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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 13/754,521		Filing Date 01/30/2013		<input type="checkbox"/> To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY <input checked="" type="checkbox"/> OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)			
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A				
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =			X \$ =				
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL				
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	01/30/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 15	Minus	** 20	= 0	X \$30 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 12	Minus	*** 3	= 9	X \$125 =	1125	OR	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	1125	OR	TOTAL ADD'L FEE	
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/CHRIS A. JONES/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: LIK HON
APPLICATION No.:
FILED: JANUARY 30, 2013
FOR: **ELECTRONIC CIGARETTE**

EXAMINER:
ART UNIT:
CONF. No:

PRELIMINARY STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant advises that:

1. Statement Under Rule 1.125

The specification filed with the present application is a substitute specification filed under 37 CFR 1.125 to correct various grammatical and punctuation errors; divide the text into paragraphs; to delete extraneous and redundant content; and to add paragraph numbers for reference, and with the substitute specification having further deletions. No new matter has been added. A reference document showing the changes made to the original specification is enclosed.

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2. Remarks

Claims in the parent application were rejected in a 6/8/2011 Office Action over CN 2719043 (US 2007/0267031) in view of "TechPowerUp" Internet Webpage and Paterno et al US 2008/0257367.

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Respectfully submitted,

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ELECTRONIC CIGARETTE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application No. 12/226,819, filed January 15, 2009 and now pending, which is a 371 national phase application of International Patent Application No. PCT/CN2007/001576, filed May 15, 2007 and now converted, which claims the benefit of Chinese Patent Application No. 200620090805.0, filed May 16, 2006. All of these applications are incorporated herein by reference in their entirety.

BACKGROUND

[0002] Although smoking causes serious respiratory diseases and cancers, it is difficult to get smokers to quit smoking. Nicotine is the effective ingredient in cigarettes. Nicotine is a micro-molecular alkaloid which is basically harmless to humans at low dosages. Tar is the major harmful substance in tobacco. Tobacco tar contains thousands of ingredients, dozens of which are carcinogenic.

[0003] Cigarette substitutes have used relatively pure nicotine in patches, chewing gum and aerosols. Still disadvantages remain with cigarette substitutes or products for helping smokers to quit smoking.

SUMMARY OF THE INVENTION

[0004] An improved electronic cigarette has a battery assembly, an atomizer assembly and a cigarette bottle assembly. The battery assembly connects with one end of the atomizer assembly, and the cigarette bottle assembly is inserted into the other end of the atomizer assembly, thus forming one cigarette type or cigar type body. Use of the

electronic cigarette reduces cancer risks and fire hazards while providing a simulated smoking experience.

BRIEF DESCRIPTION OF DRAWINGS

- [0005]** Figure 1 is a side view of an electronic cigarette.
- [0006]** Figure 2A is a view of the battery assembly.
- [0007]** Figure 2B is a view of another battery assembly.
- [0008]** Figure 3 is the diagram of the atomizer assembly.
- [0009]** Figure 4 is the diagram of the cigarette bottle assembly.
- [0010]** Figure 5A is a section view of an electronic cigarette.
- [0011]** Figure 5B is a section view of another embodiment.
- [0012]** Figure 6 is a diagram of a charger.
- [0013]** Figure 7 is the electric circuit diagram.
- [0014]** Figure 8 is a side view of an atomizer.
- [0015]** Figure 9 is an end view of the atomizer shown in Figure 8.
- [0016]** Figure 10 is a diagram of a spray atomizer.
- [0017]** Figure 11 is an end view of the atomizer shown in Fig. 10.
- [0018]** Figure 12 is a section view of another embodiment.

DETAILED DESCRIPTION OF THE DRAWINGS

[0019] As shown in Figure 1, an electronic cigarette has an appearance similar to a cigarette inserted into the cigarette holder. As shown in Fig. 2A, the electronic cigarette includes a battery assembly, an atomizer assembly and a cigarette bottle assembly. An external thread electrode (209) is located in one end of the battery assembly, and an internal thread electrode (302) is located in one end of the atomizer assembly. The battery assembly and atomizer assembly are connected through the screw thread

electrode into an electronic cigarette. The cigarette bottle assembly is inserted into the other end of atomizer assembly.

[0020] As shown in Figure 2A, the battery assembly includes an indicator (202), lithium ion battery (203), MOSFET electric circuit board (205), sensor (207), silica gel corrugated membrane (208), primary screw thread electrode (209), primary negative pressure cavity (210), and primary shell (211). On one end of the primary shell (211) is an external thread electrode (209). On the other end is an indicator (202), where there is an indicator cap (201) on one side having a small hole (501). On the other side, the lithium ion battery (203) and MOSFET (Metallic Oxide Semiconductor Field Effect Tube) electric circuit board (205) are connected successively. The sensor (207) is located on MOSFET electric circuit board (205). Between the primary screw thread electrode (209) and sensor (207) is a silica gel corrugated membrane (208), on which there is the primary negative pressure cavity (210). The sensor (207) is connected with the silica gel corrugated membrane (208) through the switch spring (212).

[0021] The sensor (207) may be switch sensor made of elastic alloy slice, a linear output Hall sensor, a semiconductor force-sensitive chip, a semiconductor matrix thermoelectric bridge chip, capacitance or inductance sensor. The indicators (202) include two red LEDs. The lithium ion battery (203) may be either a rechargeable polymer lithium ion battery or a rechargeable lithium ion battery. The external thread electrode (209) is a gold-coated stainless steel or brass part with a hole drilled in the center. The silica gel corrugated membrane (208) may alternatively be made of fluorinated rubber, butyronitrile rubber, or elastic alloy film.

[0022] As shown in Figure 3, the atomizer assembly includes the internal thread electrode (302), air-liquid separator (303), atomizer (307) and the secondary shell (306). One end of the secondary shell (306) is inserted into the cigarette bottle assembly for

connection, while the other end has an internal thread electrode (302), in which there is the secondary negative pressure cavity (301). The air-liquid separator (303) and the atomizer (307) are connected with the internal thread electrode (302) successively. On the secondary shell (306), there is an air intake hole (502). The air-liquid separator (303) is made of stainless steel or plastic with a hole. The internal thread electrode (302) is a gold-coated stainless steel or brass part with a hole in the center.

[0023] The atomizer (307) may be a capillary impregnation atomizer as in Figs. 8 and 9, or a spray atomizer as in Figs. 10 and 11. As shown in Figure 4, the cigarette bottle assembly includes the cigarette liquid bottle (401), fiber (402) and suction nozzle (403). The fiber (402) containing cigarette liquid is located on one end of the cigarette liquid bottle (401). This end is inserted into the secondary shell (306) and lies against the atomizer (307). The suction nozzle (403) is located on the other end of the cigarette liquid bottle (401). Between the fiber (402) and interior wall of the cigarette liquid bottle (401) is an air intake hole (503).

[0024] As shown in Fig. 5A, the standby state has the fully charged battery assembly shown on Figure 2A fastened onto the atomizer assembly shown on Figure 3, which is then inserted into the cigarette bottle assembly shown in Figure 4. When the user slightly sucks the suction nozzle

[0025] (403), negative pressure forms on the silica gel corrugated membrane (208) through the air intake hole (503) and the primary and secondary negative pressure cavities (210, 301). The silica gel corrugated membrane (208), under the action of suction pressure difference, distorts to drive the switch spring (212) and sensor (207), thus switching MOSFET electric circuit board (205). At this moment, the indicators (202) are lit gradually; the lithium ion battery (203) electrifies the heating body (305) inside the

atomizer (307) through MOSFET electric circuit board (205) as well as the internal and external thread electrodes (302, 209).

[0026] The heating body (305) inside the atomizer (307) produces heat. The fiber (402) inside the cigarette liquid bottle (401) contains cigarette liquid, which soaks the micro-porous ceramics (801) inside the atomizer through the fiber (402). The air enters through the air intake hole (502), passes through the run-through hole on the air-liquid separator (303), and helps to form air-liquid mixture in the spray nozzle (304) of the atomizer (307). The air-liquid mixture sprays onto the heating body (305), gets vaporized, and is quickly absorbed into the airflow and condensed into aerosol, which passes through the air intake hole (503) and suction nozzle (403) to form white mist type aerosol.

[0027] When suction stops, the switch spring (212) and sensor (207) are reset; the atomizer (307) stops working; the indicators (202) gradually die down. When the operation times reaches the pre-set value, the atomizer (307) provides a work delay of 5-20 seconds per time, so as to remove the micro-dirt accumulated on the heating body (305).

[0028] Besides the micro-porous ceramics, the liquid supply material of the atomizer (307) may also be foamed ceramics, micro-porous glass, foamed metal, stainless steel fiber felt, terylene fiber, nylon fiber, nitrile fiber, aramid fiber or hard porous plastics. The heating body (305) is made of the micro-porous ceramics on which nickel-chromium alloy wire, iron-chromium alloy wire, platinum wire, or other electro thermal materials are wound. Alternatively, it may be a porous component directly made of electrically conductive ceramics or PTC (Positive Temperature Coefficient) ceramics and associated with a sintered electrode. The surface of the heating body(305) is sintered into high-temperature glaze to fix the zeolite grains, which are made of natural zeolite, artificial non-organic micro-porous ceramics or aluminum oxide grains. The cigarette

liquid bottle (401) and suction nozzle (403) in the cigarette bottle assembly are made of non-toxic plastic. The fiber (402) inside of them is made of polypropylene fiber or nylon fiber to absorb cigarette liquid. In the battery assembly, there is a fine hole (501) on the indicator cap (201) for balancing the pressure difference on both sides of the silica gel corrugated membrane (208).

[0029] The cigarette liquid contains 0.1-3.5% nicotine, 0.05-5% tobacco flavor, 0.1-3% organic acid, 0.1-0.5% stabilizer, and propanediol for the remaining.

[0030] The primary and secondary shells (211, 306) are made of stainless steel tube or copper alloy tube with baked-enamel coating of real cigarette color.

[0031] As shown in Figure 12, the diameter of the battery assembly may be increased in proportion, so that it is consistent with the diameter of the atomizer assembly. Its shell may be decorated with the leaf veins and sub-gloss brown-yellow baked-enamel coating, to create a cigar type device.

[0032] For charging the lithium ion battery (203), the screw thread electrode (601) matches the external thread electrode (209) on the battery assembly, so that it may be used as the charging interface.

[0033] The design in Figure 2B is difference from the design in Fig. 1A as follows: *Microcircuit* (206) is added between MOSFET electric circuit board (205) and sensor (207). On the surface of the primary shell (211), there is a screen (204) for display of the power of the lithium ion battery (203) and the sucking times.

[0034] As shown in Figure 5B, a fully charged battery assembly is attached onto the atomizer assembly, which is then inserted into the cigarette bottle assembly shown on Figure 4. When the user slightly sucks the suction nozzle (403), negative pressure forms on the silica gel corrugated membrane (208) through the air intake hole (503) and the primary and secondary negative pressure cavities (210, 301). The silica gel

corrugated membrane (208), under the action of suction pressure difference, distorts to drive the switch spring (212) and sensor (207), thus activating the Microcircuit (206) and MOSFET electric circuit board (205). At this moment, the indicators (202) are lit gradually; the lithium ion battery (203) electrifies the heating body (305) inside the atomizer (307) through MOSFET electric circuit board (205) as well as the internal and external thread electrodes (302, 209), so that the heating body (305) inside the atomizer (307) produces heat.

[0035] The fiber (402) inside the cigarette liquid bottle (401) contains cigarette liquid, which soaks the micro-porous ceramics (801) inside the atomizer through the fiber (402). The air enters through the air intake hole (502), passes through the run-through hole on the air-liquid separator (303), and helps to form air-liquid mixture in the spray nozzle (304) of the atomizer (307). The air-liquid mixture sprays onto the heating body (305), gets vaporized, and is quickly absorbed into the airflow and condensed into aerosol, which passes through the air intake hole (503) and suction nozzle (403) to form white mist type aerosol.

[0036] As shown in Figure 7, when the action of suction activates the sensor, Microcircuit (206) scans the sensor (207) in the power-saving mode of pulse, and according to the signal parameters of the sensor (207), restricts the atomizing capacity with the integral function of frequency to single operation time. Also, the microcircuit (206) accomplishes the pulse width modulation and over discharging protection for the constant power output, automatic cleansing for thousands of times per operation, step lighting / dying down control of the indicator, display of the operation times and battery capacity, automatic recovery after sensor malfunction shutdown, etc.

[0037] The unit and its connecting structure may also be loaded with drugs for delivery to the lung.

[0038] Above are just specifications of an example and do not necessarily restrict the scope of protection. Any equivalent modification made on the basis of the design spirit shall fall into the scope of protection.

CLAIMS:

1. An electronic cigarette comprising:
 - a battery assembly having a battery assembly housing containing a battery, a circuit board, a sensor and a primary screw thread electrode having a through hole on one end of the battery assembly housing;
 - an atomizer assembly having an atomizer assembly housing containing an atomizer, liquid storage, and a secondary screw thread electrode having a through hole on one end of the atomizer assembly housing;
 - with the battery assembly and the atomizer assembly mechanically and electrically connected via the primary screw thread electrode threaded onto or into the secondary screw thread electrode.
2. The electronic cigarette of claim 1 with the atomizer including a heater coil wound around a porous component.
3. The electronic cigarette of claim 2 where the porous component includes a fiber material
4. The electronic cigarette claim 1 with the secondary screw thread electrode on a first end of the atomizer assembly housing and the liquid storage inserted into a second end of the atomizer assembly opposite from the first end.
5. The electronic cigarette of claim 1 with the battery assembly housing further containing a MOSFET circuit board electrically connected to the primary screw thread electrode.

6. The electronic cigarette of claim 1 with the battery assembly including a membrane located between the primary screw thread electrode and the sensor.

7. The electronic cigarette of claim 1 with the primary screw thread electrode adapted to connect to a battery charger.

8. The electronic cigarette of claim 1 with the through hole in the primary screw thread electrode extending through the center of the primary screw thread electrode, and with the through hole in the secondary screw thread electrode extending through the center of the secondary screw thread electrode.

9. The electronic cigarette of claim 1 further including an air-liquid separator in the atomizer assembly housing between a negative pressure cavity and the atomizer, with the air-liquid separator having a through hole for providing air flow into the atomizer.

10. An electronic cigarette comprising:

a battery assembly having a battery assembly housing containing a battery, a circuit board and a primary screw thread electrode on one end of the battery assembly housing;

an atomizer assembly having an atomizer assembly housing containing an atomizer, liquid storage, and a secondary screw thread electrode on one end of the atomizer assembly housing;

with the battery assembly and the atomizer assembly mechanically and electrically connected via the primary screw thread electrode threaded onto or into the secondary screw thread electrode, and with the primary and second screw thread

electrodes each having a central through hole to allow air flow from the battery assembly into the atomizer assembly upon inhalation on an outlet opening on the atomizer assembly housing.

11. The electronic cigarette of claim 10 with the atomizer including a heater coil wound around a fiber material.

12. The electronic cigarette claim 10 with the secondary screw thread electrode on a first end of the atomizer assembly housing and the liquid storage inserted into a second end of the atomizer assembly opposite from the first end.

13. The electronic cigarette of claim 10 with the through hole in the primary screw thread electrode extending through the center of the primary screw thread electrode, and with the through hole in the secondary screw thread electrode extending through the center of the secondary screw thread electrode.

14. The electronic cigarette of claim 10 further including an air-liquid separator in the atomizer assembly housing between a negative pressure cavity and the atomizer, with the air-liquid separator having a through hole for providing air flow into the atomizer.

15. An electronic cigarette comprising:

a battery assembly housing containing a battery, a circuit board, and a primary screw thread electrode one end of the battery assembly housing;

an atomizer assembly housing containing an atomizer, liquid storage, and a secondary screw thread electrode one end of the atomizer assembly housing;

with the battery assembly housing and the atomizer assembly housing mechanically and electrically connected via the primary screw thread electrode threaded onto or into the secondary screw thread electrode, and with center through hole passing through the primary and secondary screw thread electrodes to allow air flow from the battery assembly housing into the atomizer assembly housing.

ABSTRACT

An electronic cigarette includes a battery assembly, an atomizer assembly and a cigarette bottle assembly. An external thread electrode is located in one end of battery assembly. An internal thread electrode is located in one end of atomizer assembly. The battery assembly and the atomizer assembly are connected by the screwthread electrode. The cigarette bottle assembly is inserted into the other end of the atomizer assembly and both form a cigarette type or cigar type body.

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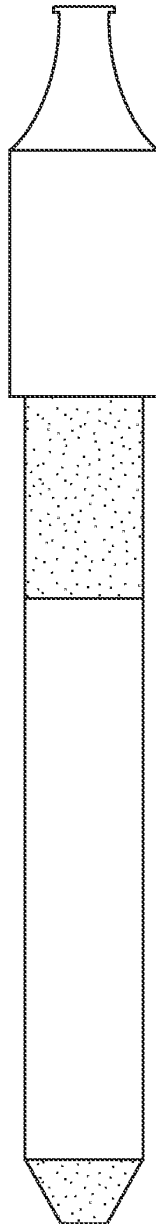


Figure 1

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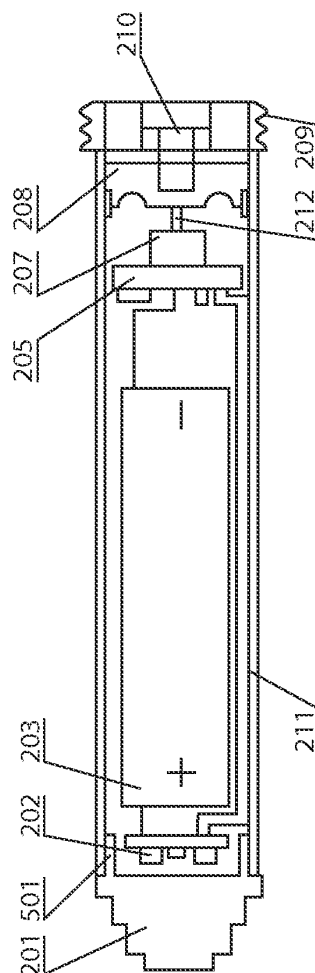


Figure 2A

Figure 2B

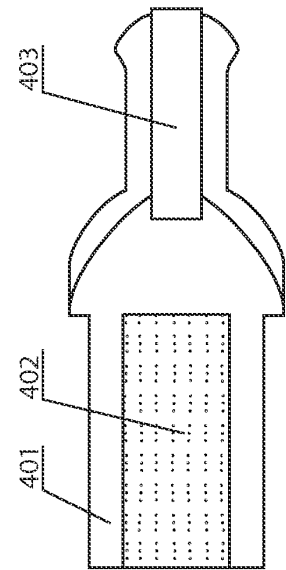


Figure 4

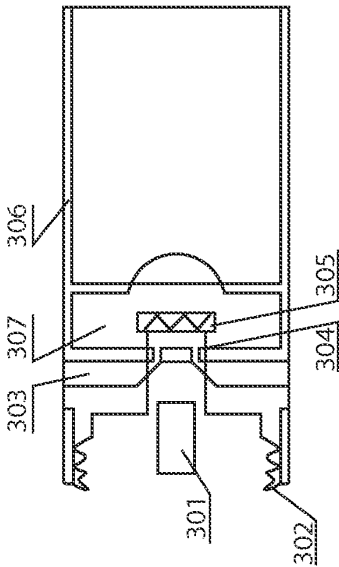


Figure 3

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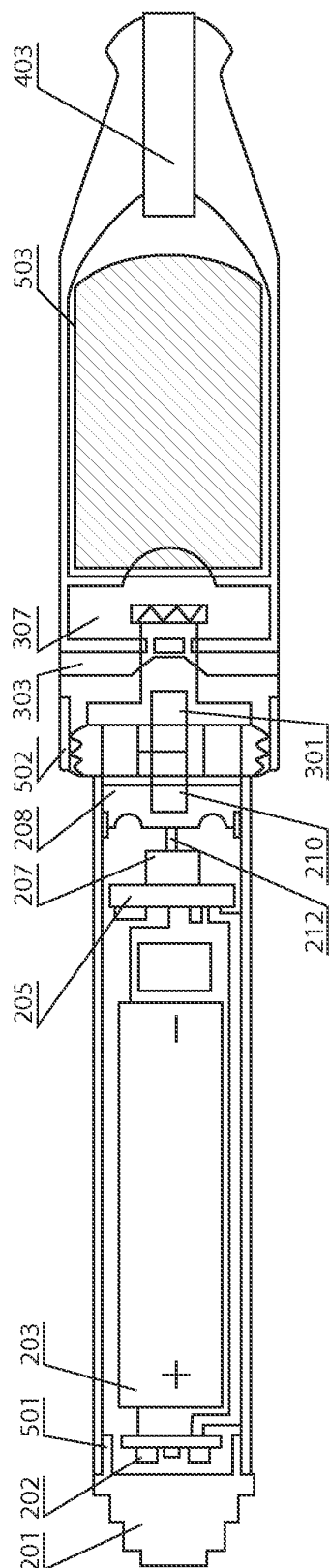


Figure 5A

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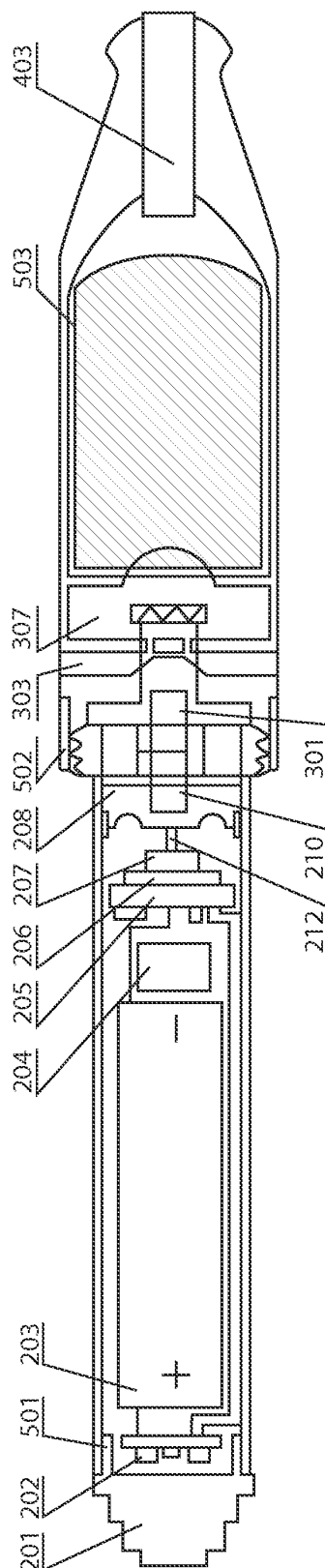


Figure 5B

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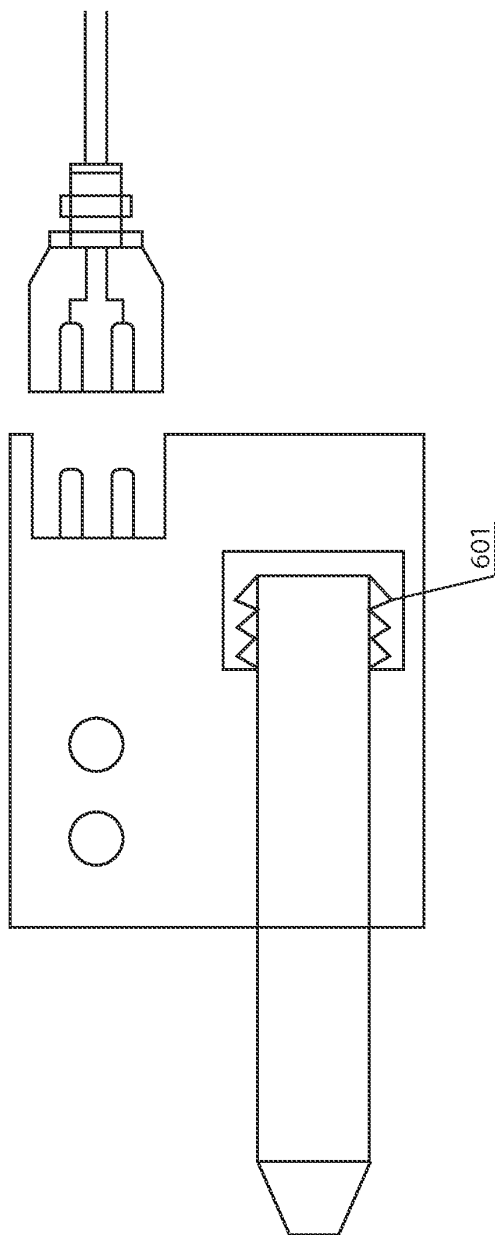


Figure 6

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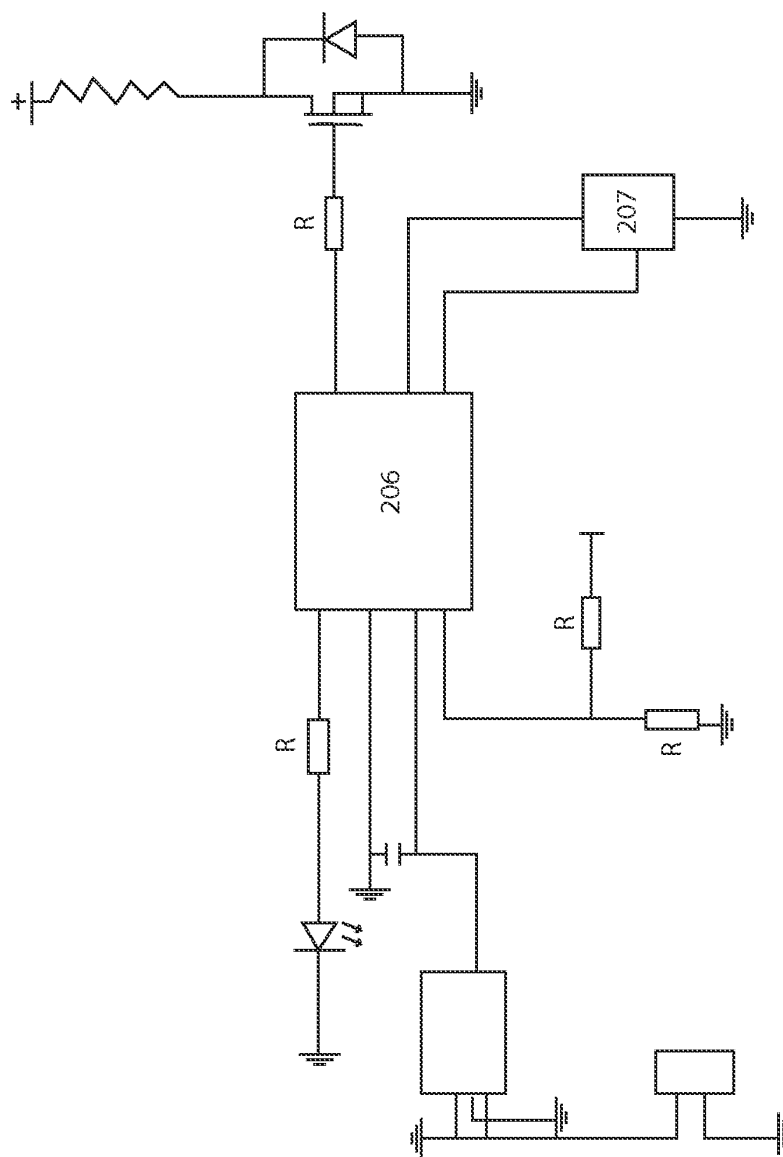


Figure 7

9/10

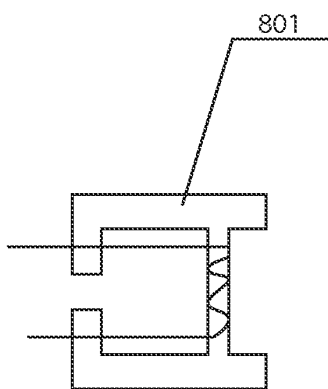


Figure 8

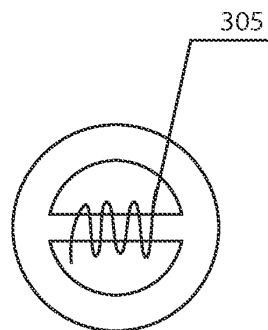


Figure 9

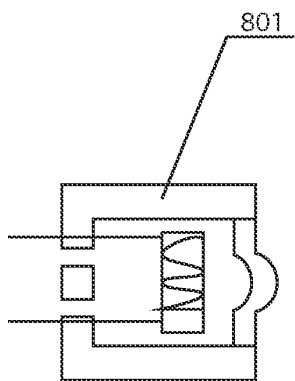


Figure 10

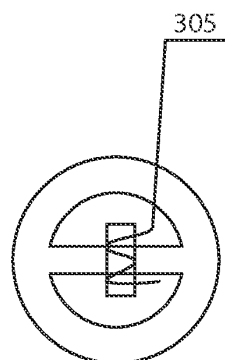


Figure 11

10/10

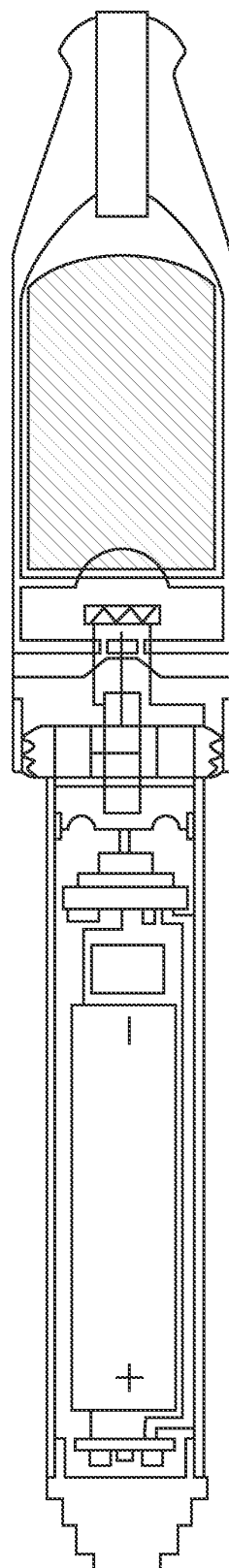


Figure 12

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: LIK HON
APPLICATION No.: 13/754,521
FILED: JANUARY 30, 2013
FOR: **ELECTRONIC CIGARETTE**

EXAMINER: MAYES, DIONNE
WALLS
ART UNIT: 1747
CONF. No: 6079

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Office Action dated 09/25/2015, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

Continued on Next Page.]

Certificate of Electronic Filing

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being electronically filed with the U.S. Patent and Trademark Office on the date entered below.

December 28, 2015
Date of Electronic Submission

/Amy Candeloro/

Signature

Amy Candeloro

Printed Name

111971-8013.US01/129150182.1

Amendments to the Claims:

This listing of claims will replace all prior versions of claims in the application.

1-15. (Cancelled)

16. (New) A vaporizing device comprising:

a battery assembly comprising a battery, a sensor, an LED and a micro-controller unit electrically connected to a circuit board within a tubular battery assembly housing;

a first electrode at an end of the battery assembly housing;

an atomizer assembly comprising an atomizer and a liquid supply in a tubular atomizer assembly housing;

with the atomizer including a heater wire coil wound around a porous body, with the heater wire coil and the porous body positioned perpendicular to a longitudinal axis of the tubular atomizer assembly housing;

the heater wire coil and the porous body in an airflow path through the tubular atomizer assembly housing leading to a suction nozzle wherein the air passes across the heater wire coil and the porous body;

a second electrode at an end of the atomizer assembly housing; and

the battery assembly and the atomizer assembly electrically connected by engagement of the first electrode with the second electrode, and with electricity conducted from the battery to the heater wire coil through the first and second electrodes for the heater wire coil.

17. (New) The device of claim 16 with the atomizer further including a through hole aligned with the heater wire coil.

18. (New) The device of claim 17 with the through hole centered between spaced apart wire leads of the heater wire coil.

19. (New) The device of claim 16 with the sensor in between a pressure balancing hole in the battery assembly housing and the first electrode.

20. (New) The device of claim 16 with the first electrode contacting the second electrode regardless of an angular orientation of the battery assembly relative to the atomizer assembly.

21. (New) The device of claim 18 with the airflow path further including an air inlet in a side wall of the tubular atomizer assembly housing at the second electrode.

22. (New) The device of claim 18 further including fiber containing cigarette liquid in contact with the porous body.

23. (New) A vaporizing device comprising:

 a battery assembly comprising a battery, a sensor, an LED and a micro-controller unit within a battery assembly housing having a pressure balancing hole on a first side of the sensor, and a first cavity in the tubular battery assembly housing on a second side of the sensor opposite from the first side of the sensor;

 an atomizer assembly comprising an atomizer and a second cavity in a tubular atomizer assembly housing, with the first cavity connecting into the second cavity, the atomizer including a heater wire coil wound on a porous body, and the heater wire coil and the porous body perpendicular to a longitudinal axis of the tubular atomizer assembly housing, the heater wire coil and porous body in an airflow path through the tubular atomizer assembly housing wherein air flows across the wire coil and the porous body; and

 the battery assembly and the atomizer assembly electrically connected via a first electrode at a first end of the battery assembly contacting a second electrode at a

first end of the atomizer assembly with the battery assembly at any angular orientation relative to the atomizer assembly.

24. (New) The vaporizing device of claim 23 with the airflow path passing through a through hole in the atomizer.

25. (New) The device of claim 24 wherein the heater wire coil is on a central section of the porous body.

26. (New) The device of claim 25 with the through hole between spaced apart wire leads of the heater wire coil.

27. (New) The device of claim 26 with the airflow path further including an air inlet in a side wall of the tubular atomizer assembly housing adjacent to the second electrode.

28. (New) The device of claim 26 further including fiber containing a cigarette liquid in contact with the atomizer.

29. (New) The device of claim 26 wherein the porous body provides capillary action.

30. (New) A vaporizing device comprising:

a battery assembly comprising battery, a sensor, and a micro-controller unit electrically connected to a circuit board within the battery assembly housing, and a first electrode at a first end of the battery assembly housing;

an atomizer assembly comprising an atomizer and liquid absorbed in fiber material in a tubular atomizer assembly housing, and a second electrode at a first end of the atomizer assembly, the atomizer including a porous body in physical contact with the fiber material, and the atomizer including a heater wire wound in a coil on a part of the porous body which is perpendicular to a longitudinal axis of the tubular atomizer assembly housing;

an airflow path through a through hole of the atomizer located between spaced apart wire leads of the heater wire coil, and the heater wire coil and the porous body in the airflow path, wherein air flows across the wire and porous body; and

the battery assembly electrically connected to the atomizer assembly via the first electrode contacting the second electrode.

31. (New) The device of claim 30 with the airflow path further including an air inlet in a side wall of tubular atomizer assembly housing adjacent to the first end of the tubular atomizer assembly housing.

32. (New) The device of claim 30 with the sensor in between a pressure balancing hole in the tubular battery assembly housing and the first electrode.

33. (New) The device of claim 30 with a central axis of the through hole bisecting the heater wire coil.

34. (New) The device of claim 33 further including a first cavity in the battery assembly connecting into a second cavity in the atomizer assembly.

35. (New) The device of claim 30 with the first electrode contacting the second electrode with the battery assembly at any angular orientation relative to the atomizer assembly.

36. (New) The device of claim 35 wherein the porous body provides capillary action.

37. (New) The device of claim 16 with the first electrode contacting the second electrode with the battery assembly at any angular orientation relative to the atomizer assembly.

REMARKS

Reconsideration and withdrawal of the rejections is requested. Claims 1-15 are cancelled and new claims 16-37 have been added.

Responsive to the double patenting rejection at page 2 of the Office Action, a Terminal Disclaimer and fee are filed with this paper disclaiming over U.S. Patent No. 8,375,957. Responsive to the section 112 rejections at paragraph 5 of the Office Action, the air-liquid separator has been deleted from the claims.

New claim 16 includes an atomizer including a heater wire coil wound around a porous body and perpendicular to the longitudinal axis of the atomizer assembly housing, and with the battery assembly and the atomizer assembly electrically connected by engagement of electrodes on the housings.

New claim 23 describes a first cavity in the atomizer assembly connecting into a second cavity in the battery assembly; a heater wire coil wound around a porous body and perpendicular to the longitudinal axis of the housing, and electrodes at the ends of the battery assembly and the atomizer assembly electrically connecting them.

New claim 30 includes an atomizer including a heater wire wound in a coil on a part of the porous body which is perpendicular to a longitudinal axis of the housing, an airflow path through a through hole located between spaced apart wire leads of the heater wire coil, and the battery assembly electrically connected to the atomizer assembly via a first electrode contacting a second electrode.

Turning to the section 103 rejections at pages 4-9 of the Office Action, the combination of Voges and Gilbert fails to disclose a wire or coil as in claims 16, 23 and

30. Voges uses a bubble jet printer type of droplet ejection device 14. Col. 5, lines 61-65. The combination of Voges and Gilbert also does not disclose use of a heater or to create vapor. Indeed, Voges expressly teaches away from a heater, stating at Col. 3, lines 52-56:

“In yet other devices a nicotine containing substance is heated to vapourise an amount of nicotine which is then available for inhalation. The amount of nicotine delivered by such devices is difficult to control and is temperature dependant.”

Voges also teaches away from the porous body of claims 16, 29 and 36, disclosing at Col. 2, lines 30-41:

“Early cigarette substitutes employed a porous carrier impregnated with a liquid nicotine containing composition through which an air stream could be drawn to volatilize nicotine. This approach yielded insufficient nicotine per puff, suffered from a tendency for the carrier to dry out and delivered a variable amount of nicotine per puff, depending on factors such as air temperature, humidity, lung capacity of the user and amount of liquid composition remaining in the carrier.”

Gilbert does not disclose a wire or coil, or a porous body, and is applied in combination with Voges only as disclosing a screw thread electrode. As neither of Voges or Gilbert individually discloses these elements, the combination of Voges and Gilbert does not disclose these elements.

In view of the foregoing, it is submitted that the claims are in condition for allowance. A Notice of Allowance is requested.

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Respectfully submitted,

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