

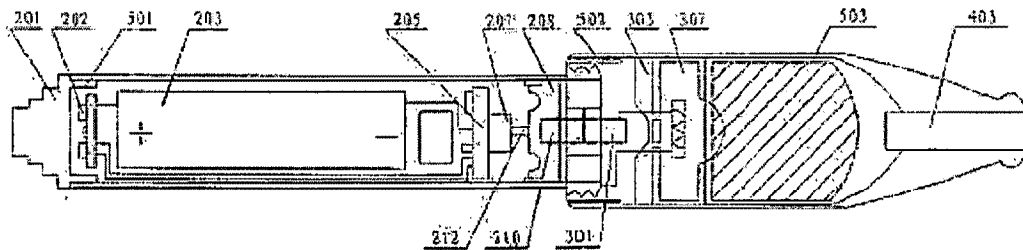
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(54) Title: Emulation Aerosol Sucker



(57) Abstract: An emulation aerosol sucker 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. Said battery assembly and said atomizer assembly are connected by the screwthread electrode. Said cigarette bottle assembly is inserted into the other end of said atomizer assembly and both form one cigarette type or cigar type body.

R.J. Reynolds Vapor

An emulsion aerosol sucker

Technical Field

This present invention relates to an electronic sucker unit, in particular, an emulsion aerosol sucker that doesn't contain tar but nicotine.

Background Art

Today when "smoking is harmful to your health" has become a common sense, there are one billion people smoking cigarettes, and this figure is still rising. On March 1, 2003, the World Health Organization (WHO) issued the first international smoking ban – Framework Convention on Tobacco Control. According to WHO's data, smoking causes 4,900,000 deaths each year. Smoking causes serious respiratory system diseases and cancers, though it is a hard job to persuade the smokers to completely quit smoking.

Nicotine is the effective ingredient of cigarette, which produces a lot of tar mist as the cigarette burns. The tar mist accesses the pulmonary alveolus and is quickly absorbed into the blood. Nicotine thus acts on the receptor of the central nervous system, bringing the euphoria like stimulant drugs to the smokers, who feel light in the head and on wings as well.

Nicotine is a micromolecular alkaloid, which is basically harmless to human bodies with a small dosage. Plus, its half life period is extremely short in blood. Tar is the major harmful substance in tobacco. Tobacco tar comprises of several thousands of ingredients, dozens of which are carcinogenic substances. It has now been proved that second hand smoking is even more harmful to those who don't smoke.

To seek the cigarette substitutes that don't contain harmful tar but nicotine, many inventors have used the relatively pure nicotine to create such products as "Cigarette Patch", "Nicotine Gargle", "Aerosol Packed in the High Pressure Tank with Propellant", "Nicotine Chewing Gum", and "Nicotine Beverage". These products are not as harmful as tar, but are absorbed very slowly. As a result, its peak concentration can't be effectively established in blood, and the smokers can't be satisfied to the full. In addition, the smokers are deprived of the "smoking" habit. Therefore, the substituting products are not real cigarette substitutes or products helping to quit smoking.

Contents of invention

The purpose of this invention is to provide an emulsion aerosol sucker that substitutes for cigarettes and helps the smokers to quit smoking. For this invention, the aerosol may be regarded as liquid drips suspended in the air.

The technical solution of this invention is the further innovation of the utility model called "Aerosol Electronic Cigarette" for which the inventor filed with the State Intellectual Property Office of the People's Republic of China on April 14, 2000, with the application number of

20040031182.0, and the international application number of PCT/CN2005/000337.

The purpose of this invention is fulfilled with the following solution: this invention includes 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.

Therein, an external thread electrode is located in one end of the battery assembly, and an internal thread electrode is located in one end of the atomizer assembly. The battery assembly and atomizer assembly are connected through the screwthread electrode. The battery assembly includes the indicator, battery, MOSFET electric circuit board, sensor, silica gel corrugated membrane, primary screwthread electrode, primary negative pressure cavity, and primary shell. On one end of the primary shell is an external thread electrode, while on the other end is an indicator, where there is an indicator cap on one side, in which there is a fine hole. On the other side, the battery and MOSFET electric circuit board are connected successively. The sensor is located on MOSFET electric circuit board. Between the primary screwthread electrode and sensor is a silica gel corrugated membrane, on which there is the primary negative pressure cavity. The sensor is connected with the silica gel corrugated membrane through the switch spring. MCU is added between MOSFET electric circuit board and sensor. On the surface of the primary shell, there is a screen. The said MCU scans the sensor in the power-saving mode of pulse, and according to the signal parameters of the sensor, restricts the atomizing capacity with the integral function of frequency to single operation time. Also, the MCU 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. The said sensor may be switch sensor made of elastic alloy slice, Hall element of linear output, semiconductor force-sensitive chip, semiconductor matrix thermoelectric bridge chip, capacitance or inductance sensor. The said indicators include two red LEDs. The said silica gel corrugated membrane may be made of fluorinated rubber, butyronitrile rubber, or elastic alloy film. The said external thread electrode is a gold-coated stainless steel or brass part with a hole drilled in the center. The said battery is a lithium ion battery, which may be either a rechargeable polymer lithium ion battery or a rechargeable lithium ion battery. The said atomizer assembly includes the internal thread electrode, air-liquid separator, atomizer and the secondary shell. One end of the secondary shell is inserted into the cigarette bottle assembly for connection, while the other end has an internal thread electrode, in which there is the secondary negative pressure cavity. The air-liquid separator and the atomizer are connected with the internal thread electrode successively. On the secondary shell, there is an air intake hole. The said internal thread electrode is a gold-coated stainless steel or brass part with a hole drilled in the center. The said air-liquid separator is made of stainless steel or plastic with a hole drilled. The said atomizer may be capillary impregnation atomizer or spray atomizer, inside which there is a heating body. The said spray atomizer has a spray hole on it. The said spray hole is made of foamed ceramics, micro-porous ceramics, foamed metal, stainless steel fiber felt, or chemical fiber molding, which are drilled for holes. The said heating body is made of the micro-porous ceramics on which nickel-chromium alloy wire, iron-chromium alloy wire, platinum wire, or other electrothermal

materials are wound. Alternatively, it may be a porous component made of electrically conductive ceramics or PTC ceramics and associated with a sintered electrode. The surface of the heating body 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 said cigarette bottle assembly includes the cigarette liquid bottle, fiber and suction nozzle. The fiber containing cigarette liquid is located on one end of the cigarette liquid bottle, and this end is inserted into the secondary shell and lies against the atomizer. The suction nozzle is located on the other end of the cigarette liquid bottle. Between the fiber and interior wall of the cigarette liquid bottle is an air intake hole. The said cigarette liquid bottle and suction nozzle are made of non-toxic plastic. The said fiber is made of polypropylene or nylon. The cigarette liquid in the said fiber for atomization 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. The said sucker and its connecting structure may be loaded with conventional drugs for delivery to the lung.

This invention will bring the following benefits and active effects: For this invention, smoking doesn't bring any cigarette tar, considerably reducing the carcinogenic risks. At the same time, the smokers can still enjoy the feel and excitement of smoking, and there is no fire hazard since there is no need for igniting. In addition, the unit and its connecting structure of this invention may also be loaded with conventional drugs for delivery to the lung.

Description of Drawings

Figure 1 is the visual appearance of the cigarette type of this invention.

Figure 2A is the diagram of one structure of the battery assembly of this invention.

Figure 2B is the diagram of another structure of the battery assembly of this invention.

Figure 3 is the diagram of the diagram of the atomizer assembly of this invention.

Figure 4 is the diagram of the cigarette bottle assembly of this invention.

Figure 5A is the diagram of one internal structure of this invention.

Figure 5B is the diagram of another internal structure of this invention.

Figure 6 is the diagram of the structure of the charger of this invention.

Figure 7 is the electric circuit diagram of MCU and MOSFET of this invention.

Figure 8 is the diagram of the structure of the capillary impregnation atomizer of this invention.

Figure 9 is the left view of Figure 8.

Figure 10 is the diagram of the structure of the spray atomizer of this invention.

Figure 11 is the left view of Figure 10.

Figure 12 is the diagram of the structure of the cigar type of this invention.

Specific Mode for Carrying Out the Invention

This invention is further described as follows on the basis of the drawings.

Example 1

As shown in Figure 1, the visual appearance of this invention is similar to a cigarette inserted into the cigarette holder, and 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 screwthread electrode into an emulation cigarette. The cigarette bottle assembly is inserted into the other end of atomizer assembly, to form one cigarette type emulation aerosol sucker.

As shown in Figure 2A, the battery assembly includes the indicator (202), lithium ion battery (203), MOSFET electric circuit board (205), sensor (207), silica gel corrugated membrane (208), primary screwthread 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), while on the other end is an indicator (202), where there is an indicator cap (201) on one side, in which there is a fine 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 screwthread 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).

Therein, the sensor (207) may be switch sensor made of elastic alloy slice, Hall element of linear output, semiconductor force-sensitive chip, 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.

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

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