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(12) **Patent Specification for Utility Model**
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(22) Filing Date: April 14, 2004 (21) Application No. 200420031182.0 (73) Patentee: Hon Lik Address: Suite 12, 1010, 10th Floor, West part of Xinde Centre, No. 168-200, Gannuo Ave. Middle, Zhonghuan, HongKong (72) Designer: Hon Lik	(74) Patent Agency: Shenyang Patent & Trademark Agency Academia Sinica Agent: Xu Zongfu The number of pages of claims: 2 The number of pages of description: 5 The number of pages of drawings: 5

(54) Title of the Utility Model: Electronic Atomization Cigarette

(57) Abstract

The present utility model relates to an electronic atomization cigarette which only contains nicotine without tar. The electronic atomization cigarette includes a shell and a mouthpiece. The external wall of the shell has an air inlet. An electronic circuit board, a normal pressure cavity, a sensor, a vapor-liquid separator, an atomizer, and a liquid-supplying bottle are sequentially provided within the shell, wherein the electronic circuit board comprises an electronic switching circuit and a high frequency generator. A stream passage of the sensor is provided on one side of the sensor, and a negative pressure cavity is provided in the sensor. The atomizer and the liquid-supplying bottle are in contact with each other. An atomization cavity is arranged in the atomizer. A retaining ring for locking the liquid-supplying bottle is provided between one side of the liquid-supplying bottle and the shell, and an aerosol passage is provided on the other side of the liquid-supplying bottle. The air inlet, normal pressure cavity, vapor-liquid separator, atomizer, aerosol passage, gas vent and mouthpiece are sequentially interconnected. The product of the present utility model does not have tar, thus significantly reducing the cancerogenic risk. Users still feel as if they are smoking and experiencing the same excitement, and the cigarette is no need to be lit and is no fire risk.

Claims

1. An electronic atomization cigarette comprising a shell and a mouthpiece, characterized in that an air inlet (4) is provided on the external wall of the shell (14); an electronic circuit board (3), a normal pressure cavity (5), a sensor (6), a vapor-liquid separator (7), an atomizer (9) and a liquid-supplying bottle (11) are arranged sequentially within the shell (14), wherein the electronic circuit board (3) comprises an electronic switching circuit and a high frequency generator; a stream passage (18) of the sensor is provided on one side of the sensor (6); a negative pressure cavity (8) is provided in the sensor (6); an atomizer (9) is in contact with the liquid-supplying bottle (11); an atomization cavity (10) is arranged in the atomizer (9); a retaining ring (13) for locking the liquid-supplying bottle (11) is provided between one side of the liquid-supplying bottle (11) and the shell (14), and an aerosol passage (12) is provided on the other side of the liquid-supplying bottle (11); the air inlet (4), the normal pressure cavity (5), the vapor-liquid separator (7), the atomizer (9), the aerosol passage (12), the gas vent (17), and the mouthpiece (15) are sequentially connected; a LED (1) and a cell (2) are further provided at a front end within the shell (14), collectively constituting an integrity like a cigarette holder, cigar or a pipe.

2. The electronic atomization cigarette according to claim 1, characterized in that the atomizer (9) is postposed within the shell (14), the liquid-supplying bottle (11) is arranged between the vapor-liquid separator (7) and the atomizer (9), and a spring piece (33) for pressing the liquid-supplying bottle (11) on the atomizer (9) is arranged at one end of the liquid-supplying bottle (11).

3. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a display screen (32) is arranged on the inner wall of the shell (14).

4. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a microswitch (16) is connected to the sensor (6) in parallel within the shell (14) for manually cleaning.

5. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a ripple film (22) is provided between the sensor (6) and the negative pressure cavity (8) within the sensor; a first magnetic steel (20), a second magnetic steel (21) and a Reed switch (19) connected between said first magnetic steel and said second magnetic steel are further provided within the sensor (6); and the second magnetic steel (21) is fixedly attached

to the ripple film (22).

6. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a silicon gel check valve (31) is provided within the sensor (6); a third magnetic steel (34) is provided in the silicon gel check valve; and a Reed switch (19) is provided outside the silicon gel check valve, on a side close to the magnetic steel.

7. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a through hole is arranged on the vapor-liquid separator (7).

8. The electronic atomization cigarette according to claim 7, characterized in that

a silicon gel check value (31) covering the outside of the through hole on the vapor-liquid separator (7).

9. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that an overflow hole (29) is arranged on an atomization cavity wall (25) of the atomization cavity (10); a heating element (26) is provided within the atomization cavity (10); a long stream ejection hole (24) is provided on one side of the heating element (26); and a porous body (27) is arranged outside around the atomization cavity wall (25); a first piezoelectric element (23) is provided on one side of the atomizer (9); and a bulge (36) is provided on another side of the atomizer.

10. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a second piezoelectric element (35) is additionally provided in the atomizer (9).

11. The electronic atomization cigarette according to claim 9, characterized in that

the porous body (27) in the atomizer (9) is made of foam nickel, stainless fiber felt, high molecule polymer foam and foam ceramic; the heating element (26) is made of platinum wire, nickel chromium alloy or iron chromium aluminum alloy wire with rare earth element, the heating element is also made into a sheet; the atomization cavity wall (25) is made of aluminum oxide or ceramics.

12. The electronic atomization cigarette according to claim 7, characterized in that the vapor-liquid separator (7) is made of plastics or silicon rubber.

13. The electronic atomization cigarette according to claim 1 or claim 2, characterized in that a solution storage porous body (28) is provided in the liquid-supplying bottle (11), the solution storage porous body is filled with polypropylene fiber, terylene fiber

or nylon fiber, or filled with plastics that are shaped by foaming; the solution storage porous body is also molded into a column with laminated layers by polyvinyl chloride, polypropylene, polycarbonate.

14. The electronic atomization cigarette according to claim 5, characterized in that the Reed switch (19), the first magnetic steel (20), the second magnetic steel (21) and the ripple film (22) are replaced by a semiconductor strain gauge with sealed film arranged at the position of the ripple film of the sensor.

ELECTRONIC ATOMIZATION CIGARETTE

TECHNICAL FIELD

The present utility model relates to an electronic cigarette, in particular to an electronic atomization cigarette that only contains nicotine without tar.

BACKGROUND ART

Despite it is commonly known that "smoking is harmful to your health", the number of smokers worldwide is up to 1 billion, and the number is increasing every year. On Mar. 1, 2003, the World Health Organization (WHO) concluded a global Framework Convention on Tobacco Control. According to the statistical data from WHO, about 4.9 million people die of is diseases caused by smoking each year. Although smoking may cause serious respiratory diseases and cancer, it remains extremely difficult for smokers to quit smoking completely.

The active ingredient in a cigarette is nicotine. During smoking, nicotine, along with a lot of tar aerosol droplets produced in the cigarette burning, enters smoker's alveolus and is rapidly absorbed. After being absorbed into the blood of a smoker, nicotine then produces its effect on the receptors of the smoker's central nervous system, which makes him/her relax and enjoy an inebriety similar to that produced by an exhilarant.

Nicotine is a kind of alkaloid with low molecular weight and its half-life in blood is quite short. The major harmful substance in tobacco is tar, tar in tobacco is composed of thousands of ingredients, tens of which are carcinogenic substances. At present it has been proven that passive smoking can be more harmful to non-smokers.

Some cigarette substitutes flat contain only nicotine without tar have been proposed, many of them, such as "nicotine patch", "nicotine mouthwash", "spray agent packaged in high pressure gas tank with propellant", "nicotine chewing gum", "nicotine drink" etc., are made of pure nicotine. Although these cigarette substitutes are free from tar, their major disadvantage is that an effective peak concentration cannot be reached in the blood of a smoker due to slow absorption of nicotine and thus it cannot make a smoker

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