battery is electrically connected to the lower electrode while the other end is electrically connected to the connection sleeve. A second internal thread structure is provided in the connection sleeve, and correspondingly a second external thread structure 116 is provided at an end of the connector 11 toward the battery assembly 2. The connector 11 is screwed into the connection sleeve. When the battery assembly 2 is connected to the atomization assembly 1, the internal electrode 13 is electrically connected to the lower electrode of the battery assembly 2, the connector 11 is electrically connected to the connection sleeve, and the battery is controlled by the control circuit on the control board to supply electrical power to the atomization assembly 1. Configuration of the battery assembly 2 is not limited to this, and a structure of the above-described battery assembly is conventional, and details thereof are not described here.

[0046] The present invention further provides a method of assembling an electronic cigarette, comprising following steps:

S1. providing an electronic cigarette body, the electronic cigarette body is provided with an atomization assembly 1 for atomizing smoke oil and a battery assembly 2 for supplying power to the atomization assembly 1, the atomization assembly 1 comprises an oil cup assembly 30 and an atomization core detachably connected to an end of the oil cup assembly 30; the atomization core 10 comprises a connector 11, a heating wire assembly 12, an internal electrode 13, an elastic sleeve 14, an atomization cap 17, and a first electronic wire 15 and a second electronic wire 16; the first electronic wire 15 and the second electronic wire 16 are electrically connected to two ends of the heating wire assembly 12;

The oil cup assembly 30 comprises an oil reservoir sleeve 31 and an vent pipe 32, the vent pipe 32 is defined along an axial direction of the oil reservoir sleeve 31 and arranged to be sleeved inside the oil reservoir sleeve 31, an oil reservoir chamber 30a is formed in the oil reservoir sleeve 31; the connector 11 is provided with an atomization channel 111 which passes through two ends of the connector 11 and communicates with the vent pipe 32, and two fixing grooves 114 which are defined at an end of the connector 11, the two fixing grooves 114 are respectively defined on opposite sides of the atomization channel 111, the heating wire assembly 12 is mounted on the two fixing grooves 114, the internal electrode 13 is provided in an end of the atomization channel 111 which is opposite to the two fixing grooves 114 and is abutted against the battery assembly 2, an external surface of the internal electrode 13 is provided with a receiving recess 131 which is defined along an axial direction of the internal electrode 13;

S2. the first electronic wire 15 passes through the receiving recess 131 along an axial direction of the receiving recess 131, the first electronic wire 15 is straightened, then a portion of the first electronic wire 15 protruding from the receiving recess 131 is cut off;

S3. the atomization cap 17 is sleeved at an end of the connector 11 which is opposite to the internal

electrode 13 and abutted against the heating wire assembly 12, and the elastic sleeve 14 is clamped in an inner side wall of the atomization cap 17 to clamp the second electric wire 16 between the inner side wall of the atomization cap 17 and an outer side wall of the elastic sleeve 14 and to enable the atomization cap 17 to be electrically connected to the second electric wire 16, the atomization cap 17 is electrically connected to the other one electrode of the battery assembly 2 through the connector 11, and an end of the vent pipe 32 is abutted against an end of the elastic sleeve 14.

[0047] Since the second electronic wire 16 is clamped by the elastic sleeve so that the electrical connection between the second electronic wire 16 and the atomization cap 17 is more stable, it facilitates a control of a length of the first electronic wire 15 and makes the electrical connection between the first electronic wire 15 and the internal electrode 13 more stable; and it is also to prevent a short circuit caused by an excess length of the first electronic wire 15 or the second electronic wire 16.

[0048] While the embodiments of the present application are described with reference to the accompanying drawings above, the present application is not limited to the above-mentioned specific implementations. In fact, the above-mentioned specific implementations are intended to be exemplary not to be limiting. In the inspiration of the present application, those ordinary skills in the art can also make many modifications without breaking away from the subject of the present application and the protection scope of the claims. All these modifications belong to the protection of the present application.

Claims

1. An electronic cigarette comprising an electronic cigarette body, the electronic cigarette body is provided with an atomization assembly (1) for atomizing smoke oil, and a battery assembly (2) for supplying electrical power to the atomization assembly (1), **characterized in that** the atomization assembly (1) comprises an oil cup assembly (30) and an atomization core (10) detachably connected to an end of the oil cup assembly (30); the atomization core (10) comprises a connector (11), a heating wire assembly (12), an internal electrode (13), an elastic sleeve (14), an atomization cap (17), and a first electronic wire (15) and a second electronic wire (16); the first electronic wire (15) and the second electronic wire (16) are electrically connected to two ends of the heating wire assembly (12);
the oil cup assembly (30) comprises an oil reservoir sleeve (31) defined at an end of the connector (11), and an vent pipe (32) defined along an axial direction of the oil reservoir sleeve (31) and arranged to be sleeved inside the oil reservoir sleeve (31) to allow smoke to flow, an oil reservoir chamber (30a) is formed in the oil reservoir sleeve (31); the connector (11) is provided with an atomization channel (111) which passes through two ends of the connector (11) and communicates with the vent pipe (32), and two fixing grooves (114) which are defined at the end of the connector (11) and extended to an end surface of the end of the connector (11), the two fixing grooves (114) are defined on opposite sides of the atomization channel (111) and are in communication with the oil reservoir chamber (30a), the heating wire assembly (12) is mounted on the two fixing grooves (114), the internal electrode (13) is provided in an end of the atomization channel (111) which is opposite to the two fixing grooves (114) and is abutted against and electrically connected to one electrode of the battery assembly (2), an external surface of the internal electrode (13) is provided with a receiving recess (131) which is defined along an axial direction of the internal electrode (13), the first electronic wire (15) is accommodated in the receiving recess (131) and is electrically connected to the internal electrode (13); and
the atomization cap (17) is sleeved at the end of the connector (11) and abutted against the heating wire assembly (12), the end is opposite to the internal electrode (13), and the elastic sleeve (14) is clamped in an inner side wall of the atomization cap (17) to clamp the second electric wire (16) between the inner side wall of the atomization cap (17) and an outer side wall of the elastic sleeve (14) and to enable the atomization cap (17) to be electrically connected to the second electric wire (16), the atomization cap (17) is electrically connected to the other one electrode of the battery assembly (2) through the connector (11), and an end of the vent pipe (32) is abutted against an end of the elastic sleeve (14).

2. The electronic cigarette according to claim 1, **characterized in that** a side wall of the connector (11) is also provided with an air inlet (112) for intake of air and discharge of the smoke oil accumulated in the connector (11).

3. The electronic cigarette according to claim 1 or claim 2, **characterized in that** an inner side wall of an end of the atomization cap (17) which is opposite to the battery assembly (2) protrudes inwardly along a radial direction of the atomization cap (17) to form two retaining rings (171) defined with an interval, the two retaining rings (171) are formed with a clamping space, the elastic sleeve (14) is accommodated in the clamping space, and an end of the vent pipe (32) is inserted in one retaining ring (171) opposite to the connector (11) and is abutted against the elastic sleeve (14).

4. The electronic cigarette according to claim 1 or claim

2, **characterized in that** the heating wire assembly (12) comprises an oil guide member (121) and a heating wire (122) wound around the oil guide member (121), two ends of the oil guide member (121) are respectively passed through the two fixing grooves (114) and extended into the oil reservoir chamber (30a), and an end of the atomization cap (17) abuts on an end of the oil guide member (121) projecting from the two fixing grooves (114).

5. The electronic cigarette according to claim 4, **characterized in that** bottom walls of the two fixing grooves (114) are formed with convex portions (119) in a radially outward direction of the connector (11), and the convex portions (119) are configured for abutting against the oil guiding member (121).

6. The electronic cigarette according to claim 1 or claim 2, **characterized in that** an outer wall of an end of connector (11) which is opposite to the battery assembly (2) protrudes outwardly in a radial direction of the connector (11) to form a stopper protrusion (115), and an end surface of which the atomization cap (17) abutting against the heating wire assembly (12) is abutted against the stopper protrusion (115).

7. The electronic cigarette according to claim 2, **characterized in that** the oil cup assembly (30) is provided with a metal connecting ring (33), the oil reservoir sleeve (31) is made of a non-metallic material, one end of the metal connecting ring (33) is sleeved at and connected to the oil storage sleeve (31) by a tight fitting mating connection, and the other end of the metal connecting ring (33) is detachably connected to the connector (11).

8. The electronic cigarette according to claim 7, **characterized in that** an outer side wall of the connector (11) is provided with an annular mounting groove (117) in a circumferential direction, and the atomization assembly (1) further comprises a resilient sealing ring (18) for preventing a leakage of the smoke oil, the resilient sealing ring (18) is sleeved in the mounting groove (117) and elastically abuts against an inner wall of the oil reservoir sleeve (31).

9. The electronic cigarette according to claim 8, **characterized in that** the internal electrode (13) comprises an electrode column (132) in a round tube shape, and an annular flange (133) provided at an end of the electrode column (132), the receiving recess (131) is defined on the flange (133).

10. The electronic cigarette according to claim 9, **characterized in that** the atomization assembly (1) further comprises an insulating ring (19), the insulating ring (19) is defined between the connector (11) and the internal electrode (13).

11. The electronic cigarette according to claim 10, **characterized in that** the connector (11) protrudes inwardly in a radial direction of the inner wall of the connector (11) to form an annular first clamping table (113), a groove is defined along a circumferential direction of an outer side wall of the insulating ring (19), the first clamping table (113) is clamped in the groove.

12. The electronic cigarette according to claim 11, **characterized in that** the air inlet (112) extends in a radial direction of the connector (11), a side wall corresponding to the air inlet (112) and a side wall of the first clamping table (113) which is opposite to the battery assembly (2) are tangent.

13. The electronic cigarette according to claim 5, **characterized in that** the oil guide member (121) is a columnar glass fiber rope.

14. The electronic cigarette according to claim 13, **characterized in that** an axial direction of the oil guide member (121) is perpendicular to an axial direction of the connector (11).

15. A method of assembling an electronic cigarette, **characterized in that** comprising following steps:

S1. providing an electronic cigarette body, the electronic cigarette body is provided with an atomization assembly (1) for atomizing smoke oil and a battery assembly (2) for supplying power to the atomization assembly (1), the atomization assembly (1) comprises an oil cup assembly (30) and an atomization core (10) detachably connected to an end of the oil cup assembly (30); the atomization core (10) comprises a connector (11), a heating wire assembly (12), an internal electrode (13), an elastic sleeve (14), an atomization cap (17), and a first electronic wire (15) and a second electronic wire (16); the first electronic wire (15) and the second electronic wire (16) are electrically connected to two ends of the heating wire assembly (12);
the oil cup assembly (30) comprises an oil reservoir sleeve (31) and an vent pipe (32), the vent pipe (32) is defined along an axial direction of the oil reservoir sleeve (31) and arranged to be sleeved inside the oil reservoir sleeve (31), an oil reservoir chamber (30a) is formed in the oil reservoir sleeve (31); the connector (11) is provided with an atomization channel (111) which passes through two ends of the connector (11) and communicates with the vent pipe (32), and two fixing grooves (114) which are defined at an end of the connector (11), the two fixing grooves (114) are respectively defined on opposite sides of the atomization channel (111), the heating

wire assembly (12) is mounted on the two fixing grooves (114), the internal electrode (13) is provided in an end of the atomization channel (111) which is opposite to the two fixing grooves (114) and is abutted against the battery assembly (2), an external surface of the internal electrode (13) is provided with a receiving recess (131) which is defined along an axial direction of the internal electrode (13);

S2. the first electronic wire (15) passes through the receiving recess (131) along an axial direction of the receiving recess (131), the first electronic wire (15) is straightened, then a portion of the first electronic wire (15) protruding from the receiving recess (131) is cut off;

S3. the atomization cap (17) is sleeved at an end of the connector (11) which is opposite to the internal electrode (13) and abutted against the heating wire assembly (12), and the elastic sleeve (14) is clamped in an inner side wall of the atomization cap (17) to clamp the second electric wire (16) between the inner side wall of the atomization cap (17) and an outer side wall of the elastic sleeve (14) and to enable the atomization cap (17) to be electrically connected to the second electric wire (16), the atomization cap (17) is electrically connected to the other one electrode of the battery assembly (2) through the connector (11), and an end of the vent pipe (32) is abutted against an end of the elastic sleeve (14).

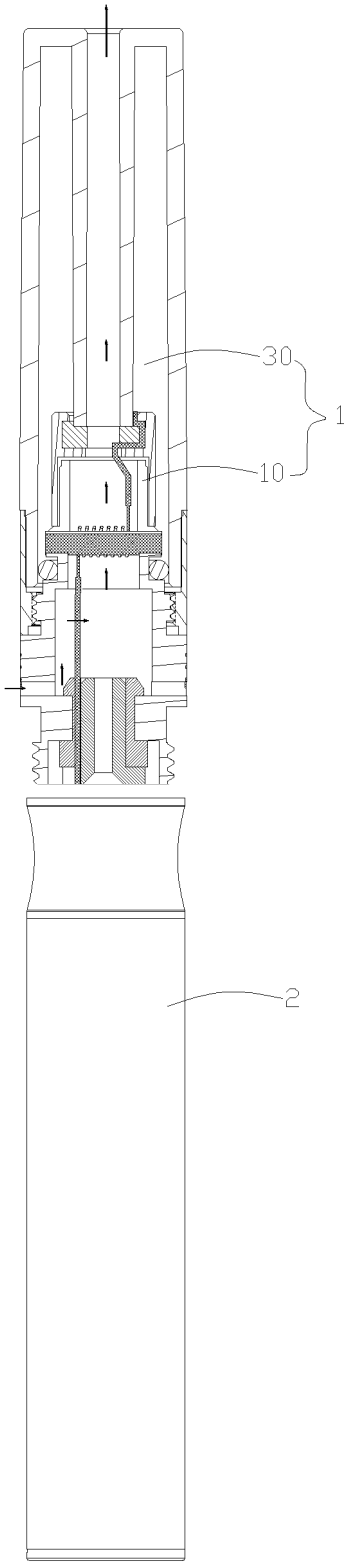
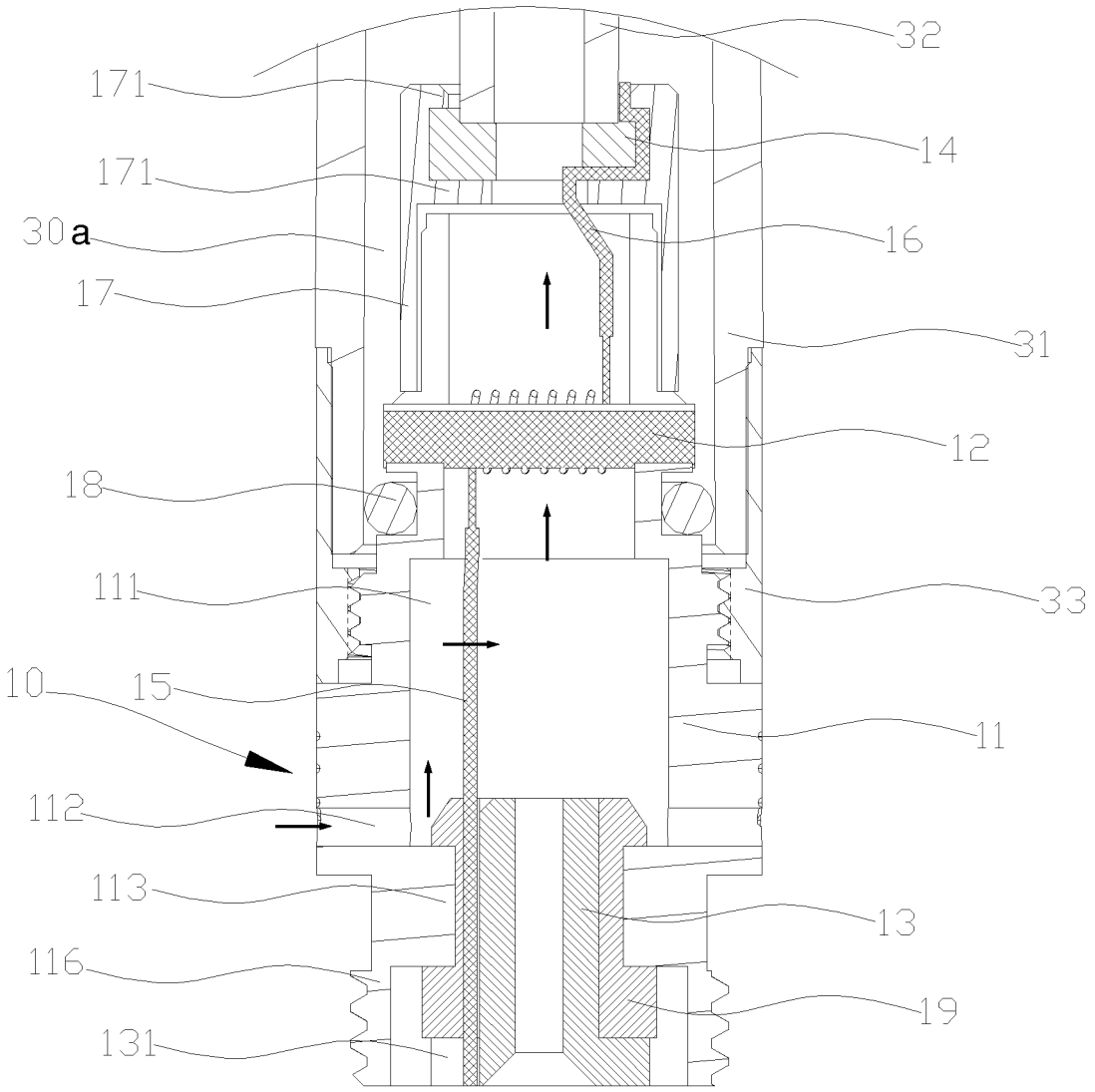


Figure 1


32
171
14
171
30a
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17
31
12
18
111
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116
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131

Figure 2

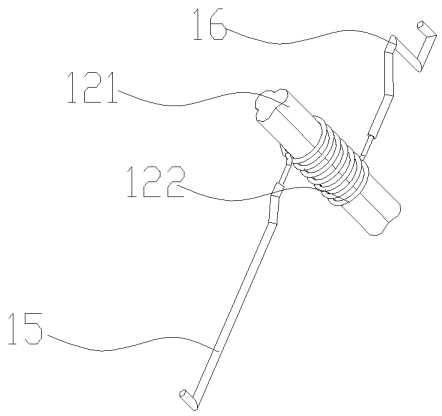

Figure 3

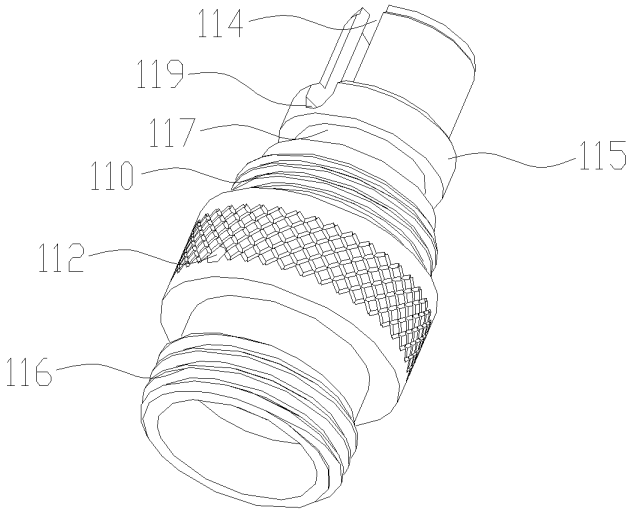

Figure 4

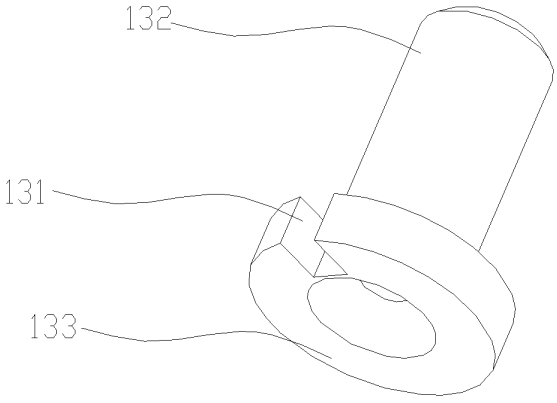

Figure 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2014/082395

A. CLASSIFICATION OF SUBJECT MATTER

A24F 47/00 (2006.01) i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A24F; A61M

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

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

CNABS; VEN: electronic, electrical, atomize, simulate, imitate, substitute, cigar, cigarette, tobacco, wire

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	CN 204104828 U (LIU, Qiuming) 21 January 2015 (21.01.2015) the whole document	1-15
A	CN 103720055 A (SHENZHEN FIRST UNION TECH CO LTD) 16 April 2014 (16.04.2014) description, pages 4 and 5 and figures 1-3	1-15
A	WO 2013089551 A1 (FOO KIT SENG) 20 June 2013 (20.06.2013) the whole document	1-15
A	CN 201878765 U (CHANGZHOU FUAIFA IMP & EXP CO LTD) 29 June 2011 (29.06.2011) the whole document	1-15
A	CN 203709254 U (SHENZHEN SIXIN INDUSTRY TRADE CO LTD) 16 July 2014 (16.07.2014) the whole document	1-15
A	CN 203676139 U (LIU, Qiuming) 02 July 2014 (02.07.2014) the whole document	1-15

☐ 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
08 April 2015	20 April 2015

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Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2014/082395

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 204104828 U	21 January 2015	None	
CN 103720055 A	16 April 2014	None	
WO 2013089551 A1	20 June 2013	None	
CN 201878765 U	29 June 2011	None	
CN 203709254 U	16 July 2014	None	
CN 203676139 U	02 July 2014	None	

Form PCT/ISA /210 (patent family annex) (July 2009)