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## [12] Utility Model Patent

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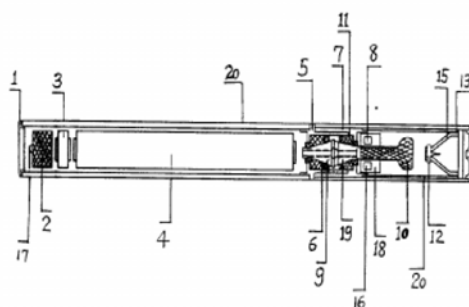
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### [54] Title of Invention

IMPROVED CIGARETTE-SIMULATING ELECTRONIC DEVICE

### [57] ABSTRACT

The utility model relates to a cigarette-simulating electronic device, including a cartridge-simulating tube and a mouthpiece-simulating tube connected by an annular airflow guide bolt, and a luminous cover is arranged on each of ends. The cartridge-simulating tube includes system devices for power supply and electric control, and the mouthpiece-simulating tube includes a smoke generator, a funnel-shaped puncturing filler, a plastic sheath, a dust-proof damping cover, and the like. During operation, airflow enters from an end of the tube, and energy is supplied to an electronic heater after a circuit is activated by a sensing device. A user pushes a thin end of a liquid tobacco capsule to the funnel-shaped puncturing filler to supply a liquid tobacco to a gas-liquid mixing area, and keeps a constant pressure. When a negative pressure is formed around the dust-proof damping cover, smoke is outputted through a guide hole, and a light-emitting diode at an other end is on to indicate an operating state. When the negative pressure around the airflow guide hole disappears, the sensing device stops operating, the smoke generator stops generating smoke, the light-emitting diode is off, and the electronic circuit enters a sleep state after a few seconds. In this way, a whole simulation process is formed.



1. An improved cigarette-simulating electronic device, having an overall dimension scale similar to a dimension scale of an actual cigarette, wherein the improved cigarette-simulating electronic device comprises a long cartridge-simulating stainless steel round tubular housing (20) and a short mouthpiece-simulating stainless steel round tubular housing which are screwed into a whole by an annular airflow guide screw (5) and an annular airflow guide nut (7), a firelight-simulating airflow guide lampshade (1) is arranged at an air inlet of an end of the long cartridge-simulating stainless steel round tubular housing, and an integrated circuit board (2), a sensing device (3), a battery (4), an annular airflow guide screw (5) are arranged inside the long stainless steel tube in sequence from the air inlet end to jointly form a control and energy output system of the simulated cigarette, a light-emitting diode (17) for simulating burning and lighting of cigarettes is arranged on the integrated circuit board (2) adjacent to the firelight-simulating airflow guide lampshade (1), and the annular airflow guide nut (7), the smoke generator (18), a gas-liquid mixing chamber (8), a funnel-shaped puncturing filler (15), a dust-proof damping cover (14), and a plastic sheath (21) are arranged inside the short mouthpiece-simulating tube in sequence to jointly form a mouthpiece system.

2. The improved cigarette-simulating electronic device according to claim 1, wherein the smoke generator (18) comprises a gas-liquid mixing chamber (8) constituted by a ceramic core, a center of the ceramic core is provided with a heating coil (16), an end of the ceramic core is provided with a stainless steel support (10), the stainless steel support (10) is wrapped by metal fibers, and a top end of the stainless steel support (10) is directly opposite to the funnel-shaped puncturing filler (15).

3. The improved cigarette-simulating electronic device according to claim 1, wherein the annular airflow guide bolt comprises a hollow screw (5), an elastic insulative isolation layer (6), and a negative terminal (9), a center of the negative terminal (9) is provided with an airflow guide hole, the annular airflow guide screw (5) is screwed and engaged with the hollow annular airflow guide nut (7), a center of the hollow annular airflow guide nut (7) is provided with a negative terminal (19), and an elastic insulative isolation layer (11) is arranged around the negative terminal to isolate and insulate the negative terminal from the nut (7).

4. The improved cigarette-simulating electronic device according to claim 1, wherein a needle (12) configured to puncture a tobacco capsule is arranged on the funnel-shaped puncturing filler (15), a liquid tobacco in the tobacco capsule is directly supplied to the gas-liquid mixing chamber (8) through extrusion and a metal fiber capillary tube, and the coil generates heat through an electronic controller to gasify a tobacco to form smoke.

# **IMPROVED CIGARETTE-SIMULATING ELECTRONIC DEVICE**

## **TECHNICAL FIELD**

The utility model relates to a cigarette-simulating electronic device realized by using electromechanical technologies, that is, a simulated electromechanical electronic device which resembles a cigarette but is not a cigarette, which may be smoked like a cigarette, and which may protect against harm from tar in cigarettes.

## **BACKGROUND**

It is recognized in the world that "smoking is harmful to health", and smokers are reluctant to give up the habit of smoking even if being aware of its harm. There are mainly two recognized smoking hazards. One hazard is tar produced by burning tobacco at high temperature, and the other is nicotine-nicotine, which are pathogenic factors caused by a high concentration of inhalation by a human body. If these two problems can be solved and a cigarette-shaped object is formed in sensory stimulation, resembled smoking rather than real smoking can be realized. At present, nicotine can be completely purified from tobacco through the level of technologies. If a substance is reasonably prepared, and tar is and vaporized to form simulated smoke, smoking can have no negative effects or less negative effects.

## **SUMMARY**

In order to solve and obtain the simulated cigarette smoking effect, the utility model is intended to provide an improved cigarette-simulating electronic device that simulates the cigarette smoking effect, has a similar form, a similar feeling process, and has the cigarette smoking effect and feeling.

The technical solution of the utility model is as follows.

An improved cigarette-simulating electronic device has a stainless steel round tubular housing in shape, including a longer cartridge-simulating tube and a shorter mouthpiece-simulating tube, which are connected into a whole by an annular airflow guide bolt. The overall appearance of the improved cigarette-simulating electronic device is a stainless steel round tubular housing with a dimension ratio similar to a dimension ratio of an actual cigarette. The improved cigarette-simulating electronic device includes a longer cartridge-simulating tube and a shorter mouthpiece-simulating tube which are connected into a whole by an annular airflow guide bolt. A firelight-simulating airflow guide lampshade is arranged at an air inlet of an end of the longer cartridge-simulating tube, an integrated circuit board, a sensing device, a battery, and an annular airflow guide screw are arranged inside the long stainless steel tube in sequence from the air inlet end, and a light-emitting diode for

simulating burning and lighting of cigarettes is arranged on the integrated circuit board adjacent to the firelight-simulating airflow guide lampshade. The annular airflow guide nut, the smoke generator, the gas-liquid mixing chamber, the funnel-shaped puncturing filler, the dust-proof damping cover, and the plastic sheath are arranged inside the shorter mouthpiece-simulating tube in sequence to jointly form a mouthpiece system.

The smoke generator is a gas-liquid mixing chamber constituted by a ceramic core. A center of the ceramic core is provided with a heating coil, an end of the ceramic core is provided with a stainless steel support, the stainless steel support is wrapped by metal fibers, and a top end of the stainless steel support is directly opposite to the funnel-shaped puncturing filler. A tobacco capsule is arranged to supply a liquid tobacco to the gas-liquid mixing chamber.

The annular airflow guide bolt includes a hollow screw, an elastic insulative isolation layer, and a negative terminal. A center of the negative terminal is provided with an airflow guide hole, and the annular airflow guide bolt is engaged with the hollow annular airflow guide nut, and a center is provided with a negative terminal, and an elastic insulative isolation layer is arranged around the negative terminal to isolate and insulate the negative terminal from the nut.

The utility model realizes a simulated electromechanical electronic device which resembles a cigarette but is not a cigarette in sensory stimulation by adopting electromechanical technologies, which may be smoked like a cigarette, and which may protect against harm from tar in cigarettes. The pathogenic factors caused by a high concentration of tobacco tar and nicotine (nicotine) inhaled by the human body are avoided.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

The accompanying drawing is a schematic diagram of an internal structure of a cigarette-simulating electronic device according to the utility model.

In the figure: 1. Firelight-simulating airflow guide lampshade, 2. Integrated circuit board, 3. Sensing device, 4. Battery, 5. Annular airflow guide bolt, 6. Elastic insulative isolation layer, 7. Annular airflow guide nut, 8. Gas-liquid mixing chamber, 9. Negative terminal, 10. Liquid guide support, 11. Elastic insulative isolation layer, 12. Needle, 13. Short stainless steel tube, 14. Dust-proof damping cover, 15. Funnel-shaped puncturing filler, 16. Heating coil, 17. Light-emitting diode, 18. Smoke generator, 19. Negative terminal in the center, 20. Long stainless steel tube, 21. Plastic sheath.

### **DETAILED DESCRIPTION**

As shown in the accompanying drawing, the utility model processes a stainless steel tube

into a long part and a short part, which respectively forms a cartridge and a mouthpiece in a sensory sense. The two parts are connected by an annular airflow guide bolt to form a housing of a cigarette-simulating electronic device, which has a similar dimension scale as a cigarette, and has a shape resembling a mouthpiece-tipped cigarette after surface treatment.

A firelight-simulating airflow guide lampshade 1 is arranged at an air inlet of an end of the long stainless steel tube, and an integrated circuit board 2, a sensing device 3, a battery 4, and an annular airflow guide screw 5 are arranged inside the long stainless steel tube in sequence from the air inlet end, thereby forming an independent control and energy output system. A light-emitting diode 17 is arranged on the integrated circuit board 2 and configured to simulate the light generated when the cigarette burns. When airflow enters from the air inlet end, the vibration of the airflow causes the sensor 3 to work and send out a pulse signal, so that a controller in the integrated circuit 2 is started. A power amplifier of the integrated circuit 2 keeps supplying power to a smoke generator 18 for a set period after receiving an instruction from the controller, so that the smoke generator operates to form smoke. The annular airflow guide screw 5 is composed of a hollow screw, an elastic insulative isolation layer 6, and a negative terminal 9. A center of the negative terminal 9 has a hole, so that the operating airflow can be led out from the center of the negative terminal 9, and electric energy can be outputted. The annular airflow guide screw 5 functions to form a whole with the long stainless steel tube 20 through stationary fit with the long stainless steel tube, and the connection to a mouthpiece system is realized through the annular airflow guide screw 5. An annular airflow guide nut 7 is a hollow nut, a negative terminal 19 is arranged in the center of the nut, and an elastic insulative isolation layer 11 is arranged around the negative terminal to isolate the negative terminal from the nut, so as to guide the airflow to pass through.

The annular airflow guide nut 7, the smoke generator 18, a gas-liquid mixing chamber 8, a funnel-shaped puncturing filler 15, a dust-proof damping cover 14, and a plastic sheath 21 are arranged inside a short stainless steel tube 13 in sequence to jointly form a mouthpiece system. The annular airflow guide nut 7 functions to form a whole with the short stainless steel tube 13 through stationary fit, and to connect the mouthpiece system with the control and energy output system to form a whole. The airflow may be smoothly guided into the gas-liquid mixing chamber 8 by the annular airflow guide nut 7. The negative terminal 19 is connected to the annular airflow guide screw 5 and the negative terminal 9 to form a power supply circuit. The smoke generator 18 is a core component of the utility model, including the gas-liquid mixing chamber 8 constituted by a ceramic core as the kernel. A center of the ceramic core is provided with a heating coil 16, and a stainless steel support 10 is arranged on

an end of the ceramic core. The stainless steel support is wrapped by metal fibers, and a top end of the stainless steel support 10 is directly opposite to the funnel-shaped puncturing filler 15. The funnel-shaped puncturing filler is designed to puncture a tobacco capsule. The improved cigarette-simulating electronic device is additionally specially equipped with a special liquid tobacco capsule. After the liquid tobacco capsule is punctured by a needle 12 on the funnel-shaped puncturing filler, a liquid tobacco is directly supplied to the gas-liquid mixing chamber 8 through extrusion and a metal fiber capillary tube, and the coil generates heat through an electronic controller to gasify a tobacco to form smoke. When a negative pressure is formed outside the dust-proof damping cover 14, the firelight-simulating airflow guide lampshade 1 guides the airflow, and the airflow passes through and cools the light-emitting diode 17 and the integrated circuit board 2, so that the light-emitting diode and the integrated circuit board can keep a normal operating state. The integrated circuit board 2 is arranged in the front of the air inlet end of the control and energy output system, and is close to a position behind the firelight-simulating airflow guide lampshade 1. The gas flows to cool the integrated circuit board 2. The most prominent feature of the control and energy output system of the utility model is that the firelight-simulating airflow guide lampshade 1, the integrated circuit board 2, the sensor 3, the battery 4, and the annular airflow guide bolt 5 are arranged in sequence. It is the main technical method of the smoke generator 18 that the electronic controller in the integrated circuit board 2 controls the electric energy to supply power to the heating coil as a heat source. The gas flow causes the sensor 3 to operate and send a pulse signal to start the control circuit of the integrated circuit board 2. The control circuit sends an instruction to cause the heating coil 16 of the smoke generator 18 to operate. The heating coil 16 is placed in the center of the gas-liquid mixing chamber 8. At this moment, the liquid tobacco has been transported into the gas-liquid mixing chamber 8 by the funnel-shaped puncturing filler 15 through extrusion and the capillary tube, and the tobacco is gasified to form smoke. The smoke is transported to the outside of the short stainless steel tube 13 through the dust-proof damping cover 14 when the negative pressure disappears and the device stops operating. In this way, a complete simulated smoking process is realized.

A firelight-simulating airflow guide lampshade 1 is arranged at an other end of the long stainless steel tube 20, which functions to imitate the light emitted by burnt tobacco, guide airflow, and prevent dust.

The periphery of the ceramic gas-liquid mixing chamber 8 in the smoke generator 18 and the liquid guide supported are wrapped by metal fibers. The smoke output end of the smoke generator is provided with the funnel-shaped puncturing filler 15, and the specially-made

special liquid tobacco capsule is punctured by the funnel-shaped puncturing filler 15. The liquid tobacco is guided and supplied to the porcelain gas-liquid mixing chamber 8 by the liquid guide support 10 through extrusion and the metal fiber capillary tube. This is the technical method for conveying the liquid tobacco to the smoke generator of the utility model.



